FINAL REPORT

Cultural Resource Investigations for the Milburnie Dam Mitigation Bank Project
Wake County, North Carolina
North Carolina Environmental Review (ER) #06-3114
Lead Federal Agency - US Army Corps of Engineers Action ID SAW-2010-0020

Prepared for:
Restoration Systems LLC
1101 Haynes Street
Suite 211
Raleigh, NC 27604

Prepared by:
Deborah Joy, MA, RPA
Legacy Research Associates
3333 Durham-Chapel Hill Boulevard
Suite A-100
Durham, NC 27707

September 15, 2014

TABLE OF CONTENTS

LIST OF FIGURES iv
LIST OF TABLES viii
MANAGEMENT SUMMARY ix
Archaeological Site 31WA1625/1625** – Milburnie East ix
Archaeological Site 31WA1872/1872** – Milburnie West x
Archaeological Site 31WA1873** xi
Architectural Resource WA1677 (Milburnie Dam) xii
Architectural Resource WA4330 (Bridge Piers) xiii

INTRODUCTION 1
Summary of Historic Site Occupation 1
North Carolina SHPO Section 106 of the National Historic Preservation Act (NHPA) Review 1
Lead Federal Agency – US Army Corps of Engineers Initial Evaluation 2
Federal Energy Regulatory Commission (FERC) Involvement 2
Proposed Undertaking 4
Milburnie East 4
Milburnie West 4
Mitigation Plan 7
Cultural Resource Study Area 7
EXISTING CONDITIONS 9
Milburnie Dam Property 9
Neuse River Greenway Trail 9
Raleigh Parks Property 9
Sanitary Sewer Lines 10
ENVIRONMENTAL SETTING 11
Topography 11
Hydrology 11
Geology 12
Soils 13
Congaree Series 14
Wake Series 14
Wehadkee/Bibb Series 14
Climate 15
Vegetation 15
CULTURAL CONTEXT 17
Prehistoric Overview 17
Paleoindian Period 17
Archaic Period 17
Woodland Period 19

Contact-Era Overview 21
Historic Overview 21
Roads 26
RESEARCH METHODOLOGY 28
Background Research 28
Archaeological Survey 28
Surface Inspection 29
Subsurface Investigations 29
Artifact Analysis and Curation 29
Report 30
NATIONAL REGISTER OF HISTORIC PLACES EVALUATION 31
PREVIOUSLY RECORDED CULTURAL RESOURCES 32
Previous Cultural Resources Investigations 32
Previously Recorded Architectural Resources 36
Previously Recorded Archaeological Resources 36
HISTORY OF MILBURNIE DAM 38
Periods of Occupation 38
Colonel John Hinton and Descendants (1760-1853) 38
Neuse Manufacturing Company (1853-1899) 42
Raleigh Ice & Electric (1899-1916) 57
Carolina Power and Light (1916-1934) 60
Samuel Warren Twiggs and Descendants (1934-present-day) 60
Solar Research Company (1970-1984) 63
FIELD INVESTIGATION RESULTS 65
ARCHAEOLOGICAL SITES 65
Site 31WA1625/1625** - Milburnie East 65
Site 31WA1872/1872** - Milburnie West 73
Site 31WA1873** - Old Tarboro Road/Neuse River Bridge 100
ARCHITECTURAL RESOURCES 109
Architectural Resource WA1677 - Milburnie Dam 109
Architectural Resource WA4330 - Stone Piers 115
SUMMARY AND RECOMMENDATIONS 116
Archaeological Site 31WA1625/1625** - Milburnie East 116
Archaeological Evidence of Site Occupation 116
Historic Documentation of Site Occupation 116
Proposed Undertaking at 31WA1625/1625** 117
Recommendations 117
Archaeological Site 31WA1872/1872** - Milburnie West 117
Archaeological Evidence of Site Occupation 118
Proposed Undertaking at 31WA1872/1872** 119
Recommendations 119

Archaeological Site 31WA1873** 123
Architectural Resource WA1677 (Milburnie Dam) 125
Architectural Resource WA4330 (Bridge Piers) 127
REFERENCES CITED 128

LIST OF FIGURES

Figure 1. Milburnie Dam and Powerhouse, 2013 aerial view, (Wake County NC IMaps). 2
Figure 2. Project location map. 3
Figure 3. Overview of Proposed Undertaking (Taylor 2014). 5
Figure 4. Photograph of the sanitary sewer line construction on the west side of the Neuse River near Milburnie. Photograph dated September 16, 2013, and posted on http://raleighnature.com/ (accessed May 19, 2014). 10
Figure 5. Neuse River Basin map. 11
Figure 6. Excerpt of the 1906 Map showing Geographic Distribution in North Carolina of Granite and Gneiss (http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/2196). 13
Figure 7. Excerpt of John Collet's 1770 *A Compleat map of North-Carolina from an actual survey*, showing "Smith Fy" over the Neuse River in the approximate vicinity of present-day Smithfield. The general location of Milburnie on the Neuse River is circled. http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/467 22
Figure 8. Newspaper article about the 1803 bridge over the Neuse River at Major John Hinton's. *The Weekly Standard*. (Raleigh, NC), 5 September 1803, page 3 (Newspapers.com) 23
Figure 9. Newspaper article about the 1807 bridge over the Neuse River at Major John Hinton's. *The Weekly Standard*. (Raleigh, NC), 20 August 1807, page 3 (Newspapers.com). 23
Figure 10. Newspaper article about the 1887 bridge over the Neuse River at Milburnie. *The Greensboro North State* (Greensboro, NC), 10 November 1887, page 7 (Newspapers.com) 24
Figure 11. Newspaper article about payment to King Iron Bridge Co. for the 1888 bridge at Milburnie. *The Progressive Farmer* (Winston-Salem, NC), 25 December 1888, page 6 (Newspapers.com). 25
Figure 12. Newspaper article about the 1893 bridge at Milburnie. *The Smithfield Herald* (Smithfield, NC), 6 July 1893, page 3 (Newspapers.com). 25
Figure 13. USGS topographic quadrangle map (Raleigh East) showing the location of previously recorded architectural resources and archaeological sites within a mile of the Project. 33
Figure 14. Site 31WA1625/1625**, site plan from the additional archaeological investigations conducted in 2007 (Olson 2007). 35
Figure 15. Granville Land Grant of 700 acres on the Neuse River to John Hinton dated September 8, 1760 (North Carolina State Archives). 39
Figure 16. Excerpt of the Price and Strother 1798 *This First Actual Survey of the State of North Carolina*. Note: this map shows "Hinton" and bridge over the Neuse River and a roadway leading west to Raleigh and eastward. http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/1210 41
Figure 17. Excerpt of the MacRae-Brazier 1833 *A New Map of the State of North Carolina* showing "Hinton's B." over the Neuse River. http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/181 41
Figure 18. *Fayetteville Observer* May 18, 1853, Announcement of the "New Paper Mill" … "known as Hinton's Mills" … "to be known as the Neuse Manufacturing Company." 44
Figure 19. Payment for 200 reams of cartridge paper weighing 25 pounds from the State of North Carolina Ordinance Office in Raleigh to Neuse Manufacturing Company signed WH Husted and dated June 14, 1862 (National Archives ID 2133274, Record Group 109, Roll 0486, Document 223). 47

Figure 20. Receipt for payment $10,005 to Neuse Manufacturing Company for Ordinance Service dated October 31, 1863 (National Archives ID 2133274, Record Group 109, Roll 0737, Document 176)..... 47
Figure 21. Receipt for payment $129.00 for 647 pounds of damaged cotton from Major John Deveraux signed by HW Husted, Neuse Manufacturing Company, dated January 16, 1864 (National Archives ID 2133274, Record Group 109, Roll 0486, Document 223)..... 48
Figure 22. Payment for 20 reams of large paper at $75 per ream from the Confederate States to WH Husted (treasurer of Neuse Manufacturing Company) dated October 5, 1864 (National Archives ID 2133274, Record Group 109, Roll 0486, Document 223)..... 48
Figure 23. Excerpt pages 169-170, *Cornelius C. Platter Civil War Diary*. Hargrett Rare Book & Manuscript Library, University of Georgia. 50
Figure 24. Advertisement of the sale of the Neuse Manufacturing Company (Fowle 1874). 51
Figure 25. Jeremy Francis Gilmer's 1861-1865 field map of the Raleigh-Goldsboro-Rocky Mount area. http://www.lib.unc.edu/dc/gilmer/. 52
Figure 26. 1865 Map of the Southeastern United States featuring … the marches of General William T. Sherman during his campaigns from 1863-1865. (Tennessee State Library, Buell-Brien Family Papers: http://teva.contentdm.oclc.org/cdm/ref/collection/p15138coll2/id/34). 53
Figure 27. Fendol Bever's 1871 *Map of Wake County, North Carolina.* http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/241..... 54
Figure 28. Shaffer's 1887 *A New Map of the State of North Carolina*. http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/968/rec/13..... 54
Figure 29. *Branson's North Carolina Business Directory* 1868..... 54
Figure 30. *Raleigh News & Observer*, August 30, 1883, page 4..... 55
Figure 31. *Raleigh News & Observer*, September 8, 1883. page 4..... 55
Figure 32. *Raleigh News & Observer*, June 18, 1899, page 6. 55
Figure 33. *Raleigh News & Observer*, October 26, 1890, page 2..... 55
Figure 34. *The Standard*, Concord, NC, January 25, 1889, page 2. 56
Figure 35. *Raleigh News & Observer*, December 13, 1899, page 5..... 56
Figure 36. *Raleigh News & Observer*, December 31, 1899, page 2..... 58
Figure 37. *Raleigh News & Observer*, May 19, 1900, page 8..... 58
Figure 38. *The Farmer and Mechanic,* October 15, 1901, page 8. 58
Figure 39. *Raleigh News & Observer*, January 19, 1903, page 9..... 59
Figure 40. ca. 1907-1911 *Map of Wake County* (Spoon 1911) with "Millburnie" identified http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/419..... 59
Figure 41. Undated photograph of "View of Millburnie Development on Neuse River, No. 66" CP&L, undated (Courtesy of the State Archives of North Carolina). 60
Figure 42. *Raleigh News & Observer*, March 18, 1919, page 9..... 61
Figure 43. 1938-1940 USGS topographic map of Raleigh, North Carolina, showing "Milburnie" the dam across the Neuse River, Milburnie Road on the west side of the river terminating at the dam. 61
Figure 44. Undated photograph of Milburnie Beach before the brick powerhouse built by Raleigh Ice & Electric between 1900 and 1903 was destroyed around 1984 (Courtesy of the Olivia Rainey Local History Library, Raleigh, NC)..... 62
Figure 45. Archaeological Sites 31WA1625/1625**, 31WA1872/1872**, 31WA1873**, and 31WA1873** and Architectural Resources WA1677 (Milburnie Dam) and WA4330 (Stone Bridge Piers), Site Location Map. 66
Figure 46. Site 31WA1625/1625** - view northwest from the sewerline corridor..... 67
Figure 47. Site 31WA1625/1625** - site plan including the site boundaries from the 2006/2007 investigations. 67

Figure 48. Site 31WA1625/1625** - brick fall, view from the edge of the floodplain eastward onto the first terrace. 69
Figure 49. Site 31WA1625/1625** - close-up of brick fall on the first terrace. 69
Figure 50. Site 31WA1625/1625** - rock outcrop below the brick fall on the first terrace. 70
Figure 51. Site 31WA1625/1625** - wetland below brick fall, view south from the dam. 70
Figure 52. Site 31WA1625/1625** - view southeast from the sewerline corridor. 72
Figure 53. Site 31WA1625/1625** - quarried stone in woodland area east of Milburnie Dam. 73
Figure 54. Site 31WA1872/1872** - plan map (base map, Wake County, NC, IMaps). 74
Figure 55. Site 31WA1872/1872** - archaeological areas plan map. 75
Figure 56. Site 31WA1872/1872** - Area 1, view west from the east bank of the Neuse River. 77
Figure 57. Site 31WA1872/1872** - Area 1 within the chainlink fence and Area 3 outside the chainlink fence, view southeast from the Neuse River Trail. 77
Figure 58. Site 31WA1872/1872** - Area 1, view into the facility from the west gate. Note: the ca. 1900-1903 granite foundation (Structure 1) is on the left. 78
Figure 59. Site 31WA1872/1872** - Area 1, view of forebay north of the facility from within the historic granite foundation (Structure 1). 78
Figure 60. Site 31WA1872/1872** - foundation plan showing the ca. 1853-1855 Neuse Manufacturing Company papermill stone foundation (Structures 1 and 2) and the ca. 1984 Milburnie Hydroelectric Project modifications to the historic foundation. 79
Figure 61. Site 31WA1872/1872** - ca. 1981 plan of proposed modifications to the ca. 1900-1903 Raleigh Ice & Electric Company powerhouse (Structure 1) for the ca. 1984 Milburnie Hydro Project (North Carolina Department of Archives and History, OSA, Raleigh). 80
Figure 62. Site 31WA1872/1872** - Area 2, view northwest showing stacked trash racks and 15-18 ft high spoil pile in the background. 82
Figure 63. Site 31WA1872/1872** - Area 2, view northeast from access road showing the stack of trash racks with the Neuse River in the background. 82
Figure 64. Site 31WA1872/1872** - Area 2, view east showing the stacked trash racks and the Neuse River in the background. 83
Figure 65. Site 31WA1872/1872** - Area 2, view northeast from Neuse River Trail showing the access road. 83
Figure 66. Excerpt of ca. 1980 proposed plan for the modern hydroelectric facility showing foundation walls located west of the powerhouse. Note: the red-shaded wall of Structure 2 is exposed; the blue-shaded wall is buried. 84
Figure 67. Site 31WA1872/1872** - Area 3 – south foundation wall of Structure 2, view east toward the metal-sided building and the foundation of Structure 1, also showing the metal conduit for electrical lines that extend from the power pole to the electrical box located in the former Raleigh Beach area. 85
Figure 68. Site 31WA1872/1872** - Area 3 – south foundation wall of Structure 2, view northwest toward the Neuse River Trail, showing the metal conduit for electrical lines. 86
Figure 69. Site 31WA1872/1872** - Area 3 – west foundation wall of Structure 2, view south. 86
Figure 70. Site 31WA1872/1872** - Area 3 – south and west foundation wall of Structure 2 and displaced turbine component, view south toward former Raleigh Beach. 87
Figure 71. Site 31WA1872/1872** - Area 4 – Former Raleigh Beach area, view east towards the Neuse River from the footpath. 89
Figure 72. Site 31WA1872/1872** - Area 4 – depression area, view west. 89
Figure 73. Site 31WA1872/1872** - Area 4 - Former Raleigh Beach, view south from the edge of the stone foundation/retaining wall. 90

Figure 74. Site 31WA1872/1872** - Area 4 - Former Raleigh Beach, view north to the 12-ft high stone foundation wall (Structure 2); the rip-rap area along the edge of the Neuse River Trail is underneath the vegetation on the left. 91
Figure 75. Site 31WA1872/1872** - Area 4 – large boulders surrounding the rectangular depression, view southwest. 91
Figure 76. Site 31WA1872/1872** - Area 5, view southwest from the Neuse River Trail. 92
Figure 77. Site 31WA1872/1872** - Area 5, Structure 3 (stone pier foundations), view northwest. 93
Figure 78. Site 31WA1872/1872** - Area 5, Structure 3 (close-up of stone pier foundations), view northwest. 93
Figure 79. Site 31WA1872/1872** - Area 5, Structure 3 Brick Fall, view northwest. 94
Figure 80. Site 31WA1872/1872** - Area 5, Structure 4 (creosote-treated foundation posts), view southeast toward the Neuse River Trail. 94
Figure 81. Site 31WA1872/1872** - Area 5, Structure 5 (stone perimeter foundation), view south. 95
Figure 82. Site 31WA1872/1872** - Area 5, fieldstone wall, view west. 96
Figure 83. Site 31WA1872/1872** - Area 6, existing Raleigh Beach Road, view southwest from the Neuse River Trail. 99
Figure 84. Site 31WA1873** - historical marker along the Neuse River Tail near the river crossing. 101
Figure 85. Site 31WA1873** - site components on 2010 aerial photograph (Wake County GIS IMaps). 102
Figure 86. Site 31WA1873** - site components on topographic map (base map K2 Design). 103
Figure 87. Site 31WA1873** - site components north of Milburnie Dam: Old Tarboro Road, stone bridge piers, and bridge approach. 103
Figure 88. Site 31WA1873** - stone bridge piers along the west bank of the Neuse River, view east. 104
Figure 89. Site 31WA1873** - low-lying wetland area between the bridge piers and the earthen bridge approach, view east. 104
Figure 90. Site 31WA1873** - earthen embankment for the bridge approach, view west toward the Neuse River Trail. 105
Figure 91. Newspaper article about the wrought iron structure over the Neuse River at Milburnie built on three solid piers of stone masonry to be finished October 1, 1871. *The Weekly Standard*. (Raleigh, N.C.), 20 July 1870. Chronicling America: Historic American Newspapers. Lib. of Congress. <http://chroniclingamerica.loc.gov/lccn/sn87070095/1870-07-20/ed-1/seq-3/> 106
Figure 92. Post Patent Truss Bridge (Ponakin Bridge) example. 106
Figure 93. Site 31WA1873** - Old Tarboro Road, east side of the Neuse River, view west toward the Neuse River from the sewerline corridor. 107
Figure 94. Site 31WA1873** - Old Tarboro Road (Old Milburnie Road/Raleigh Beach Road), west side of the Neuse River, view southwest from the Neuse River Trail. 107
Figure 95. Architectural Resource WA1677 (Milburnie Dam), view north from the pedestrian bridge over the Neuse River. 109
Figure 96. Architectural Resource WA1677 (Milburnie Dam), terminus of east wall. 111
Figure 97. Architectural Resource WA1677 (Milburnie Dam), view of sediment accumulation behind the dam wall east of the Neuse River, view north from the dam wall. 112
Figure 98. Architectural Resource WA1677 (Milburnie Dam), view of dogleg section showing the drainage channel, view northwest from the pathway parallel to the dam. 112
Figure 99. Architectural Resource WA1677 (Milburnie Dam), view of the east wall showing the drainage channel and granite blocks and variation in the surface treatment of the granite blocks, view east. 113
Figure 100. Architectural Resource WA1677 (Milburnie Dam), view of the east wall showing the drainage channel and granite blocks and pathway south of the dam, view east. 113

Figure 101. Architectural Resource WA1677 (Milburnie Dam), view of the east wall showing the drainage channel cut into the base of the wall. 114
Figure 102. Architectural Resource WA1677 (Milburnie Dam), view of quarry marks in the east wall. 114
Figure 103. Proposed Undertaking – Phase 1 Staging and Access - at 31WA1872/1872**. 120
Figure 104. Proposed Undertaking – Phase 3 Removal of Former Power-Generating Facility - at 31WA1872/1872**. 121
Figure 105. Proposed Undertaking – Phase 5 Restoration - at 31WA1872/1872**. 122
Figure 106. Proposed Undertaking – Phase 5 Restoration, Sediment Disposal and Removal Areas - at 31WA1872/1872**. 123
Figure 107. Proposed Undertaking – Phase 1 Access – bridge approach embankment at 31WA1873**. 124
Figure 108. Proposed Undertaking – Phase 1 Access – Old Milburnie Road/Raleigh Beach Road at 31WA1873**. 125
Figure 109. Proposed Undertaking – Phase 4 Dam Removal - at WA1677. 126
Figure 110. Proposed Undertaking – Phase 5 Restoration - at WA1677. 127

LIST OF TABLES

Table 1. Summary of Cultural Resources and Recommendations. xiii
Table 2. Soil Types within the Milburnie Dam Project Study Area. 14
Table 3. Prehistoric Cultural Sequence for the North Carolina Piedmont Region. 17
Table 4. Chain of Title for the Hinton to Neuse Manufacturing Company Conveyances on the East Side of the Neuse River (1818-1854). 42
Table 5. Chain of Title for the Hinton to Neuse Manufacturing Company Conveyances (1818-1853). 43
Table 6. Summary of Historic References to Tarboro Road and a Bridge Over the Neuse River near Milburnie. 108

MANAGEMENT SUMMARY

Cultural resource field investigations for the Milburnie Dam Mitigation Bank Project (referred to hereafter as the "Project') in Wake County, North Carolina, were conducted by Legacy Research Associates (Legacy) in Durham, NC, for Restoration Systems LLC in Raleigh, NC. The work was conducted in compliance with Section 106 of the National Historic Preservation Act (NHPA 1996, as amended) and according to requirements established by the North Carolina State Historic Preservation Office (SHPO). All fieldwork was designed to follow guidelines established by the Secretary of Interior and the North Carolina Office of State Archaeology.

Cultural resources are defined as sites or objects that are archaeological, architectural, and/or historical. Significant cultural resources are those that meet the criteria of eligibility for the National Register of Historic Places, as defined in 36 CFR 60.4.

Fieldwork was conducted between February and May 2014 and focused on conducting investigations that are defined as Tasks 1-3 and 5 in the Mitigation Plan (Appendix A). The objective of the work was to identify and assess project-related effects on cultural resources within areas identified as having the potential to be affected by the proposed undertaking.

The undertaking proposed by Restoration Systems LLC is the removal of Milburnie Dam with the following goals:

- Establish an appropriate aquatic community by transforming the current lentic community associated with the impounded river to a more ecologically appropriate lotic community characteristic of a free-flowing river
- Facilitate habitat restoration and re-colonization of listed aquatic species by removing the barrier (Milburnie Dam) to range expansion of listed aquatic species native to the area
- Provide anadromous fish passage by opening a 15-mile river passageway for American shad, striped bass, and other migratory fish for spawning

The cultural resource investigations resulted in expanding the boundaries of one previously recorded archaeological site (31WA1625/1625**), recording two new archaeological sites (31WA1872/1872** and 31WA1873**), and revisiting two previously recorded architectural resources (WA1677 and WA4330). A summary of the results and recommendations for these resources follows.

Archaeological Site 31WA1625/1625** - Milburnie East

Site 31WA1625/1625** is a multicomponent prehistoric (Early to Middle Woodland) and historic (nineteenth- and early-twentieth-century) site that covers approximately 3.5 acres of land on the east side of the Neuse River. The site has not been assessed for eligibility for listing in the NRHP.

Limited ground disturbance is planned for the Milburnie East area. The dam wall that extends on land to the east of the river beyond the current river bank will not be removed. To stabilize and support the east wall, a buttress will be constructed using stone that has been removed

from the main spillway of the dam. The buttress will consist of stacked granite blocks at a slope of approximately 2:1 to the elevation of the existing groundline on the upstream side of the wall. The width of the buttress will be approximately 37 ft and the depth extending southward from the face of the dam will be approximately 22 ft. In addition to supporting the remaining dam wall, the buttress will maintain the wetland and floodplain upstream from the dam. The area identified for constructing the buttress was inundated at the time of the archaeological investigation. Only one historic/modern glass artifact was recovered from very limited subsurface investigations in alluvial sand.

Recommendations for the proposed construction of the buttress are (1) restrict access to the buttress construction area from the west side of the river and (2) avoid the intact deposits at 31WA1625/1625** on the first terrace, which is about 30 m (100 ft) east of the area identified for the proposed buttress.

No construction activity is planned in the 31WA1625/1625** area; therefore, no further archaeological work is recommended. However, precautions to protect this area should include (1) identifying it on construction plans as being "environmentally sensitive," (2) avoiding the area during staging and stockpiling activities, and (3) preventing the use of construction machinery within the site boundaries.

Archaeological Site 31WA1872/1872** - Milburnie West

Site 31WA1872/1872** is a multicomponent prehistoric (Woodland) and historic (nineteenth and early-twentieth-century) site that covers approximately four acres of land on the west side of the Neuse River. Six areas with cultural material define the site. These include (1) the Milburnie Hydroelectric Project, excluding Milburnie Dam; (2) the area north of Milburnie Hydroelectric Project; (3) the area between Milburnie Powerhouse and the Neuse River Trail; (4) the former Raleigh Beach area south of Milburnie Powerhouse; (5) the woodland west of the Neuse River Trail; and (6) the area along Old Milburnie Road/Raleigh Beach Road. The site has not been assessed for eligibility for listing in the NRHP.

The land-altering and construction-related activities associated with the proposed undertaking planned on the west side of the river in the vicinity of 31WA1872/1872** include the following:

Phase 1 – Staging and access will be conducted in five archaeological areas. These include a staging and stockpiling area north of the powerhouse (Area 2), staging area west of the powerhouse (Area 3), and an access that crosses through Area 4, Area 5, and Area 6.

Phase 3 – Removal of the former power-generating facility will include three modifications/alterations that will affect Area 1. These include (1) constructing a rock causeway at the entrance of the forebay, (2) removing the steel superstructure (beams, railings, catwalks, and mechanical features not providing structure integrity to the dam and water-retention features) and the remaining turbine and draft tubes, and (3) demolishing the concrete spillway.

Phase 5 – Restoration will be conducted in the former Raleigh Beach (Area 4) with a 36-in baseflow bypass line and along the river bank (stone toe and bank stabilization). The restoration plan also includes sediment disposal in Area 4 and sediment removal in Areas 1

and 2. In addition, upon completion of all construction and deconstruction phases, all access roads and stage/stockpile/storage areas will be restored according to pre-Project cover.

A summary of recommendations for the 31WA1872/1872** follows.

> Areas 1 and 3 - additional archaeological investigation is needed to complete the identification of buried deposits, primarily the historic ca. 1853-1855 foundations associated with Structure 2. Also, following the deconstruction of the ca. 1980-1984 modifications (concrete spillway, control building, switchyard, and equipment building), complete the documentation of historic foundation that may be exposed after the modern structures are removed. The ca. 1980-1984 modifications to the historic powerhouse are not eligible for the National Register.
>
> Area 2 – no further work is needed. This area appears to have been extensively disturbed during the 1980s construction of the Milburnie Hydroelectric Project.
>
> Areas 4 and 6 – if these areas can not be avoided during construction, then additional archaeological work is recommended to determine the NRHP eligibility for the areas that are planned for destruction as a result of the proposed access road and, if eligible, to determine how to avoid and/or mitigate project-related effects.
>
> Area 5 – no construction activity is planned in this area. No further archaeological work is recommended. Precautions to protect this area should include (1) identifying it on construction plans as being "environmentally sensitive," (2) avoiding the area during staging and stockpiling activities, and (3) preventing the use of construction machinery within the site boundaries.

Archaeological Site 31WA1873**

Site 31WA1873** consists of three components that include a section of historic Tarboro Road on the east side of the river, evidence of a bridge crossing on the west side of the river (stone piers and bridge approach), and a continuation of the historic Tarboro Road on the west side of the river. The road section on the west side of the river has been known more recently as "Old Milburnie Road" and "Raleigh Beach Road." This site has not been assessed for NRHP eligibility.

Two components of this site are in areas that are planned for ground-disturbing activities. These are the bridge approach embankment that lies north of the dam and existing Raleigh Beach Road south of the dam. A description of the proposed construction work in these areas and recommendations follows.

The bridge approach embankment is located in the area planned for constructing an access path to the wetlands north of the dam. The proposed plan is to have the path generally parallel to the Neuse River Trail east of the sanitary sewer easement. The recommendation is to minimize potential destruction of the earth embankment during the construction of the path by avoidance while the path is being used by construction equipment during the wetland outlet modification work, and when the path is restored. Construction plans should include a minimum

10-ft buffer between the proposed path and the documented embankment. Furthermore, the area should be identified on construction plans as being "environmentally sensitive" and should be protected during construction/use/deconstruction activities by orange safety fencing.

Existing Raleigh Beach Road is planned to have two construction elements. One will be stabilizing the construction entrance at the present gate that separates the state-maintained paved section of the roadway from the unpaved and undeveloped section of the roadway. Construction work at the entrance will include installing a new gate beyond the edge of the pavement. The other construction element at existing Raleigh Beach Road will be constructing an access road along the existing cleared pathway until it reaches the Neuse River Trail.

More information is needed about the final design plan that will be used to prepare existing Raleigh Beach Road so that it can serve as an access road for equipment during the Project. Concerns for this historic archaeological site are the potential destruction or alteration of the characteristics, such as integrity of location, setting, feeling, and association, which may make the site eligible for the NRHP. These attributes may be compromised either during the construction of the access road, while the access road is being used by construction equipment, and/or when the Raleigh Beach Road is restored.

Architectural Resource WA1677 (Milburnie Dam)

Milburnie Dam was constructed between 1900 and 1903 with granite blocks from the former ca. 1853-1855 Neuse Manufacturing Company papermill that reportedly had been burned by Federal troops in April 1865. The ca. 1853-1855 papermill dam was described in 1880 as being "… 8 ft high and race 150-ft long" (Trowbridge 1885:51-53). In 1883, the North Carolina Geological Survey reported that "Milburny" has "… an open-frame dam across the river, eight feet high and 250-ft long, built on the site of the old dam …" (NCGS 1883).

The proposed undertaking plans to deconstruct the granite dam main spillway. Granite blocks will be removed incrementally so that the water level in the impoundment does not lower at a rate greater than one foot per day. As the granite blocks are removed they will be transported to the west and east sides of the river for reuse during Phase 5 – Restoration. On the east side of the river, the granite blocks will be used to construct a buttress along the dam wall that extends beyond the current riverbank. The remaining granite blocks will be used to construct a low-profile bench on the west side of the river.

Although Milburnie Dam can be associated with events that have made a significant contribution to the broad patterns of our history (criterion a) and embodies distinctive characteristics of a type, period, or method of construction (criterion c), it was extensively modified in the 1980s when Solar Energy Inc. began demolition of the historic Raleigh Ice & Electric brick powerhouse and modified the historic dam near the powerhouse. The dam has had significant alteration that affects the integrity of the property; therefore, it is recommended as being ineligible for the National Register. However, it may be eligible for the National Register as a contributing element if the other cultural resources (31WA1625/1625**. 31WA1872/1872**, and 31WA1873**) are found to be eligible.

Documentation of the dam's historic, engineering, and cultural significance has been the primary historic preservation tool used for to document the dam. Appendix F contains the project mapping and photodocumentation for Milburnie Dam.

The main spillway will be the only part of the dam that is removed; the section of the dam on the east side of the river will remain intact and will be stabilized with a stone buttress that will be constructed of stone that has been removed from the main spillway.

Recommendations for the section of dam that will not removed is (1) confine all construction associated with the buttress to the river's edge and (2) avoid and protect 31WA1625/1625** during construction. The section of dam that will be preserved will allow for historical interpretation.

Recommendations for the section dam that will be removed are (1) document the dam with photographs during demolition and (2) if earlier archaeological evidence associated with earlier wood dams or other submerged resources is exposed while the dam is being removed, then document with photography and mapping.

Architectural Resource WA4330 (Bridge Piers)

This architectural resource is a component of archaeological site 31WA1873** and is described above. The bridge pier component of this site is not located in an area that is planned for ground-disturbing activities. No further work is recommended for this resource.

Table 1. Summary of Cultural Resources and Recommendations.

Site	Component	Recommendation	
31WA1625/1625**	Prehistoric/Historic	Proposed Buttress along the river bank	(1) restrict access to the buttress construction area from the west side of the river and (2) avoid the intact deposits at 31WA1625/1625** on the first terrace, which is about 30 m (100 ft) east of the area identified for the proposed buttress.
		Intact archaeological deposits on the first terrace above the floodplain	No construction activity is planned in this area. No further archaeological work is recommended. Precautions to protect this area should include (1) identifying it on construction plans as being "environmentally sensitive," (2) avoiding the area during staging and stockpiling activities, and (3) preventing the use of construction machinery within the site boundaries.
31WA1872/1872**	Prehistoric/Historic	Areas 1 and 2	Additional archaeological investigation is needed to complete the identification of buried deposits, primarily the historic ca. 1853-1855 foundations associated with Structure 2. Also, following the deconstruction of the ca. 1980 concrete spillway and the removal of the ca. 1980 control building and storage building, complete the documentation of historic foundation that may be exposed after the modern structures are removed,
		Area 2	No further work.
		Areas 4 and 6	If these areas can not be avoided during construction, then additional archaeological work is recommended to determine the NRHP eligibility

Table 1. Summary of Cultural Resources and Recommendations.			
Site	Component	Recommendation	
			for these areas that are planned for destruction as a result of the proposed access road and, if eligible, to determine how to avoid and/or mitigate project-related effects.
		Area 5	No construction-related activity is planned in Area 5. Precautions to protect this area during construction should include (1) identifying it on construction plans as being "environmentally sensitive," (2) avoiding the area during staging and stockpiling activities, and (3) preventing the use of construction machinery within the site boundaries.
31WA1873**	Historic Linear Transportation Site	Historic Tarboro Road – east side of the Neuse River	Site avoidance during construction.
		Bridge Piers	Site avoidance during construction.
		Bridge Approach	Construction plans should include a minimum 10-ft buffer between the proposed path and the documented embankment. Furthermore, the area should be identified on construction plans as being "environmentally sensitive" and should be protected during construction/use/deconstruction activities by orange safety fencing.
		Old Milburnie Road/former Raleigh Beach Road	More information is needed about the final design plan that will be used to prepare existing Raleigh Beach Road so that it can serve as an access road for equipment during the Project. Concerns for this historic archaeological site are the potential destruction or alteration of the characteristics, such as integrity of location, setting, feeling, and association, which may make the site eligible for the NRHP. These attributes may be compromised either during the construction of the access road, while the access road is being used by construction equipment, and/or when the Raleigh Beach Road is restored.
WA1677	Milburnie Dam	Main Spillway	Recommendations for the section dam that will be removed are (1) documentation of archaeological evidence associated with earlier wood dams or other submerged resources that may be exposed upstream from Milburnie Dam as the water level lowers.
		Milburnie East Dam Section	Recommendations for the section of dam that will not removed are (1) document the dam with photographs during demolition and (2) if earlier archaeological evidence associated with earlier wood dams or other submerged resources is exposed while the dam is being removed, then document with photography and mapping.
WA4330	Bridge Piers		Site avoidance during construction.

INTRODUCTION

This technical report provides the results of cultural resource investigations for Tasks 1-3 and 5, as described in the Mitigation Plan (Appendix A), that were conducted for the Milburnie Dam Mitigation Bank Project (referred to hereafter as the "Project') in Wake County, North Carolina (Figure 1). All cultural resource work for the Project was conducted by Legacy Research Associates in Durham, NC, for Restoration Systems LLC in Raleigh, NC.

The work was conducted to comply with Section 106 of the National Historic Preservation Act (NHPA 1996, as amended) and requirements of the North Carolina State Historic Preservation Office (SHPO). All fieldwork was designed to follow guidelines established by the Secretary of Interior and the North Carolina Office of State Archaeology.

Milburnie Dam is located on the Neuse River about six miles east of Raleigh and less than half a mile (2,532 ft) northeast of US 64 (Figure 2).[1] The dam is a 625-ft long granite structure with an approximate 300-ft overflow-type spillway. The dam's impoundment extends for 32,590 linear feet. As the reservoir is contained within the river's natural channel, the impoundment's width does not vary for about 5.5 miles upstream.

Summary of Historic Site Occupation

Previous historic research conducted for the adjacent Raleigh Parks and Neuse River Trail projects reports that the Milburnie Dam location was originally the site of an early 1800s gristmill owned by Col. John Hinton that was replaced around 1855 by a papermill that was burned by Union troops in 1865 (Webb and Turco 2006; Seibel and Russ 2011). Following the burning of the papermill, a gristmill and sawmill were at this location until 1880 when the timber dam washed away. Raleigh Ice & Electric Company bought the property and built a new stone dam (the dam that currently exists) sometime between 1900 and 1903. The hydroelectric facility was bought by CP&L in 1916 and dismantled in 1918. The current owner of the Milburnie Dam reported that his father, S. W. Twiggs, bought the property in 1934 and operated a gristmill until the early 1940s when the mill shut down. The gristmill building later burned and the only remains were mill stones, mill pulleys, and brick walls. In the late 1970s, the property was leased to a Pennsylvania company, which invested about $2 million to build a hydroelectric plant, known as the Milburnie Hydroelectric Project. It became operational in 1984 and then went out of business sometime between 2006 and 2009.

North Carolina SHPO Section 106 of the National Historic Preservation Act (NHPA) Review

Section 106 environmental review for cultural resources associated with the Project had been initiated by Restoration Systems LLC with the North Carolina SHPO in late 2006. The SHPO review stated that Milburnie Dam was an "essential contributing element to a large multi-component industrial site that has a 150-year history" (NC SHPO review February 7, 2007). The SHPO review also noted that the area around the dam contains several prehistoric and historic period archaeological resources, including an historic cemetery.

1 Milburnie Dam is privately owned and is under the jurisdiction of the US Army Corps of Engineers.

Figure 1. Milburnie Dam and Powerhouse, 2013 aerial view, (Wake County NC IMaps).

Lead Federal Agency - US Army Corps of Engineers Initial Evaluation

In 2010, the US Army Corps of Engineers, Wilmington District, responded to Restoration Systems LLC application for the removal of Milburnie Dam (SAW-2010-00020). The response included an action item, described below, that required consultation with the North Carolina State Historic Preservation Office (SHPO).

> The potential for adverse impacts … on historic properties potentially eligible for inclusion on the National Register of Historic Places needs to be documented. A mitigation plan may be required as determined through coordination with the North Carolina State Historic Preservation Office.

Federal Energy Regulatory Commission (FERC) Involvement

The ca. 1984 hydroelectric facility was the last use of the waterpower at Milburnie. On May 11, 1984, FERC granted Milburnie Hydro Inc. an exemption to licensing (FERC Project No. 7910-006). The project was described as a 14-ft-high and 625-ft-long concrete dam, a reservoir with an estimated storage area of 500-acre-ft, a powerhouse with a total installed capacity of 645kW, transmission lines, and appurtenant facilities. Milburnie Hydro operated from 1984 to sometime between May 2006 and September 2009 when it became inoperable.

On January 16, 2013, FERC terminated the Milburnie Hydro Inc. exemption from licensing based on the implied surrender of the exemption. FERC determined that leaving the facilities in place would not authorize any action or alter the current conditions of the project or surrounding environment. Leaving the facilities in place was determined to have no effect on the environment; therefore, no environmental analysis was required for the termination of the FERC exemption.

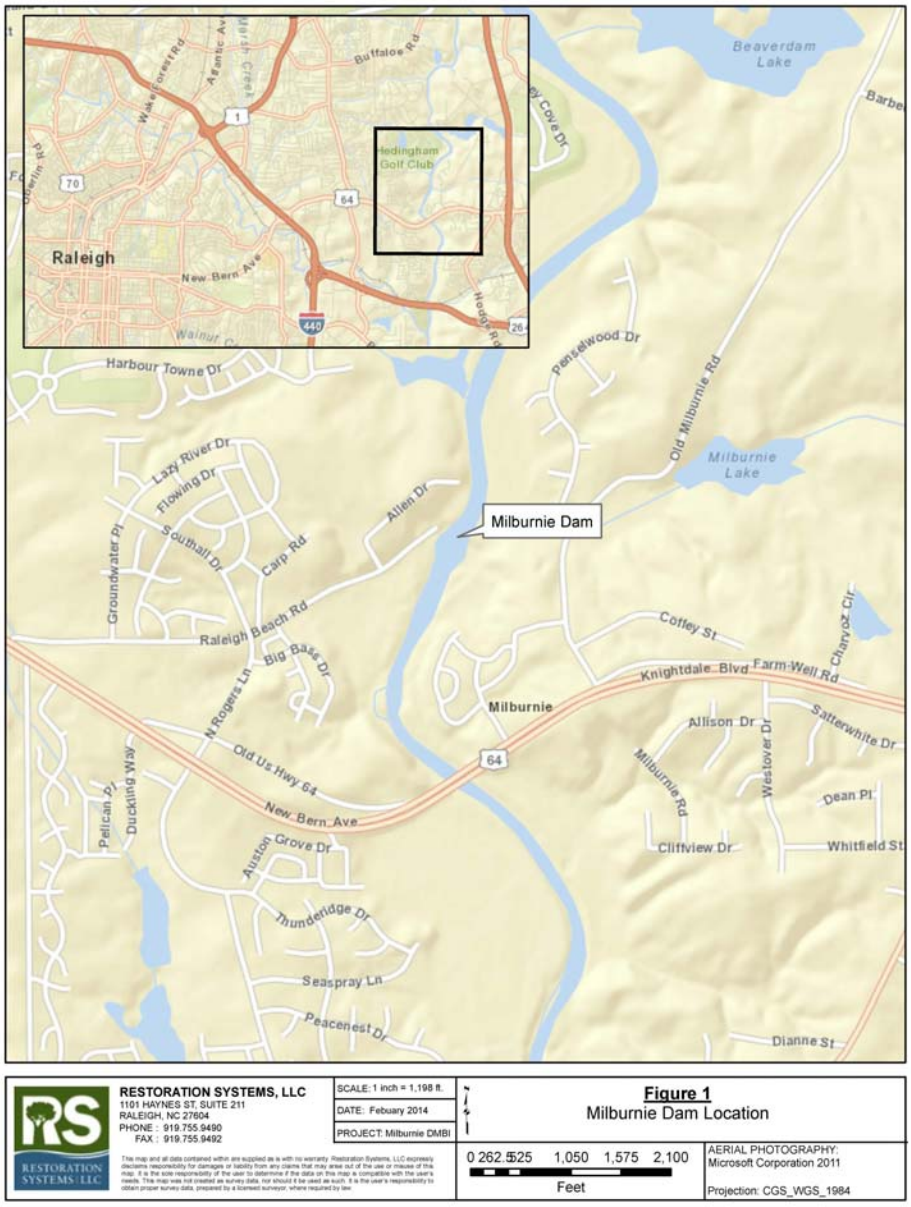


Figure 2. Project location map.

Proposed Undertaking

Restoration Systems LLC has proposed to remove Milburnie Dam with the following goals:

- Establish an appropriate aquatic community by transforming the current lentic community associated with the impounded river to a more ecologically appropriate lotic community characteristic of a free-flowing river
- Facilitate habitat restoration and re-colonization of listed aquatic species by removing the barrier (Milburnie Dam) to range expansion of listed aquatic species native to the area
- Provide anadromous fish passage by opening a 15-mile river passageway for American shad, striped bass, and other migratory fish for spawning

Milburnie Project has two areas of cultural resource investigation identified by their location on each side of the Neuse River. These two areas are: Milburnie East and Milburnie West. These two designated areas encompass the Project study area related to the dam removal, which includes the removal of the power-generating buildings and machinery on the west side of the river; the modification of the wetland outlet located approximately 1,500 ft upstream from the dam on the west side of the river; the entire removal of the dam located within the wetted width of the river; construction of a stone buttress to support the east wall that is not planned for removal; and the restoration/stabilization of stream banks and adjacent wetlands on each side of the river. A description of the proposed land-disturbing activities associated with the Project in the Milburnie East and Milburnie West areas follow. The design report for the proposed undertaking is in Appendix B. Figure 3 is an overview map of the proposed undertaking.

Milburnie East

Limited ground disturbance is planned for the Milburnie East area. The dam wall that extends on land to the east of the river beyond the current river bank will not be removed. To stabilize and support the east wall, a buttress will be constructed using stone that has been removed from the main spillway of the dam. In addition to supporting the remaining dam wall, the buttress will maintain the wetland and floodplain upstream from the dam.

The buttress will consist of stacked granite blocks at a slope of approximately 2:1 to the elevation of the existing groundline on the upstream side of the wall. The width of the buttress will be approximately 37 ft and the depth extending southward from the face of the dam will be approximately 22 ft. Access to construct the buttress will be restricted to the shoreline area.

Milburnie West

Several areas on the west side of the river will be affected by proposed activities associated with the Project. Five phases of construction have been identified and are summarized below.

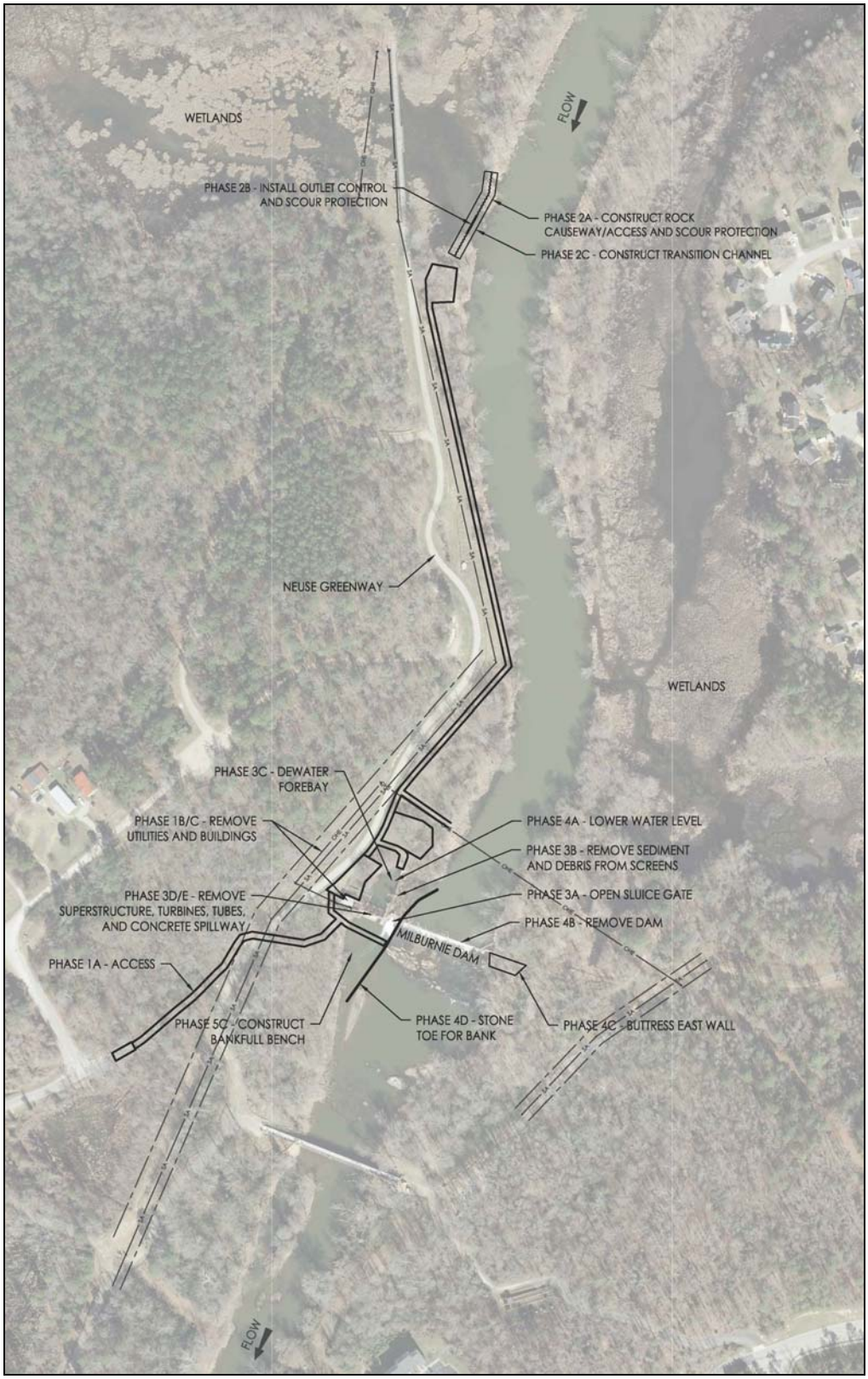


Figure 3. Overview of Proposed Undertaking (Taylor 2014).

Phase 1A-C – Staging, Access, and Remove Utilities and Buildings

The staging and access construction activities include modification to existing Raleigh Beach Road; clearing areas for staging, storage, and stockpiling; developing a path from the powerhouse to the wetland area 1,500 ft north of the dam; and establishing a temporary staging area at the southern end of the wetland that is located approximately 1,500 ft north of the dam. Underground utilities and buildings will be removed during Phase 1B.

Phase 2A-C - Wetland Outlet Modification

Wetland outlet modification will promote the continued form and function of the wetland under the existing boardwalk after the water level in the river is lowered. A rock causeway will be installed to give access to the north side of the existing outlet and a pump-around system will be utilized to bypass the wetland outlet during construction. This causeway will be removed after the wetland modifications are complete. The wetland outlet modification will consist of using some of the stone that is removed from the main dam spillway to construct a stone toe for a low-profile bench. The bench will extend from approximately 100 ft upstream of the dam to approximately 200-250 ft downstream of the dam where it will tie back into the existing riverbank.

Other modifications will include constructing a transition channel from the wetland to the new river level after the impoundment has been drawn down. The transition channel will be constructed of boulder step pools and additional plantings and erosion control on the riverbanks along the wetland boundary to lower the risk of bank erosion at the outlet. Riprap, or other similar methods of scour protection, will be placed on the banks where the transition channel opens to the river.

Phase 3A-E – Removal of the Former Power-Generating Facility

Six tasks have been identified with the removal of the former power-generating facility. They are summarized below.

- The sluice gate will be opened (Phase 3A).
- Sediment and debris on the east side of the forebay screens will be removed and stockpiled, if suitable, to facilitate dewatering (Phase 3B).
- A rock causeway will be constructed at the entrance of the forebay to allow access to the dam and power infrastructure from the north side of the forebay and to control water level during the impoundment drawdown.
- The forebay will be dewatered (Phase 3C).
- The steel superstructure (beams, railings, catwalks, and mechanical features not providing structural integrity to the dam and water-retention features) and the remaining turbine and draft tubes behind the concrete dam will be taken down and removed from the site (Phase 3D).
- The concrete spillway will be demolished and placed in the forebay to act as scour protection during water-level reduction and later buried under newly constructed river bank features (Phase 3E).
- The newly opened forebay and power-generating area will serve as the active channel in managing water control during the deconstruction of the dam's main spillway during Phase 4, as described below.

Phase 4A-D – Dam Removal

Following the opening of the forebay and power-generating area in Phase 3, the granite dam main spillway will be deconstructed. The granite blocks will be removed incrementally so that the water level in the impoundment does not lower at a rate greater than one foot per day. As the granite blocks are removed from the dam they will be transported to the west and east sides of the river for reuse during Phase 5 (Phase 4A-B). On the east side of the river, the granite blocks will be used to construct a buttress along the dam wall that extends beyond the current riverbank (Phase 4C). The remaining granite blocks will be used to construct a low-profile bench on the west side of the river (Phase 4D).

Phase 5 – Restoration

Restoration will be conducted on both sides of the river throughout each phase of the project as necessary for stabilization and adaptive management. Restoration will include stabilizing banks through a combination of grading, erosion-control fabric, plantings, bioengineering, as well as removal and/or stabilization of sediment in work areas. In addition the restoration activities will include the following:

- A low bench will be constructed on the west side of the river downstream from the dam to contain sediment moved during construction activities (Phase 5C).
- Upon completion of all phases, all access roads and stage/stockpile/storage areas will be restored according to pre-project land cover.
- A site-specific plant plan will be developed for each area of disturbance and/or new surface including river banks, the wetland outlet, the proposed bench at the dam, and any areas of disturbance associated with access road construction and staging/stockpiling.

Mitigation Plan

Because the proposed undertaking has the potential to affect historic properties, a mitigation plan was prepared in consultation with the SHPO to comply with Section 106 of NHPA. The purpose of the mitigation plan is to describe how the structures and artifacts associated with Milburnie Dam will be documented and studied before cultural data is destroyed by the proposed undertaking (Tasks 1-3 and 5). In addition, the mitigation plan addresses identifying other prehistoric or historic resources that may be located along the banks of the Neuse River after Milburnie Dam is removed (Task 4). Documentation to record features of the dam's historic, engineering, and cultural significance are the primary historic preservation tools used for this project. Task 6 includes the development of interpretative materials about the history of the site, the construction of the dam, and artifacts recovered from the site.

Cultural Resource Study Area

The archaeological study area identified in the mitigation plan includes the dam, the area approximately 200 ft of downstream riverbank that will be regraded and reshaped, the area approximately 200 ft upstream that will be directly or indirectly affected by the dam's removal, and other areas that might be directly affected by dam removal activities include spoil disposal areas, equipment staging areas, and access roads. The historic cemetery identified in the NC SHPO review letter lies outside the Project study area.

The following sections of this report provide a description of the existing conditions, environmental setting, cultural context, research methodology, National Register of Historic Places (NRHP) evaluation criteria, previous cultural resource investigations and previously recorded cultural resources within a mile of the Project study area, historical background on Milburnie Dam, field investigation results, and Project recommendations for the cultural resource investigations that were conducted within the Project study area for Tasks 1-3 and 5.

EXISTING CONDITIONS

Milburnie Dam Property

The Milburnie property consists of 25 acres of land on both sides of the Neuse River that was acquired by Samuel Warren Twiggs in 1934 from CP&L and is referred to as being the same land that CP&L acquired from Raleigh Ice & Electric on June 30, 1916 (Wake County, NC, Deed Book 307:497). The land conveyance from CP&L to SW Twiggs and his wife, Ruth F. Twiggs, mentions that the property includes the "mill site" (Wake County, NC, Deed Book 678:339-340).

Neuse River Greenway Trail

The recently constructed Neuse River Greenway Trail crosses through Milburnie West. The trail is 15-ft wide, of which 11 ft has been paved with asphalt and the 2-ft wide shoulders are gravel paved. The trail is approximately 28 miles long and follows the Neuse River from the Falls Dam in northern Wake County to the Johnston County line. The trail was designed to offer scenic views of the Neuse River. In addition to being part of the Raleigh's Capital Area Greenway System, it is a segment of the Mountains-to-Sea Trail, which is a long-distance trail that runs across North Carolina from the Great Smoky Mountains to the Outer Banks (Neuse River Greenway Raleigh Government Website).

Prior to the construction of the Neuse River Trail in the vicinity of Milburnie, archaeological investigations were conducted nearby (Seibel and Russ 2011). The areas of investigation identified for the archaeological work did not include the Milburnie area.

Raleigh Parks Property

The City of Raleigh currently owns two park sites in the vicinity of Milburnie Dam. These two areas are formerly known as "Milburnie East" and "Milburnie West" and are described below using information provided on the Wake County website.

> Milburnie East is a 24-acre wooded site bordering the east side of the river below Milburnie Dam. The area has steep wooded slopes and a broad wet floodplain along the Neuse River. A gravel-paved parking area provides access to recreational activities on the river.
>
> Milburnie West is a 35-acre site consisting of upland ridges and slopes underlain by bedrock close to the surface. Much of the land was formerly cultivated or used as a trailer park, resulting in typical old-field vegetation and stands of young pines. It has approximately 1,050 ft of river frontage above Milburnie Dam. The floodplain along the river is very narrow and open with a rough lawn extending to a fringe of trees at the river's edge. The river banks are low, and water-level fluctuations are less extreme than elsewhere along the river corridor due to the dam. The western edge of the site has medium-aged woodlands of mixed hardwood and pines. There is a small area of large mature hardwoods on the steep slopes above the existing greenway trail and hardwood forest and open groves on the slopes south of the central ridge.

A suspension bridge that was constructed in 2013 connects to the park areas. It is located approximately 750 ft downstream from Milburnie Dam. The steel bridge is 27-ft long and 7-ft wide and has a concrete deck.

Cultural resource investigations were conducted at the Milburnie East and West park properties in 2006 (Webb and Turco 2006). The fieldwork included an examination of standing structures, as well as a field reconnaissance of known or suspected archaeological site and cemetery locations. The Milburnie East property was revisited in 2007 for additional background studies and a field assessment, which included excavating 26 shovel tests at 10- and 15-m intervals across 31WA1625/1625** to determine the northwestern site boundary (Olson 2007). See the *Previously Recorded Cultural Resources* section of this report for more information about the archaeological work conducted at Milburnie East and West.

Sanitary Sewer Lines

Sanitary sewer lines run parallel to the Neuse River on both sides of the Neuse River. The sewer line on the east side of the river was constructed in 2006; NC Office of State Archaeology (OSA) site files and topographic maps indicate that no archaeological survey was conducted prior to the construction of this sewer line.

The sanitary sewer line on the west side of the river was constructed in 2013 and bisects archaeological site 31WA1872/1872** (Figure 4). The archaeological survey that was conducted in this area (Hargrove 1986) reported that the proposed sewer line corridor is "… away from the site of the Milburnie mill and avoids potential impacts on archaeological remains of the mill." The mill remains on the west side of the river were not recorded in 1986, as they were being avoided by the proposed sewer line.

Figure 4. Photograph of the sanitary sewer line construction on the west side of the Neuse River near Milburnie. Photograph dated September 16, 2013, and posted on http://raleighnature.com/ (accessed May 19, 2014).

ENVIRONMENTAL SETTING

Topography

Milburnie Dam lies within the North Carolina Piedmont physiographic province that is situated between the Blue Ridge Mountains to the west and the Coastal Plain to the east. In general, the Piedmont region features a gently rolling landscape with moderately steep slopes near drainages (Cawthorn et al. 1970).

Hydrology

Milburnie Dam crosses the Neuse River that flows approximately 200 miles from its headwaters to its mouth at the Pamlico Sound, where it meets the waters of the Tar-Pamlico Basin (Figure 5). The river flows eastward as a freshwater river until reaching New Bern, where it becomes a 40-mile long brackish tidal estuary at the mouth of the Pamlico Sound. Major tributaries of the Neuse River include the Eno River, Flat River, Little River, Trent River, Crabtree Creek, Swift Creek, and Contentnea Creek.

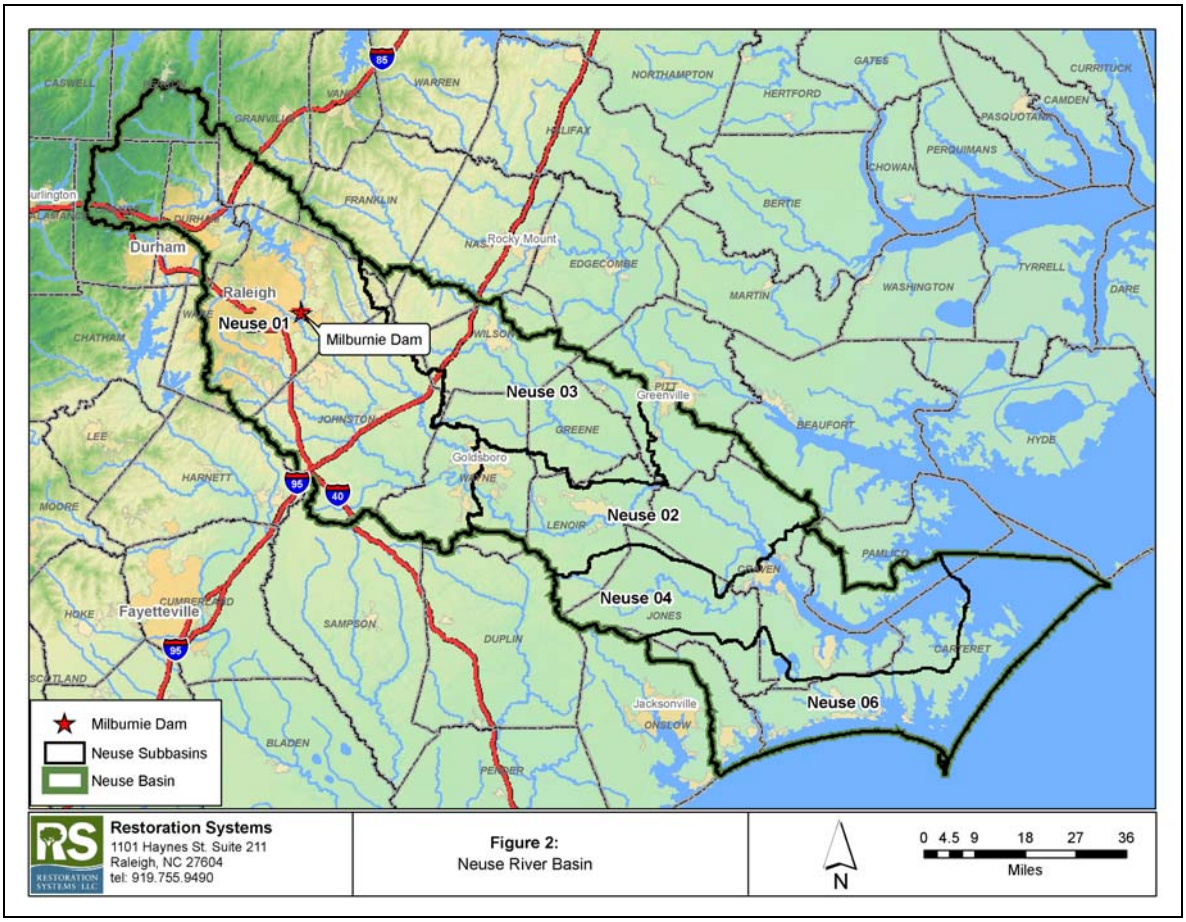


Figure 5. Neuse River Basin map.

The 10th US Census, conducted in 1880, included a report on the statistics of power and machinery employed in manufactures; this report is often referred to as *Reports of the Water-Power of the United States* (Trowbridge 1887). In Part IV – The Neuse River and Tributaries (Trowbridge 1887:51-53), "Milburny," also referred to as "Neuse mills," is mentioned as being the first waterpower site of importance on the Neuse River. At the time of the 1880 waterpower survey, Milburnie was "at present idle." The available fall was estimated to be about 12.5 ft with a dam that was 8 ft high and a race 150-ft long. The survey noted that it was "strange" that there was no large fall on the river below this point. The banks are abrupt on the right and not so much on the left." The census report also noted "… that the power was formerly used by a paper-mill on the left bank and a grist and saw mill on the other, the fall utilized being 12.5 ft; but the papermill burnt, and the dam, not being taken care of, is gone. The grist and saw mill buildings are standing, although it had been about five years since any power has been utilized. It is expected that the power will be utilized again in a short time."[2]

In 1883, the *North Carolina Geological Survey Bulletin, Issue 8* (NCGS 1883) reported that "Milburny" has "… an open-frame dam across the river, eight feet high and 250-ft long, built on the site of the old dam, the fall is 11.5 ft at the site of the old mill." At the time of the survey, "…the power was not being utilized except for turning a dilapidated grist-mill that required about 15 horsepower."

Geology

The Piedmont is the largest physiographic province in North Carolina. The region is characterized by gently rolling topography, deeply weathered bedrock, and a relative paucity of solid outcrop. Rocks are strongly weathered in the Piedmont's humid climate and bedrock is generally buried under a thick (2-20 m) blanket of saprolitic rock. Outcrops are commonly restricted to stream valleys where saprolitic rock has been removed by erosion.

A variety of igneous and metamorphic rocks make up the bedrock of the Piedmont province. Most of these rocks range in age from the Proterozoic (2.5 billion years ago – 543 million years ago) to Paleozoic (543 – 248 million years ago) eras and form the internal core of the ancient Appalachian mountain belt. Triassic sedimentary rocks, diabase dikes, and basalt flows that formed during the early stages of rifting associated with the opening of the Atlantic Ocean are present.

The 1883 *North Carolina Geological Survey Bulletin No. 8* describes the Neuse River has having a "… rather remarkable absence of conditions favorable to the development of large waterpowers." The exception is for the Falls of the Neuse and the Fall of the Neuse at Milburnie; both are indicated as lying with the granite area (NCGS 1883:80). At Milburnie, the NCGS report indicated that "… the bed is solid rock, favorable for a dam, and the race had to be blasted out" (NCGS 1883:122). The *NC Geological Survey Bulletin No. 2* titled "Building and Ornamental Stones of North Carolina (Watson and Landy 1906) shows cross hatching in the areas with granite and gneiss rock and the locations of principal granite quarries. The Milburnie area is located within this region (Figure 6).

2 The next waterpower of importance mentioned in this report was the Falls of the Neuse Manufacturing Company.

Figure 6. Excerpt of the 1906 Map showing Geographic Distribution in North Carolina of Granite and Gneiss (http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/2196).

The 1984 *North Carolina Geology and Mineral Resource Survey of Wake County* (Park 1995) identifies the general Project area as being located in an area of Rolesville Amadmellite Batholite, also known as Rolesville Granite (Park 1995:24). The composition of Rolesville Granite varies but typical outcrops are medium-grained, gray rock made up mainly of feldspar with 25-30 percent quartz and 10 percent biotite. Some exposures are coarse grained or porphyritic. A 1953 geological survey found that a belt of monazite-bearing granitic rock extends through the Rolesville Granite Belt from Garner through Milburnie. Monazite was reported as occurring as an accessory in granite at two locations near Milburnie (Overstreet 1967:207).[3]

The granite blocks that were used to construct Milburnie Dam are identified as "dimensional stone." The term "dimensional stone" is used to describe rock cut to specified shapes and sizes, and for rough blocks split into more or less rectangular form and irregular-shaped pieces with one or more flat surfaces that may be used in masonry construction. Dimensional stone is reported as being one of Wake County's earliest and more important mining industries. It was a chief product from the early nineteenth century until about 1920; while crushed stone has predominated since (http://www.geology.enr.state.nc.us/03072002buildingstones/NC%20building%20stones/Building%20stones/Dimension%20stone%20overview.htm).

Soils

Overall, soils within the Project are gently sloping and well drained. Surface soils tend to be loamy and subsurface soils are usually clayey. Congaree, Wake, and Wehadkee/Bibb are mapped within the Project (Wake County Imaps, online soils accessed April 4, 2014). These soil types are summarized below in Table 1. Soil series descriptions, see below, were summarized from online data provided by https://soilseries.sc.egov.usda.gov/.

3 Monazite (Ce) is an accessory mineral in granites and high-grade metamorphic rocks; commonly found in river and beach sands. http://rruff.info/doclib/hom/monazitece.pdf.

Table 2. Soil Types within the Milburnie Dam Project Study Area.		
Name	Type	Slope % Range
Congaree	Loam	0-40%
Wake	Loamy Sand	2-45%
Wehadkee/Bibb	Fine Sandy Loam/Sandy Loam	0-2%

Congaree Series

Congaree series consists of deep, well-drained to moderately well-drained, moderately permeable loamy soils that formed in fluvial sediments. Slopes range from 0 to 4 percent. The typical profile of Congaree loam soils follows:

Ap--0 to 8 in; dark brown (7.5YR 4/4) loam; weak fine granular structure; friable; many fine roots; common wormcasts; many fine flakes of mica; strongly acid; clear smooth boundary.
C1--8 to 18 in; dark brown (10YR 4/3) loam; massive; friable; many fine roots; many fine pores; few wormcasts; many fine flakes of mica; medium acid; gradual wavy boundary.
C2--18 to 22 in; dark brown (10YR 3/3) loam; massive; friable; many fine roots; few fine pores; few wormcasts; common ¼-in horizontal lenses of light yellowish brown loamy fine sand; few fine flakes of mica; medium acid; clear smooth boundary.
C3--22 to 32 in; dark brown (10YR 3/3) very fine sandy loam; massive; friable; many fine roots; many fine pores; many fine flakes of mica; few thin lenses of loamy fine sand; few fine fragments of charcoal; medium acid; diffuse wavy boundary.
Ab--32 to 38 in; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; friable; many fine roots; many fine pores; few wormcasts; many fine flakes of mica; medium acid; gradual wavy boundary.
Bb--38 to 62 in; brown (7.5YR 4/4) silty clay loam; moderate coarse prismatic and subangular blocky structure; friable; few fine roots; many fine and medium pores; few faint silt coatings on vertical ped faces; common fine flakes of mica; medium acid; gradual smooth boundary.
C'--62 to 80 in; mottled strong brown (7.5YR 5/8), brown (10YR 5/3) and pale brown (10YR 6/3) clay loam; massive; friable; common fine flakes of mica; very dark brown and black concretions; strongly acid.

Wake Series

Wake series consists of excessively drained, shallow, sandy soils on uplands of the Southern Piedmont. They formed in residuum weathered from igneous and high-grade metamorphic rocks such as granite and gneiss. Slopes range from 2 to 45 percent. The soil profile for Wake loamy sand follows:

A--0 to 5 in; dark yellowish brown (10YR 3/4) loamy sand; weak fine granular; very friable; about 10 percent gravel by volume; many fine, common medium, and many coarse roots; strongly acid; clear wavy boundary.
Bw--5 to 10 in; dark yellowish brown (10YR 4/6) loamy sand; weak fine subangular blocky structure; very friable; about 10 percent gravel by volume; many fine, common medium, and many coarse roots; strongly acid; clear wavy boundary.
C--10 to 12 in; dark yellowish brown (10YR 4/4) gravelly loamy coarse sand; about 18 percent gravel by volume; many grains of feldspar; few flakes of mica and dark mineral grains; strongly acid; abrupt wavy boundary.
R--12 in; hard, slightly fractured, unweathered granite.

Wehadkee/Bibb Series

Wehadkee series consists of very deep, poorly drained and very poorly drained soils on floodplains along streams. They are formed in loamy sediments. Slopes range from 0 to 2 percent. The typical pedon of Wehadkee fine sandy loam follows:

Ap--0 to 8 in; grayish brown (10YR 5/2) fine sandy loam; weak medium granular structure; very friable; few flakes of mica; moderately acid; abrupt smooth boundary.
Bg1--8 to 17 in; dark gray (10YR 4/1) loam; common medium prominent strong brown (7.5YR 5/6) soft masses of iron accumulation; weak fine and medium subangular blocky structure; friable; few flakes of mica; moderately acid; clear smooth boundary.
Bg2--17 to 40 in; gray (10YR 6/1) sandy clay loam; common medium prominent strong brown (7.5YR 5/6) soft masses of iron accumulation; weak medium subangular blocky structure; friable; common flakes of mica; moderately acid; clear smooth boundary.
Cg--40 to 50 in; gray (10YR 6/1) sandy loam; common medium faint grayish brown (10YR 5/2) iron depletions and prominent strong brown (7.5YR 5/6) soft masses of iron accumulation; massive; friable; common flakes of mica; moderately acid.

Bibb series consists of very deep, poorly drained, moderately permeable soils that formed in stratified loamy and sandy alluvium. They are commonly flooded and water runs off the surface very slowly. Slopes range from 0 to 2 percent. The soil profile of Bibb sandy loam series follows:

A--0 to 4 in; brown (10YR 4/3) sandy loam; weak fine granular structure; friable; common fine roots and pores; strongly acid; abrupt wavy boundary.
Ag--4 to 12 in; mottled dark gray (N 4/) and dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; few fine roots and pores; common fine strong brown (7.5YR 5/6) stains around old roots; strongly acid; clear wavy boundary.
Cg1--12 to 37 in; gray (5Y 5/1) sandy loam; massive; friable; few fine roots and pores; common medium strong brown (7.5YR 5/6) stains around old roots; common thin strata of silt loam to loamy sand; some strata have bits of partially decomposed organic materials; very strongly acid; clear wavy boundary.
Cg2--37 to 60 in; gray (N 5/) silt loam; massive; slightly sticky; common strata of sandy loam and loamy sand; common thin strata with partially decomposed organic materials; strongly acid.

Climate

Wake County has a subtropical climate with moderate temperatures in the spring, fall, and winter. Summers are generally hot, with high temperatures averaging in the mid-80s (Cawthorn et al. 1970). Winters are short and moderately cold, with high temperatures averaging around 45 degrees. Precipitation in the region is overall distributed evenly throughout the year; the rainiest months are July and August. Humidity averages between 50 to 70 percent year round; the highest humidity occurs during the late summer and lowest humidity occurring during spring. The county, at the National Weather Service in Raleigh, receives on average 3.9 in of snow in the winter.[4] Freezing rain and sleet occur most winters, and occasionally the area experiences a major damaging ice storm.

Vegetation

A description of the vegetation near Milburnie Dam appears in the 2003 *Inventory of Significant Natural Areas in Wake County, NC* (LeGrande 2003.) Milburnie Dam is identified as the separation between two significant natural areas: the Upper Neuse River floodplain and the Neuse River forest. The two areas are summarized below.

4 Based on weather data collected from 1981 to 2010 for the NOAA National Climatic Data Center.

The Upper Neuse River floodplain contains early succession natural communities with the typical woody plants, tag alder (*Alnus serrulata*), black willow (*Salix nigra*), and buttonbush (*Cephalanthus occidentalis*). Beds of water-willow (*Justicia americana*) are often present in the shallow water or on the wet rocks.

The Neuse River forest consists of marshy areas along both banks of the river. A wide variety of aquatic plants are present, including broadleaf cattail (*Typha latifolia*), arrow arum (*Peltandra virginica*), and pickerelweed (*Pontederia cordata*). Uruguay seedbox (*Ludwigia uruguayensis*), a sprawling herb with large yellow flowers, has taken over many areas of the marshes. Scattered about the marshes and woods are a few dozen bald-cypress (*Taxodium distichum*) trees. The marshes and ponds contain a good population of various frog and turtle species.

CULTURAL CONTEXT

The following is a brief summary of the cultural history of the Project study area beginning with the prehistoric period that is divided into three cultural periods (Paleoindian, Archaic, and Woodland) and defined by changes in settlement patterns, subsistence patterns, and material remains (Table 3). The cultural history continues into the historic period with the contact era and early Anglo-American settlement and ends at the recent historic past of the early-twentieth century.

Prehistoric Overview

Table 3. Prehistoric Cultural Sequence for the North Carolina Piedmont Region.

Date	Cultural Period	Sub-Period/Era	Regional Phases
1600			
AD BC	Woodland	Late (AD 800 – AD 1600)	Haw River, Hillsboro, Dan River
		Middle (400 BC – AD 800)	Uwharrie
		Early (1,000 BC – 400 BC)	Badin and Yadkin
1,000			
	Archaic	Late (4,000 BC – 1,000 BC)	Savannah River and Gypsy
		Middle (6,000 BC – 4,000 BC)	Halifax, Morrow Mountain, Guilford
		Early (8,000 BC – 6,000 BC)	Kirk, Palmer, MacCorkle-St. Albans-LeCroy
8,000			
	Paleoindian	12,000 BC – 8,000 BC	Clovis, Dalton, Hardaway
12,000			

Paleoindian Period

The Paleoindian period (12,000-8,000 BC) is a term used to describe the earliest human occupation of North America for which there is firm evidence. Paleoindian culture consisted of small nomadic bands subsisting via a generalized hunting and gathering regime (Purrington 1983). Over 400 fluted projectile points, characteristic of the period, have been recorded in many locations throughout North Carolina. These fluted projectile points are known primarily from surface finds, but by comparison with similar materials from other regions of the country, they are assumed to date to 8,000 BC or earlier. Therefore, the Paleoindian period is often defined by the presence of diagnostic projectile points/knifes identified as Clovis, Dalton, Hardaway, and Dalton-Hardaway styles (Coe 1964). Hardaway and Dalton projectile points represent the transition from the Paleoindian period to the Archaic period.

Paleoindian settlements were likely small and briefly occupied. Paleoindian lithic artifacts have been recovered from high elevations suggesting hunting in a tundra habitat as well as on ridge tops and river terraces. Lithics are often heavily curated and of a high-grade material.

Archaic Period

Although archaeological evidence for the Paleoindian period is sparse, it appears that an increasingly sedentary culture, probably based upon seasonal exploitation of different environmental zones within broad territories, gradually replaced the former nomadic, hunter-gatherer existence of the preceding Paleoindian period. This lengthy transition occurred between 8,000 and 1,000 BC and is termed the Archaic period.

The beginning of the Archaic period is marked by climatic change. Warmer and drier conditions caused sea levels to rise and many large animals to become extinct. Regional vegetation became diversified and more like our modern environment. This climatic change affected subsistence and settlement patterns. People lived together in bands and their travel depended on the availability of resources; large base camps were established and smaller, seasonal camps were utilized throughout the year. Population sizes began to grow at a steady pace.

Archaic period sites are typically found on upland hills, in floodplains, and on the banks of small streams. Compared to Paleoindian sites, there is a higher frequency of Archaic sites in the southeastern United States. Overall, Archaic sites reveal an increase in technology and resource procurement as evidenced by the variety of tools and lithic resources.

The Archaic period has three divisions – Early, Middle, and Late – defined primarily by changes in stemmed projectile point/knife styles featuring either side or corner notching and/or bifurcate bases. During the Early Archaic period (8,000-6,000 BC) hunting was the dominant subsistence activity that was supplemented by fishing aquatic resources, gathering plant foods, and trapping small game. Settlement consisted of base camps on alluvial terraces with smaller hunting camps in the uplands. Early Archaic diagnostic projectile point/knife types include Palmer, Kirk (corner-notched and stemmed), and MacCorkle-St. Albans-LeCroy. The MacCorkle-St. Albans-LeCroy bifurcated points/knives occur during the transition from the Early to Middle Archaic period.

Settlement patterns changed from the alluvial terraces and uplands to the rivers during the Middle Archaic period (6,000-4,000 BC). This change is believed to be the result of exploitation of plant foods and aquatic resources. Populations increased and smaller band territories emerged. Middle Archaic sites are found in various settings, but tend to be similar in size and artifact diversity. Many Middle Archaic sites tend to be small and located in upland areas: however, there are a few larger sites located near river floodplains. This settlement pattern suggests that groups were highly mobile during this time. Local lithic resources were used with greater frequency. Halifax, Morrow Mountain, and Guilford projectile point/knife styles date to this period. An increase in groundstone tool production, including atlatl weights, axes, and pestles, also occurred during the Middle Archaic period.

By the Late Archaic period (4,000-1,000 BC), there is archaeological evidence of plant cultivation including squash, goosefoot, knotweed, little barley, maygrass, sumpweed, and sunflower. Archaeological evidence shows that three of these were domesticated during the Late Archaic period: sunflower by 2,000 BC, goosefoot by 1,500-1,000 BC, and sumpweed between 1,000 and 500 BC (Scarry 1993). There is also evidence of the earliest ceramic production during this time.

Groups became more sedentary, which allowed for regional social, technological, and economic specializations. Populations had increased greatly by this time, and large settlements were established along major river systems. Groups were more dependent on the rich estuary environments created by the rise in sea levels. The manufacture of soapstone vessels, grooved stone axes, ornaments, and copper items began during this time. Late Archaic diagnostic lithic artifacts include broad and square-stemmed Savannah River projectile points/knives and small-stemmed Gypsy projectile points/knives.

Woodland Period

During the Woodland period (1,000 BC to AD 1600) important cultural changes occurred. These changes are the widespread manufacture of ceramics, systematic horticulture, and the development and use of the bow and arrow. A shift towards permanent settlement reflects growing dependence on horticulture, increase in population, and the rise of religious ceremonialism and complex mortuary practices. Archaeological sites dating to the Woodland period are more frequent and numerous in the southeastern United States than sites that date from the preceding Archaic and Paleoindian periods.

Maize was introduced during the Early and Middle Woodland periods, although wild plant resources continued to be major food sources into the Late Woodland period (Scarry 1993). Throughout the Woodland period ceramic attributes (i.e., tempers and surface treatments) changed; these changes are often hallmarks of the Early, Middle, and Late Woodland sub-periods. Small triangular projectile points, associated with the introduction of the bow and arrow, are common during this period.

In the North Carolina Piedmont, the Early Woodland period (1,000-400 BC) is defined by sand-tempered, cord-marked, and fabric-marked pottery of the Badin and Yadkin series (Coe 1964). Groups living in the North Carolina Piedmont during this time were influenced by cultural trends in other regions; these influences are noted in the Yadkin phase ceramics that may have evolved from the Badin phase (Ward and Davis 1999).

Badin and Yadkin ceramics have attributes similar to styles documented along the southern North Carolina coast as well as to the north in Virginia. Sand tempering that occurs in Early Woodland period Piedmont ceramics is similar to Thom's Creek series on the North Carolina coast and the Accokeek and Stony Creek series of northern Virginia (Ward and Davis 1999). Yadkin check-stamped and simple-stamped vessels are similar to the Deptford ceramic series documented along the Georgia and South Carolina coast; Yadkin fabric-impressed and cord-marked vessels, as well as the crushed quartz tempering found in all Yadkin ceramics, share traits with coastal Virginia ceramics.

Other Early to Middle Woodland period ceramic types of the region are Clements and Vincent. Vincent series is a hard, compact paste tempered with sand and a small amount of crushed quartz; surface treatments are cord and fabric marked and interiors are smoothed by hand. Vessel forms include bowls and jars with straight to slightly flaring undecorated rims (Ward and Davis 1999:91). Clements series is also sand and quartz tempered with variability in the size of the quartz fragments; cord and fabric marking are present but finer than those of the Vincent series; vessel interiors are smoothed with some evidence of scraping; and vessel wall are thinner than the Vincent series (Ward and Davis 1999:93).

Early Woodland diagnostic lithics are large, crude triangular Badin projectile points/knives and triangular Yadkin projectile points/knives. Yadkin projectile points/knives resemble Badin types but are larger and more finely flaked (Coe 1964; Ward and Davis 1999). The Badin and Yadkin traditions were first identified at the Doerschuk Site (31MG22) located on the Yadkin River just below Falls Dam in Montgomery County (Coe 1964).

Early Woodland period sites are small and scattered, and often found on fertile bottomlands, but they have also been documented in the uplands. Subsistence and economic patterns that developed during the Late Archaic period continued into the Early Woodland period.

Archaeological work at Yadkin phase sites has revealed evidence of long-term habitation including hearths and pits containing ceramics and floral and faunal remains (Ward and Davis 1999). Investigations at Woodland period sites throughout the North Carolina Piedmont suggests that a wide variety of mammals, birds, and aquatic life were consumed; several weedy plants such as sunflower, knotweed, and maygrass were cultivated; and hickory and acorn were consumed seasonally (Ward and Davis 1999).

Agriculture became more important during the Middle Woodland (400 BC – AD 800); corn production most likely began during this time. Groups participated in long-distance trade. Similar to the Early Woodland period, Middle Woodland period groups generally established settlements along floodplains and utilized uplands for subsistence activities. Uwharrie-phase settlement sites are permanent structures/houses, burials, and numerous varied faunal remains (Ward and Davis 1999). Upland Uwharrie-phase sites have been documented in small coves and toe slopes overlooking floodplains.

Ceramic styles shift from the Yadkin series to the Uwharrie series during the Middle Woodland period. Both Yadkin and Uwharrie ceramics feature similar decorations and have coarse-sand or crushed-quartz temper. However, Uwharrie ceramics do not include fabric-impressed surface treatments that are part of the Yadkin series, and they often have scraped interiors in comparison to smoothed interiors of Yadkin ceramics. Uwharrie ceramics are associated with long, straight-sided triangular Uwharrie projectile points/knives (Coe 1964). The Uwharrie ceramic series was initially thought to have dated to the Late Woodland period (ca. AD 1200 to 1500). Reanalysis, however, has found that these ceramics may date earlier than originally thought (Eastman 1994a-b).

During the Late Woodland period (AD 800-1600), groups became more sedentary as corn production increased in importance. This is evidenced by the presence of large subterranean storage pits for surplus grains found at sites dating to this time (Ward and Davis 1999). Settlements were riverine-focused and were numerous when compared to the preceding Early and Middle Woodland period sites. They ranged in type from nucleated villages in the north-central Piedmont to dispersed hamlets and palisaded villages in the central Piedmont.

The Late Woodland period in the Piedmont is represented by Dan River (north-central Piedmont) and Haw River (central Piedmont) ceramics. Dan River ceramics initially featured crushed-quartz tempers but shifted to sand tempers. Typical Dan River ceramic surface decorations include cord marking, net impressions, as well as smoothing and brushing. At the end of the Woodland period, Dan River ceramics transitioned to the Early Saratown ceramic style. Common Early Saratown ceramic surface treatments are smoothed or burnished; however, other decorations including net-impressed, simple-stamped, complicated-stamped, and cord-marked are associated with the style. Vessel rim decorations (notched, incised, punctated, or pinched) are associated with both Dan River and Early Saratown ceramics.

Haw River ceramics are tempered with crushed quartz and typically have net-impressed surface treatments. At the end of the Woodland period, Haw River ceramics evolved to the Hillsboro ceramic phase that are tempered with sand and have simple-stamped, check-stamped, and plain surface treatments (Ward and Davis 1999).

Contact-Era Overview

The Tuscarora and Occaneechi were the two major native groups populating the Project area when Europeans first reached the inland areas of Virginia and North Carolina during the mid- to late-1500s (Powell 1989). Both groups helped establish trade networks between the Europeans and other native tribes.

During the winter of 1700 and 1701, John Lawson traveled through the North Carolina Piedmont and Coastal Plain regions and published an account of his adventure that provided information about the people he encountered. Lawson described the majority of the Native Americans lived in settled villages, hunted and fished, and practiced agriculture (Powell 1989). The native groups Lawson observed had suffered the effects of diseases, including small pox and measles, which the first European explorers had introduced over 200 years earlier. Many of these groups had lost much of their culture and were living as displaced refugees.

During Lawson's February 1701 travels, he reported from a camp along the Neuse River (Lawson 1709:59). Although it is not clear if this camp was at Falls of the Neuse, located upriver from Milburnie, or if it was located at the Falls of the Neuse at Milburnie. His journal entry follows:

> We went about 10 Miles, and far down at the Falls of a large Creek, where lay mighty Rocks, the Water making a strange Noise, as if a great many Water-Mills were going at once. I take this to be the Falls of Neus-Creek, called by the Indians, *Wee quo Whom*. We lay here all Night. http://docsouth.unc.edu/nc/lawson/lawson.html

Historic Overview

The friendly relationship established between the Tuscarora, Occaneechi, and Europeans ended during the early-eighteenth century. By that time, the majority of the Occaneechi had left the area due to an earlier attack launched by Nathaniel Bacon. Similarly, the Tuscarora were subdued after an uprising in 1711 against Europeans who were continually encroaching upon their lands. Afterwards, Anglo-American settlers returned in larger numbers.

As colonists continued their westward movement, commissioners from Virginia and North Carolina surveyed the boundary between the two states in 1728 (Powell 1989). The surveyors returned with reports of the remnants of the Saponi, the Occaneechi, and the Stenkenock living in the Piedmont region.

The first European settlers came from coastal North Carolina and the Tidewater areas of Virginia and Maryland, many traveling along Green's Path, an old Indian trade route apparently named for Roger Green, an Anglican minister in Virginia who promoted migration to neighboring lands in North Carolina. These early settlers were primarily subsistence farmers who grew little more than was required to feed and clothe their families. Some made profits by raising large

herds of swine and cattle which they drove to markets in Virginia. A few grew tobacco which they hauled on wagons to Virginia or shipped down the Neuse River to New Bern, and from there to Norfolk, Virginia.

Smithfield, the first town in Johnston County, was established at the site of Smith's Ferry on the Neuse River. The courthouse was moved there in 1771, and the town was incorporated in 1777. In 1770 the colonial assembly had attempted to boost North Carolina's tobacco trade by erecting a warehouse near Smith's Ferry for receiving and storing tobacco to be shipped down the Neuse River to the sea. Nonetheless, it would be another 125 years before this product would gain the attention of commercial farmers. Figure 7 shows the Project area, then Johnston County, around 1770 and identifies "Smith Fy" on the Neuse River and a primary route from eastern North Carolina to the Johnston County "C. House" in the general vicinity of present-day Smithfield.

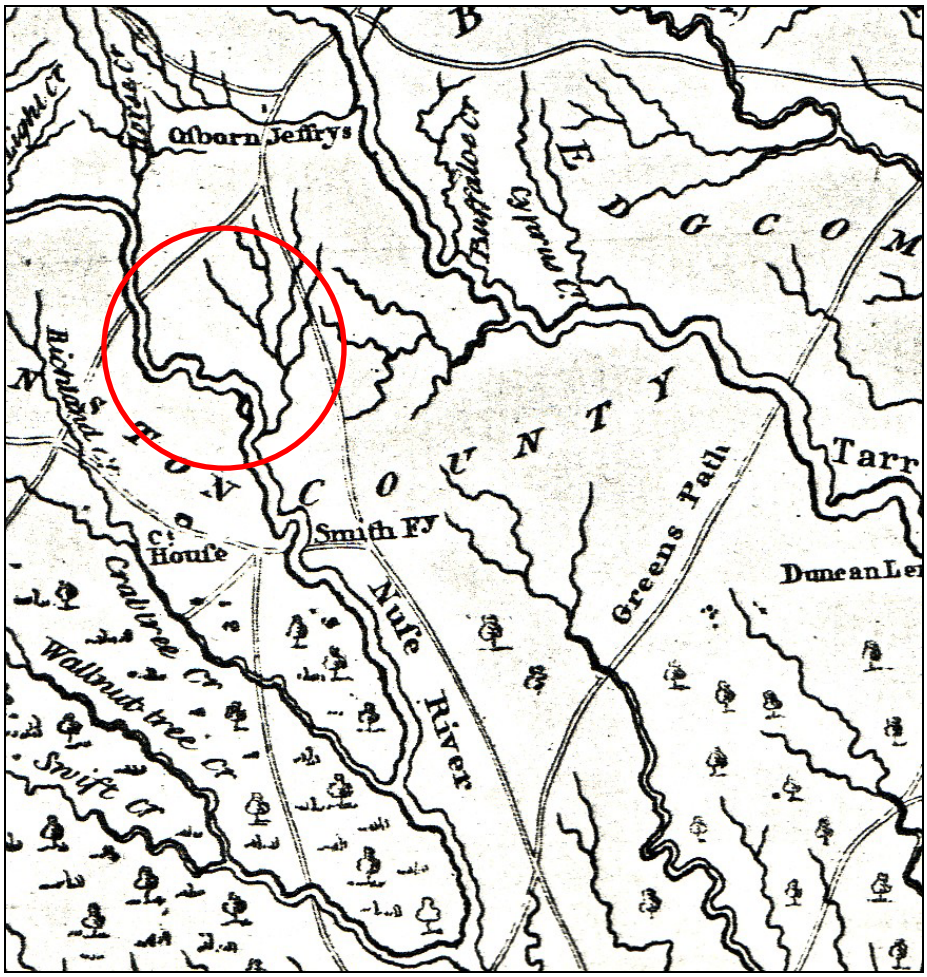
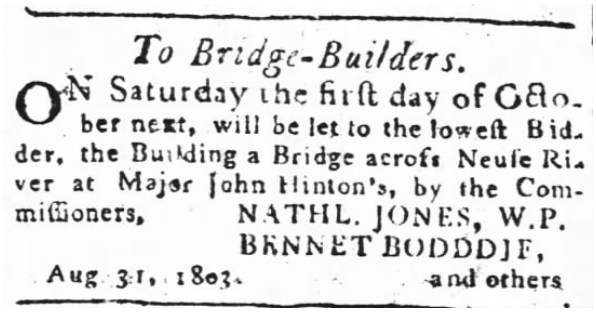


Figure 7. Excerpt of John Collet's 1770 *A Compleat map of North-Carolina from an actual survey*, showing "Smith Fy" over the Neuse River in the approximate vicinity of present-day Smithfield. The general location of Milburnie on the Neuse River is circled. http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/467.

A review of the historic evidence related to the Milburnie area has found records dating to 1888 that document a ferry at this location and records from 1798 to 1943 that document Old Tarboro Road and a bridge that carried the road over the Neuse River.

An online search of historic newspapers found several references for a ferry at Milburnie in 1888 (*The Progressive Farmer*, December 25, 1888, page 6), which includes disbursements to Green Lassiter, John Poole, Abram Hester for keeping the ferry; HH Knight for lumber for the ferry; and AT Slater and A. Pulley for work on the ferry. No other records about the ferry at Milburnie have been located to date

Research also found that several bridges have been built in the Milburnie area beginning in the late eighteenth and early nineteenth century. The earliest reference was found on the Price-Strother map from 1798. Later references include newspaper articles starting in the early nineteenth century. The *Weekly Raleigh Register* from September 5, 1803, page 3, announced the bidding on building a bridge over the Neuse River at Major John Hinton's (Figure 8) and four years later (August 20, 1807) there was another announcement in the *Weekly Raleigh Register* about the building of the bridge also at Major John Hinton's on the Neuse River (Figure 9).

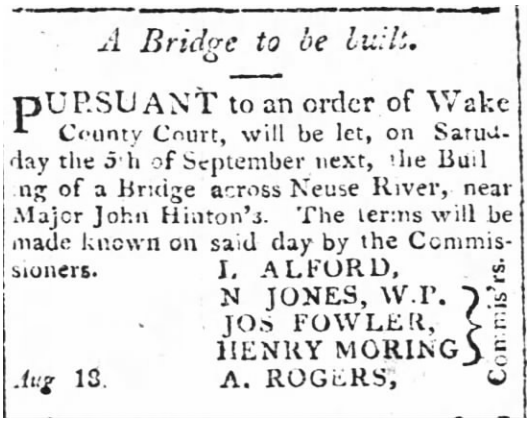


To Bridge-Builders.

ON Saturday the first day of October next, will be let to the lowest Bidder, the Building a Bridge acrofs Neufe River at Major John Hinton's, by the Commiffioners, NATHL. JONES, W.P.
BENNET BODDDJF,
and others

Aug 31, 1803.

Figure 8. Newspaper article about the 1803 bridge over the Neuse River at Major John Hinton's. *The Weekly Standard*. (Raleigh, NC), 5 September 1803, page 3 (Newspapers.com).



A Bridge to be built.

PURSUANT to an order of Wake County Court, will be let, on Saturday the 5th of September next, the Building of a Bridge across Neuse River, near Major John Hinton's. The terms will be made known on said day by the Commissioners.

I. ALFORD,
N JONES, W.P.
JOS FOWLER,
HENRY MORING
A. ROGERS,
} Commis'rs.

Aug 13.

Figure 9. Newspaper article about the 1807 bridge over the Neuse River at Major John Hinton's. *The Weekly Standard*. (Raleigh, NC), 20 August 1807, page 3 (Newspapers.com).

Another newspaper article from the late nineteenth century describes the building of a bridge at Milburnie in 1870 (Figure 91). According to the July 20, 1870, edition of the Raleigh *The Weekly Standard*, the iron bridge over the Neuse River at Milburnie was a Post's Patent Diagonal Truss Combination bridge that was to be built on three solid piers of stone masonry. It was the "highway" over the Neuse River that would end floating "down stream every time we have a fresh, …".

An extant example of a Post truss bridge is listed in the NRHP. This bridge, known as the Ponakin Bridge in Lancaster, Massachusetts, consists of eight paneled sections with a total span of 100 ft (30 m) and a width of 20 ft (6.1 m). It rests on granite stone abutments. The decking consists of a base of cross timbers which are attached to the trusses, with wood stringers, then transverse cross timbers, and finally three-in deck planking.

Historical accounts report that the bridge at Milburnie that was in existence in 1887 was destroyed by flood waters (Figure 10). The 1887 bridge was described as being one of the largest and strongest bridges in the county and perhaps the most important. The river water was higher than "any living man has ever seen it…" it rose 15 feet and surged on the floor of the bridge. "The strain was too great for the gigantic structure and it went down with a thundering crash." (*Greensboro North State*, 10 November 1887, page 7).

The bridge was replaced in 1888 by King Iron Bridge Co. (Figure 11). In addition, *The Progressive Farmer* dated 25 December 1888 (page 6) identifies disbursements from Wake County to Alfred Chapell for keeping rafts from Milburnie Bridge; James M. Ferrell for work on the bridge at Milburnie; TB Bridges for pine poles for abutments for Milburnie Bridge; and Irvin Pool and MT Morris and Co. for wood for Milburnie Bridge.

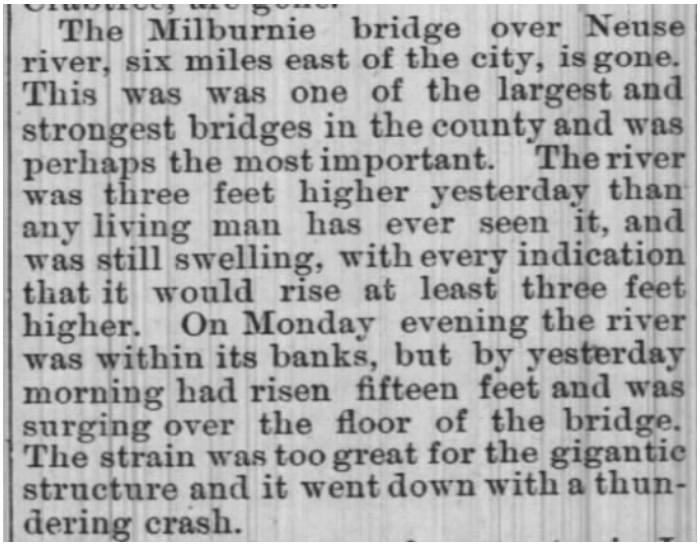

The Milburnie bridge over Neuse river, six miles east of the city, is gone. This was was one of the largest and strongest bridges in the county and was perhaps the most important. The river was three feet higher yesterday than any living man has ever seen it, and was still swelling, with every indication that it would rise at least three feet higher. On Monday evening the river was within its banks, but by yesterday morning had risen fifteen feet and was surging over the floor of the bridge. The strain was too great for the gigantic structure and it went down with a thundering crash.

Figure 10. Newspaper article about the 1887 bridge over the Neuse River at Milburnie. *The Greensboro North State* (Greensboro, NC), 10 November 1887, page 7 (Newspapers.com).

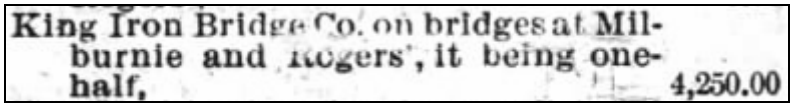

King Iron Bridge Co. on bridges at Mil-
burnie and Rogers', it being one-
half, 4,250.00

Figure 11. Newspaper article about payment to King Iron Bridge Co. for the 1888 bridge at Milburnie. *The Progressive Farmer* (Winston-Salem, NC), 25 December 1888, page 6 (Newspapers.com).

On July 6, 1893, *The Smithfield Herald* reported on another bridge at Milburnie; this article stated that "The contract to build an iron bridge over the Neuse river at Hinton's Bridge was awarded to a Raleigh firm at $4,100. Iron Bridges are a little more costly at first but are the cheapest after all" (Figure 12).

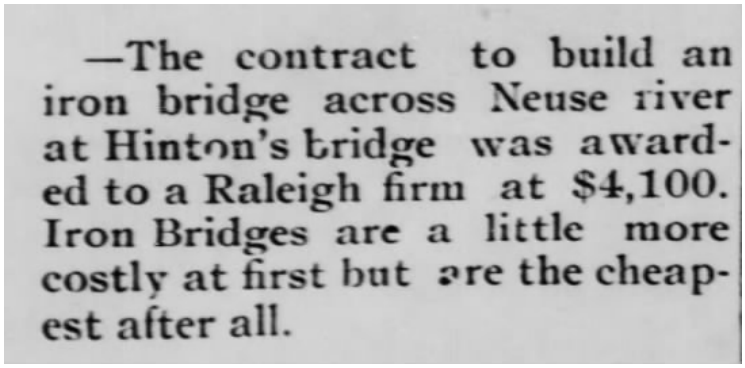

—The contract to build an iron bridge across Neuse river at Hinton's bridge was awarded to a Raleigh firm at $4,100. Iron Bridges are a little more costly at first but are the cheapest after all.

Figure 12. Newspaper article about the 1893 bridge at Milburnie. *The Smithfield Herald* (Smithfield, NC), 6 July 1893, page 3 (Newspapers.com).

The area was settled as early as 1740 by farmers migrating from eastern North Carolina. John Hinton, who was a major landowner of property along the Neuse River in the vicinity of Milburnie, was a Justice of the Peace in Johnston County and the county seat, then called "Hinton's Quarter" (now Smithfield), was on his brother William Hinton's farm. John Hinton was a representative to the Provincial Assembly from 1760-1762 and Captain in the Johnston County militia. By 1769 he held a commission as Colonel of the county militia, participating in deliberations to control insurgents, the Regulators, with Governor William Tryon. In 1771 Colonel Hinton led the Wake County militia to the Battle of Alamance.

Wake County was established in 1771 from Cumberland, Johnston, and Orange counties; it was named in honor of William Tryon's wife, Margaret Wake Tryon. The county's seat was created in 1771 with the name of Wake County Courthouse. In 1792 the seat became the permanent capital city of North Carolina and renamed "Raleigh" after the famous privateer and sponsor of the original Roanoke colony, Sir Walter Raleigh.

The State Capitol in Raleigh was completed in 1794 and businesses were established nearby (Powell 1968). Many state officials also built residences within the new city. In 1840, the Raleigh & Gaston Railroad arrived in Raleigh, bringing economic prosperity. The new railroad encouraged farmers to commercially produce cotton, tobacco, and turpentine that could be

shipped to other markets (Lally 1994). Once the railroad was established throughout North Carolina, Raleigh was no longer the main trade and exchange center in the state (Lally 1994).

The area relied on slave labor and tobacco production until the Civil War (Barrett 1963). After the Civil War, the once prosperous, large plantations were divided into smaller farms worked by sharecroppers. Despite suffering during the Civil War, the city quickly rebounded, with the establishment of new businesses and industries.

Beginning in 1868, the Project area has been identified as being within the St. Marks Township (also Township 10) of Wake County. Townships in North Carolina were a direct result of the post-Civil War federal occupation government. A new State constitution, adopted in 1868, sought to place more local political control under elected officials rather than appointed officials and thereby established townships.

Roads

Part of the transition from the prehistoric to historic era is the connection of people through transportation routes. Many contemporary roads follow historic trading paths that very likely were preceded by animal migration paths. The network of roads established in the early historic era greatly influenced the development and placement of railroads and other means of transportation and communication. The following summary of the history of roads in North Carolina has been extracted from North Carolina Department of Transportation (NCDOT) 1978 and Lukezic 2002.

The earliest roads in present-day North Carolina have evolved from the trails and trading paths that had been established by native people. The region, however, was slow to develop a rudimentary road network. Although many colonists desired more roads and improved transportation, the sectionalism present in the colony prevented any attempts to do so. Officials living in the eastern counties, who enjoyed sufficient water transportation, controlled the state legislature and did not sympathize with the needs of those living further inland.

During the early-nineteenth century, North Carolina Governor William Miller (1814-1817) called for an improvement for transportation networks. In 1819, Senator Archibald Murphey created a plan for a state-wide transportation system. The state decided to build a certain number of main roads, and each county built and managed its own network of roads that connected with the state roads. This continued until 1920, when the state took over the responsibility for road maintenance and construction of county roads.

Two different methods of road surfacing were practiced in the mid-nineteenth century. One method, developed by Thomas Telford, required a foundation of uniform stones laid in subsoil with smaller stones placed atop this layer to cover any gaps. The other method, developed by John McAdam, implemented a seven- to ten-inch layer of water-impervious stone on top of well-drained subsoil. Roads built using this method were often described as “macadamized.”

Wood was also a popular resource for road surfaces. Wooden plank roads had been in use since the mid-1830s and had been largely promoted because of their durability and profitability. Each plank, approximately 8 ft long, was nailed onto two parallel sills, creating an eight-foot

wide lane. These plank roads were often called "farmer's railroads" because they were used mostly by farmers. Tolls were collected from each traveler on the plank road. The fee was usually one-cent per mile for a single animal, or one-and-one-half-cents per animal hauling a cart, wagon, or similar vehicle.

By 1860, many plank roads in North Carolina were in disrepair. The cost of the wood and labor needed to repair the plank roads was high. Roads that had not deteriorated were mostly destroyed during the Civil War. North Carolina roads remained in poor condition during the remainder of the nineteenth century because there was little funding available to repair them.

Complaints about road conditions were common around the turn of the twentieth century; cyclists and railroad companies, among others, pushed for road improvements. This signaled the beginning of the "Good Roads" movement. During the Good Roads Conference in 1893, the North Carolina Road Improvement Association was established. In 1901, the state-wide North Carolina Good Roads Association formed. In 1916, the Federal Aid Road Act was enacted to provide money for the development and improvement of roads. In 1921, the Highway Act was passed, resulting in the construction of thousands of miles of highways.

Following the 1921 Highway Act, a discussion about establishing a primary highway … running from Raleigh through Wake County and into the eastern section of the State…" suggested that one option would be to use the existing Milburnie road that was "… known in the past as the Old Tarboro road." Milburnie Road was determined to be a greater financial burden to Wake County and was described as requiring numerous changes such as the removal of some dangerous curves and the replacement of some dangerous bridges over the Neuse River and Crabtree Creek (North Carolina Supreme Court, Fall Term 1924, pages 380-381). Because of the difficulties identified in using Milburnie Road for the primary highway, an alternate route, now US 64, was selected for constructing the main highway between Raleigh and the east coast.

RESEARCH METHODOLOGY

Prior to conducting field investigations, the existing historic and environmental documentation relevant to the Project study area was reviewed to develop a summary of the regional prehistory and history and a compilation of previous archaeological research relevant to the Project. A summary of methodology used to conduct the background research, the archaeological survey, artifact analysis and curation, and reporting follows.

Background Research

A variety of sources and facilities provided information about existing and potential archaeological resources within the Project study area. Archaeological site files held at the OSA in Raleigh, NC, were reviewed to identify recorded archaeological resources within the project area. All relevant United States Geological Survey (USGS) topographic quadrangle maps, site forms, and archaeological and cultural resources reports were consulted. Available soil survey publication aerial maps were examined for the locations of structures and information regarding soil conditions.

Architectural files at the North Carolina Survey and Planning Branch in Raleigh were reviewed to determine the location of recorded properties and NRHP Historic Districts within the study area. All relevant USGS topographic quadrangle maps, county indices, individual survey forms, NRHP nomination forms, and architectural survey publications were examined.

Records and documents on file at the North Carolina Geological Survey Office, North Carolina Department of Agriculture, and North Carolina Department of Natural Resources – Dams Program were reviewed for information about the Project study area. In addition, the background research included an examination of county library collections for relevant county and city histories, primarily the Olivia Rainey History Library, North Carolina State University Library, and the North Carolina State Library in Raleigh, the University of North Carolina Library in Chapel Hill, and Duke University Library in Durham.

Other sources of information include historic maps from the nineteenth and early-twentieth century, historic NCDOT county road maps, historic soil survey maps, 1950s USGS topographic quadrangle maps, and the Official Military Atlas of the Civil War.

Research was also conducted online with the Wake County Register of Deeds Office, genealogical research, the North Carolina archives (land grants, deeds, Federal Census records for Agriculture and Manufacturing, historic newspaper accounts), online Civil War Records at the National Archives, and with the University of North Carolina at Chapel Hill historic maps.

Archaeological Survey

Field investigations for the Project followed the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (Federal Register 48) and complied with guidelines for archaeological research that have been established by the NC SHPO. Following the Scope of Work, archaeological investigations were conducted at the survey level.

Field investigations within the Project study area involved visual reconnaissance and systematic and selective shovel testing. When sites were identified, they were recorded with photography and mapping. The maximum length and width of each site was measured and recorded on a site plan. Site dimensions and elevations were recorded on standardized field forms along with sketch maps of site settings and notations regarding landform setting, site aspect, temporal affiliations and density of observed materials, site condition, and nature of site deposits. Representative soil profiles exposed in the shovel tests at each site were recorded by measured field sketches with notations of soil color, texture, and artifact content.

Surface Inspection

Artifacts were collected from the surface, if present, to establish site function and chronology. Surface collection strategies were context specific and varied between prehistoric and historic components. For prehistoric contexts, efforts were made to recover all temporally or functionally diagnostic artifacts (e.g. projectile points/knives and ceramic sherds) visible on site surfaces, as well as a sample of lithic debitage representative of the full range of raw materials and debris types.

For sites with an historic Anglo-American context that is characterized by high densities of diagnostic materials, a sample of artifacts representative of the full temporal and functional range was collected. Historic Anglo-American sites with architectural ruins or associated structural elements were documented with photography, mapping, and measurement. Modern and/or recent evidence of site use was also documented.

Subsurface Investigations

Subsurface investigations were conducted in all areas identified for Tasks 1-3 and 5 that are planned for ground-disturbing activities. This work consisted of systematic excavation shovel tests at 15- to 30-m intervals. Some judgmentally placed shovel tests were also excavated.

Shovel tests measured approximately 30-cm in diameter and were excavated to sterile subsoil or the watertable/hydric soils, if possible. All excavated material was sifted through ¼-inch hardware mesh. The soil color and texture, as well as notes on the stratigraphic relationships of the artifacts, if recovered, were recorded for all shovel tests.

Boundaries for all sites inspected during this archaeological investigation were located on USGS topographic maps. The Universe Transverse Mercador (UTM) site coordinates were established with a Trimble GeoExplorer Global Positioning System with sub-meter accuracy. Sites larger than 30 m by 30 m (100 ft by 100 ft) were recorded as polygons with readings taken at the site boundaries.

Artifact Analysis and Curation

All recovered artifacts were transported to Legacy's office in Durham, NC, for cleaning, sorting, and repacking in archival containers. The cultural and temporal affiliation, material of manufacture, style, function, and form of all recovered artifacts was identified to the fullest extent possible.

All artifacts were weighed in grams and counted. All artifact information was entered into an Access database. Artifacts were labeled with an accession number assigned by the NCOSA, were packed in 4-mil Ziploc bags with an acid-free provenience card, and were boxed in acid-free archival storage containers. Field records, photographs, and artifacts will be curated at the NC OSA, Archaeological Research Center in Raleigh.

Report

This report of the Phase 1 archaeological field investigations meets the requirements of the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation and follows the "Guidelines for the Preparation of Reports of Archaeological Surveys and Evaluations" that has been established by the North Carolina SHPO.

All archaeological sites were recorded on North Carolina Archaeological Site Forms using permanent site and accession numbers assigned by the NC SHPO. Archaeological site forms for all sites or site areas that were revisited during the survey were updated All site information, other than the trinomial site number and NRHP eligibility, is confidential as stipulated in Section 304 of the National Historic Preservation Act (NHPA), as amended (16 USC 470w-3).

NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

Cultural resources identified and/or revisited during the field investigation were inspected at the survey level that did not include an assessment of eligibility for listing in the NRHP.

In general, cultural resources are evaluated using criteria for NRHP eligibility as specified by the Department of Interior (36 CFR Part 60). A recommendation on the significance of cultural resources (archaeological sites and architectural resources) is based on the NRHP-eligibility criteria described in 36 CFR 60.4, as follows.

> Sites, objects, districts, structures, and buildings are determined as worthy of inclusion on the NRHP if "The quality of significance in American history, architecture, engineering and culture is present" in these resources and if they "possess integrity of location, design, setting, materials, workmanship, feeling, association and
>
> a are associated with events that have made a significant contribution to the broad patterns of our history; or
> b are associated with the lives of persons significant in our past; or
> c embody the distinctive characteristics of a type, period, or method of construction that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> d have yielded, or may be likely to yield, information important in prehistory or history."

The majority of archaeological sites that are deemed significant and thus eligible for inclusion on the NRHP fall under the last criterion (d) because of the information that can be retrieved from analysis of archaeological materials. In order to assess that potential of a resource for contributing new or collaborative information to the theoretical and substantive knowledge of archaeology its significance must be determined (Butler 1987:822-823, 828; Townsend et al. 1993). Consequently, researchers must consider how each site does or does not address the questions within the research design and within the framework of other regional research questions.

PREVIOUSLY RECORDED CULTURAL RESOURCES

This section provides a summary of previous cultural resource investigations and previously recorded archaeological sites and architectural resource located within a mile of the Project study area. Research at the NC OSA and the National Register files in Raleigh found a total of five previously recorded architectural resources and eight previously recorded archaeological sites located within a mile of the Project (Figure 13).

Previous Cultural Resources Investigations

A review of the collections held at the NC OSA revealed three previous cultural resource investigations have been conducted in the Project study area. These investigations are discussed below.

The earliest was an archaeological reconnaissance survey for the Neuse River/Perry Creek Sewer Interceptor Project in 1986. The archaeological survey that was conducted in this area (Hargrove 1986) reported that the proposed sewer line corridor is "… away from the site of the Milburnie mill and avoids potential impacts on archaeological remains of the mill." The mill remains on the west side of the river were not recorded in 1986, as they were being avoided by the proposed sewer line. In the summary of this report, it was mentioned that UNC-CH has inspected the Milburnie Dam vicinity "… for signs of late prehistoric and early historic Indian occupation…" that may have been visited by John Lederer in 1672 or John Lawson in 1700/1701.

In 1986, an archaeological survey was conducted in the vicinity of the proposed sanitary sewer line on the west side of the river. This work reported that the proposed sewer line corridor is "… away from the site of the Milburnie mill and avoids potential impacts on archaeological remains of the mill" (Hargrove 1986). The mill remains on the west side of the river were not recorded in 1986, as they were being avoided by the proposed sewer line.

In 2006, TRC and Circa Inc. conducted a survey for the Alvis Farm, Milburnie, and Trott-Strickland project. The fieldwork included an examination of standing structures, as well as a field reconnaissance of known or suspected archaeological site and cemetery locations. A summary of this work in the Milburnie vicinity from Webb and Turco 2006 follows.

Milburnie West: Archaeological field reconnaissance of the Milburnie West tract began with an inspection of the dam and powerhouse area, and was followed by examination of the uplands and limited subsurface investigations at the location of previously recorded archaeological site 31WA27. Reconnaissance of the dam and powerhouse area (outside the park boundaries) was limited, but identified a large depression on the terrace southwest of the powerhouse, which could represent a former structure location. South of that area the terrace (east of the sewer line) appeared relatively undisturbed, although this was not confirmed through subsurface investigations. To the north of the dam and powerhouse, two mortared stone pillars were located a short distance back from the river bank. These pillars appeared to be aligned with an embankment visible across the river, and were identified as possibly representing the former route of Tarborough Road (the predecessor to US 64).

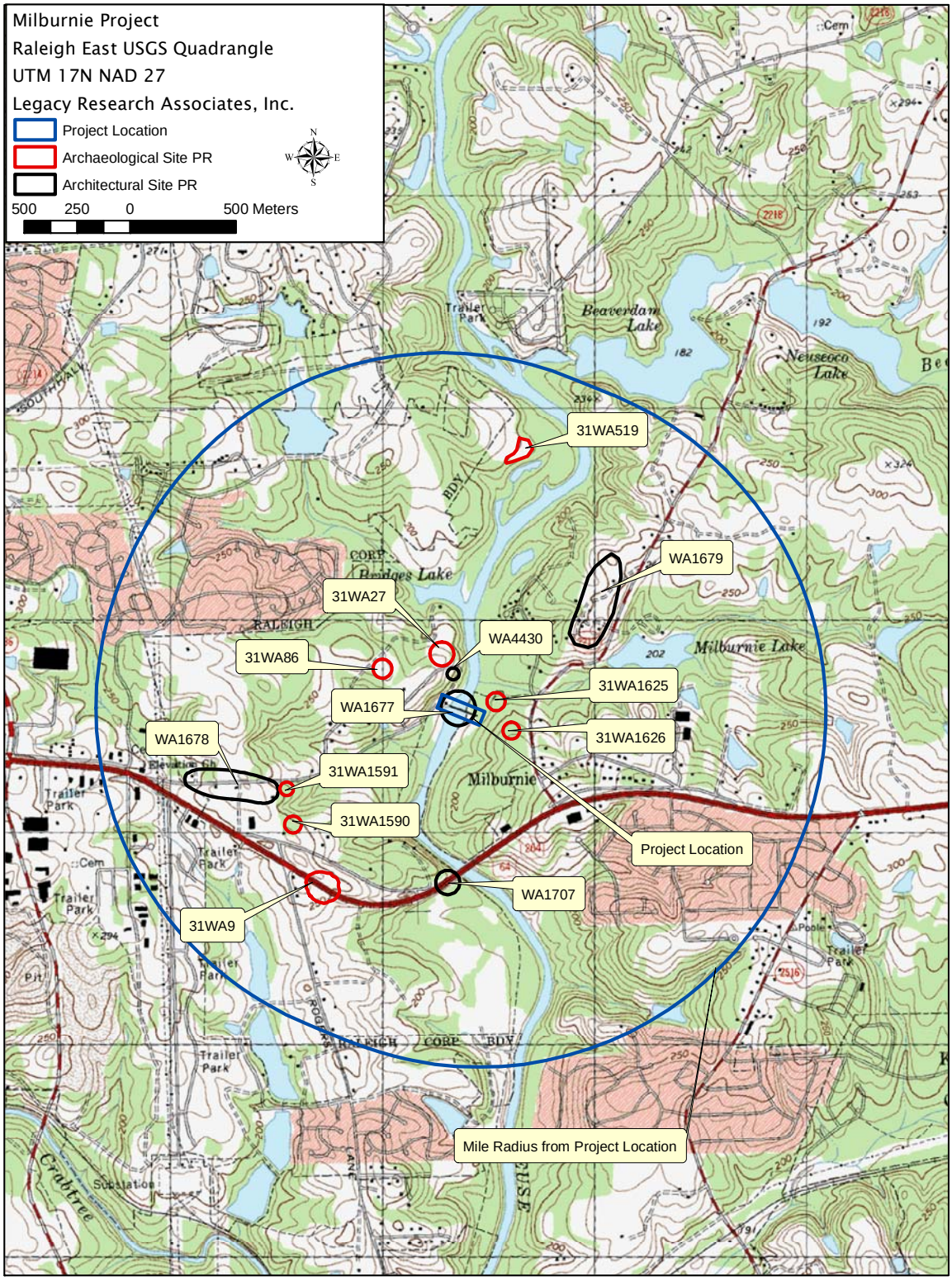


Figure 13. USGS topographic quadrangle map (Raleigh East) showing the location of previously recorded architectural resources and archaeological sites within a mile of the Project.

A short section of a similar embankment was visible to the west of the piers. The piers were identified as bridge abutments and were presumably associated with the iron bridge described by Hinton (1903) or its successor. The two stone piers, located on the west bank of the river approximately 300 ft north of the dam, were recorded as an architectural resource (WA4330) and were reported as probably dating from around 1920 (Webb and Turco 2006). Note: this area was revisited by Legacy in 2014 during the Milburnie Project archaeological survey; the stone piers and embankment (bridge approach) are now included as components to archaeological site 31WA1873**.

Examination of the wooded fringe west of the sewer line in 2006 identified a group of mortared piers and an associated brick chimney base, which appear to represent a former dwelling site. The bricks appear modern, and this site almost certainly dates to the mid-twentieth century. It was not formally recorded or delineated, but is unlikely to be eligible for the NRHP. Note: this area was revisited by Legacy in 2014 during the Milburnie Project archaeological survey and recorded as Area 5 of 31WA1872/1872**.

Milburnie East: Field reconnaissance of the Milburnie East site began with examination of the dam area and adjacent area. As discussed above, the dam extends a considerable distance east of the river in this area, and exhibits a right-angle turn as well as at least one drainage feature. The dam has impounded a large wetland and marsh on the east side of the river, which is bisected by an east-west oriented dirt embankment; the embankment lines up with the piers across the river, and is almost certainly the former road tract. A cut-out area is visible in the hillslope southeast of the embankment, and could represent a former structure location.

The Milburnie East property was revisited in 2007 for additional background studies and a field assessment, which included excavating 26 shovel tests at 10- and 15-m intervals across 31WA1625/1625** to determine the northwestern site boundary (Figure 14; Olson 2007). This work resulted in recovering 279 prehistoric artifacts. The ceramics include Vincent series cord-marked, fabric-impressed, and cord-wrapped decorations of the Middle Woodland period (AD 200-800). Site 31WA1625/1625** was found to have areas with intact soils containing prehistoric materials and indications that subsurface features may be present. The historic component consisted of a surface scatter of bricks and other above-ground evidence that indicated "… at least two or three buildings in the northern and western part of the site." Historic artifacts include whiteware, stoneware, hand-made and machine-made bricks, mortar fragments, window glass, container glass, machine-cut and wire nails. The interpretation regarding historic site occupation was that the structural remains and architectural artifacts indicated occupation during the mid to late 1900s, when the papermill and gristmill were in operation. The remains were considered to be domestic and probably not industrial.

The most recent nearby archaeological investigations were conducted prior to the construction of the Neuse River Trail (Seibel and Russ 2011). The areas of investigation identified for the archaeological work included the locations of previously recorded archaeological sites (31WA27/27**, 31WA214/214**, 31WA1617**), as well as the parking lot planned near Mial Plantation Road; the survey did not include the Milburnie Dam area.

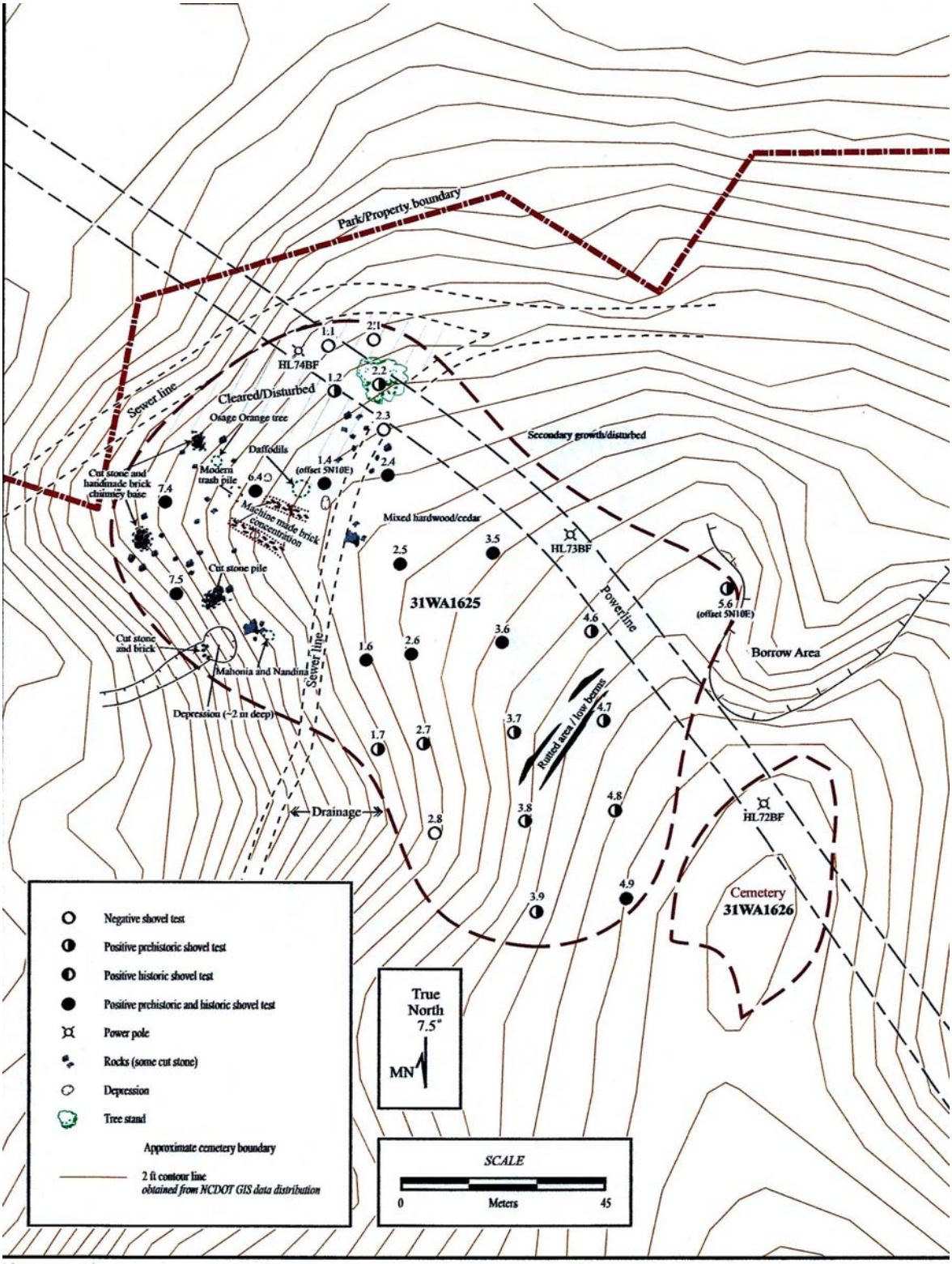


Figure 14. Site 31WA1625/1625**, site plan from the additional archaeological investigations conducted in 2007 (Olson 2007).

Previously Recorded Architectural Resources

The five previously recorded architectural resources within a mile of the Project study area include WA1677, WA1678, WA1679, WA1707, and WA4330 Two of these resources (WA1677 and WA4330) are within the Project study area and are summarized from the architectural survey records below.

- WA1677 (Milburnie Dam) was reported as being built around 1900 for the Raleigh Ice & Electric Company. It spans the Neuse River and extends for hundreds of feet into the river's east bank. The dam includes buttresses, right-angle turns, and a drainage system. The 1994 architectural survey record only included the dam as it spans the Neuse River and extends into the eastern river bank. It did not include the modern facility built on the historic powerhouse foundation on the west bank.

- WA4330 (Stone Bridge Piers) are located on the west bank of the river approximately 300 ft north of the dam. These were reported as probably dating from around 1920 (Webb and Turco 2006). The piers are about 10-ft high and 3-ft wide and are constructed of uncut stone and concrete mortar. It was reported in 2006, that the bridge piers seem to align with an earthen embankment, possible former road bed, on the east side of the river.

The other three architectural resources that lie outside the Project study area, but within a mile of the Project, were surveyed and recorded in 1990. These resources are: WA1678, bungalows and pyramidal cottages; WA1679, the Joseph Collier Farm; and WA1707, a roadside picnic and rest area.

Previously Recorded Archaeological Resources

The eight previously recorded archaeological sites have been identified within one-mile of Milburnie Dam include 31WA9, 31WA27, 31WA86, 31WA519, 31WA1590**, 31WA1591**, 31WA1625, and 31WA1626**. Only one of these sites (31WA1625/1625**) is located within the Project study area and is summarized below (Webb and Turco 2006; Olson 2007). A summary description of the investigations and subsurface testing at this site in 2006 and 2007 follows.

- 31WA1625/1625** is a multicomponent prehistoric (Middle Woodland period – AD 200-800) and historic (early to mid-nineteenth and early-twentieth-century domestic) site. Site testing found intact soils with a moderate density of prehistoric materials, including lithic and ceramic artifacts. It was determined that subsurface features – such as hearths or storage pits – may be present at the site. The historic component was associated with the late-eighteenth-century to mid-nineteenth-century Hinton plantation, a community known as "Milburnie," the mid-nineteenth-century Neuse Manufacturing Company, and likely Civil War-related activities. The historic component yielded a moderate density of historic artifacts as well, along with a number of above-ground cultural features such as the stone chimney foundations, brick piles, and other landscape elements. The site was recommended for further evaluation to identify, delineate, and evaluate the site and determine the extent of the damage from vehicular traffic, erosion, and minor earth-moving along the cleared utility corridors.

The remaining seven archaeological sites that are within a mile of the Project, but outside the study area are described below.

- 31WA9 is a prehistoric site that was recorded in 1963. The NC Archaeological Site Form reports that the site components range from the Paleoindian period through the Late Archaic period and that the artifact types are debitage.

- 31WA27 was originally recorded in 1979 by Ralph Bunn (UNC-CH) and revisited in 2006 during the survey for the Alvis Farm, Milburnie, and Trott-Strickland parks (Webb and Turco 2006) and in 2011 during the survey for the Neuse River Trail (Seibel and Russ 2011). Artifacts from 1979 are curated at UNC-CH (RLA Accession Numbers 2274a71–p74) and include projectile point/knives from the Early Archaic period to the Early Woodland period and Woodland period ceramics. The 2006 site inspection found some disturbance, but determined that most of the site was relatively undisturbed. Subsurface testing documented a 20-cm thick buried A horizon overlying the B horizon. One prehistoric non-diagnostic lithic artifact was recovered from this zone. During 2011, two of 16 shovel tests excavated at the site yielded prehistoric and historic artifacts (Seibel and Russ 2011). The prehistoric component had good integrity. There were no temporally diagnostic artifacts other than a very small ceramic sherd. Overall there was a low density of artifacts, and there were no lithic tools. Furthermore, the historic component of the site was reported as having no archaeological integrity as a result of the house remains having been bulldozed. The site was recommended as being not eligible for the NRHP.

- 31WA86 is a small prehistoric lithic site recorded in 1974. Artifacts from the site are curated at the NCDCR curation facility (WA56001-2) and include primary debitage. During the 2006 investigations for the Alvis Farm, Milburnie, and Trott-Strickland parks (Webb and Turco 2006), no attempt was made to relocate the site due to indeterminate location from the original site plan; field reconnaissance in the general area found numerous piles of recent debris, but no evidence of a structure that was indicated on the USGS map.

- 31WA519 – UNC Site Wa3/Raleigh East 3 was recorded in 1986. This site lies on the west side of the Neuse River about halfway between Beaverdam Lake and Bridges Lake. Artifacts from this site include eight lithic flakes and one water-worn cobble fragment that was identified as a "doubtful Chunkee stone." Potential impacts to the site in 1986 were identified as erosion and subsoiling and possible residential development.

- 31WA1590** and 31WA1591** are historic cemeteries.

- 31WA1626** is a cemetery that was recorded in 2006 during the Alvis Farm, Milburnie, and Trott-Strickland parks survey (Webb and Turco 2006). This site is located outside the Project study area. The cemetery has a least 12 grave depressions and 10 possible grave depressions within the CP&L powerline corridor and extends to the north and south into the wooded area adjacent to the corridor. The cemetery was reported in 2006 as having four stone markers among the grave depressions and an old road trace runs alongside the graves, leading north and east toward Old Milburnie Road.

HISTORY OF MILBURNIE DAM

Periods of Occupation

Historically, the earliest known occupation of the Milburnie area on both sides of the Neuse River was by Colonel John Hinton (1715-1784). During the mid to late eighteenth century, Col. Hinton acquired several large tracts of land along the Neuse "beginning some distance above Milburnie and extending far into Johnston County" (Hinton 1915). His land, which includes Milburnie Dam, was inherited by his son, Major John Hinton in 1784. His descendants sold land that became Neuse Manufacturing Company in 1853 and then became Raleigh Ice & Electric Company in 1899 until 1916 when the property was acquired by Carolina Power & Light (CP&L). In 1934 CP&L sold the land to Samuel Warren Twiggs, who operated a grist mill at Milburnie until the early 1940s when mill shut down. Twiggs leased the Milburnie property to Solar Research Corporation in the 1970s for a modernized hydroelectric facility, known as the Milburnie Hydro Project that ended operation sometime between 2006 and 2009. The following is a description of the Milburnie Dam property beginning with the ca. 1760 Granville Land Grant to Col. John Hinton and ending with the Solar Research Corporation hydroelectric facility lease in 2013.

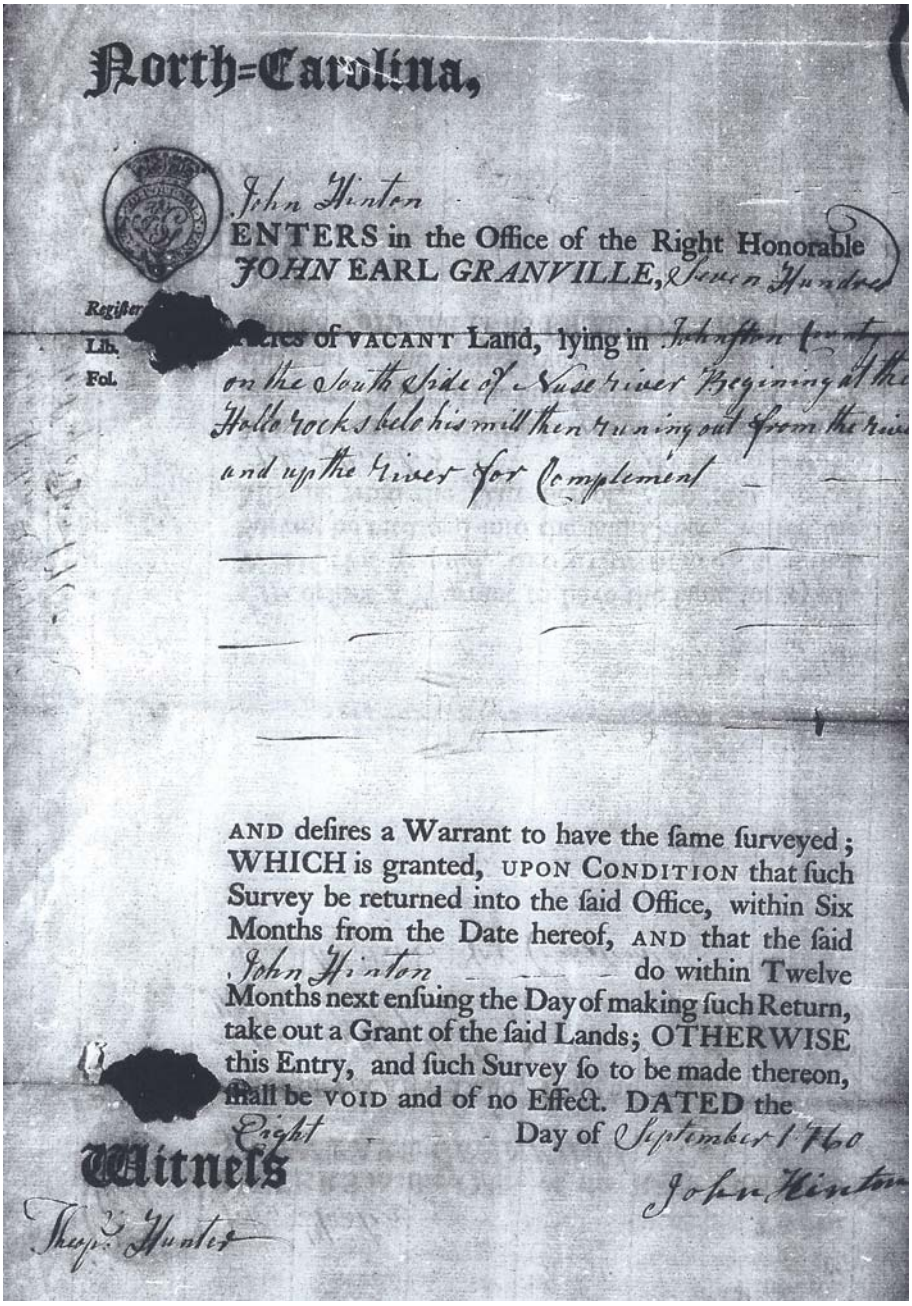
Colonel John Hinton and Descendants (1760-1853)

One of the largest landowners in the early days of Wake County, then Johnston County, was Col. John Hinton (1715-1784). During the eighteenth century, land grants could be purchased directly from any of the eight Lords Proprietors, who were assigned by King Charles II in the 1660s. The acquisition of land from a Lords Proprietor was known as a "Land Patent" or "Land Grant." Some of Col. John Hinton's land had been granted to him by the 8th Lords Proprietor, John Carteret, Earl of Granville, and is referred to as being located within the Granville District. Land grants in the Granville District are often known as "Granville" land grants.[5]

One of Col. Hinton's early grants (ca. 1743) was for 136 acres that are described in general terms as being located on the west bank of the Neuse River. Hinton's ca. 1743 land grant was followed by multiple land grants that eventually totaled approximately 22,000 acres. One is dated September 8, 1760, and describes the property as "700 acres on the Neuse River … beginning at the hollow rocks below his mill" (Figure 15) (NC Archives S.108.270-283, folder 12.12.47.15). This reference to Hinton's mill on the Neuse River at the Milburnie location very likely establishes the earliest reference to the historic use of the falls at Milburnie for milling.

In 1784, Col. Hinton's land was inherited by his four sons: John (Major John Hinton), Kimbro, James, and David. The late-eighteenth-century deed records are not clear on the specific division of Col. John Hinton's land; nor is there information about his ca. 1760 mill on the Neuse River. However, upon Major John Hinton's death in 1818, it appears that Col. John Hinton's mill seat was inherited by his son, Major John Hinton (www.midwayplantation.com/wills/1818.doc.). Major Hinton's sons (William and John Jr.) and daughters (Grizzel and Elizabeth) inherited the property in 1818. The descriptions for these tracts of land refer to mill dams, mill ponds, a bridge, and Tarborough Road).

5 The Granville District was a large tract of land created in 1744 and owned by John, Lord Carteret, who became the Earl of Granville.



North=Carolina,

John Hinton
ENTERS in the Office of the Right Honorable
JOHN EARL GRANVILLE, Seven Hundred
Register
Lib.
Fol.
[illegible] of VACANT Land, lying in Johnston [illegible]
on the South Side of Neuse river Beginning at the
Hollo rocks below his mill then running out from the Rive
and up the River for Complement

AND desires a Warrant to have the same surveyed;
WHICH is granted, UPON CONDITION that such
Survey be returned into the said Office, within Six
Months from the Date hereof, AND that the said
John Hinton do within Twelve
Months next ensuing the Day of making such Return,
take out a Grant of the said Lands; OTHERWISE
this Entry, and such Survey so to be made thereon,
shall be VOID and of no Effect. DATED the
Eight Day of September 1760

Witness
Thos. Hunter

John Hinton

Figure 15. Granville Land Grant of 700 acres on the Neuse River to John Hinton dated September 8, 1760 (North Carolina State Archives).

William received 1,280 acres of land on both sides of the Neuse River, including one tract of land on the east side next to a "small drain below the mill dam" that I (Major John Hinton) am "now erecting on said River at the Falls above the bridge."[6]

6 Major John Hinton's father, Col. John Hinton also had a mill known as Hinton's Mill in 1760.

> John Jr. received 1,875 acres including a parcel on the east side of the Neuse River that extended to the "south side of William Hinton's mill pond" then to "Tarborough road."
>
> Grizzel received 1,394 acres on both sides of the Neuse River, with no mention of a mill or roadways.
>
> Elizabeth received 1,486 acres on the east side of the Neuse River including the road leading by "William Hinton's mill," to the "south side of William Hinton's mill pond," to "Tarborough Road," and then to a "small drain below the mill dam that I (Major John Hinton) am now erecting on said river at the Falls above the bridge."

The mention of a mill dam that Major Hinton was erecting, as stated in his 1818 will, indicates that more than one mill dam was across the Neuse River at Milburnie during the eighteenth and nineteenth century. The mill dam referred to in Major Hinton's will more than likely associated with a gristmill and possibly a sawmill, as it was preceded by the mill his father Col. Hinton owned in 1760.

Gristmills that were used to grind corn, wheat, and other grains into flour and meal were common in eighteenth- and nineteenth-century North Carolina. Research by Hobbs (1985) reports that the first recorded North American gristmill was built in Jamestown, Virginia, in 1621. As settlers moved from the Jamestown area into what is now northeastern North Carolina, they carried their milling techniques with them and began building small mills to grind grain. Gristmills generally operated by guiding a stream of water into a waterwheel, which provided the power to rotate the series of huge millstones that crushed the grain into progressively smaller pieces. Most early North Carolina gristmills were situated along creeks for a source of waterpower, usually near natural falls. Many gristmills had saws attached so that the waterpower could be used to grind flour and saw lumber. Power was increased by building dams. At some mills, millraces were built to carry water to the mill, particularly those equipped with an overshot type of wheel.

One historic map that depicts the Milburnie area during the time that Major John Hinton owned the land is the 1798 Price and Strother Map of North Carolina, which was the first topographical map of North Carolina (Figure 16). This map shows a roadway heading east from Raleigh and crossing the Neuse River near the "Hinton" notation; the road is later known as "Tarboro Road." No mill is identified on this map.

A map dating 35 years later, known as the McRae-Brazier 1833 Map of North Carolina, depicts a bridge over the Neuse River that is identified as "Hinton's B." and an unnamed road that leads east and west that is very likely the historic "Tarboro Road" (Figure 17). No mill is identified on this map. At this period of time, the Milburnie Dam property was owned by Elizabeth Hinton on the east side of the Neuse River and by William Hinton on the west side of the Neuse River.

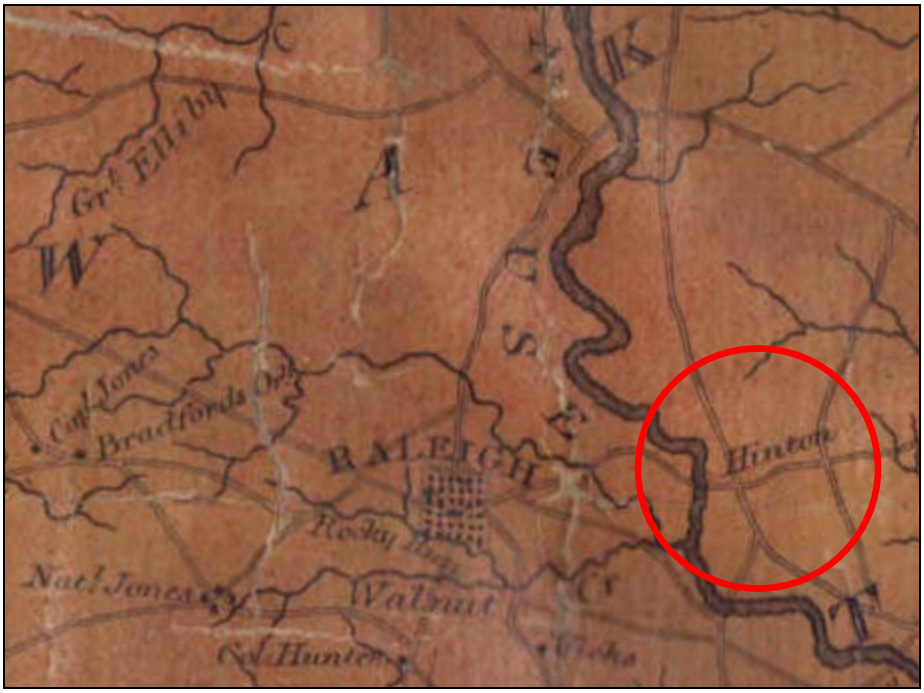


Figure 16. Excerpt of the Price and Strother 1798 *This First Actual Survey of the State of North Carolina*. Note: this map shows "Hinton" and bridge over the Neuse River and a roadway leading west to Raleigh and eastward.[7] http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/1210

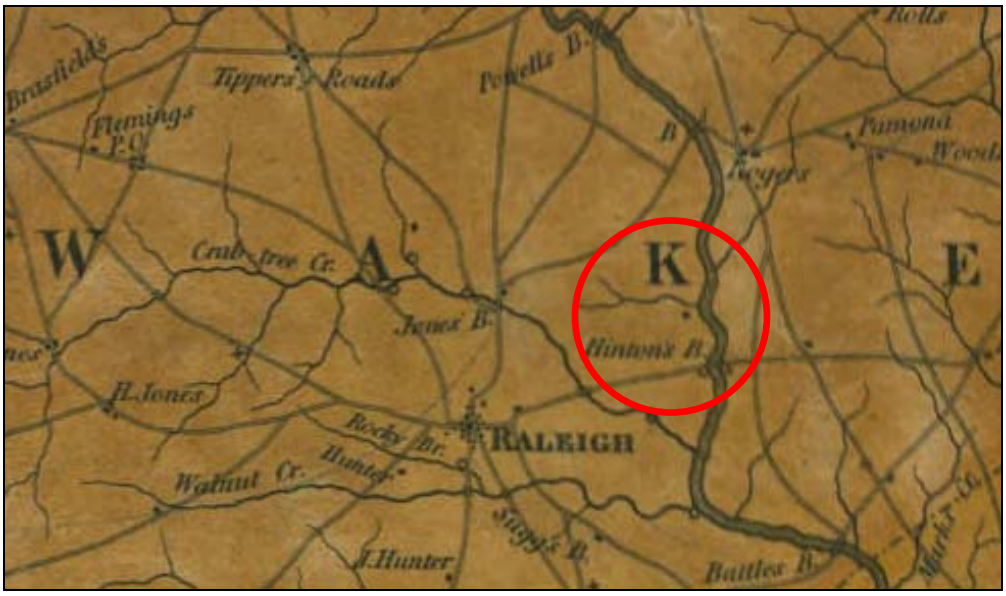


Figure 17. Excerpt of the MacRae-Brazier 1833 *A New Map of the State of North Carolina* showing "Hinton's B." over the Neuse River.[8] http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/181

7 First topographical survey map of the State of North Carolina. Original map title: "To David Stone and Peter Brown, Esq.: this first actual survey of North Carolina taken by the subscribers is respectfully dedicated by their humble servants, Jona. Price and John Strother.," 1798. UNC Library North Carolina Maps

Neuse Manufacturing Company (1853-1899)

Beginning in 1853, the Milburnie property was acquired by Neuse Manufacturing Company for the purpose of building a water-powered papermill. A description of the land acquisition for the Neuse Manufacturing Company is presented below in two sections that correspond with its location along the river, because land on the east side of the river had been conveyed to Neuse Manufacturing Company by Elizabeth Hinton and the land on the west side of the river came to Neuse Manufacturing Company indirectly from William Hinton's heirs.

East Side of the Neuse River Land Acquisition

Between 1853 and 1854, Major Hinton's heir, Elizabeth Hinton sold land on the east side of the Neuse River to the Neuse Manufacturing Company (Table 4). The earliest conveyance from Elizabeth Hinton to the Neuse Manufacturing Company provided access to the road near Peachtree Branch for their "workman's horses, carts, carriages, etc.... for the making and constructing in an upon said lands passageways and aqueducts for carrying said waters, and for the amending, clearing, and repairing the same ... for the purpose to dig and take stones and earth from the lands...". (Wake County, NC, Deed Book 33:379-380). The following year, Elizabeth sold five acres on the east side of the Neuse River to the Neuse Manufacturing Company described as "beginning on the backwaters of Peach Tree branch" (Wake County, NC, Deed Book 33:381).

Table 4. Chain of Title for the Hinton to Neuse Manufacturing Company Conveyances on the East Side of the Neuse River (1818-1854).

Date	Grantor	Grantee	Description	Will Book/Deed Book Reference
25 August 1818	Major John Hinton, estate	Elizabeth Hinton	1,486 acres including "...a small drain next below the mill dam which I am now erecting on said river at the Falls above the bridge..."	Will probated in the November 1818 Term of the Wake County Court – Will 426, Will Book 14:367
2 November 1853	Elizabeth Hinton	Neuse Manufacturing Company	access to the road near Peachtree Branch for their "workman's horses, carts, carriages, etc.... for the making and constructing in an upon said lands passageways and aqueducts for carrying said waters, and for the amending, clearing, and repairing the same ... for the purpose to dig and take stones and earth from the lands...".	Wake County Deed Book 33:379-380 Registered 2 February 1872
11 December 1854	Elizabeth Hinton	Neuse Manufacturing Company	5 acres on the east side of the Neuse River described as "beginning on the backwaters of Peach Tree branch..."	Wake County Deed Book 33:381 Registered 2 February 1872

Several years later, in 1859, Joshua R. Hinton, son of William Hinton, sold one additional acre of land directly to the Neuse Manufacturing Company; this land extended from "the mill of the Neuse Manufacturing Company, then north to Peachtree Branch" (Wake County, NC, Deed Book

8 The MacRae-Brazier map of 1833 is the second state map of North Carolina and is based on surveys by Robert H. B. Brazier conducted as state surveyor for the Board of Internal Improvements. The map incorporates much of the information accumulated from surveys undertaken by the state's program of internal improvements. This map also contains many more place names than the Price-Strother map of 1808.

22:485). This land had been acquired by Joshua Hinton from his father, William Hinton, on March 15, 1836, and is described as "… adjoining Hinton's Mill tract on the east side of the Neuse River beginning at the mouth of the drain below the fish trap… then to the mouth of Peachtree Branch, containing one acre…" (Wake County, NC, Deed Book 12:267).

West Side of the Neuse River Land Acquisition

The earliest documented deed book reference to the acquisition of land on the west side of the Neuse River by the Neuse Manufacturing Company is dated May 17, 1853. This land conveyance was from Sion Rogers and states that the 210-acre property that was located on the Neuse River … and was "known as part of the Hinton Mill Tract including the Grist and Saw Mills beginning on the West side" of the Neuse River at the mouth of a branch above the mills (Wake County, NC, Deed Book 19:556-557).

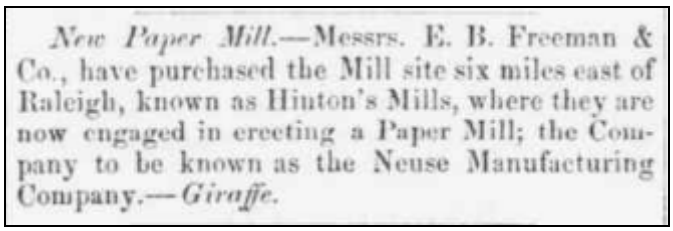
The chain of title for this land connects the property on the west side of the river with land that William Hinton inherited from his father, Major Hinton, in 1818 (Table 5). Upon William Hinton's death in 1835 this land was passed to his son, Addison Hinton. Within a year, Addison sold the land to his brother, Joshua Hinton. Two years later, in 1839, Joshua sold the land to William Shauck. Within five years, the property was in the hands of George Haywood and then sold to the Neuse Manufacturing Company by Sion Rogers, who was the president of the company. All of the land conveyances for this property describe it was being approximately 210 acres on the west side of the Neuse River, known as Hinton's Mill Tract including the grist and saw mills and cotton gin.

Table 5. Chain of Title for the Hinton to Neuse Manufacturing Company Conveyances (1818-1853).

Date	Grantor	Grantee	Description	Wake County Deed Book Reference
25 August 1818	Major John Hinton, estate	William Hinton	1,280 acres of land on both sides of the Neuse River, including one tract of land on the east side next to a "small drain below the mill dam" that John Hinton was "now erecting on said River at the Falls above the bridge	Will probated in the November 1818 Term of the Wake County Court – Will 426, Will Book 14:367
18 March 1836	William Hinton	Addison Hinton	400 acres on the west side of the Neuse River including Hinton's Mills	Deed Book 12:267-268
3 January 1837	Addison Hinton	Joshua Hinton	210 acres on the west side of the Neuse River, known as Hinton's mill tract including the grist and saw mills and cotton gin	Deed Book 12:349
15 November 1839	Joshua Hinton	William Shauck	210 acres on the west side of the Neuse River, known as Hinton's mill tract including the grist and saw mills and cotton gin	Deed Book 15:169
10 February 1844	William Shauck	Geo. Haywood, Trustee, et al.	202 acres on the west side of the Neuse River, formerly known as Col. William Hinton's mill	Deed Book 16:129
17 May 1853	Sion Rogers, et al.	Neuse Manufacturing Company	210 acres on the west side of the Neuse River, known as part of the Hinton Mill Tract including the grist and saw mills	Deed Book 19:556-559

In addition to the documentation pertaining to the sale of land from the Hinton family to Neuse Manufacturing Company, one other historic reference was found that appears to complicate the understanding of who acquired the property. In May 19, 1853, the *Fayetteville Observer* reported

that EB Freeman & Company purchased a "New Paper Mill," known as Hinton's Mills, six miles east of Raleigh (Figure 18). The announcement stated that the E. B. Freeman & Company would be "erecting a Paper mill; the Company to be known as the Neuse Manufacturing Company." A search of the Wake County grantee and grantor index found several records for EB Freeman & Company; however, all are dated between 1892 and 1902, long after the Neuse Manufacturing Company ended the papermill operation at Milburnie, and none of these documents refers to the Neuse Manufacturing Company.



New Paper Mill.—Messrs. E. B. Freeman & Co., have purchased the Mill site six miles east of Raleigh, known as Hinton's Mills, where they are now engaged in erecting a Paper Mill; the Company to be known as the Neuse Manufacturing Company.—*Giraffe.*

Figure 18. *Fayetteville Observer* May 18, 1853, Announcement of the "New Paper Mill" … "known as Hinton's Mills" … "to be known as the Neuse Manufacturing Company."

Neuse Manufacturing Company was an early Wake County papermill, sometimes referred to as "Milburnie Paper Mill." Sion H. Rogers[9] was the president of this mill; H. H. Husted was the treasurer; and James D. Royster was the mill superintendent. Construction on the Neuse Manufacturing Company papermill at Milburnie began in 1853, as indicated in the conveyance from Elizabeth Hinton that granted Neuse Manufacturing Company access to her land for the purpose of taking stones and soil (Wake County, NC, Deed Book 33:379-380). The mill was in operation until it reportedly was burned by Federal troops in 1865. The property continued to be owned by the Neuse Manufacturing Company until it was sold under court order in 1899 and was converted for use as a hydroelectric facility by Raleigh Ice & Electric Company to provide electric power to the City of Raleigh.

A 1941 publication about the history of North Carolina (Henderson 1941:379-380) reported that:

> One of the minor industries in North Carolina often overlooked was the manufacture of paper. Paper had been made at Winston-Salem before the Revolutionary War and in 1777 to meet the extreme shortage in paper in the region and in the south; a paper mill was erected at Hillsboro in Orange County (NC). This and other early mills used rag stock since the era of pulp paper did not draw until much later.[10] There was an early

9 Sion Hart Rogers (1825-1874) North Carolina congressman and attorney general. During the American Civil War, he served in the Confederate States Army as a lieutenant in the 14th Regiment of North Carolina State Troops in 1861; was commissioned colonel of the 47th North Carolina Infantry April 8, 1862, and resigned January 5, 1863, upon being elected attorney general of the State of North Carolina. Rogers served as North Carolina Attorney General until 1866.

10 During the eighteenth century, papermaking spread throughout colonial America, but it was not until the early nineteenth century that new technology enabled papermaking to become a real industry, with the introduction first of the Hollander, a device for beating rags into fibers, and then of the more sophisticated Fourdrinier machine, which further sped the reduction of rags to their constituent fibers. The modern industry got its start after the U.S. Civil War, when it was discovered that wood fiber derived from softwood trees lent itself to conversion to fiber and that fiber could be converted in turn into pulp—a watery slurry of tree fibers that could be formed in sheets or rolls by laying it out on a flat or curved surface. Various processes were used to produce pulp, either grinding the wood or dissolving the substances holding the fibers together, or exposing them to chemicals. http://historybusiness.org/2647-papermaking-industry.html?newsid=2647&seourl=papermaking-industry

> paper mill at Lincolnton and prior to the Civil War a paper mill was operated on the Neuse River in Wake County. Shortly after 1870, the Neuse Manufacturing Company opened another plant and continued operation until 1897.[11]

A summary of North Carolina's papermill history reports that by 1896 North Carolina had ten water-powered papermills and all made paper from rags and cotton waste (Stevenson 2006). Wake County had three papermills: Raleigh Paper Mill (1808-65), Neuse Manufacturing Company (1853-65), and a mill at the Falls of Neuse (1870-96). The primary products of these mills were printing paper and wrapping paper, but some also manufactured writing, blotting, and manila paper.

Further discussion of the Milburnie papermill claimed that the mill was situated "where a small stream came into the main stream of the Neuse, because clear water is necessary for making paper" (Clark 1901). The Milburnie papermill is also discussed in *The History of Printing in North Carolina 1749-1946*. Reportedly, Cornelius B. Edwards, later co-owner of Edwards and Broughton printing company in Raleigh, started his career by working at Milburnie papermill around 1857. He described working twelve-hour shifts, six days a week starting at midnight on Sunday. Edwards reported that the Milburnie papermill made paper for the North Carolina State papers and had a standing order with the *New York Times*. Recalling his experience working at the mill as a boy, Mr. Edwards claimed that he had felt resentment toward an officer of Sherman's 14th Corps, who had come to Raleigh on Tarboro Road and started a fire that caused at least $200,000 worth of damage (Pascal and Daniels 2012:147-148).[12]

Activity at the Milburnie papermill is reported in the *1860 US Industry Census for Wake County* (*Schedule 5*) as the only papermill in Wake County. It is identified as "Neuse Manufacturing." The annual product for the business was 520,000 pounds of paper that were produced from rags and bleaching material. Contemporary newspaper announcements about the Neuse Manufacturing Company provide some insight into the business activity less than a month after the Civil War began (Fort Sumter – April 12, 1861). These announcements follow.

> SEMI-WEEKLY RALEIGH REGISTER, May 7, 1861
> Rags—Neuse Manufacturing Company—Our customers will please hold up their Rags for a few weeks, until we can find, or make a market for our paper. This will probably be soon after the 20th of May, of which notice will be given in the public press. For the present, we only want enough to keep the machines from rusting.
> Sion H. Rogers, President.
> H. W. Husted, Treasurer
> James D Royster, Mill Supt.
>
> SEMI-WEEKLY RALEIGH REGISTER, June 19, 1861
> The Neuse Manufacturing company have on hand a general assortment of News and Book paper also, Post Office, Newspaper and Cartridge Wrappers, prime quality, and a large quantity of common writing paper.
> Address H. W. Husted, Treasurer

11 Archibald Henderson (1768-1822), North Carolina congressman, legislator, and lawyer. His chief distinction was his long and extensive practice of law.

12 Many years later, around 1871, Cornelius Edwards and a friend Needham B. Broughton started a printing company named Edwards & Broughton Printing that successfully continued in business until 1946) (Pascal and Daniels 2012:147-148).

> SEMI-WEEKLY RALEIGH REGISTER, November 13, 1861
> Milburnie Paper Mills, Raleigh, N. C.
> The Neuse Manufacturing Company [will] pay cash and the highest market price for Cotton and Linen Rags, (N. B.—Not Woolen Rags.) Present price 3 cents per pound, delivered at either or Depot in Raleigh
> Address S. H. Rogers, Pres't
> H. W. Husted, Treas'r

A search of the National Archives records for Neuse Manufacturing Company found that by 1862, Milburnie Mills (Neuse Manufacturing Company) was providing paper to the Confederate Army to make paper cartridges. Paper cartridges were used in muzzleloading firearms throughout the Civil War; afterward they were replaced by modern metallic cartridges. The paper cartridge combined a pre-measured amount of powder with the ball in a sealed unit. This eliminated the operation of measuring the powder during loading.

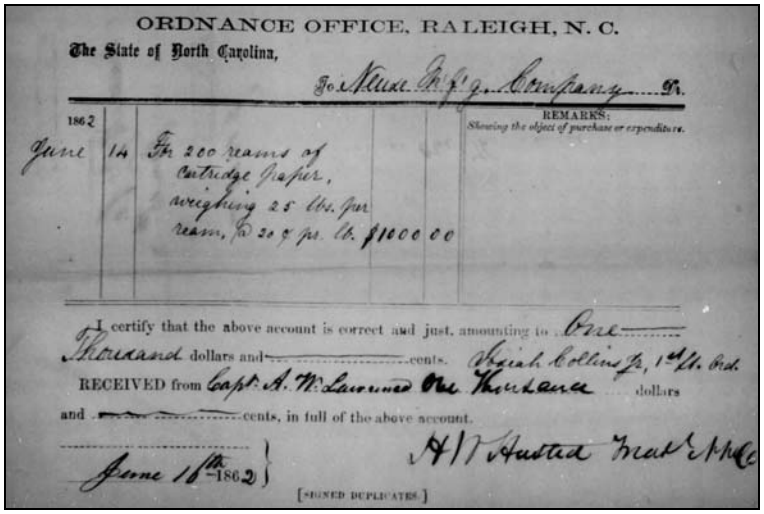
Several ca. 1862-1864 receipts and letters from Milburnie Mill to the Confederate States document orders from the State of North Carolina Ordnance Office in Raleigh for cartridge paper from Neuse Manufacturing Company in June 1862[13], as well as receipts to the Quarter Masters Department in Raleigh from Neuse Manufacturing for payment on "damaged cotton" that would be used to make paper cartridges (Figures 14-16).

A report dated September 15, 1862, from Murdock John McSween of the 26th and 35th North Carolina Infantry, writing from Conscription Camp Holmes near Raleigh as Long Grabs, mentioned describes the North Carolina papermills.

> The paper mills near here are worthy of extended notice. The Forestville Mills, some miles north of Raleigh, and the Neuse River Manufacturing Company, several miles east, are said to be the largest and most complete establishments of the kind in America. The paper made here is superior to any made in the South, and equal to any at the North, and much cheaper and in larger quantities. It is a remarkable fact that the New York Tribune, Times and Express, and all the Charleston papers and others North and South, were for years supplied with paper from these mills. The mills are kept going night and day now, and the owners are coining money.

On April 10, 1865, General Sherman's Carolinas Campaign advanced towards Raleigh. On April 13, Federal troops occupied Raleigh, and four days later, surrender negotiations were conducted at Bennett Place near Durham Station. After President Andrew Johnson's rejection of Sherman's preliminary agreement, the two commanders met on April 26 and agreed to terms virtually identical to those Lee had received from Grant at Appomattox Court House. The resulting surrender was the largest of the war, embracing almost 90,000 Confederate troops in the Carolinas, Georgia, and Florida.

13 North Carolina seceded from the Union on May 20, 1861, after the fall of Fort Sumter.


ORDNANCE OFFICE, RALEIGH, N. C.

The State of North Carolina,

To Neuse Mf'g. Company Dr.

1862					REMARKS: Showing the object of purchase or expenditure.
June	14	For 200 reams of cartridge paper, weighing 25 lbs. per ream, @ 20 ¢ pr. lb.	$1000	00	

I certify that the above account is correct and just, amounting to One Thousand dollars and ..... cents. Josiah Collins Jr, 1st Lt. Ord.

RECEIVED from Capt. A. W. Lawrence One Thousand dollars and ..... cents, in full of the above account.

June 16th 1862 } A W Husted Mat'l N.M.C.

[SIGNED DUPLICATES.]

Figure 19. Payment for 200 reams of cartridge paper weighing 25 pounds from the State of North Carolina Ordinance Office in Raleigh to Neuse Manufacturing Company signed WH Husted and dated June 14, 1862 (National Archives ID 2133274, Record Group 109, Roll 0486, Document 223).

No. 23

4th Quarter, 1863

Neuse Manufacturing Co

$10.005 Dollars, — Cents,

Paid October 31 1863

Ordnance Service $10.005

Figure 20. Receipt for payment $10,005 to Neuse Manufacturing Company for Ordinance Service dated October 31, 1863 (National Archives ID 2133274, Record Group 109, Roll 0737, Document 176).

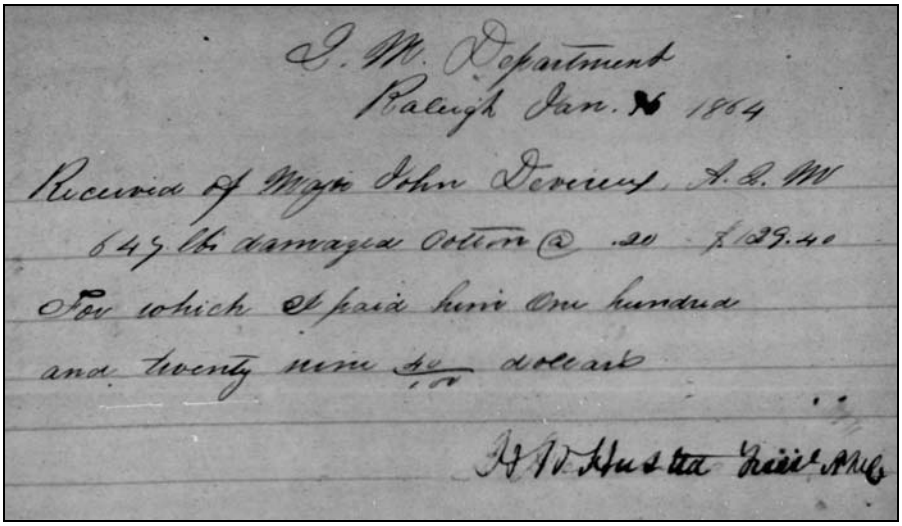

I. M. Department
Raleigh Jan. 16 1864
Received of Major John Devereux, A. Q. M.
647 lbs damaged Cotton @ .20 $129.40
For which I paid him One hundred
and twenty nine 40/100 dollars
H W Husted Treas. N.C.

Figure 21. Receipt for payment $129.00 for 647 pounds of damaged cotton from Major John Deveraux signed by HW Husted, Neuse Manufacturing Company, dated January 16, 1864 (National Archives ID 2133274, Record Group 109, Roll 0486, Document 223).

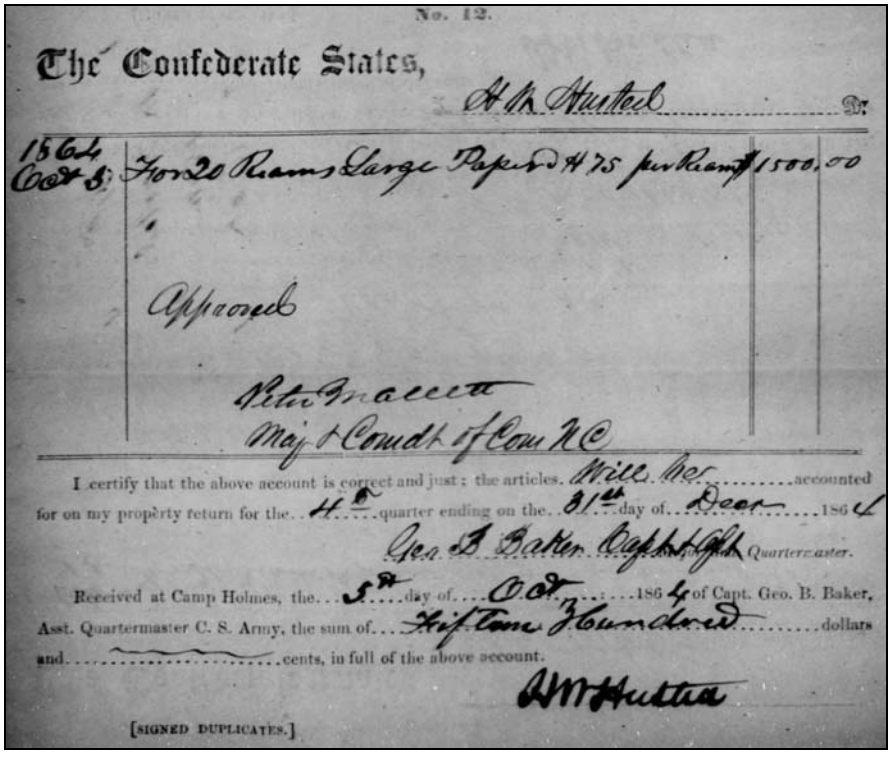

No. 12.
The Confederate States,
H W Husted Dr.
1864 Oct 5 For 20 Reams Large Paper @ $75 per Ream $1500.00
Approved
Peter Mallett
Maj & Comdt of Com N C
I certify that the above account is correct and just; the articles Will be accounted for on my property return for the 4th quarter ending on the 31st day of Decr 1864
Geo B Baker Capt & Asst Quartermaster.
Received at Camp Holmes, the 5th day of Oct 1864 of Capt. Geo. B. Baker, Asst. Quartermaster C. S. Army, the sum of Fifteen Hundred dollars and ~~~~ cents, in full of the above account.
H W Husted
[SIGNED DUPLICATES.]

Figure 22. Payment for 20 reams of large paper at $75 per ream from the Confederate States to WH Husted (treasurer of Neuse Manufacturing Company) dated October 5, 1864 (National Archives ID 2133274, Record Group 109, Roll 0486, Document 223).

A report on Company A, Second Engineer Troops,[14] the only body of Confederate engineer troops organized in North Carolina, describes the Neuse River and the work assignment at Milburnie, just before General Johnston surrendered to General Sherman.[15] A description of Company A's work at Milburnie around April 9th follows.

> Every bridge on the Neuse had been carried away by the repeated freshets. The company was ordered to Milburnie to build a substantial bridge upon cribs filled with stone for the passage of Johnston's artillery and trains. This work was pushed night and day, and when nearly finished was left with the command under temporary charge of Captain Sweetman, an artillery officer who had some experience in engineering, while, under special order by General Johnston, Captain Winder and Lieutenant Denson alone made rapid military reconnaissance of the territory of the Tar river sixteen hours daily in the saddle, learning the fords, roads, etc. Their orders also included a route to the Roanoke, with Gaston on the right flank. This indicates preparations for a junction between Lee and Johnston. But at this moment, the army was put in full retreat, the bridge being finished on Sunday, 9 April, when the head of the column was only seven miles distant (Clark 1901:430).

On the days following the completion of the construction of the bridge at Milburnie, reports from the 93rd Illinois, 30th Ohio, 81st Ohio, and 15th Army Corps describe military activity at Hinton's Bridge.

The Ninety-Third Illinois

> … on the 13th, starting at 5:15 o'clock am, … marched sixteen miles, and went into camp, at 3:30 o'clock pm, near Hilton's (sp) Bridge, or Neuse Mills. The day was fine, and the roads were good. The country was undulating, and as fine as any we had seen in the South.[16] http://www.illinoiscivilwar.org/cw93-hist-ch11.html

The 30th Ohio Volunteers[17]

> On April 13, marched at 11 am on Louisburg road to the intersection of … and Raleigh road, nine miles, and hence on Raleigh road passing through Eagle Rock, and camping at dark on Clay Hill plantation, one mile from Hinton's, across Neuse River, having marched 16 miles. Received three Rebel deserters. Loss, 11 men captured.
>
> April 14, marched at 6 am crossing Hinton's Bridge and massing the division in rear of the First Division until 11:30 am when moved on to and through Raleigh, being reviewed by General Sherman.

14 The 2nd Engineers Regiment was assembled during the summer of 1863 with men from almost every Confederate state east of the Mississippi River. This regiment did not serve as one command. Companies A and E were stationed at Fort Fisher, North Carolina; Companies B, F, and I were at Forts Gaines and Morgan, Alabama; Company D was at Fort McAllister, Georgia; and Companies C, G, H, and K were with the forces in Virginia. These four companies, for the most part, served under Colonel T. M. R. Talcott of the 1st Engineers Regiment. The companies surrendered with the army or department in which they served, and those with the Army of Northern Virginia totaled 97 officers and men. Major D. Winter was in command. http://www.researchonline.net/csa/unit7.htm

15 Johnston's surrender followed General Lee's surrender at Appomattox Court House on April 9. Johnston's surrendered the Tennessee forces and all remaining Confederate forces still active in North Carolina, South Carolina, Georgia, and Florida. It was the largest surrender of the war, totaling 89,270 soldiers.

16 http://www.illinoiscivilwar.org/cw93-hist-ch11.html

17 C. A. Earnes, Capt. 30th Ohio Volunteers

The 15th Army Corps[18]

> On April 13, "… marched at 10:30 am taking the Oxford road until striking the Raleigh road; took Raleigh road and went into camp at 5:30 pm near Hinton's Bridge on Neuse River. April 14 broke camp at 9 am marched across Neuse River and entered the city of Raleigh; General Sherman reviewing the troops while passing through the city."
>
> April 13, Major General Logan[19], with his corps, moved to and across the Neuse River at Hinton's Bridge and encamped ten miles east of Raleigh. The bridge was preserved from destruction by the enemy's cavalry by a charge of the 29th Mounted Missouri while the enemy was trying to destroy it.
> http://freepages.genealogy.rootsweb.com/~keller/ovi80/work/80thch4.html.

An entry in the Civil War diary of Lt. (later Capt.) Cornelius C. Platter[20], of the 81st Ohio Infantry Volunteers, dated April 13, 1865, states that "crossed the Neuse River at Neuse Mills and unit in camp at 3 PM. 5 miles from Raleigh – the city was entered today by 14th Corps. Gen. Johnston was evacuated yesterday evening. Retired early and will have a good nights sleep." (Figure 23; Hargrett Rare Book & Manuscript Library, University of Georgia. Page 170).

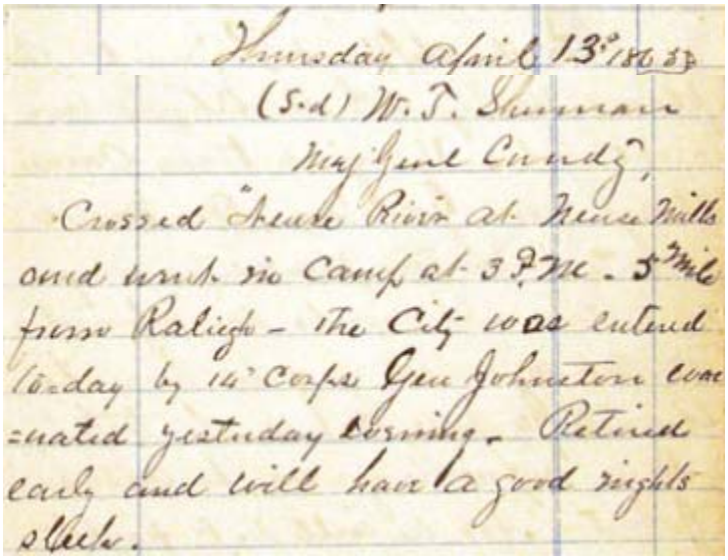

Thursday April 13th 1865
(S.d) W. T. Sherman
Maj Gen Comdg
Crossed Neuse River at Neuse Mills
and unit in Camp at 3 PM. 5 Mile
from Raleigh – the City was entered
today by 14th Corps Gen Johnston evac
uated yesterday Evening. Retired
early and will have a good nights
sleep.

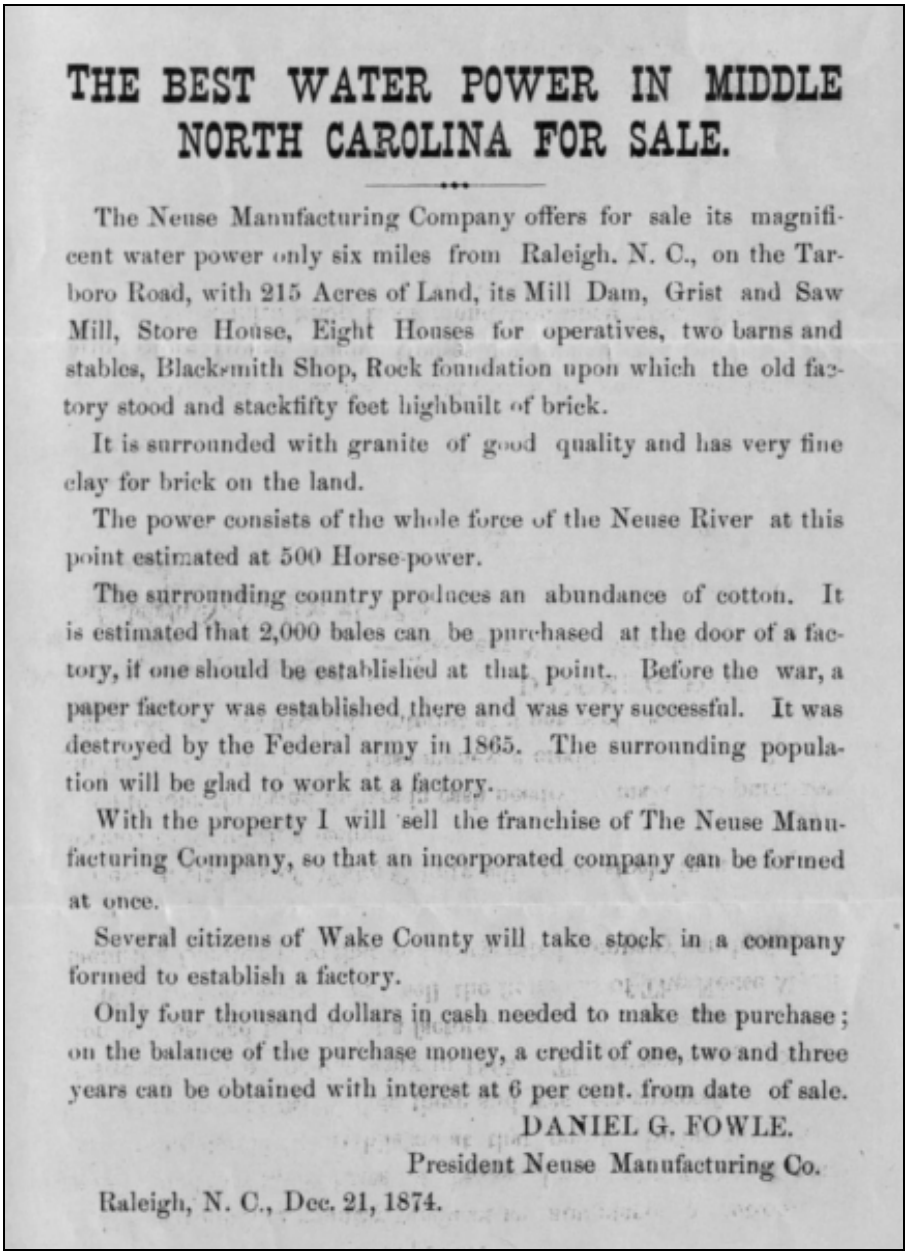
Figure 23. Excerpt pages 169-170, *Cornelius C. Platter Civil War Diary*. Hargrett Rare Book & Manuscript Library, University of Georgia.

18 A letter dated April 15, 1865 from Headquarters Third Brigade, Second Division, 15th Army Corps Office Acting Assistant inspector general near Raleigh

19 General John A. Logan, commander of the 15th Corps.

20 Diary from November 1864 - April 27, 1865, diary details Sherman's march through Georgia from Rome to Savannah and the march north through the Carolinas. He gives dates, times, and lengths of marches and describes the weather, locale, scenery, and food as well as orders, rumors, positions, troop morale, and administrative duties.

Betsey Hinton, a descendant of John Hinton, who was living at the Hinton plantation known as Clay-Hill-on-the-Neuse" recalled a night in the Spring of 1865 (presumably April 13, 1865) when she was awakened by Federal soldiers, who ransacked her house and then departed to "torch the papermill at Milburnie" (*The North Carolina Booklet* 1903:36). There has no newspaper or military report of this action found to date; however, an 1874 advertisement for the sale of Milburnie signed by Daniel G. Fowle, Governor of North Carolina from 1889 to 1891, states that "It was destroyed by the Federal army in 1865" (Figure 24).



THE BEST WATER POWER IN MIDDLE NORTH CAROLINA FOR SALE.

The Neuse Manufacturing Company offers for sale its magnificent water power only six miles from Raleigh. N. C., on the Tarboro Road, with 215 Acres of Land, its Mill Dam, Grist and Saw Mill, Store House, Eight Houses for operatives, two barns and stables, Blacksmith Shop, Rock foundation upon which the old factory stood and stackfifty feet highbuilt of brick.

It is surrounded with granite of good quality and has very fine clay for brick on the land.

The power consists of the whole force of the Neuse River at this point estimated at 500 Horse-power.

The surrounding country produces an abundance of cotton. It is estimated that 2,000 bales can be purchased at the door of a factory, if one should be established at that point. Before the war, a paper factory was established there and was very successful. It was destroyed by the Federal army in 1865. The surrounding population will be glad to work at a factory.

With the property I will sell the franchise of The Neuse Manufacturing Company, so that an incorporated company can be formed at once.

Several citizens of Wake County will take stock in a company formed to establish a factory.

Only four thousand dollars in cash needed to make the purchase; on the balance of the purchase money, a credit of one, two and three years can be obtained with interest at 6 per cent. from date of sale.

DANIEL G. FOWLE.
President Neuse Manufacturing Co.

Raleigh, N. C., Dec. 21, 1874.

Figure 24. Advertisement of the sale of the Neuse Manufacturing Company (Fowle 1874).

According to news reports of the late 1880s, Milburnie Mill stood vacant until December 1899, when the former Neuse Manufacturing Company was purchased by Raleigh Ice & Electric. However, "Milburnie" appears in *Branson's North Carolina Business Directory* in 1867-68 as being operated as a grist mill that was owned by Neuse Manufacturing Company (Branson 1868:110) and it continued to appear in *Branson's North Carolina Business Directory* as a gristmill in 1869, 1872, 1877, and 1884 (Branson 1869:158, 1872:228, 1877:301, 1884:653).

A review of historic maps that depict the Milburnie area found some evidence of land use during the Neuse Manufacturing Company ownership (1853-1899). The earliest documented map reference to a dam over the Neuse River in the general vicinity of Milburnie is Gilmer's 1861-1865 field map of the Raleigh-Goldsboro-Rocky Mount area that shows roads, bridges, mills, and waterways (Figure 25). This map depicts a "paper mill" on the east bank of the Neuse River and a gristmill on the west bank just upstream from the "Bridge." The Gilmer map also indicates that the distance between the bridge over the Neuse River and Raleigh is "6. M". Another Civil War era map that shows "Hinton's Bridge" and "Neuse Mills" is the 1865 map of Sherman's campaign (Figure 26).

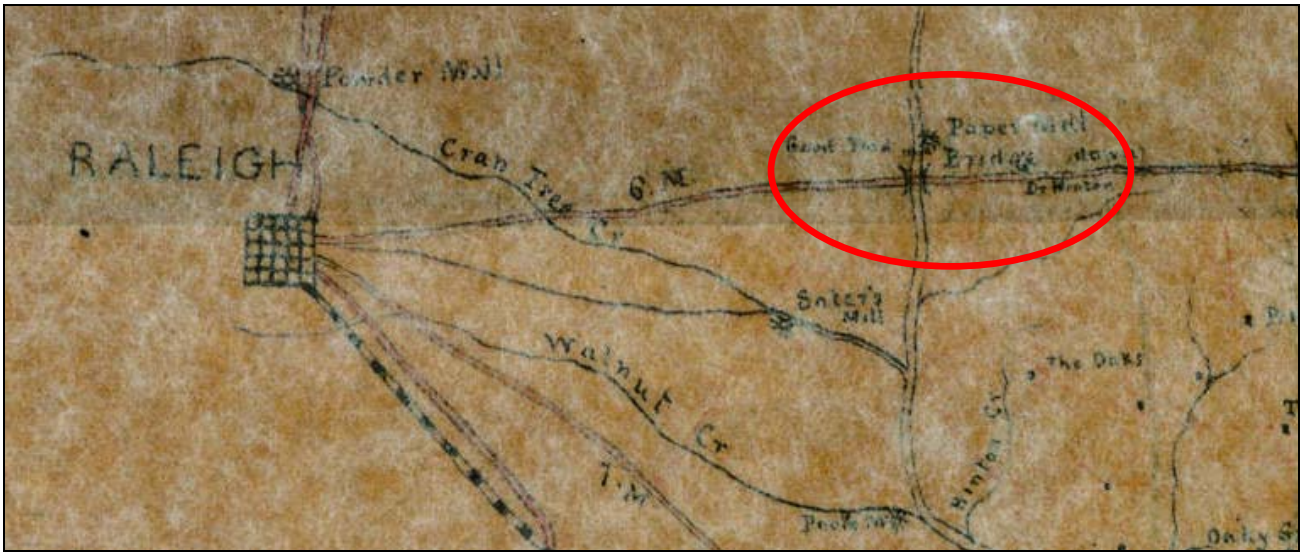


Figure 25. Jeremy Francis Gilmer's 1861-1865 field map of the Raleigh-Goldsboro-Rocky Mount area. http://www.lib.unc.edu/dc/gilmer/.

The 1874 handbill for the sale of the Neuse Manufacturing Company property by Daniel G. Fowle, President of Neuse Manufacturing,[21] describes it as being on "the Tarboro Road, with 215 acres of land, its Mill Dam, Grist and Saw Mill, Store House, Eight Houses for operatives, two barns and sable, Blacksmith Shop, rock foundation upon which the old factory stood," and a stack fifty feet high built of brick" (see Figure 24; Fowle 1874).

21 Daniel G. Fowle, a North Carolina native who served as Lt. Col. In the 31st NC Infantry during the Civil War, was elected to the state legislature representing Wake County in 1862 and 1864, he returned to law practice and in 1868 was chairman of the Democratic Party. In 1880, he was defeated in the gubernatorial election and in 1885\4 lost a race for Congress.

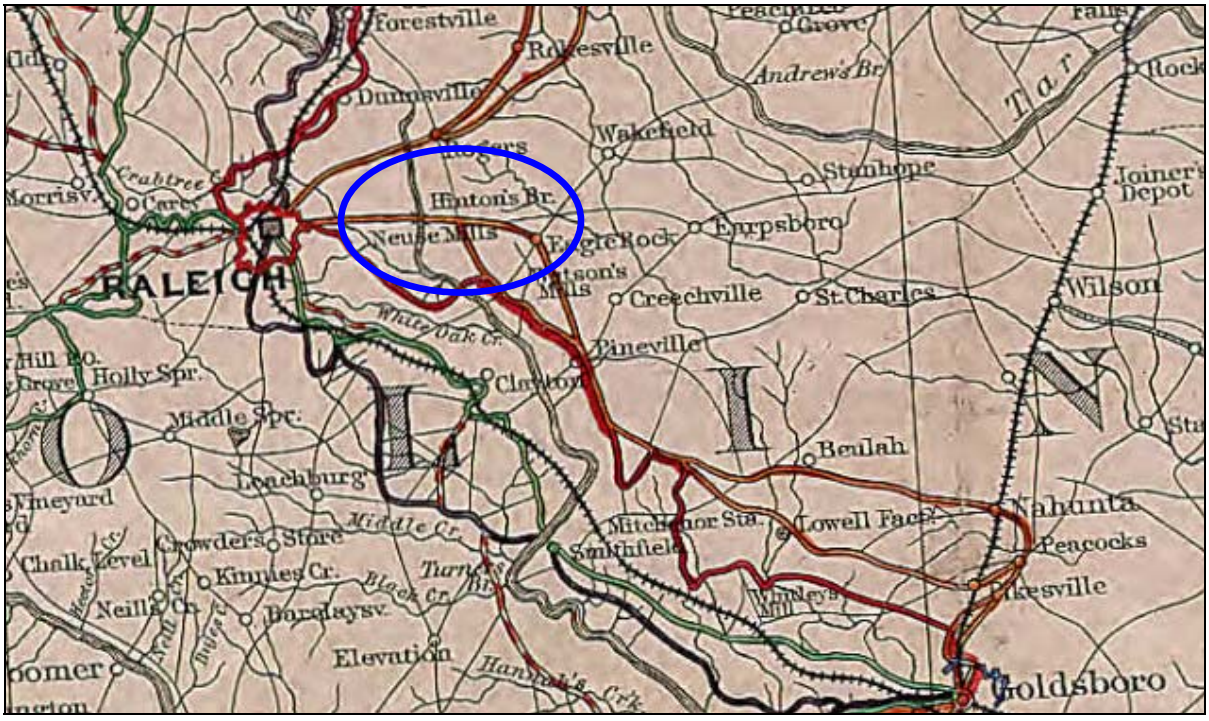


Figure 26. 1865 Map of the Southeastern United States featuring … the marches of General William T. Sherman during his campaigns from 1863-1865. (Tennessee State Library, Buell-Brien Family Papers: http://teva.contentdm.oclc.org/cdm/ref/collection/p15138coll2/id/34).

Two additional historic maps that show the Milburnie area were published in the 1870 and late 1880s. One is the 1871 Fendol Bevers map of Wake County that identified "Millburnie" (Figure 27) and Shaeffer's 1887 map of Wake County (Figure 28) that shows "Millburnie" on the east side of the river and south of Peachtree Br., an unidentified structure on the west side of the river, and a bridge over the Neuse River on Tarboro Road.

As mentioned earlier, historic accounts related to the use of the waterpower at Milburnie Dam following the Civil War include the gristmill operations between 1867 and 1872 in *Branson's North Carolina Business Directory* (Figure 29), advertisements and announcements in the *Raleigh News & Observer* about the availability of the Milburnie waterpower in 1883 (Figure 30 and Figure 31), announcements about the pending sale and possible use of Milburnie waterpower in 1889 and 1890 (Figure 32 and Figure 33), and an announcement in the Concord, NC, newspaper in 1889 (Figure 34).

As early as 1883, advertisements for the sale of the waterpower at Milburnie appeared in the *Raleigh News & Observer* (August 30, 1883, page 4). In 1899, "a state publication lamented that the dam's power was still not utilized except for running a dilapidated grist mill" (Murray 1983:684). An 1899 report describes the dam as an "open frame dam" that was "8 feet high and 250 feet long, built on the site of the old dam which was constructed years ago in connection with the old paper-mill" (Swain 1899:121-122). In the summer of 1899, a lawsuit for the sale of what was described as "One of the Finest Water Powers in this Country" was filed (*Raleigh N&O*, June 18, 1899, page 6).

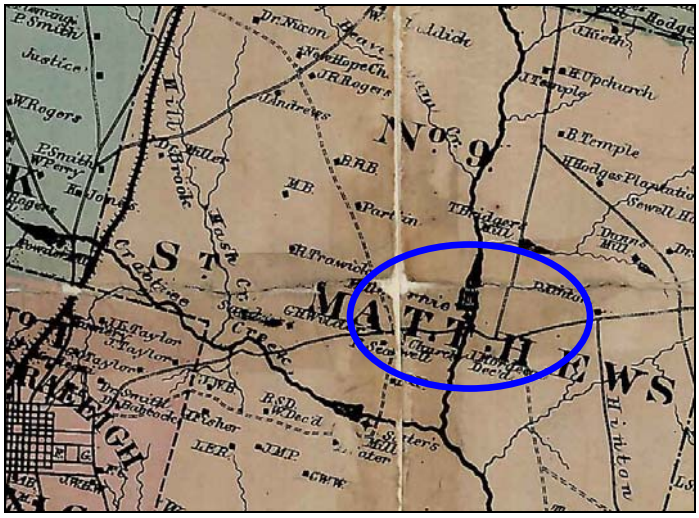


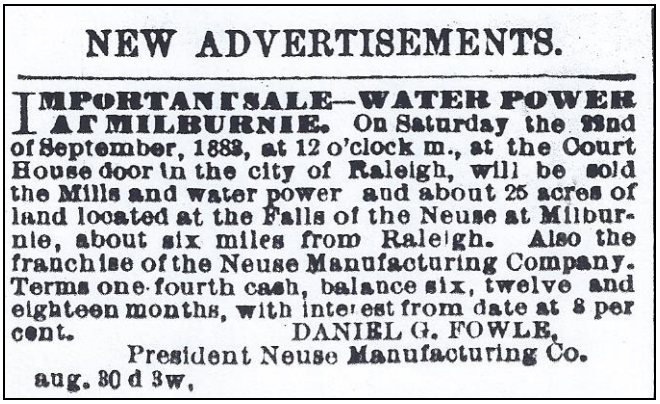
Figure 27. Fendol Bever's 1871 *Map of Wake County, North Carolina.* http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/241.

Figure 28. Shaffer's 1887 *A New Map of the State of North Carolina.* http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/968/rec/13.

Wake County.

Grist, Northwest of Raleigh. Eli Ferrell.
Grist, Northwest of Raleigh, Mrs. A. Thompson.
Grist, (Public,) Parish Grove, R. Yearby.
Grist, New Light Bridge, Jno. Norwood.
Grist, New Light Bridge, Wm. Laws.
Grist and Saw, Forestville, J. F. Fort.
Grist, Milburnie, Neuse Manufacturing Co.

Figure 29. *Branson's North Carolina Business Directory* 1868.

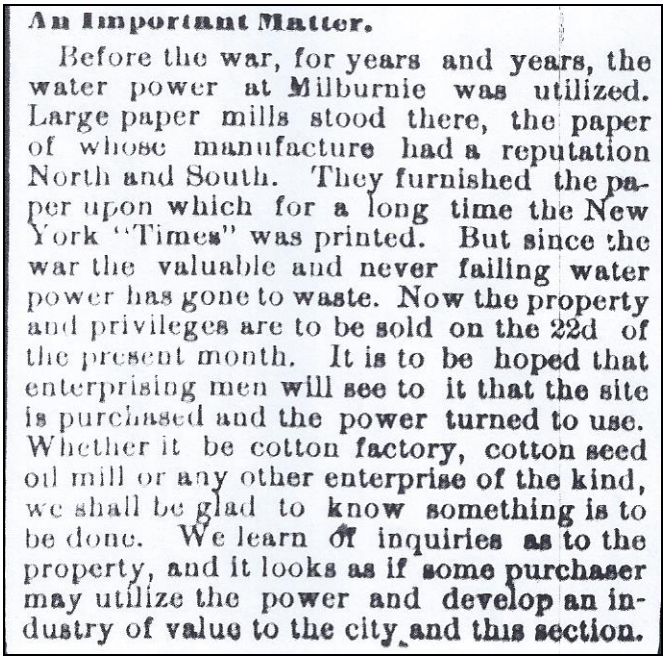


NEW ADVERTISEMENTS.

IMPORTANT SALE—WATER POWER AT MILBURNIE. On Saturday the 22nd of September, 1883, at 12 o'clock m., at the Court House door in the city of Raleigh, will be sold the Mills and water power and about 25 acres of land located at the Falls of the Neuse at Milburnie, about six miles from Raleigh. Also the franchise of the Neuse Manufacturing Company. Terms one-fourth cash, balance six, twelve and eighteen months, with interest from date at 8 per cent.

DANIEL G. FOWLE,
President Neuse Manufacturing Co.
aug. 30 d 3w.

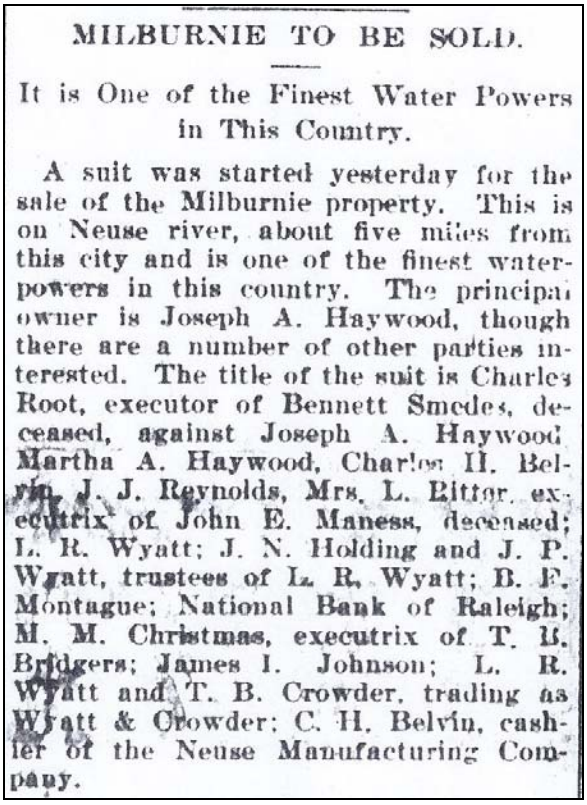
Figure 30. *Raleigh News & Observer*, August 30, 1883, page 4.



An Important Matter.

Before the war, for years and years, the water power at Milburnie was utilized. Large paper mills stood there, the paper of whose manufacture had a reputation North and South. They furnished the paper upon which for a long time the New York "Times" was printed. But since the war the valuable and never failing water power has gone to waste. Now the property and privileges are to be sold on the 22d of the present month. It is to be hoped that enterprising men will see to it that the site is purchased and the power turned to use. Whether it be cotton factory, cotton seed oil mill or any other enterprise of the kind, we shall be glad to know something is to be done. We learn of inquiries as to the property, and it looks as if some purchaser may utilize the power and develop an industry of value to the city and this section.

Figure 31. *Raleigh News & Observer*, September 8, 1883. page 4.

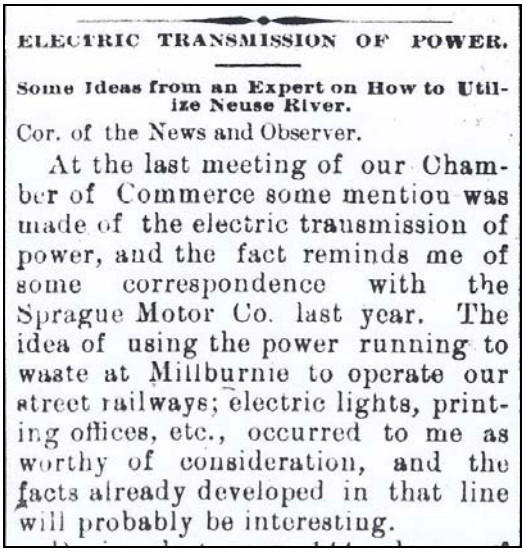


MILBURNIE TO BE SOLD.

It is One of the Finest Water Powers in This Country.

A suit was started yesterday for the sale of the Milburnie property. This is on Neuse river, about five miles from this city and is one of the finest water-powers in this country. The principal owner is Joseph A. Haywood, though there are a number of other parties interested. The title of the suit is Charles Root, executor of Bennett Smedes, deceased, against Joseph A. Haywood Martha A. Haywood, Charles H. Belvin, J. J. Reynolds, Mrs. L. Bitting, executrix of John E. Maness, deceased; L. R. Wyatt; J. N. Holding and J. P. Wyatt, trustees of L. R. Wyatt; B. F. Montague; National Bank of Raleigh; M. M. Christmas, executrix of T. B. Bridgers; James I. Johnson; L. R. Wyatt and T. B. Crowder, trading as Wyatt & Crowder; C. H. Belvin, cashier of the Neuse Manufacturing Company.

Figure 32. *Raleigh News & Observer*, June 18, 1899, page 6.



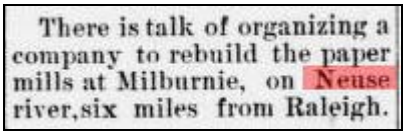
ELECTRIC TRANSMISSION OF POWER.

Some Ideas from an Expert on How to Utilize Neuse River.

Cor. of the News and Observer.

At the last meeting of our Chamber of Commerce some mention was made of the electric transmission of power, and the fact reminds me of some correspondence with the Sprague Motor Co. last year. The idea of using the power running to waste at Millburnie to operate our street railways; electric lights, printing offices, etc., occurred to me as worthy of consideration, and the facts already developed in that line will probably be interesting.

Figure 33. *Raleigh News & Observer*, October 26, 1890, page 2.



There is talk of organizing a company to rebuild the paper mills at Milburnie, on Neuse river, six miles from Raleigh.

Figure 34. *The Standard*, Concord, NC, January 25, 1889, page 2.

On December 13, 1899, the *Raleigh News & Observer* announced that Raleigh Ice & Electric Company had purchased the waterpower at Milburnie and planned to construct a stone-and-wood dam for a power plant that would transmit electricity to Raleigh by cable. The article reported that the old papermill building furnished much of the stone needed for the new dam, which was planned to be placed just below the old dam (Figure 35).

A NEW POWER AND LIGHTING PLANT

Raleigh Ice and Electric Company.

ORGANIZED YESTERDAY

HAS BOUGHT THE NEUSE FALLS AT MILBURNIE.

AND WILL GENERATE ITS POWER THERE

Those Interested Say That a Fine Stone and Wood Dam Will be Shortly Built and That From 450 to 700 Horse Power Will be Obtainable.

Figure 35. *Raleigh News & Observer*, December 13, 1899, page 5.

Raleigh Ice & Electric (1899-1916)

The former Neuse Manufacturing Company was conveyed to T. L. Eberhardt on December 15, 1899 (Wake County, NC, Deed Book 158:398). The property was described as "being the same as that conveyed to T. L. Eberhardt by W. M. Russ, Clerk of Commissioners, on December 12, 1899" (Wake County, NC, Deed Book 154:415). This conveyance states that it included "the power house, dams, buildings, etc. … and all machinery, appliances, tools, fixtures, belts, shaftings, boards, barges, and all personal property … connected with the said Milburnie plant."

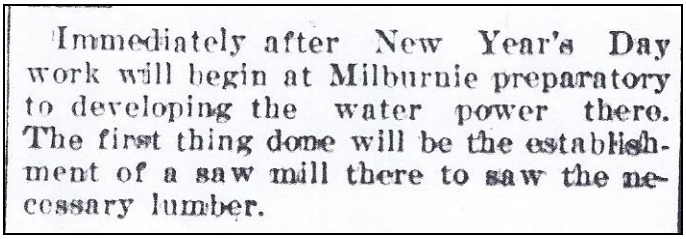
Work to prepare the property for the electric company began on January 1, 1900, with the construction of a saw mill that would provide the necessary lumber (Figure 36; *Raleigh N&O*, December 31, 1899, page 2). By May 19th, the old dam and mill were scheduled to be torn down and the new dam to be built (Figure 37; *Raleigh N&O*, May 19, 1900, page 8).

On October 15, 1901, *The Farmer and Mechanic* (Raleigh, NC) newspaper announced that "A handsome residence has been built at Milburnie for the accommodation of the officers of the company" (Figure 38). By January 1903, the new building for the power plant was nearly complete with anticipation that by mid-February the brick work would be finished and the transformers would be in place, which would allow the current to be turned on immediately (Figure 39; *Raleigh N&O*, January 19, 1903, page 9). Raleigh Ice & Electric provided power to Raleigh from 1903 until 1916, when it was purchased by CP&L. A ca. 1907-1911 map of Wake County shows "Millburnie" (Figure 40).

This development of the waterpower of the Neuse River at Milburnie for generating electricity was during the era of large-scale electric power distribution that began on August 26, 1895, when water flowing over Niagara Falls was diverted through high-speed turbines that were coupled with generators to produce electricity for the manufacture of aluminum and carborundum. A year later, power from Niagara Falls was transmitted by wire for twenty miles to the city of Buffalo, where it was used for lighting and street cars.[22]

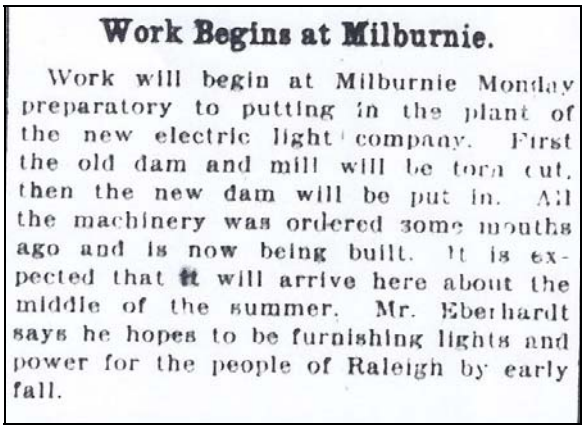
In the late 1800s and early 1900s, electricity was slowly making its way to North Carolina's cities and towns. Often, electricity was brought into the area by the city and used primarily to power streetlights to brighten the downtown after dark. Early electric power was generated by coal-fired generators and was produced only during the evening and night hours. The City of Statesville created the first municipally owned electric utility when it began providing service in 1889. As demand for lighting grew, electricity was brought into homes. Soon after, new appliances such as the sewing machine, clothes washer, and refrigerator were invented to simplify daily chores. At the same time, industry was becoming modernized and the demand for electricity grew accordingly.

22 In 1853, the Niagara Falls Hydraulic Power & Manufacturing Company was first chartered. By 1881, the power company had built a small generating station and began providing a small amount of electricity to light the village of Niagara Falls and to provide power to several of the mills. This power plant became a tourist attraction. It operated a flour mill for two years before the company went bankrupt and all its assets were sold at public auction. In 1899, the company was re-organized and became the Niagara Falls Power Company. On November 15, 1896, the City of Buffalo joined the power grid being generated from Niagara Falls. It became the first long distance transmission of electricity for commercial purposes. http://www.niagarafrontier.com/power.html



Immediately after New Year's Day work will begin at Milburnie preparatory to developing the water power there. The first thing done will be the establishment of a saw mill there to saw the necessary lumber.

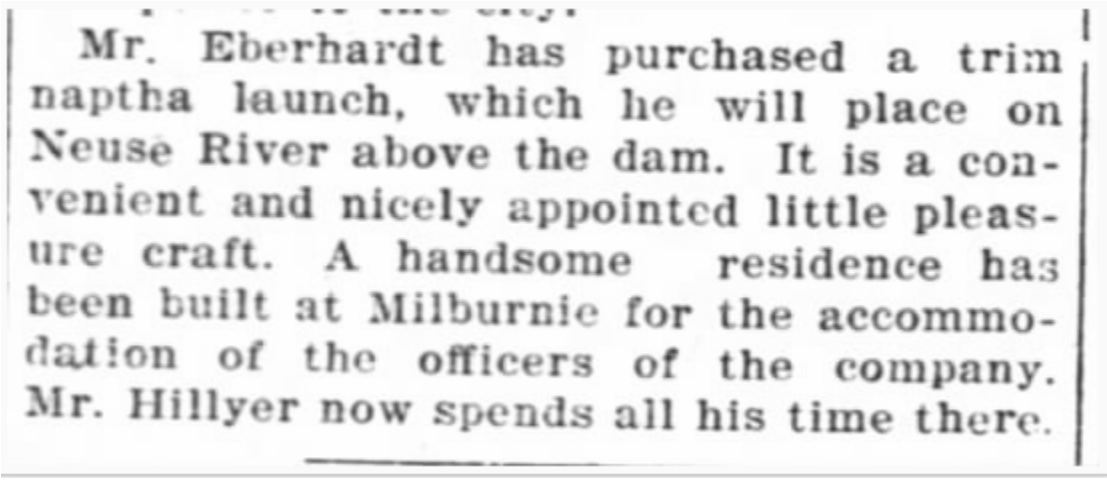
Figure 36. *Raleigh News & Observer*, December 31, 1899, page 2.



Work Begins at Milburnie.

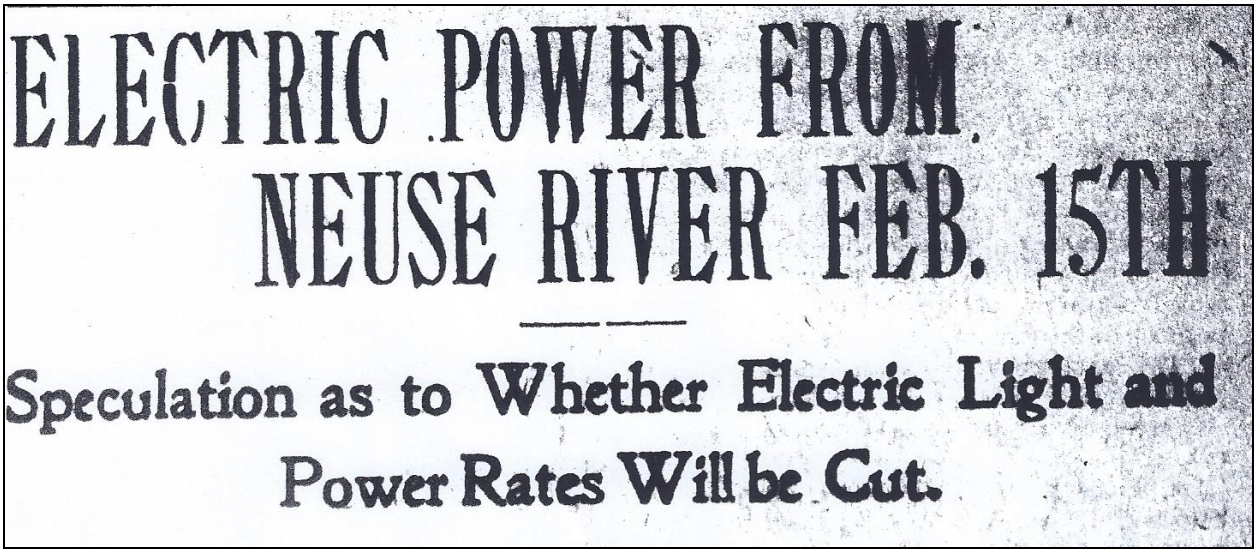
Work will begin at Milburnie Monday preparatory to putting in the plant of the new electric light company. First the old dam and mill will be torn out, then the new dam will be put in. All the machinery was ordered some months ago and is now being built. It is expected that it will arrive here about the middle of the summer. Mr. Eberhardt says he hopes to be furnishing lights and power for the people of Raleigh by early fall.

Figure 37. *Raleigh News & Observer*, May 19, 1900, page 8.



Mr. Eberhardt has purchased a trim naptha launch, which he will place on Neuse River above the dam. It is a convenient and nicely appointed little pleasure craft. A handsome residence has been built at Milburnie for the accommodation of the officers of the company. Mr. Hillyer now spends all his time there.

Figure 38. *The Farmer and Mechanic,* October 15, 1901, page 8.



ELECTRIC POWER FROM NEUSE RIVER FEB. 15TH

Speculation as to Whether Electric Light and Power Rates Will be Cut.

Figure 39. *Raleigh News & Observer*, January 19, 1903, page 9.

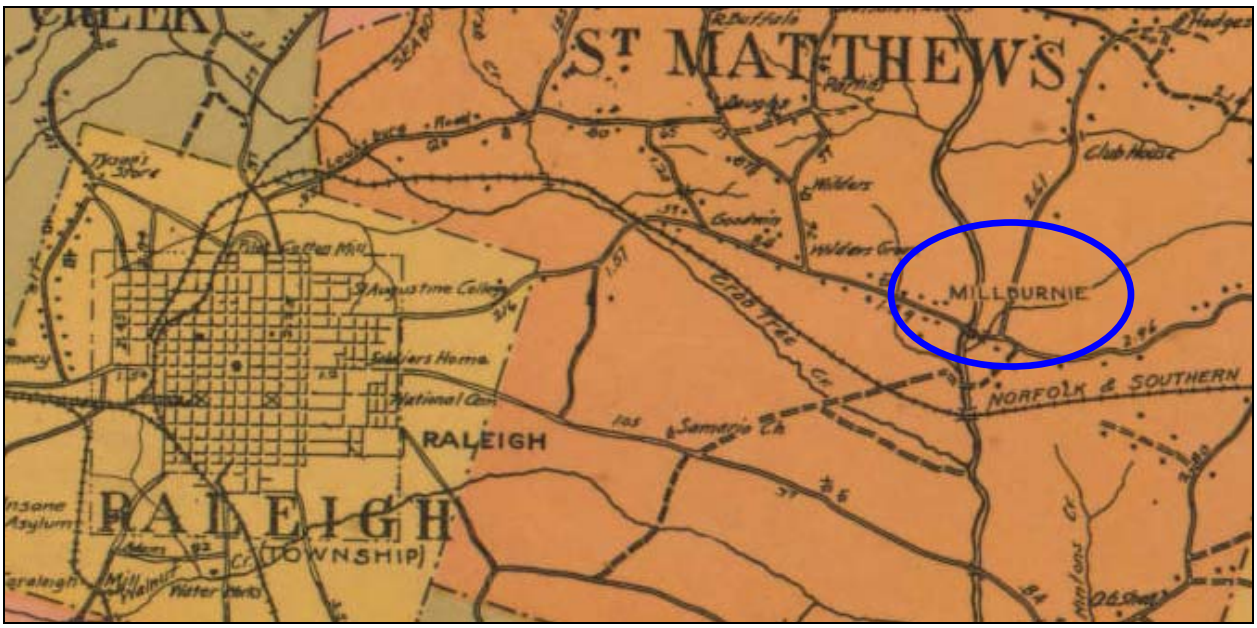


Figure 40. ca. 1907-1911 *Map of Wake County* (Spoon 1911) with "Millburnie" identified http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/419.

Carolina Power and Light (1916-1934)

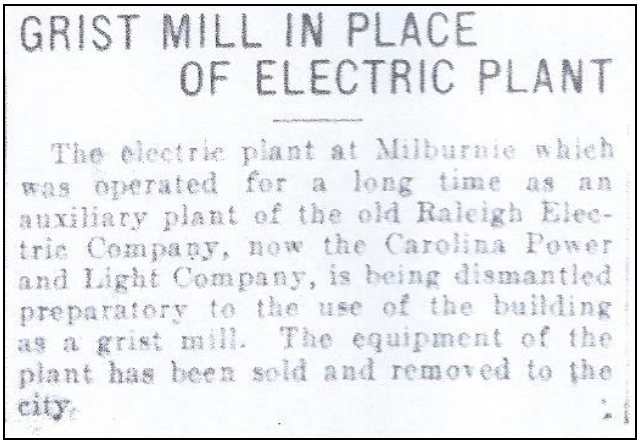
On June 30, 1916, the Raleigh Ice & Electric Company hydroelectric facility at Milburnie was bought by CP&L (Wake County, NC, Deed Book 307:197). An undated photograph of the "Millburnie Development on Neuse River" shows the brick powerhouse (Figure 41). Less than three years after purchasing the Raleigh Ice & Electric Company powerhouse and dam, CP&L dismantled the facility for use of the building as a gristmill (Figure 42; *Raleigh N&O*, March 18, 1919, page 9). The CP&L gristmill building was used from 1919 to 1937 and then bought in 1937 by Samuel Warren Twiggs.

Samuel Warren Twiggs and Descendants (1934-present-day)

Samuel Warren Twiggs (1913-1990) bought the CP&L gristmill property in 1934 and continued the gristmill operation in the old brick powerhouse building until the early 1940s when the mill was shut down (Twiggs 1981). The mill building later burned and the only remains were mill stones, mill pulleys, and brick walls.

Twiggs acquisition from CP&L was comprised of two tracts of land (Wake County, NC, Deed Book 678:339-340). Tract 1 is described as 25 acres including the mill site lying on both sides of the Neuse River. Tract 2 contained 89 acres beginning at the mouth of Peachtree Branch where it empties into the Neuse River. Both tracts are described as being the same land sold to CP&L by Raleigh Ice & Electric on June 30, 1916 (Wake County, NC, Deed Book 307:197). The 1934 deed to Twiggs stipulates that CP&L reserved and excepted from the conveyance a portion of land that lies on the northwest side of the dirt road leading from State Highway No. 90 to Milburnie, known as Milburnie Road, as these lands were being conveyed to Murray Allen.

Figure 41. Undated photograph of "View of Millburnie Development on Neuse River, No. 66" CP&L, undated (Courtesy of the State Archives of North Carolina).



GRIST MILL IN PLACE OF ELECTRIC PLANT

The electric plant at Milburnie which was operated for a long time as an auxiliary plant of the old Raleigh Electric Company, now the Carolina Power and Light Company, is being dismantled preparatory to the use of the building as a grist mill. The equipment of the plant has been sold and removed to the city.

Figure 42. *Raleigh News & Observer*, March 18, 1919, page 9.

Figure 43 is a 1938-1940 USGS topographic map of Raleigh, North Carolina, that shows Milburnie at the time that Samuel Warren Twiggs owned the property. It shows the dam across the Neuse River, Milburnie road on the west side of the river terminating at Milburnie Dam, and an unidentified structure on the northwest side of Milburnie Road at Milburnie Dam.

Figure 43. 1938-1940 USGS topographic map of Raleigh, North Carolina, showing "Milburnie" the dam across the Neuse River, Milburnie Road on the west side of the river terminating at the dam.

Samuel Twiggs' son, Harold Twiggs, reported that he spent much of his youth on the river, playing around the dam, watching farmers bring their corn and wheat for grinding and enjoying the aroma of the warm, freshly ground meal. The mill produced "Milburnie Mill Meal," which competed for a time with Lassiter's Mill cornmeal.

People were allowed to fish below the dam for 25 cents a day. A nearby African-American church regularly held its full-immersion baptisms in the river. Other groups had social events there. Twiggs said people used the area for fishing and recreation, and the kids played together. According to Howard Twiggs, the mill operated until about 1943 or 1944, and the property remained vacant from 1948 until 1980.

The place earned the nickname "Raleigh Beach" and became a lovers' lane in addition to a popular place for college kids and others for recreation. Several people drowned in the treacherous waters below the dam and two Raleigh residents were accidentally shot there in 1972.

Figure 44 is an undated photograph of Raleigh Beach that appears to be after Samuel Warren Twiggs ended his gristmill operation and before Solar Energy demolished the ca, 1900-1903 brick powerhouse.

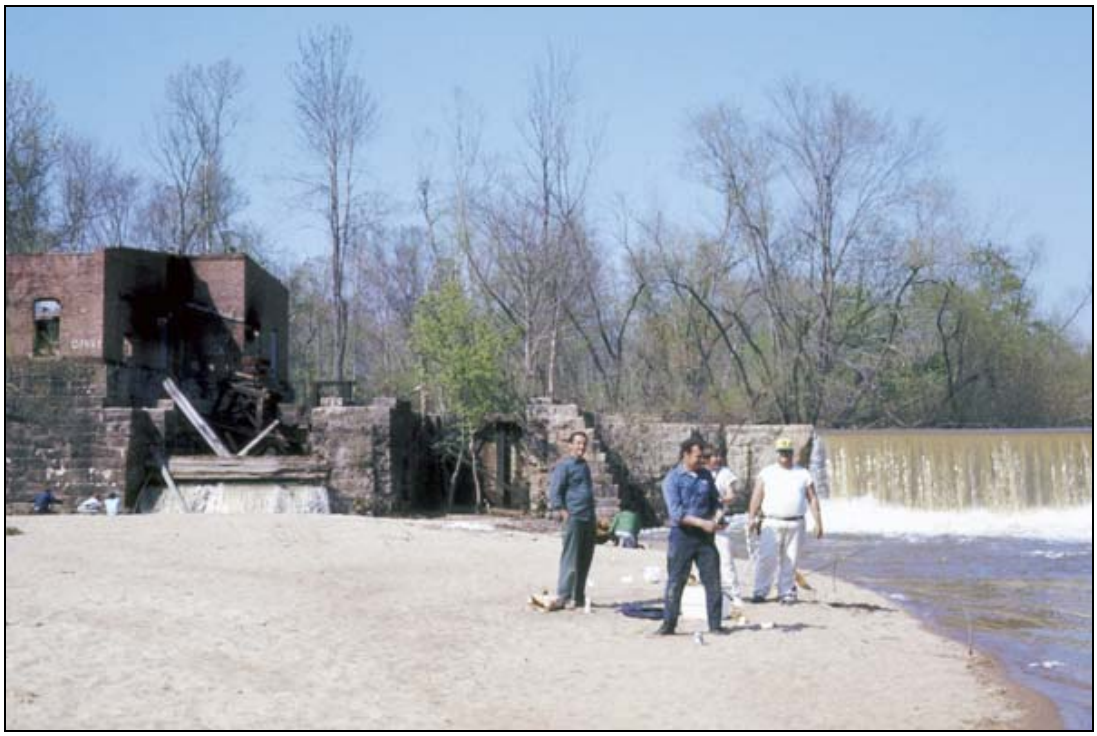


Figure 44. Undated photograph of Milburnie Beach before the brick powerhouse built by Raleigh Ice & Electric between 1900 and 1903 was destroyed around 1984 (Courtesy of the Olivia Rainey Local History Library, Raleigh, NC).

Solar Research Company (1970-1984)

In the late 1970s, the Milburnie property was leased to a Pennsylvania company that invested about $2 million to build a modern hydroelectric plant on the old powerhouse/gristmill foundation after the brick building was dismantled. Just prior to the construction of the modern hydroelectric facility, Milburnie Dam was described as follows (Twiggs 1981).

> The flat-crested spillway is 202.47 ft wide. The non-overflow section on the east side of the Neuse River extends 198 ft into the abutment before dog-legging and extending from the massive block wall for approximately another 103 ft. The total non-overflow length on the east side of the Neuse River is 310 ft. The west side of the spillway is constructed into a series of abutments and piers, a 4-ft wide sluiceway, two existing powerhouse bays with about 18-ft wide opening, the remains of an old brick mill building, and masonry walls that extend into the abutment. The total length of the complex extends approximately 170 ft from the spillway into the abutment.

The proposed 1980s modern hydroelectric facility construction was described as follows.

- Dismantle the brick building and backfill with sand and gravel.
- Remove wood beams at the sluice.
- Construct a reinforced concrete wall between the masonry piers in each bay to serve as a cut-off wall to prevent discharge downstream through the bays.
- Excavate a channel downstream in the river bottom to provide better hydraulic conditions.
- Reduce the height of the rock outcrop located 400 ft downstream from the dam to about 2 ft.
- Construct a trash rack on a 45-degree slope with five bays 13-ft wide between concrete buttresses.
- Spoil any excess materials from the excavation and any additional materials used for access road construction.
- Construct an access road beginning at the top of the upper bank adjacent to the trash rack structure and continue around the Forebay area.

The ca. 1984 hydroelectric facility was an example of an open-loop control system for run-of-the-river sites (Hough and Opila 1991). The site was developed by Hough Associates, a consulting firm located in Pennsylvania and specializing in energy projects, for Solar Research Corporation and placed in service in February 1985. Modifications to the system included replacing adjustable blade submersible turbines with fixed blade units. The original units were converted to variable adjustable units in September 1985; they were the first units installed by Flynt in the US. The control system was designed by Electro-Pak Co. and included electrical hardware, programmable controller and computer, and remote sensors. In 1985, the Milburnie facility was described as being designed to operate three submersible Flynt turbines with a capacity of 640 kW, at a rated flow of 700 cfs. Two of the turbines were of equal size (265 kW) and the third had a capacity of 110 kW. The control system was designed to collect all the data needed to verify actual performance. All three generators had separate metering. Headwater and tailwater elevation, kW, and time of day were recorded at set-time intervals. A detailed description of the system by Hough Associates is presented in Appendix C.

The modern hydroelectric facility became operational in 1984 and it was reported that "sometime between May 2006 and September 2009 vandals stole wiring from the powerhouse causing the project to become inoperable" (FERC Milburnie Hydro Inc. Project No. 7910-006, Order Terminating Exemption, issued January 16, 2013). There has been no activity associated with Milburnie Dam since the ca. 1984 hydroelectric facility ended operation between 2006 and 2009.

FIELD INVESTIGATION RESULTS

Cultural resource field investigations for the Milburnie Dam Mitigation Bank Project were conducted between February and May 2014. Fieldwork focused on conducting investigations defined as Tasks 1-3 and 5 in the Mitigation Plan (Appendix A). Work was conducted by Legacy; Deborah Joy directed the work and was assisted by Andrew Hill, Matthew Gill, Jay Sander, and RJ Meyer. Topographic mapping and scaled mapping of Milburnie Dam was prepared by K2 Design (Appendix D).

As a result of this work, the boundaries of one previously recorded archaeological site (31WA1625/1625**) were expanded, two new archaeological sites were recorded (31WA1872/1872** and 31WA1873**), and two previously recorded architectural resources were revisited (WA1677 and WA4330) (Figure 45). In all, this work resulted in the recovery of 430 artifacts. The artifact inventory for the Phase 1 investigations associated with Tasks 1-3 and 5 is presented in Appendix E. A description of the resources follows.

ARCHAEOLOGICAL SITES

Site 31WA1625/1625** - Milburnie East

<table>
<tr><td>ACCESSION NUMBER: 2014.0017</td><td>SIZE: approximately 400 ft (122 m) NE-SW x 650 ft (198 m) NW-SE</td></tr>
<tr><td>COMPONENT: Prehistoric and Historic</td><td>SOIL: Wehadkee (Wek) sandy loam</td></tr>
<tr><td rowspan="2">DESCRIPTION: Prehistoric artifact scatter and buried cultural horizon – Early to Middle Woodland period
Historic architectural and kitchen-related artifact scatter and possible brick fall – 1830-1940</td><td>LANDFORM: First Terrace and Floodplain</td></tr>
<tr><td>VEGETATION: Woodland</td></tr>
<tr><td>UTM COORDINATES: Zone 17 S, 722426 E 3964330 N</td><td rowspan="2">NRHP-ELIGIBILITY RECOMMENDATION:
Unassessed; appears to have the potential to be eligible for listing in the NRHP.</td></tr>
<tr><td>ELEVATION: 160-240 ft</td></tr>
</table>

Archaeological inspection on the east side of the Neuse River was conducted in the woodland terrace (Figure 46) and floodplain south of Milburnie Dam for a distance of 200 ft. The inspection of this area consisted of surface reconnaissance, as well as systematic and selectively excavated shovel tests. Systematic testing was conducted on a 15-interval grid.

Archaeological Investigation Results

A total of eight shovel tests were excavated on the grid and two shovel tests were excavated in selected locations (Figure 47). Two of the shovel tests (T1 ST1 and T2 ST4) were within 15 m of Milburnie Dam. Soil at these two locations was very shallow and bedrock was within 10 cm of the ground surface. No cultural material was recovered from these two subsurface tests. Also, one shovel test (J1) was excavated near the river and approximately 5 m south of the dam; the surrounding area to the south and east of this shovel test was wetland with standing water. This shovel test documented a layer of grayish brown sandy loam with gravel; the watertable was present at 16 cm bs. Excavation continued to 20 cm bs and only one artifact was recovered. This was a small piece of light green machine-made bottle glass. The remaining seven tests excavated in the 2014 survey area were excavated on the first terrace (n=4) and floodplain (n=3).

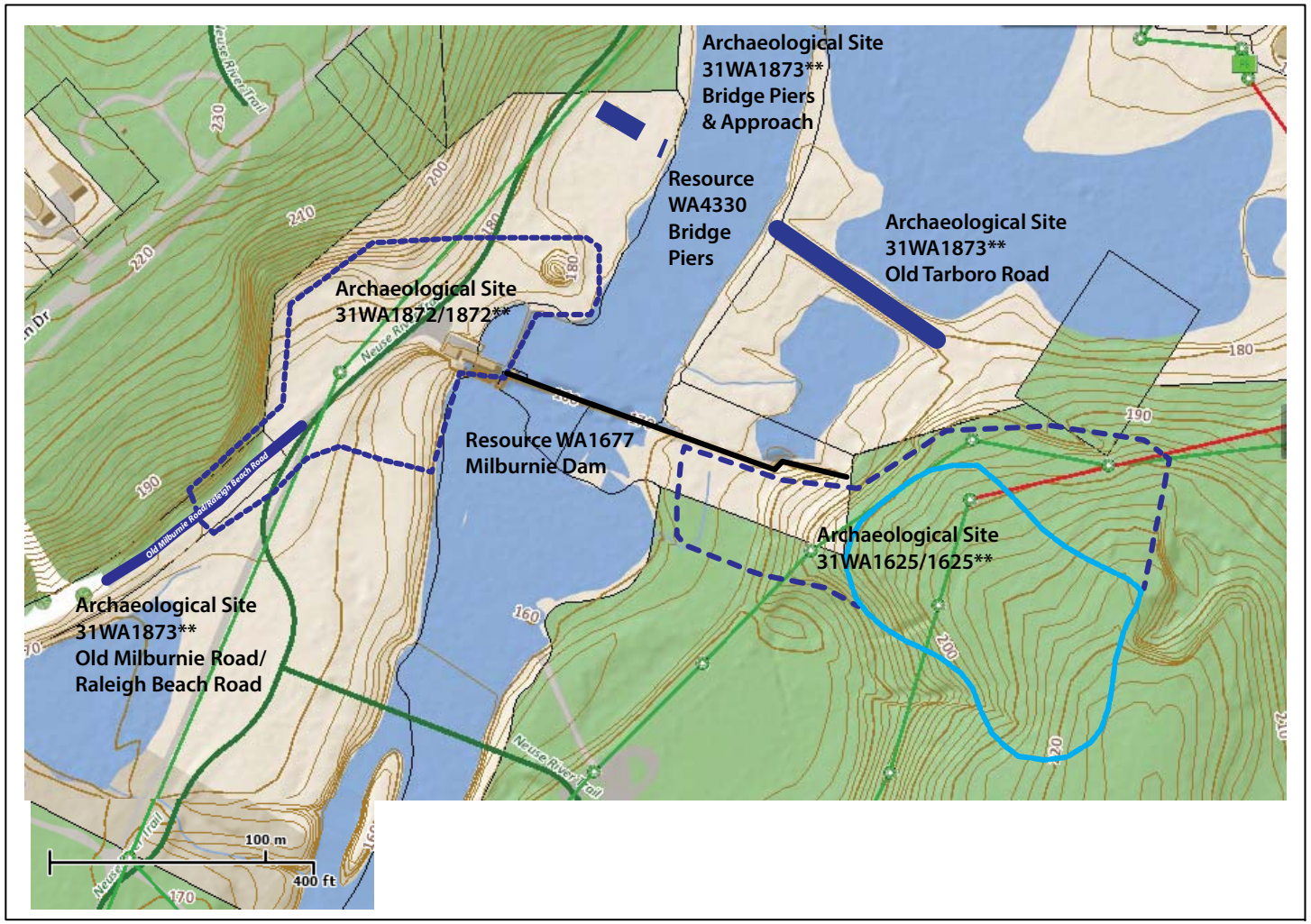


Figure 45. Archaeological Sites 31WA1625/1625**, 31WA1872/1872**, 31WA1873**, and 31WA1873** and Architectural Resources WA1677 (Milburnie Dam) and WA4330 (Stone Bridge Piers), Site Location Map.

Figure 46. Site 31WA1625/1625** - view northwest from the sewerline corridor.

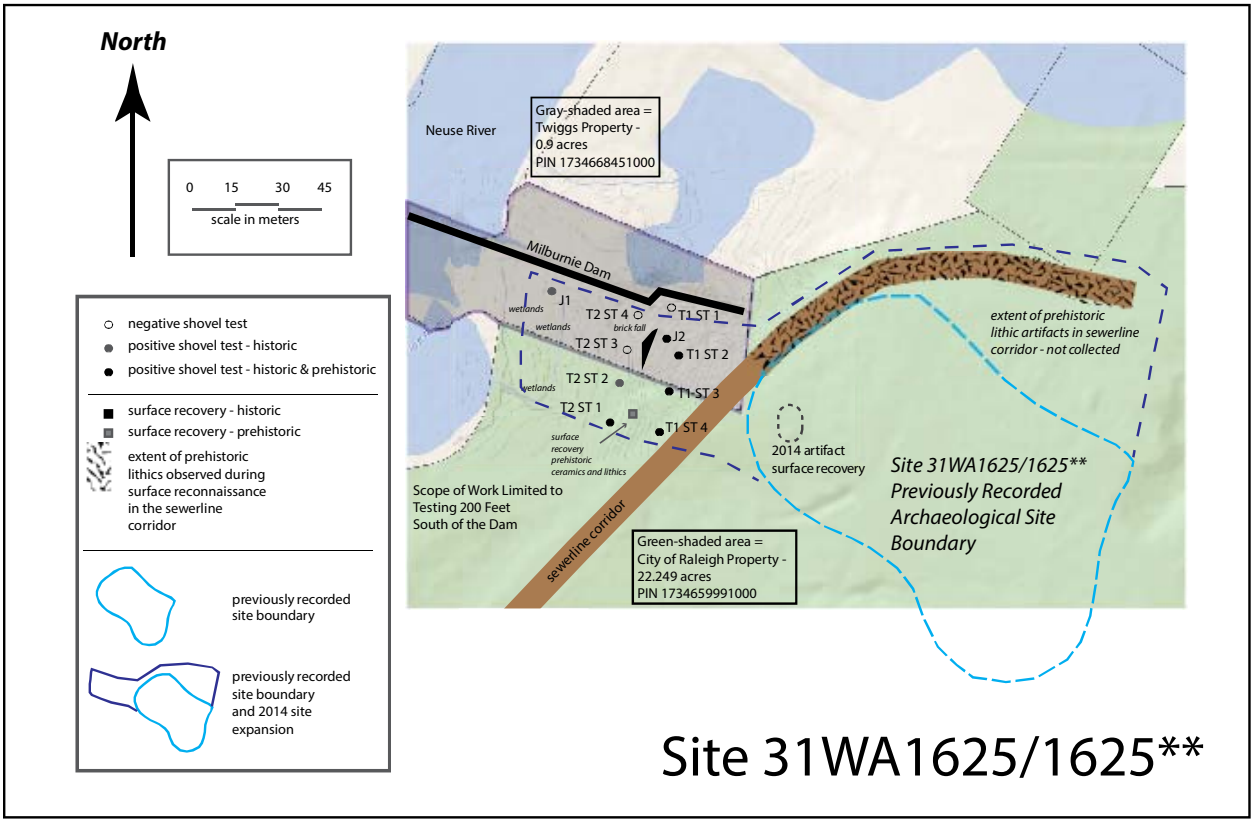


Figure 47. Site 31WA1625/1625** - site plan including the site boundaries from the 2006/2007 investigations.

Descriptions of the four shovel tests that were excavated on the first terrace follow.

T1 ST2 had three stratigraphic zones. Zone 1 (0-35 cm) was grayish brown sandy loam that contained no cultural material. Zone 2 (35-64 cm) was a very dark grayish brown sandy loam with one coarse sand-tempered Early to Middle Woodland period Vincent series fabric-impressed sherd and a piece of fire-cracked rock. Excavation terminated at 68 cm bs in subsoil (Zone 3).

At T1 ST3 two stratigraphic zones were identified. Zone 1 (0-34 cm) was very dark brown silty loam that contained 18 historic artifacts representative of architectural and kitchen activities. Architectural artifacts from Zone 1 are hand-made brick, window glass, and nails. Kitchen artifacts are ceramic (undecorated whiteware) and bottle glass (hand-blown very dark olive green and machine-made colorless, light blue, and manganese-dioxide tinted). Zone 2 (34-60 cm) was brown silty coarse sand with 17 prehistoric artifacts that included three unidentified Woodland period sherds that were tempered with crushed quartz and sand and were either eroded or had indeterminate impressed surface treatments, and 14 lithics that included debitage, fire-cracked rock, a burnishing stone, and a biface tip. Lithic materials from this test are quartzite, rhyolite, metavolcanic, and granite. Decomposing bedrock was encountered at 60 cm bs.

At T1 ST4, the upper 18 cm (Zone 1) was dark brown sandy loam that contained nine kitchen-related historic artifacts (undecorated porcelain and machine-made bottle glass). Zone 2 (18-39 cm) had some mixture of historic and prehistoric materials at the interface, possibly related to the close proximity of the sewerline. The historic artifacts (n=7) include three small fragments of brick, three fragments of colorless bottle glass, and a piece of gray salt-glazed stoneware. Prehistoric artifacts from Zone 2 (n=11) are an Early to Middle Woodland period Vincent series sand and quartz-tempered fabric-impressed sherd, an unidentified Woodland period sand and quartz-tempered eroded sherd, and nine lithics (debitage) manufactured from fine-grained quartzite, rhyolite, and porphyritic rhyolite. Decomposing bedrock was encountered at 39 cm bs.

One additional shovel test (J2) was excavated on the first terrace near the brick fall (see below). The upper 36 cm (Zone 1) was dark grayish brown sandy loam that contained historic and prehistoric artifacts. The historic artifacts (n=2) are a possible nail fragment and a piece of blue-banded whiteware. The prehistoric artifacts (n=13) are two sand-tempered eroded Woodland period sherds, nine lithics (debitage), a flaked stone drill bit with a broken tip, and a possible polishing stone. Lithic materials include rhyolite, crystal quartz, quartzite, and porphyritic rhyolite. Soil underlying Zone 1 is a light reddish brown and very light brown coarse sandy clay. No cultural material was recovered from Zone 2 (36-55 cm). Excavation terminated at 55 cm bs in subsoil.

In addition to the subsurface testing on the first terrace, a brick concentration, possible brick chimney fall, was identified. It was comprised of a surface scatter of exposed hand-made brick that extended approximately 12 m north-south; the width of the exposed brick fall was about 1-2 m (Figure 48 and Figure 49). The 11 bricks recovered from surface exposure varied in thickness from 1.96 in to 2.25 in; in width from 3.65 in to 3.8 in. In addition, a complete Mason jar (ca. 1930-1940) was recovered from the brick concentration. No subsurface excavation was conducted in the brick fall. The western edge of the brick fall was defined by a large rock outcrop (Figure 50) bordered by a wetland on the floodplain (Figure 51).

Figure 48. Site 31WA1625/1625** - brick fall, view from the edge of the floodplain eastward onto the first terrace.

Figure 49. Site 31WA1625/1625** - close-up of brick fall on the first terrace.

Figure 50. Site 31WA1625/1625** - rock outcrop below the brick fall on the first terrace.

Figure 51. Site 31WA1625/1625** - wetland below brick fall, view south from the dam.

Transect 2 was established about 15 m west of Transect 1 and was on the floodplain. Between T1 ST4 on the first terrace and T2 ST1 on the floodplain was a small area of exposed ground surface that had two prehistoric artifacts (an Early to Middle Woodland period Vincent series sand and crushed quartz-tempered fabric-impressed sherd and two pieces of fire-cracked rock). The exposed soil was dark grayish brown and it appeared that the artifacts were eroding out of the exposed profile. No subsurface testing was conducted at this location.

The three shovel tests that were excavated on the floodplain are summarized below.

T2 ST1 had brown coarse sand throughout the excavation that was terminated in the watertable at 37 cm bs. A total of 14 historic and prehistoric artifacts were recovered from this shovel test. Historic artifacts (n=7) representative of architectural and kitchen-related activities include brick fragments, hand-blown bottle glass (very dark olive green and olive green), and machine-made bottle glass (colorless and light aqua). Prehistoric artifacts (n=7) are a biface thinning flake and six pieces of debitage made from rhyolite, quartz, and basalt.

T2 ST2 was excavated in area that appeared to be a little lower in elevation than T2 ST1. Excavation through medium-grained brown sand terminated in the watertable at 14 cm bs. Four historic artifacts were recovered from this test; these included two brick fragments, a nail, and a piece of machine-made colorless bottle glass.

T2 ST3 was excavated in a wetland area just west of the brick fall. Soils were very dark gray sandy soil; the watertable was within 5 cm of the surface. No cultural material was recovered.

Summary of Cultural Material

Of the total 10 shovel tests that were excavated in this area, eight yielded cultural material diagnostic of a prehistoric and historic occupation. In all, 116 artifacts were recovered from the site during the 2014 investigations. Of the 116 artifacts, 53 are identified as being associated with a prehistoric occupation and 63 with historic occupation.

The prehistoric artifacts (n=53) recovered from the site are lithics and ceramics. The majority of the prehistoric material is lithic, which represented 83 percent of the prehistoric assemblage. Lithic artifacts (n=44) include fire-cracked rock, a burnishing stone, a possible polishing pebble, a biface tip with bending fracture, a drill, and debitage. No diagnostic prehistoric lithic artifacts were recovered during the investigations. Lithic material types represented in the assemblage are locally available rhyolite, granite, basalt, crystal quartz, quartzite, and quartz.

Prehistoric ceramic artifacts (n=9) were tempered with sand and crushed quartz; six sherds have eroded surfaces and were not identified as a ceramic type. However, three sherds had diagnostic attributes that appear to be associated with the Vincent series ceramic tradition of the Early to Middle Woodland period. These three sherds are sand tempered with varying amounts of crushed quartz and have surface treatments that are fabric impressed.

The historic artifacts (n=63) recovered from the site represent architectural and kitchen-related activity. The architectural artifacts include hand-made brick, window glass, and nails. The majority of the brick (n=11) were recovered from a fairly well-defined area of brick exposed on the ground surface at the edge of first terrace. The window glass and nails were recovered

from a shovel test that also included small brick fragments and a large amount of kitchen-related artifacts (ceramics and glass bottle fragments). The historic ceramics include ca. 1830-1940 undecorated whiteware and nineteenth-century gray salt-glazed stoneware. The historic glass artifacts are ca. 1880-1920 machine-made manganese-dioxide-tinted and ca. 1830-1900 hand-blown dark olive-green bottle fragments. The ceramic and glass artifacts are diagnostic of occupation in the site between 1830 and 1940.

Definition of Site Boundary

Given the proximity of previously recorded site 31WA1625/1625** that was recorded in 2006 (Webb and Turco 2006) and revisited in 2007 (Olson 2007), the 2014 archaeological inspection was expanded eastward into the sewerline corridor and into the boundaries of the previously recorded site. This inspection noted prehistoric lithic artifacts (debitage) on the ground surface in the sewerline corridor (Figure 52) and evidence of historic domestic occupation in the woodland area (Figure 53), as documented in 2006 and 2007. No artifacts were recovered from the sewerline corridor; however, three historic artifacts were recovered from the woodland area that had been previously investigated. These are identified as a fragment of Albany slip-glazed stoneware and two ferrous machine parts. No additional subsurface testing was conducted in the sewerline corridor or within the previously recorded boundaries of 31WA1625/1625** during the 2014 investigations.

Since the 2014 investigations documented a continuation of prehistoric and historic archaeological materials that extends from the Neuse River riverbank eastward into the sewerline corridor and into the boundaries of previously recorded site 31WA1625/1625**, it was determined by the NC SHPO Site File Manager that the 2014 findings should be included as part of the previously recorded site (31WA1625/1625**). These two areas cover approximately three acres of land.

Figure 52. Site 31WA1625/1625** - view southeast from the sewerline corridor.

Figure 53. Site 31WA1625/1625** - quarried stone in woodland area east of Milburnie Dam.

Site 31WA1872/1872** - Milburnie West

ACCESSION NUMBER: 2017.0018	SIZE: 600 ft (183 m) northeast-southwest x 200 m (61 m) northwest-southeast
COMPONENT: Prehistoric and Historic	SOIL: Wehadkee (WeK) sandy loam
DESCRIPTION: Multicomponent Areas Described Below	LANDFORM: First Terrace, Floodplain, and Ridge Sideslope
	VEGETATION: Woodland/Cleared Areas
UTM COORDINATES: Zone 17 S, 722183 E 3964335 N	NRHP-ELIGIBILITY RECOMMENDATION: Unassessed; however, the site appears to have the potential to be eligible for listing in the NRHP.
ELEVATION: 170-180 ft	

The archaeological survey in the Project study area on the west side of the Neuse River resulted in identifying above-ground and subsurface evidence of prehistoric and historic occupation that has been designated as 31WA1872/1872** (Figure 54).

Six areas with cultural material define the site (Figure 55). These include (1) the Milburnie Hydroelectric Project, excluding Milburnie Dam; (2) the area north of Milburnie Hydroelectric Project; (3) the area between Milburnie Powerhouse and the Neuse River Trail; (4) the former Raleigh Beach area south of Milburnie Powerhouse; (5) the woodland west of the Neuse River Trail; and (6) the area along Old Milburnie Road/Raleigh Beach Road. These six areas cover approximately four acres of land and are summarized below.

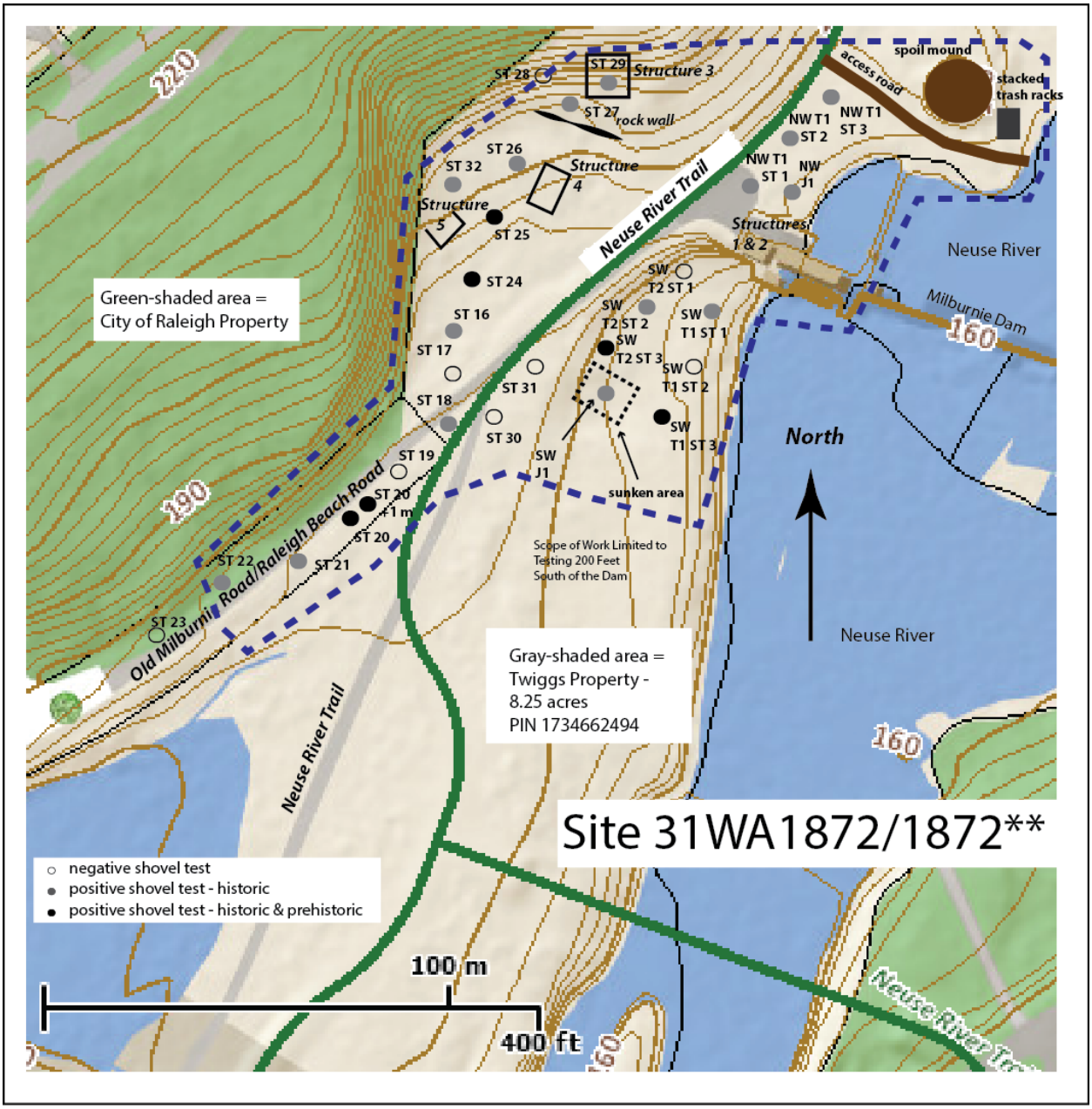


Figure 54. Site 31WA1872/1872** - plan map (base map, Wake County, NC, IMaps).

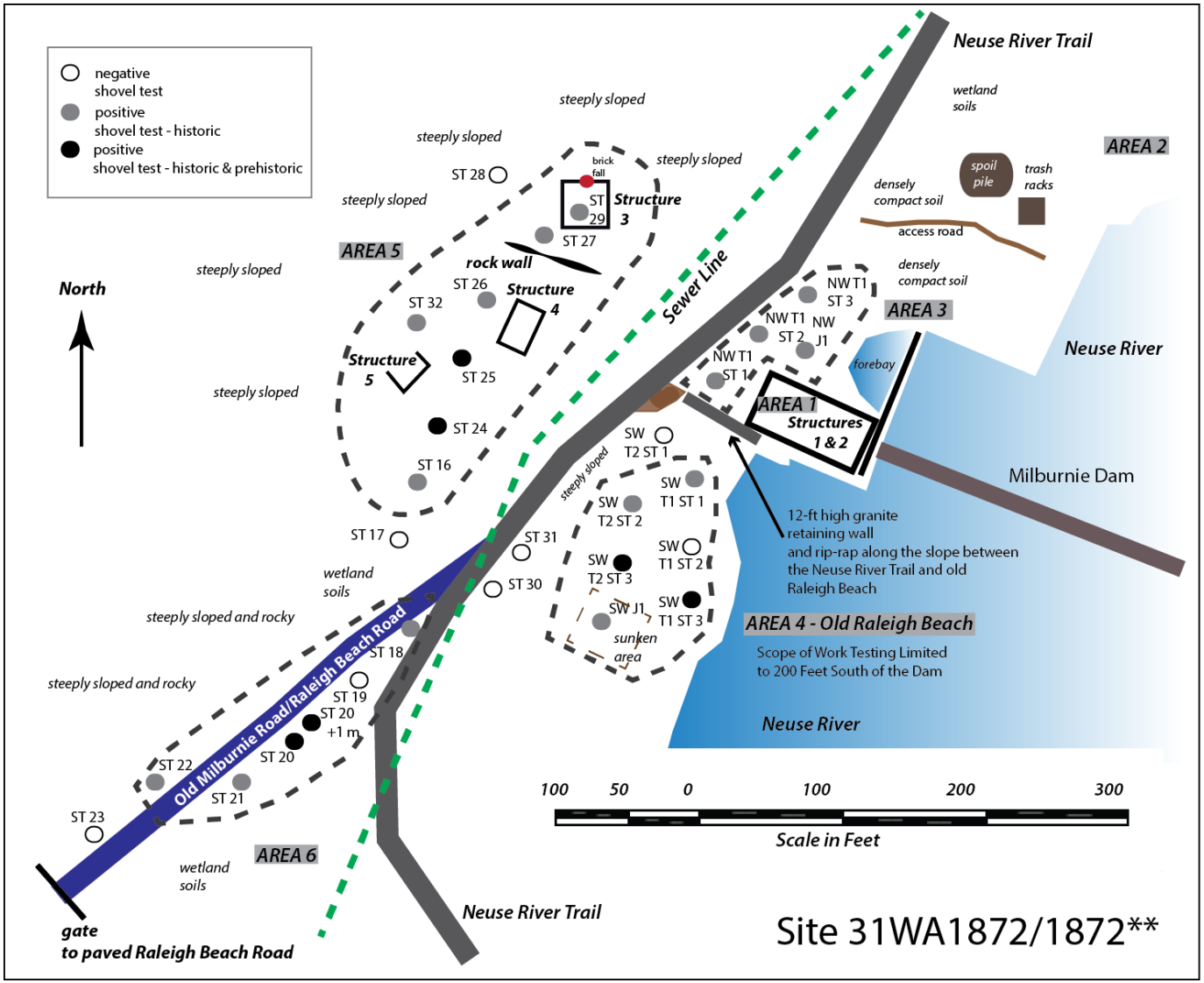


Figure 55. Site 31WA1872/1872** - archaeological areas plan map.

Area 1 – Milburnie Hydroelectric Project

Area 1 includes above-ground evidence of the existing Milburnie Hydroelectric Project that was constructed between 1980 and 1983 and evidence of preceding construction associated with the ca. 1919 gristmill operation, the ca. 1899-1903 Raleigh Ice & Electric Company, and the ca. 1853-1855 Neuse Manufacturing Company. Investigations in the Milburnie Hydroelectric Project, excluding Milburnie Dam, consisted of photography and mapping of the above-ground evidence of past construction. Four periods of construction and modification have been identified with historic documentation. As stated above, these are:

- ca. 1853-1855 construction of the Neuse Manufacturing Company papermill
- ca. 1899-1903 construction of the Raleigh Ice & Electric Company brick hydroelectric powerhouse on "… the rock foundation upon which the old factory stood" (Murray 1983:683).
- ca. 1919 modifications for a gristmill
- ca. 1980-1984 modifications for Milburnie Hydro Inc.

All past uses of the Neuse River for waterpower have utilized dams that block the flow of the stream to harness water for generating power. The components of an overflow dam are designed so that water can be released and the level of the water in the reservoir can be regulated by a series of sluice gates, spillway, or outlet tunnels.

At present, the most recent modification to the powerhouse area is the ca. 1980-1984 construction (Figure 56 and Figure 57). The above-ground evidence of the ca. 1984 hydroelectric facility that was constructed on the historic ca. 1853-1855 stone foundation and the modifications to the ca. 1900-1903 stone dam were photographed and mapped. Appendix F contains a description of the Milburnie Hydroelectric Project above-ground evidence and documentary photographs that are keyed to plan maps of the powerhouse and hydroelectric facility and is presented in five areas.

- Control Building, Switchyard, and Metal-Sided Building
- Control Building to Turbines
- Ca. 1984 Concrete Wall between the ca. 1900-1903 Masonry Piers
- Sluice Gate Controls and Dam Observation Station
- Trash Racks, Telescoping Cleaning Machine, and Forebay

Within Area 1 there is one historic stone foundation (Structure 1) that was constructed between 1853 and 1855 by Neuse Manufacturing Company and modified in 1900-1903 for the Raleigh Ice & Electric Company powerhouse. Another historic foundation (Structure 2) is located in Area 3 and discussed later in this report. Through time, significant sections of the ca. 1853-1855 stone foundation has endured (Figure 58 and Figure 59). Figure 60 is the foundation plan that shows the extent of the ca. 1853-1855 stone foundations (Structure 1 and 2). Figure 61 is the ca. 1980 plan for the modifications needed for the construction of Milburnie Hydroelectric Project; Structure 1 is highlighted. The map notes the plan to "Remove Existing Walls to El. 176.5' and Backfill with Sand and Gravel.

Figure 56. Site 31WA1872/1872** - Area 1, view west from the east bank of the Neuse River.

Figure 57. Site 31WA1872/1872** - Area 1 within the chainlink fence and Area 3 outside the chainlink fence, view southeast from the Neuse River Trail.

Figure 58. Site 31WA1872/1872** - Area 1, view into the facility from the west gate. Note: the ca. 1900-1903 granite foundation (Structure 1) is on the left.

Figure 59. Site 31WA1872/1872** - Area 1, view of forebay north of the facility from within the historic granite foundation (Structure 1).

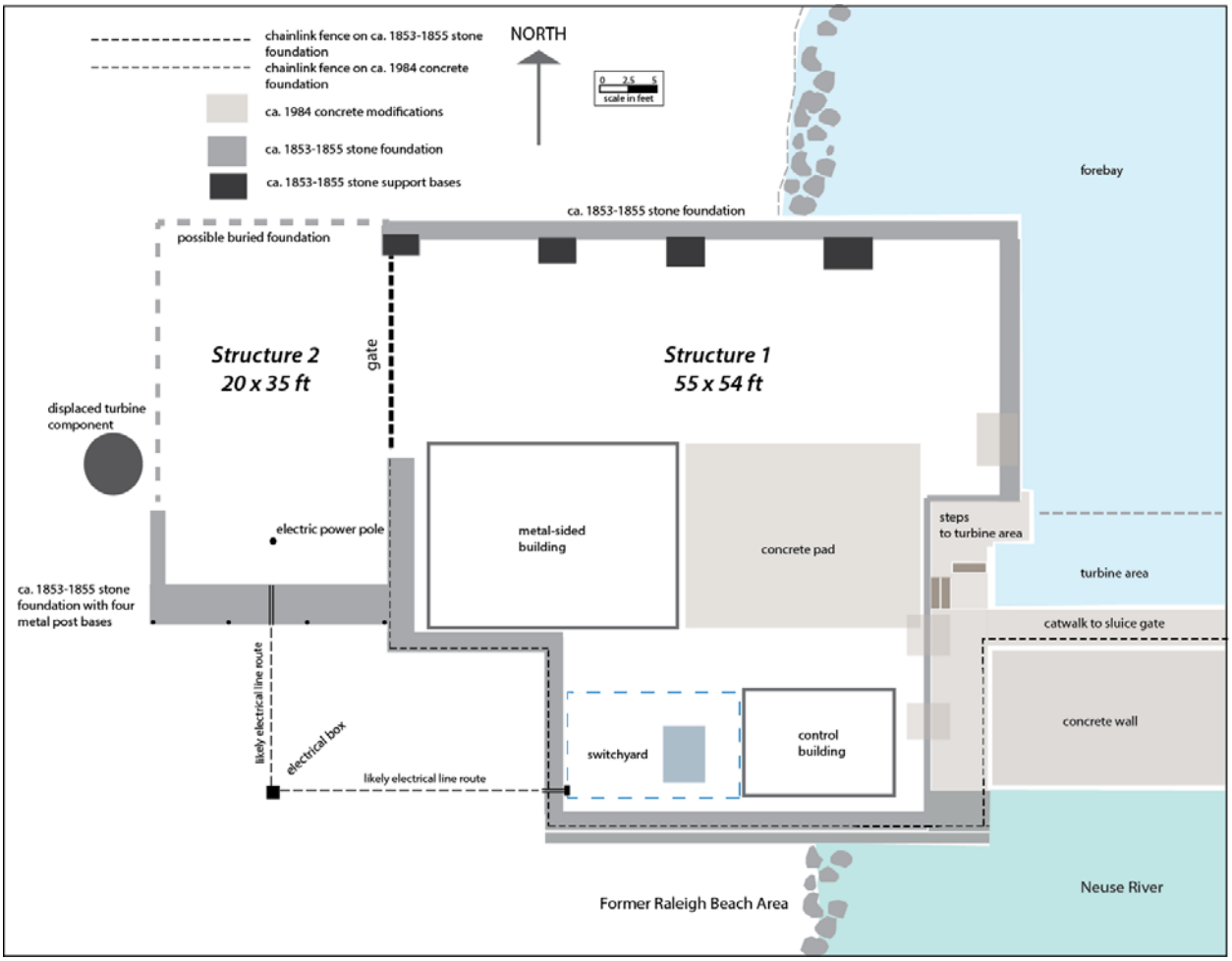


Figure 60. Site 31WA1872/1872** - foundation plan showing the ca. 1853-1855 Neuse Manufacturing Company papermill stone foundation (Structures 1 and 2) and the ca. 1984 Milburnie Hydroelectric Project modifications to the historic foundation.

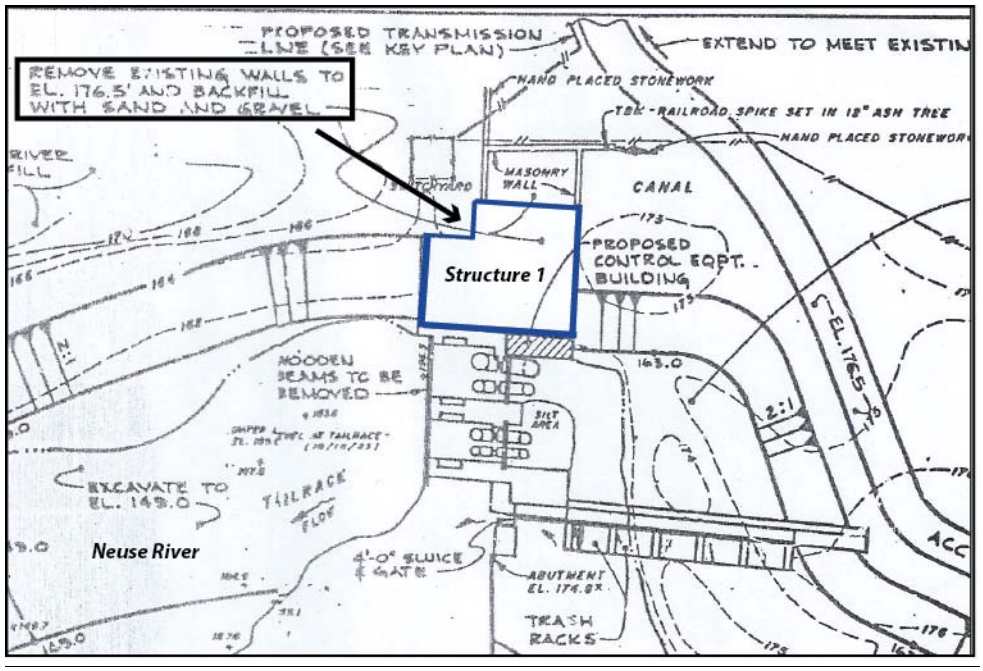


Figure 61. Site 31WA1872/1872** - ca. 1981 plan of proposed modifications to the ca. 1900-1903 Raleigh Ice & Electric Company powerhouse (Structure 1) for the ca. 1984 Milburnie Hydro Project (North Carolina Department of Archives and History, OSA, Raleigh).

Structure 1

Structure 1 is a 55 ft by 54 ft granite foundation; another adjoining stone foundation (Structure 2) is described in the discussion of Area 3. Two historic photographs of Structure 1 (the Raleigh Ice & Electric Company powerhouse show that the building had a skillion or shed roof with a significantly angled surface to allow runoff (see Figure 41 and Figure 44). Several large windows are observable in the river-facing façades.

North Wall: The north foundation is 55 ft east-west; the height of the wall on the exterior is about 4 ft and on the interior about 16-19 in. The ca. 1980 design plan called for backfilling the interior of the modified foundation with sand and gravel. The exposed ground surface within the foundation was extremely compact and did not yield to shovel testing; therefore, no excavation was conducted within the foundation to determine the depth of the fill. It is unknown how much sand and gravel was backfilled into the foundation or what may have been buried underneath the fill.

The width of the wall is 22 in, of which about 16 in is covered with residual mortar; there are also three areas that have trace evidence of brick; the brick and mortar are more than likely the remains of the ca. 1900-1903 Raleigh Ice & Electric brick powerhouse. Also along the north wall are four areas that have been built inside the foundation wall for support. These four support bases are about 10-12 in deep and 22-26 in wide. The surface of these support bases is also covered with mortar with some small brick fragments still adhered to the mortar. The distance between the centerpoint of the bases is about 12.5 ft.

In addition there are two areas on the surface of the stone foundation with metal bolts and there is a circular disc survey marker with indistinct markings at the northeast corner; it is likely that this elevation marker was used during the deconstruction of the Raleigh Ice & Electric Company building.

East Wall: The east wall extends approximately 48 ft south from the northeast corner of the foundation footprint. Only about 17 ft of the wall is observable from the surface; the remainder is under modern concrete but recognizable in the wall profile underlying the concrete and in two pit-like areas in the concrete near the control building. Between 17 ft and 25.7 ft, the stone foundation wall had been modified and reduced in height to 16 in to accommodate a concrete support base (40 in x 40 in; 42 in high) for the metal superstructure that extends from the metal-sided building and over the turbine area. At 25.7 ft the east wall is directed west for 8 ft and then south for the remaining 25 ft of the east wall. The continuation of the stone wall was observed under the loading bay access and in the two pits within the concrete foundation near the control room.

Similar to the north wall, the width of the east wall is about 22 in and there is a 16-in wide trace of mortar that indicates that the brick walls of the ca. 1900-1903 Raleigh Ice & Electric powerhouse were 16-in thick and that there was a 6-in wide area of exposed stone foundation along the exterior wall.

South Wall: The south wall is 55 ft long. Similar to the north and east wall, the width of the south wall is about 22 in and there is a 16-in wide trace of mortar. Beginning at the southeast corner where the east wall meets the south wall, the wall is 37 ft long and 18 in wide; a chain link fence is along the edge of the wall that borders the southern wall of the control building and switchyard. At 37 ft from the southeast corner the south wall is redirected northward for 15 ft; two electrical lines cross over the foundation and connect the switchyard to the electrical box on the former Raleigh Beach area. The south wall then extends west for 10 ft and then north for 17 ft; these two sections of the south wall are along the south and west wall of the modern metal-sided building.

West Wall: The west wall is 54 ft long and is comprised of the 17-ft section of wall that redirects the south wall northward, described above, and a 37-ft section that connects the south wall with the north wall. There are two breaks in the west wall. One is an apparent 32-in wide intentional gap in the section of wall west of the metal-sided building that appears to be aligned with the 3-ft wide stone foundation associated with Structure 2 (Area 3) adjoining the powerhouse foundation (Structure 1). The other is about 17-ft wide and is located at the present gated access area; this section extends from the end of the metal-sided building to the northwest corner of the stone foundation.

Area 2 - North of Milburnie Dam

Above-ground evidence of site occupation and use in the area north of Milburnie Dam consists of a large 15-18 ft spoil pile that is very likely associated with the construction of the ca. 1984 hydroelectric facility (Figure 62), a stack of four trash racks from dismantling the ca. 1984 hydroelectric facility (Figure 57-59), and the ca. 1984 access road that is depicted on the ca. 1980 plan (Figure 65). Area 2 is defined by the Neuse River on the east, wetlands on the north, the Milburnie Project forebay on the south, and the Neuse River Trail on the west.

Figure 62. Site 31WA1872/1872** - Area 2, view northwest showing stacked trash racks and 15-18 ft high spoil pile in the background.

Figure 63. Site 31WA1872/1872** - Area 2, view northeast from access road showing the stack of trash racks with the Neuse River in the background.

Figure 64. Site 31WA1872/1872** - Area 2, view east showing the stacked trash racks and the Neuse River in the background.

Figure 65. Site 31WA1872/1872** - Area 2, view northeast from Neuse River Trail showing the access road.

The four trash racks are approximately 14 ft by 7 ft and about 13 in deep. They are constructed with a series of grates that are spaced about 2.5 in apart; underlying the grates is a series of five I-beams. There were no observable manufacturer's marking or labels on the trash racks.

Shovel testing was attempted in the area; however, the soil was extremely compact and resistant. Subsurface investigations following standard shovel testing methodology were not successful. No cultural material was recovered from Area 2.

Area 3 - Between the Milburnie Powerhouse and the Neuse River Trail

The area between the Milburnie Powerhouse and the Neuse River Trail (see Figure 57) is the location of a stone foundation identified as Structure 2. This foundation is depicted on the ca. 1980 map that was prepared prior to the construction of the ca. 1984 hydroelectric facility (Figure 66). According to the ca. 1980 map, this structure was 35 ft north-south by 20 ft east-west and shared the east wall with Structure 1. In addition, the map shows that there was "hand-placed stonework" extending further west along the south wall and further north along the west wall. The purpose of the stonework is unknown; it was not exposed during the archaeological investigation and may more than likely also be buried under the approximately 1 ft of gravel and clay that was brought to the site in the early 1980s.

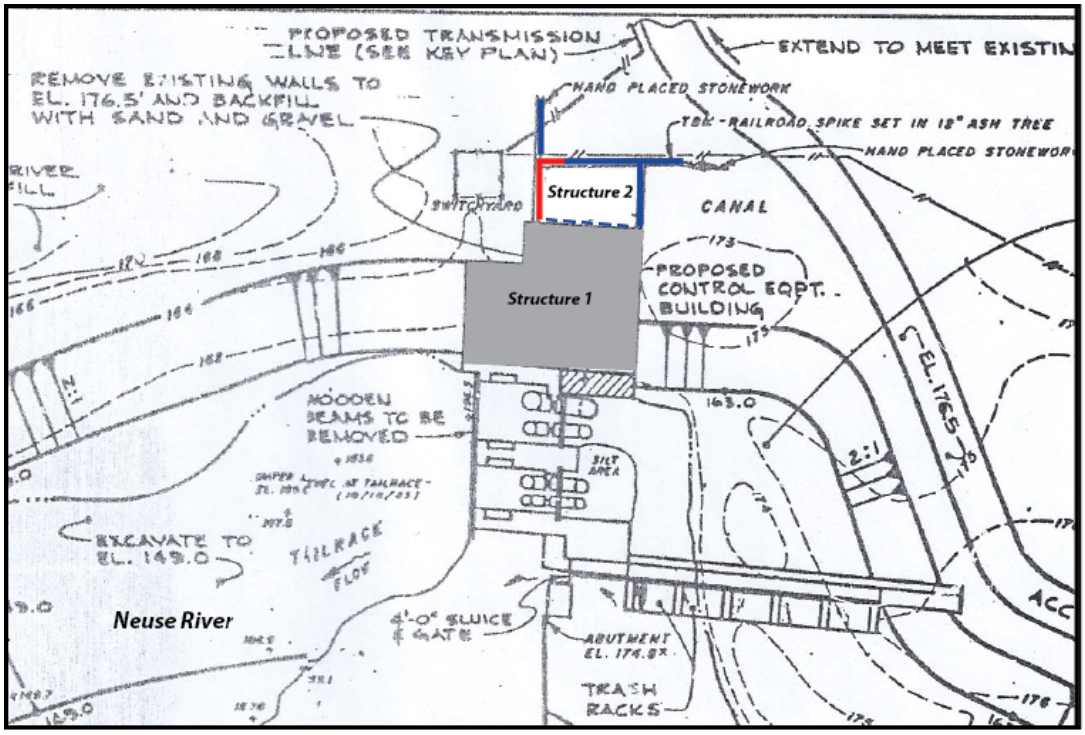


Figure 66. Excerpt of ca. 1980 proposed plan for the modern hydroelectric facility showing foundation walls located west of the powerhouse. Note: the red-shaded wall of Structure 2 is exposed; the blue-shaded wall is buried.

The exposed section of Structure 2 extends northwest for approximately 21 ft to the corner. This section was 4 ft wide and evidence that four metal posts had previously been secured along the southwest edge of the foundation (Figures 61-63). These posts were spaced at 5 to 6-ft intervals and had been cut-off flush with the foundation; it appeared that they very likely had been support for a fence. Also, a powerline pole was about 7.5 ft northwest of the foundation and electrical conduit lines extended from the pole and across the foundation surface and then continued down the south-facing profile wall into the former Raleigh Beach area to connect with an above-ground electrical box. A continuation of the stone foundation wall beyond the corner was partially documented with the removal of overburden by shoveling and limited probing. Shovel testing found that some of the stone foundation has been buried under approximately 1 ft of gravel and clay fill, probably during the construction of the ca. 1984 hydroelectric facility. This work identified an additional 10 ft of the foundation on a northeast-southwest orientation. Adjacent to the stone foundation was a displaced turbine component (Figure 70).

Figure 67. Site 31WA1872/1872** - Area 3 – south foundation wall of Structure 2, view east toward the metal-sided building and the foundation of Structure 1, also showing the metal conduit for electrical lines that extend from the power pole to the electrical box located in the former Raleigh Beach area.

Figure 68. Site 31WA1872/1872** - Area 3 – south foundation wall of Structure 2, view northwest toward the Neuse River Trail, showing the metal conduit for electrical lines.

Figure 69. Site 31WA1872/1872** - Area 3 – west foundation wall of Structure 2, view south.

Figure 70. Site 31WA1872/1872** - Area 3 – south and west foundation wall of Structure 2 and displaced turbine component, view south toward former Raleigh Beach.

In addition to the examination of the stone foundation associated with Structure 2, Area 3 was examined for subsurface archaeological remains. Four shovel tests were excavated in this area and a total of 40 historic/modern artifacts were recovered.

Three of these shovel tests were excavated on a transect that paralleled the chain-link fence around the powerhouse. These shovel tests were excavated at 15-m intervals and resulted in the recovery of historic glass, metal artifacts, and brick fragments. These are identified as NW T1 ST1, NW T1 ST2, and NW T1 ST3 and are described below.

NW T1 ST1 was excavated approximately 5 m north of the south wall of Structure 2l. The upper 18-20 cm (Level 1) was extremely disturbed and contained modern artifacts (glass, plastic, metal, etc.) that were not recovered. Excavation below 18-20 cm was through very compact black silty sand with a large amount of coal and charcoal that was not recovered. Level 2 (20-40 cm) recovered 21 historic/modern artifacts that include window pane fragments; wire nails; bottle glass that was aqua-tinted, colorless, green, and manganese-dioxide-tinted; machine-made goblet/drinking glass fragments; indeterminate chalky material; and an unidentified composite material that was green. Level 3 (40-60 cm) was primarily a yellowish brown coarse silty sand that yielded four additional artifacts that were consistent with the recovery in Level 2. Excavation terminated in saprolitic bedrock.

NW T1 ST2 was excavated 15 m north of NW T1 ST1. This shovel test consisted of undifferentiated coarse sandy soil to a depth of 60 cm bs. No cultural material was recovered from the upper 50 cm of shovel test; five artifacts were brought to the surface with the sand

that was at about 50 cm bs. These artifacts were two small fragments of brick, two ferrous nail fragments, and one piece of slag. Additional excavation at this location yielded one other historic artifact from 60 cm bs. This was a fragment of machine-made brown bottle glass. Excavation terminated at 60 cm bs in the watertable.

NW T1 ST3 was excavated 15 m north of NW T1 ST2. Soil in this test consisted primarily of deep sand with very little differentiation in the stratigraphy in the upper 80 cm. Excavation between 80 and 110 cm bs yielded two historic artifacts. These are a very small fragment of aqua-tinted glass and a wire screw cap. At the bottom of the test unit was material that appeared to be fragments of cloth bags that were not recovered. Excavation terminated at 110 cm bs in the watertable.

In addition, one test (NW J1) was judgmentally placed on north of the north wall of Structure 1. This resulted in the recovery of seven historic glass (n=3) and metal artifacts (n=4) between 20 and 40 cm bs. The three glass artifacts are a fragment of brown bottle glass that is embossed "Use of … TTLE," a fragment of flat-sided colorless bottle glass, and a fragment of a thin-body (0.8mm) colorless glass of unknown function. The four metal artifacts are two ferrous nail fragments and two ferrous nails that measure 2.8 in long. The metal artifacts were extremely corroded, more than likely due to the proximity of the forebay.

Additional shovel testing to the north of NW T1 ST3 was attempted; however, the soil was very compact and did not yield to shovel testing. This area is where an access road was constructed around 1984 and it appears that construction of the road has very likely the cause of soil compaction.

A total 40 artifacts were recovered from Area 3; all are historic or modern. They include early- to mid-twentieth-century machine-made bottle glass, brick fragments, nails (square cut and wire), and window pane fragments that are very likely associated with the ca. 1984 demolition of the ca. 1900-1903 brick powerhouse that was built by Raleigh Ice & Electric Company.

Area 4 - Former Raleigh Beach

The area south of Milburnie Dam has been known as Raleigh Beach and is used today by locals for fishing and kayaking/canoe launching. The area is wooded with footpaths leading from the Neuse River Trail to the edge of the river (Figures 65-67). A total of seven shovel tests were excavated in the area that extended 200 ft south of Milburnie Dam and was situated between the Neuse River and the Neuse River Trail.

Figure 71. Site 31WA1872/1872** - Area 4 – Former Raleigh Beach area, view east towards the Neuse River from the footpath.

Figure 72. Site 31WA1872/1872** - Area 4 – depression area, view west.

Figure 73. Site 31WA1872/1872** - Area 4 - Former Raleigh Beach, view south from the edge of the stone foundation/retaining wall.

From the Neuse River Trail, there is a steep slope to the floodplain south of the Structure 2 foundation. Rip-rap has been deposited along the slope edge (Figure 74). Further south, the slope from the Neuse River Trail to the floodplain is less steep.

No above-ground structural remains were identified within the Project study area; however, a rectangular-shaped depression was observed near the southern boundary of the study area (see Figure 72). This depression was also noted by Webb and Turco 2006 as a possible former structure location. The depression appears to be oriented to the river; it is approximately 40 ft by 50 ft and is sunken to depths of 2 to 4 ft bs. There was no evidence of a foundation or building footings associated with the depression, although several large boulders were noted around the northern edge of the depression (Figure 75).

Soil in the shovel tests was deep alluvial undifferentiated coarse sand; all tests were excavated to the watertable that was generally at 60-70 cm bs. Five of the shovel tests resulted in the recovery of prehistoric and historic artifacts. Three shovel tests yielded only historic and modern artifacts.

A total of 38 artifacts were recovered from Area 4. Four of these are prehistoric (two ceramics and two lithics), and the remaining 32 artifacts are historic or modern. The prehistoric artifacts are lithics (rhyolite flakes) and ceramics (coarse sand-tempered indeterminate Woodland period eroded sherds). The historic artifacts recovered from this area are machine-made bottle glass (colorless, brown, and green) a ferrous metal drill bit, and two ceramics (whiteware and Bristol-glazed stoneware).

The prehistoric artifacts are diagnostic of the Woodland period (1000 BC – AD 1600) and the historic/modern artifacts date between 1820 and present day.

Figure 74. Site 31WA1872/1872** - Area 4 - Former Raleigh Beach, view north to the 12-ft high stone foundation wall (Structure 2); the rip-rap area along the edge of the Neuse River Trail is underneath the vegetation on the left.

Figure 75. Site 31WA1872/1872** - Area 4 – large boulders surrounding the rectangular depression, view southwest.

Area 5 – Woodland West of the Neuse River Trail

An inspection of the wooded area to the west of the Neuse River Trail (Figure 76) found subsurface deposits of prehistoric and historic material and above-ground evidence of historic occupation that consists of three building foundations, a fieldstone wall, and a surface scatter of modern metal cans and machine-made glass bottles.

Figure 76. Site 31WA1872/1872** - Area 5, view southwest from the Neuse River Trail.

The three building foundations are identified as fieldstone piers (Structure 3), creosote-treated posts (Structure 4), and a fieldstone perimeter foundation (Structure 5).

The fieldstone piers at Structure 3 cover an area that is 31 ft by 31 ft; the piers are square, measuring 2 ft by 2 ft, the footings extend 10 in outside the piers for a total footing dimension of 3.67 ft square (Figure 77 and Figure 78). The piers are set three across and three deep for a total of nine piers. A brick chimney fall is exposed on the ground along the center of the north-facing exterior wall (Figure 79). It is very likely that this is the foundation of the officer's house that was described in *The Farmer and Mechanic* (Raleigh, NC) newspaper on October 15, 1901 (see Figure 38).

Structure 4 is identified by nine creosote-treated posts that are 1 ft in diameter and cover a building footprint that is 22 ft north-south and 24 ft east-west (Figure 80). There was no other above-ground evidence of site occupation near the posts.

Structure 5 appears to have been a shed that was closed on three sides and open to the west, which faces a steep slope (Figure 81). Structure 5 measures 11 ft east-west by 21 ft north-south. The foundation is about two courses of mortared fieldstone that has a height of about 1 ft above ground; the surface of the upper course has a thick layer of mortar that has been molded in a concave depression very likely the result of setting a rounded log on top of the fieldstone foundation, which is no longer evident.

Figure 77. Site 31WA1872/1872** - Area 5, Structure 3 (stone pier foundations), view northwest.

Figure 78. Site 31WA1872/1872** - Area 5, Structure 3 (close-up of stone pier foundations), view northwest.

Figure 79. Site 31WA1872/1872** - Area 5, Structure 3 Brick Fall, view northwest.

Figure 80. Site 31WA1872/1872** - Area 5, Structure 4 (creosote-treated foundation posts), view southeast toward the Neuse River Trail.

Figure 81. Site 31WA1872/1872** - Area 5, Structure 5 (stone perimeter foundation), view south.

The fieldstone wall is located approximately 15 ft south of Structure 3 (Figure 82). The wall is approximately 25-30 in wide and it extends about 50 ft on an east-west orientation. The wall is comprised of large boulders that are 2-3 ft in diameter. The first 27 ft of the fieldstone wall was built with a total of nine large boulders; then there is a gap for 11 ft before the fieldstone wall continues to its terminus; the remaining 12 ft of the wall is comprised of five large boulders.

The artifact scatter observed on the surface south of the fieldstone wall consists of a large number of metal beer cans and glass wine and liquor bottles. Types noted were screw-top flask-shaped brown liquor bottles, green Gallo wine 4/5-quart bottles, and several unmarked flask and 4/5-quart colorless glass bottles. These modern artifacts were not collected.

Subsurface investigations in Area 5 consisted of systematic and selective shovel testing. A total of nine shovel tests (ST16 – ST29, and ST32) were excavated through the woodland area on a 25-degree bearing beginning just north of a small wetland along Old Milburnie Road.

ST16 was excavated through very wet sandy soil with numerous roots. Artifact recovery (n=5) consisted of hand-blown dark olive-green bottle glass, hand-made brick, and pearlware (undecorated, hand-painted with cobalt, and hand-painted polychrome), which are indicative of a late-eighteenth- to early-nineteenth-century occupation.

ST17 was excavated 15-m north of ST16 and near a wetland with standing water. Excavation documented very gravelly and clayey soil and terminated at bedrock at 28 cm bs. No cultural material was recovered.

Figure 82. Site 31WA1872/1872** - Area 5, fieldstone wall, view west.

ST24 was excavated 15 m north of ST17. Four stratigraphic zones were documented during the excavation of this shovel test. The upper 13 cm was brown sandy loam that contained a few modern colorless glass fragments that were discarded. Zone 2 (13-45 cm) was similar in color to the upper 13 cm (Zone 1) but has an increase in the gravel content and was a little more compact. Artifact recovery (n=13) included bottle glass (colorless, hand-blown dark olive green, brown, and aqua-tinted), window glass (colorless and light green), ceramic (whiteware), and slag. Zone 3 (45-55 cm) was a very dark grayish sandy loam that yielded 32 pieces of slag, two nail fragments, and a prehistoric rhyolite tertiary flake. Excavation of this test was terminated in subsoil (Zone 4) at 55 cm bs.

ST25 was excavated about 2 m northeast of Structure 3. Four stratigraphic zones were documented in this shovel test that terminated at 82 cm bs in subsoil. The upper 43 cm (Zone 1) was dark grayish brown sandy loam that contained both historic and prehistoric artifacts. The historic artifacts (n=14) include bottle glass (brown, manganese-dioxide tinted, and colorless), nails (square-cut and wire), and ceramics (indeterminate burned refined earthenware, pearlware, and gray salt-glazed stoneware). The prehistoric artifacts (n=2) from Zone 1 are

tertiary thinning flakes made from rhyolite and porphyritic rhyolite. Zone 2 (43-63 cm) is a dark grayish brown sandy loam with no gravel and a large amount of charcoal flecking. Artifact recovery from Zone 2 consists of one prehistoric rhyolite tertiary thinning flake. Zone 3 (63-82 cm) is a reddish brown micaceous sand; one historic artifact (a nail) was recovered; however, it appears very likely that this was brought to the surface from the profile of the shovel test, probably from Zone 1. Excavation terminated in sterile subsoil (Zone 4).

ST26, 15 m north of ST25, also had four stratigraphic zones. The upper 25 cm (Zone 1) was loosely compact sandy loam with a lot of root disturbance. Historic artifacts (n=61) recovered from Zone 1 include bottle glass (green, colorless, brown, and manganese-dioxide-tinted), nails (square-cut and wire), a metal can lid, ceramics (burned refined earthenware, pearlware, and whiteware), and window glass. Zone 2 (25-50 cm) was a coarse-grained reddish brown clayey sand with a few roots. Cultural material recovered from Zone 2 (n=27) includes bottle glass (manganese-dioxide-tinted), a carbon graphite rod, nails (cut), indeterminate ferrous metal fragments, ceramics (pearlware, whiteware, burned refined earthenware, and bisque porcelain), and window glass (light green). Zone 3 (50-70 cm) was medium brown very coarse clayey sand. Artifacts (n=4) recovered from this zone include an indeterminate nail fragment and ceramics (ca. 1860-1935 spongeware and ca. 1834-1854 ironstone marked “Opaque Granite China”). Excavation continued into Zone 4 (70-90 cm) that was lighter colored and more compact than Zone 3. No cultural material was recovered from this zone.

ST27 was excavated just a few meters south of the fieldstone rock wall. The upper 23 cm was dark sandy loam over saprolitic bedrock that was decomposing into coarse light brown sand. Only historic artifacts (n=8) were recovered from this test. These include colorless machine-made bottle glass and a ferrous stove leg.

ST28 was excavated upslope from ST27 and about 5 m west of Structure 3. Soil was very shallow before encountering bedrock at about 8 cm bs. No cultural material was recovered.

ST29 was excavated within the approximate center of Structure 1. The soil was very dark brownish black loam that graded to brown coarse sand and bedrock. Five fragments of colorless bottle glass were recovered. Excavation terminated at bedrock that was 12 cm bs.

ST30 and ST31 were excavated outside Area 5 and are discussed below in Area 6.

ST32 was excavated 15 m east of ST25. Soil in this test was shallow; only 17 cm deep compared to 82 cm in ST25. Soil was dark grayish brown loam with gravel and lots of root disturbance. Modern bottle glass was noted on the surface, but not recovered. Artifacts (n=3) recovered from this test include colorless bottle glass, terracotta flower pot fragment, and undecorated porcelain.

A total of 179 artifacts were recovered from Area 5; of these only four are indicative of a prehistoric occupation. The four prehistoric artifacts recovered from Area 5 are tertiary flakes made from rhyolite and porphyritic rhyolite that were from Zone 2 in ST24 (45-55 cm bs) and ST25 (43-63 cm bs). These four artifacts contain limited information about the period of occupation during the prehistoric era. The historic artifacts indicate an occupation between

1820 and present day. These artifacts are representative of architectural (window glass, nails, and brick fragments) and kitchen-related activities (ceramics, bottle glass, and a stove leg).

The historic artifact recovery is consistent with the documented occupation of the property from 1853 to 1940 that includes the Neuse Manufacturing Company papermill, the Raleigh Ice & Electric Company hydroelectric plant, and the Milburnie gristmill. Also, the close proximity of Area 5 with the milling operations suggests that some of these materials may be associated with the ca. 1874 "storehouse, a little cluster of Eight houses for operatives, two barns and stables, {and} Blacksmith Shop" as described in Murray (1983:683-685). One ca. 1943 map (see Figure 43) depicts an unidentified structure in the approximate location of Structure 3. It is likely that this building was contemporaneous with the Twiggs gristmill operation.

Area 6 – Old Milburnie Road/Raleigh Beach Road

A total of nine shovel tests (ST18 – ST23, ST20+1m, ST30, and ST31) were excavated along existing Raleigh Beach Road (Figure 83) for the proposed improvement to the roadway for access and staging (Mitigation Plan – Task 5). Of these, five contained cultural material. The artifact recovery area was defined on the northwest by steep slopes and rock outcrops, on the north and south by wetland soils, and on the east by the Neuse River Trail. A description of the subsurface testing along existing Raleigh Beach Road follows.

ST18 was excavated near the intersection of existing Raleigh Beach Road and the Neuse River Trail. Two distinct zones were identified in the soil stratigraphy. Zone 1 (0-30 cm) was a dark brown silty loam with a large amount of modern glass and plastic that was not recovered, and three modern architectural tiles and 23 fragments of a twentieth-century cream-colored refined earthenware that appear to be from a bowl. Zone 2 (30-60 cm) was a light brown coarse sand that contained seven more fragments of the cream-colored bowl and two more architectural tiles. A total of 35 historic/modern artifacts were recovered from Zone 1 and 2. Underlying Zone 2 at 60 cm bs was gley soil with iron mottling. Excavation terminated at 60 cm bs.

ST19 was excavated 15 m south of ST18. The upper 25 cm (Zone 1) was dark brown sandy loam with numerous roots a small amount of gravel, and a few flecks of charcoal. A transitional zone (Zone 2) was identified between 25 and 37 cm bs. This zone was a mixture of the dark loamy soil in Zone 1 with clayey reddish brown subsoil; some modern plastic fragments were in Zone 2 and were not recovered. Sterile subsoil was encountered at 37 cm bs. No artifacts were recovered from ST19.

ST20 was excavated about 15 m south of ST19 and 2-3 m on the east side of existing Raleigh Beach Road. Zone 1 (0-18 cm) was dark brown fine sandy loam with abundant roots and Zone 2 (18-46 cm) was brown sandy loam with small pebbles. Five historic and/or modern artifacts were recovered from Zones 1 and 2, collectively. These are a plastic button, a fragment of red-bodied coarse earthenware with a hand-painted tropical motif (flamingo), and two kitchen ceramics (whiteware and Albany slip-glazed earthenware). Zone 3 (46-76 cm) was dark brown compact sandy loam that yielded one artifact that was identified as a prehistoric tertiary flake made from porphyritic rhyolite. Subsoil was encountered at 76 cm bs.

Figure 83. Site 31WA1872/1872** - Area 6, existing Raleigh Beach Road, view southwest from the Neuse River Trail.

ST20 + 1m was excavated to better define the results in ST20. This test documented two stratigraphic zones. Zone 1 (0-48 cm) yielded six artifacts that are historic and/or modern; these include bottle glass (colorless), a wire nail, two fragments of window pane glass, and an architectural ceramic tile. Zone 2 (48-78 cm) was dark brown compact sandy loam and yielded two historic/modern artifacts (brown and green bottle glass fragments) and one prehistoric artifact (rhyolite tertiary flake). Excavation terminated at 78 cm bs.

ST21 was excavated 15 m southwest of ST20. Two stratigraphic zones were identified. Zone 1 (0-30 cm) was a brownish gray loamy sand with a large amount of gravel and modern materials (glass and plastic) that were not recovered. Level 2 (30-78 cm) was brown clayey sand that yielded one fragment of gray salt-glazed stoneware. Excavation terminated in sterile subsoil at 82 cm bs.

ST21 was excavated 15 m southwest of ST20. Two stratigraphic zones were identified. Zone 1 (0-30 cm) was a brownish gray loamy sand with a large amount of gravel and modern materials (glass and plastic) that were not recovered. Level 2 (30-78 cm) was brown clayey sand that yielded one fragment of gray salt-glazed stoneware. Excavation terminated in sterile subsoil at 82 cm bs.

ST22 was located on the west side of the road. Zone 1 (0-12 cm) contained a large amount of modern glass, plastic, and metal that was not recovered. It also contained four pieces of architectural tile and one fragment of whiteware that were recovered. Zone 2 (12-35 cm) was coarse sand and degrading bedrock; no cultural material was recovered from Zone 2. Excavation terminated in sterile subsoil at 44 cm bs.

ST23 was excavated near the end of the existing unpaved section of Raleigh Beach Road. The soil in this area was found to be extensively disturbed to a depth of 32 cm bs, very likely from past road construction. No cultural material was recovered.

ST30 and ST31 were excavated east and northeast of ST18 to better define the extent of the artifact recovery. The area inspected was along the edge of the Neuse River Trail. Shovel testing encountered densely compact sterile subsoil within 5 cm of the surface. No cultural material was recovered from these tests.

A total of 57 artifacts were recovered from Area 6; of these only two are indicative of a prehistoric occupation. The two prehistoric artifacts recovered from Area 6 are tertiary flakes made from rhyolite and porphyritic rhyolite that were from Zone 2 in ST20+1m NE (48-78 cm bs) and ST20 (46-76 cm bs). These two artifacts were recovered from a stratigraphic zone that also yielded historic artifacts.

The historic artifacts indicate an occupation between 1820 and present day. These artifacts are representative of architectural (tiles, window glass, and nails) and kitchen-related activities (ceramics and bottle glass).

Site 31WA1873** – Old Tarboro Road/Neuse River Bridge

<table>
<tr><td>ACCESSION NUMBER: none</td><td>SIZE: 50 m north-south x 40 m east-west</td></tr>
<tr><td>COMPONENT: Historic</td><td>SOIL:</td></tr>
<tr><td rowspan="2">DESCRIPTION: Discontiguous linear transportation-related above-ground resource</td><td>LANDFORM: First Terrace</td></tr>
<tr><td>VEGETATION: Woodland/Cleared Areas</td></tr>
<tr><td>UTM COORDINATES: Zone 17 S, 657214 E 3992820 N</td><td rowspan="2">NRHP-ELIGIBILITY RECOMMENDATION: Unassessed; however, the site appears to have the potential to be eligible for listing in the national Register of Historic Places</td></tr>
<tr><td>ELEVATION:</td></tr>
</table>

Field investigations for Task 5 inspected the area between Milburnie Dam and the Mark's Creek footbridge located about 1,500 ft north of Milburnie Dam. The inspection was confined to the area between the Neuse River Trail and the Neuse River for the proposed access road. For the most part, systematic shovel testing in this area encountered areas with deflated soils and exposed bedrock and areas with wetland soils. The few areas where shovel testing was feasible found shallow soils with either an absence of cultural material or modern cultural material. No intact subsurface deposits were encountered. However, the survey area crossed through above-ground evidence of past land use that was documented.

As indicated by the historical marker along the Neuse River Trail, a bridge crossing was located approximately 200 ft north of Milburnie Dam (Figure 84). Although the historical marker reports that this was the location of the 1700s Smith's Ferry, it appears that this statement may be a misinterpretation of the ca. 1770 Collet Map. Smiths Ferry was located on the Neuse River; however, it was east of present-day Smithfield and not Raleigh. An extensive review of historic maps that depict the Milburnie area did not locate any references to a ferry at this location.

This marker also reports that this location was known as Hinton's Bridge in the 1800s. Numerous historic documents and maps support this interpretation. The ca. 1900 'iron bridge" identified on the marker as being at this location was found to have been constructed in 1870, as documented in an article printed in the July 20, 1870, *Raleigh Weekly Standard* newspaper. The 1900s iron bridge interpretation on the historic marker appears to be based on a statement made by Elizabeth Hinton in 1903; however, the wording of the statement only indicates that it was present in 1903.

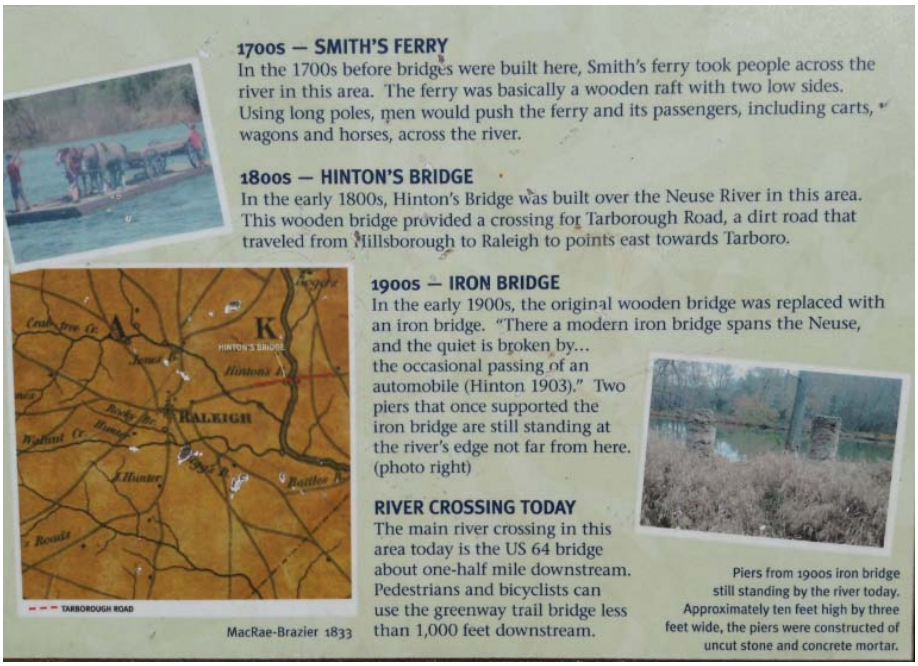


Figure 84. Site 31WA1873** - historical marker along the Neuse River Tail near the river crossing.

Site 31WA1873** consists of three components (Figure 85 and Figure 86). These include a section of historic Tarboro Road on the east side of the river; evidence of a bridge crossing on the west side of the river (stone piers and bridge approach); and a continuation of the historic Tarboro Road on the west side of the river. The road section on the west side of the river has been known more recently as "Old Milburnie Road" and "Raleigh Beach Road."

The stone circular-shaped piers are located on the west bank of the river, directly opposite the road trace on the east side of the Neuse River that has been identified as "Old Tarboro Road" (Figure 87). The piers are constructed of uncut stone and concrete mortar. The upper portion of the northernmost pier has been damaged and reduced in height; it measures approximately 6.5-7 ft; the southernmost pier is complete and its height is 10 ft. Both piers are 3 ft wide; they are spaced 14 ft apart, center to center (Figure 88).

Approximately 68 ft northwest from the piers and 46 ft southeast of the Neuse River Trail is an earthen embankment that appears to the bridge approach; a wetland area lies between the bridge piers and the embankment (Figure 89 and Figure 90). The earthen embankment is approximately 40 ft long and 10 ft wide; it has a general elevation of 4 ft above the surrounded wetland. The embankment has sloping sides that extend about 2 ft along the north and south edge; 8 ft on the eastern edge; and only 2 ft on the western edge.

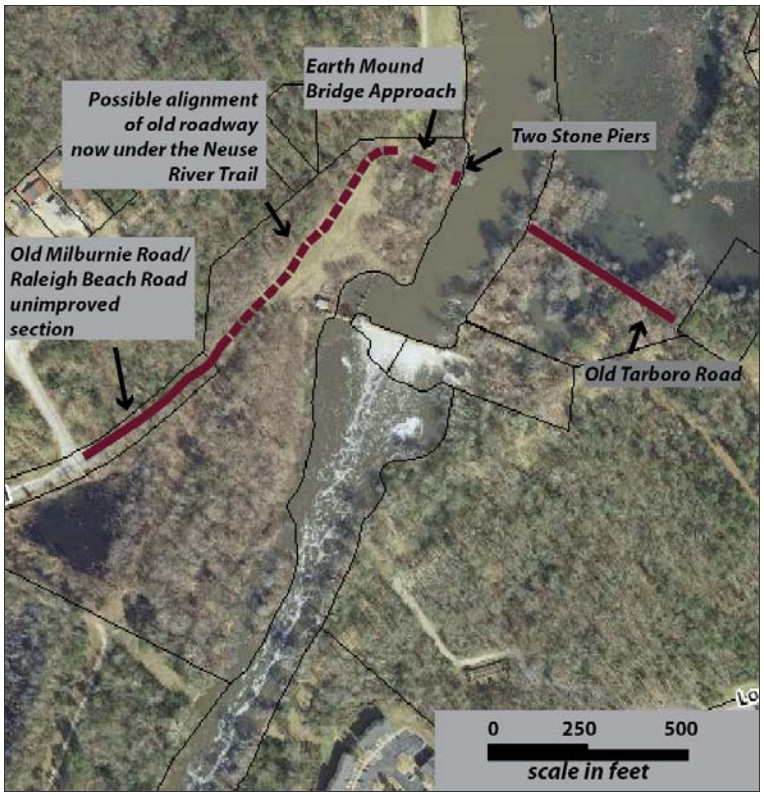


Figure 85. Site 31WA1873** - site components on 2010 aerial photograph (Wake County GIS IMaps).

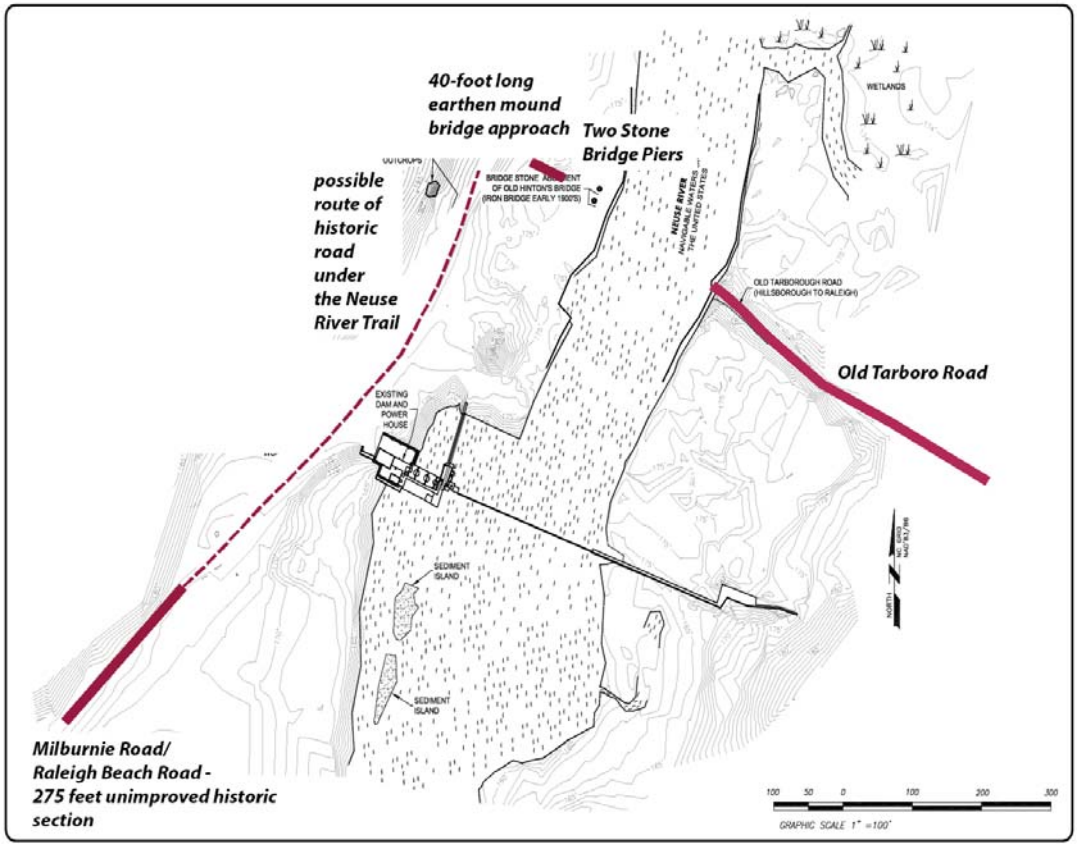


Figure 86. Site 31WA1873** - site components on topographic map (base map K2 Design).

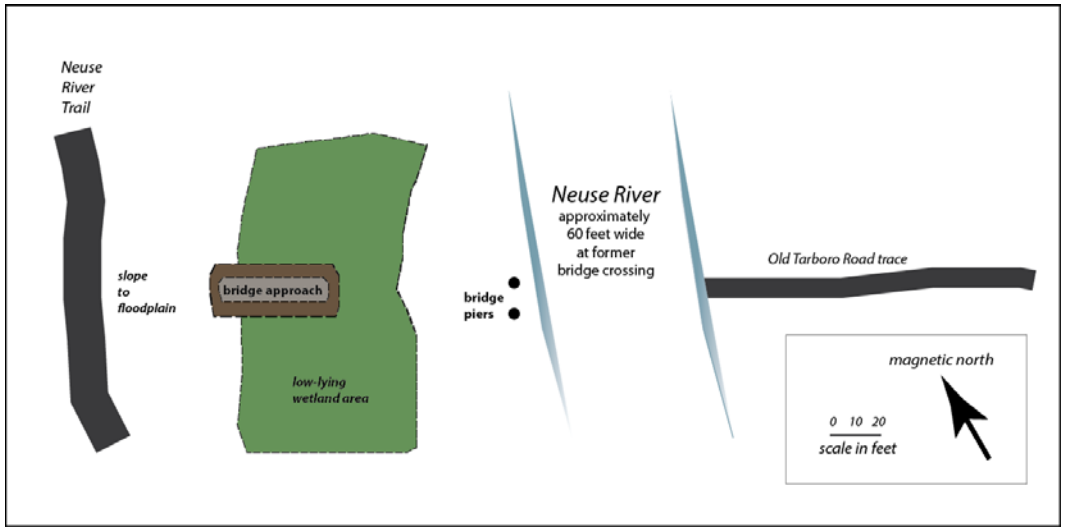


Figure 87. Site 31WA1873** - site components north of Milburnie Dam: Old Tarboro Road, stone bridge piers, and bridge approach.

Figure 88. Site 31WA1873** - stone bridge piers along the west bank of the Neuse River, view east.

Figure 89. Site 31WA1873** - low-lying wetland area between the bridge piers and the earthen bridge approach, view east.

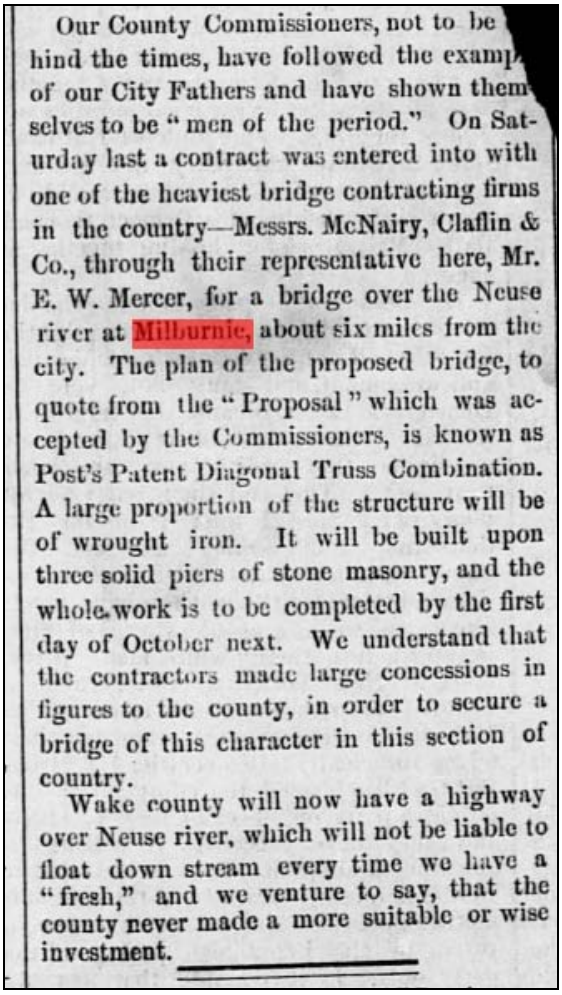
Figure 90. Site 31WA1873** - earthen embankment for the bridge approach, view west toward the Neuse River Trail.

Historic documentation about the iron bridge over the Neuse River was found in the July 20, 1870, edition of the Raleigh *The Weekly Standard* (Figure 85). According to the article, the iron bridge over the Neuse River at Milburnie was a Post's Patent Diagonal Truss Combination bridge that was to be built on three solid piers of stone masonry. It was the "highway" over the Neuse River that would end floating "down stream every time we have a fresh, …".

An extant example of a Post truss bridge is listed in the NRHP (Figure 86). This bridge, known as the Ponakin Bridge in Lancaster, Massachusetts, consists of eight paneled sections with a total span of 100 ft (30 m) and a width of 20 ft (6.1 m). It rests on granite stone abutments. The decking consists of a base of cross timbers which are attached to the trusses, with wood stringers, then transverse cross timbers, and finally three-in deck planking.

The section of Old Tarboro Road on the east side of the river extends approximately 600 ft from the riverbank and is about 10 ft wide. The recorded section of this unpaved roadway appears to be built on a causeway between two ponds (Figure 93). The earliest historic reference to Tarborough Road related to the Milburnie area was found in Major Hinton's 1818 will.

The section of Old Tarboro Road on the west side of the river is located in a wooded area situated between the Neuse River Trail and an extensive granite outcrop. The unpaved road extends approximately 380 ft from the locked gate between the state-maintained asphalt-paved section of the roadway identified as "Raleigh Beach Road" to the intersection with the Neuse River Tail (Figure 94).



Our County Commissioners, not to be hind the times, have followed the examp of our City Fathers and have shown them selves to be "men of the period." On Saturday last a contract was entered into with one of the heaviest bridge contracting firms in the country—Messrs. McNairy, Claflin & Co., through their representative here, Mr. E. W. Mercer, for a bridge over the Neuse river at Milburnie, about six miles from the city. The plan of the proposed bridge, to quote from the "Proposal" which was accepted by the Commissioners, is known as Post's Patent Diagonal Truss Combination. A large proportion of the structure will be of wrought iron. It will be built upon three solid piers of stone masonry, and the whole work is to be completed by the first day of October next. We understand that the contractors made large concessions in figures to the county, in order to secure a bridge of this character in this section of country.

Wake county will now have a highway over Neuse river, which will not be liable to float down stream every time we have a "fresh," and we venture to say, that the county never made a more suitable or wise investment.

Figure 91. Newspaper article about the wrought iron structure over the Neuse River at Milburnie built on three solid piers of stone masonry to be finished October 1, 1871. *The Weekly Standard*. (Raleigh, N.C.), 20 July 1870. Chronicling America: Historic American Newspapers. Lib. of Congress. <http://chroniclingamerica.loc.gov/lccn/sn87070095/1870-07-20/ed-1/seq-3/>

Figure 92. Post Patent Truss Bridge (Ponakin Bridge) example.

http://chroniclingamerica.loc.gov/lccn/sn87070095/1870-07-20/ed-1/seq-3/#date1=1836&index=8&rows=20&words=Milburnie&searchType=basic&sequence=0&state=North+Carolina&date2=1880&proxtext=Milburnie&y=11&x=11&dateFilterType=yearRange&page=1

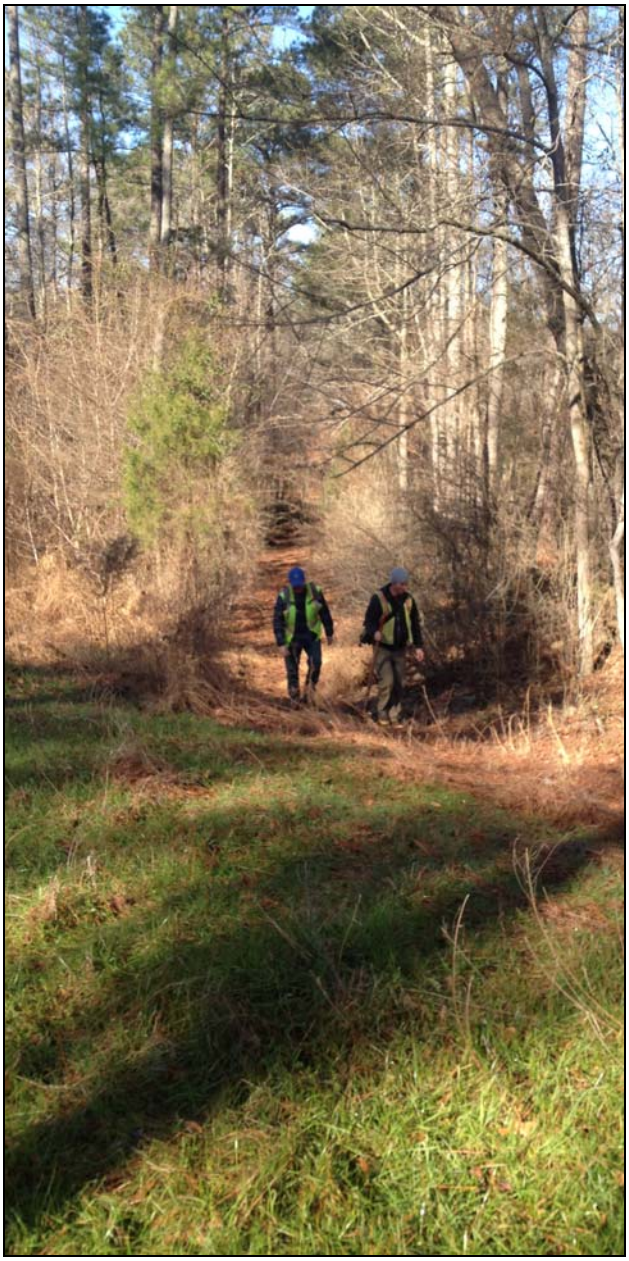


Figure 93. Site 31WA1873** - Old Tarboro Road, east side of the Neuse River, view west toward the Neuse River from the sewerline corridor.

Figure 94. Site 31WA1873** - Old Tarboro Road (Old Milburnie Road/Raleigh Beach Road), west side of the Neuse River, view southwest from the Neuse River Trail.

A review of the historic evidence related to the Milburnie area has found that Old Tarboro Road and a bridge that carried the road over the Neuse River can be dated back to the late eighteenth century. A summary of the historic documents that identify Tarboro Road and a bridge at this location follow.

Table 6. Summary of Historic References to Tarboro Road and a Bridge Over the Neuse River near Milburnie.

Date	Reference	Description
1798	Price-Strother Map of NC	Road heading east from Raleigh and a bridge crossing the Neuse River below the name "Hinton"
1803	Raleigh Weekly Standard	Announcement for bidding on building a bridge across the Neuse River at Major John Hinton's.
1807	Raleigh Weekly Standard	Announcement for bidding on building a bridge across the Neuse River at Major John Hinton's.
1818	Major John Hinton's Will	Mentions a mill dam on the Neuse River "at the Falls above the bridge" and a mill pond near "Tarborough Road."
1833	McRae-Brazier Map	"Hinton's B." and an unnamed road
April 9, 1865	Confederate Military Accounts	Company A ordered to Milburnie to build a substantial bridge with cribs of stone
April 13, 1865	Federal Military Accounts	93rd Illinois – camped at Hiltons's (sp) Bridge or Neuse Mills 30th Ohio Volunteers, camped at Clay Hill Plantation, one mile from Hinton's across the Neuse River; 15th Army Corps – took Raleigh Road to camp near Hinton's Bridge on Neuse River; 81st Ohio Infantry Volunteers – crossed the Neuse River at Neuse Mills and camped
April 14, 1865	Federal Military Accounts	30th Ohio Volunteers – crossed Hintons' Bridge 15th Army Corps – marched across the Neuse River and entered Raleigh after camping at Hinton's Bridge
1865	Map of Southeastern US showing General Sherman's marches from 1863-1865	Route between Eagle Rock and Raleigh with "Hinton's Bridge" noted and "Neuse Mills" below (south) of the bridge
1861-1865	Atlas to Accompany the Official Records of the Union and Confederate Armies (Plate 138 - "Topographical Map of the Theater of War: North Carolina, and South Carolina, and Virginia"	"Neuse Mills" south of "Hinton's Br."
1861-1865	Jeremy Francis Gilmer field map of Raleigh-Goldsboro-Rocky Mount area	"Paper mill" on the east bank of the Neuse River and a gristmill on the west bank just upstream (north) from the bridge over the Neuse River
1870	Wake County Commissioners	Constructed an iron truss bridge over the Neuse River at Milburnie on piers of stone
1871	Fendol Bevers Map of Wake County	"Milburnie" on the west side of the Neuse River and what appears to be a dam across the river with an impoundment upstream
1874	Handbill for the Sale of Neuse Manufacturing Company	Describes the mill as being located on "the Tarboro Road"
1887	Shaffer map of North Carolina	"Tarboro Road," an impoundment of the Neuse River near Jack's Branch, a "Voting" structure at "Millburnie" on the east side of the river, and an unidentified structure on the west side of the river near the dam.
1888	The Progressive Farmer	Payment to King Iron Bridge for building a bridge at Milburnie.
1893	The Smithfield Herald	Contract to build an iron bridge across the Neuse River at Hinton's Bridge.
1911	Soil Survey Map of Wake County	"Millburnie" north of the bridge over the Neuse River
1921	Wake County Supreme Court	Discuss using "existing Milburnie Road" that was known in the past as "Old Tarboro Road" as a primary highway running from Raleigh through Wake County and into the eastern section of the state.
1943	Map of Raleigh, North Carolina	"Milburnie" next to the dam across the Neuse River, a unidentified structure west of the millhouse, and an unnamed road leading to Milburnie on the west side of the river.

ARCHITECTURAL RESOURCES

Two previously recorded architectural resources lie within the Project study area. These are Milburnie Dam (WA1677) and Two Stone Piers (WA4330). These resources are summarized below.

Architectural Resource WA1677 – Milburnie Dam

Milburnie Dam is a masonry structure that was constructed by Raleigh Ice & Electric Company between 1900 and 1903 (Figure 95). Through time the Milburnie Dam area has been referred to as John Hinton's Mill, Hinton Mill Tract, Col. William Hinton's Mill, Falls of the Neuse at Milburnie, Neuse Manufacturing Company, Neuse Mills, Milburnie Paper Mill, Raleigh Ice & Electric Co., Carolina Power & Light Co., Milburnie Mills, Twiggs Mills, and Milburnie Hydro. The spelling of Milburnie varies in historic documents; and is at times referred to as Millburnie, Milburney, or Milburny.

Figure 95. Architectural Resource WA1677 (Milburnie Dam), view north from the pedestrian bridge over the Neuse River.

Previous historic research conducted for the adjacent Raleigh Parks and Neuse River Trail projects reports that the Milburnie Dam location was originally the site of an early 1800s gristmill owned by Col. John Hinton that was replaced around 1855 by a papermill that was

burned by Union troops in 1865 (Webb and Turco 2006; Seibel and Russ 2011).[23] Following the burning of the papermill, a gristmill and sawmill were at this location until 1880 when the timber dam washed away. Raleigh Ice & Electric Company bought the property and built a new stone dam sometime between 1900 and 1903.

In the late 1970s, the property was leased to a Pennsylvania company, which invested about $2 million to build a hydroelectric plant, known as the Milburnie Hydroelectric Project. Proposed modifications to the dam were described in 1980 as follows:

- Remove wood beams at the sluice.
- Construct a reinforced concrete wall between the masonry piers in each bay to serve as a cut-off wall to prevent discharge downstream through the bays.
- Excavate a channel downstream in the river bottom to provide better hydraulic conditions.
- Reduce the height of the rock outcrop located 400 ft downstream from the dam to about 2 ft.

Work to build the Raleigh Ice & Electric Company hydroelectric facility at Milburnie began on January 1, 1900, with the construction of a saw mill (*Raleigh N&O*, December 31, 1899, page 2). By May 19, 1903, the old Neuse Manufacturing Company dam and mill had been torn down and the new dam was built, and by January 1903 the new brick building for the power plant was anticipated to be completed by mid-February 1903. Only two photographs that show the ca. 1903 dam and brick building have been located; one is an undated CP&L photograph titled "View of Millburnie Development on Neuse River, No. 66" (see Figure 31) and the other is an undated newspaper photograph of Raleigh Beach that shows fishermen on the beach and the abandoned brick building in the background (see Figure 32).

Raleigh Ice & Electric Company provided electricity to the City of Raleigh from 1903 until 1916 when Raleigh Electric (now CP&L) bought the Milburnie property; two years later CP&L dismantled the Milburnie hydroelectric facility. The equipment in the plant was sold and moved to Raleigh and the building and waterpower from the dam were used operate a gristmill (*Raleigh N&O*, March 18, 1919, page 9). In 1934, the Milburnie gristmill and dam along with 25 acres of land lying on both sides of the Neuse River was sold to Samuel Warren Twiggs, who continued the gristmill business producing a fresh ground meal called "Milburnie Mill Meal" until 1943 or 1944. After the gristmill closed, the only activity at Milburnie was fishing, church baptisms, and social events.

There is no record of modifications to Milburnie Dam between 1903, when construction of Raleigh Ice and Electric Company was completed, and the 1980s, when the dam was modified to accommodate modern hydroelectric technology. Just prior to the construction of the ca. 1984 hydroelectric facility, Milburnie Dam was described as follows (Twiggs 1981).

> The flat-crested spillway is 202.47 ft wide. The non-overflow section on the east side of the Neuse River extends 198 ft into the abutment before dog-legging and extending

23 In addition, Milburnie has been considered as a potential location for the falls at "Wee quo Whom," which were visited by John Lawson in 1701 (Hargrove 1986:15; Lawson 1967:64).

from the massive block wall for approximately another 103 ft. The total non-overflow length on the east side of the Neuse River is 310 ft. The west side of the spillway is constructed into a series of abutments and piers, a four-ft wide sluiceway, two existing powerhouse bays with about 18-ft wide opening, the remains of an old brick mill building, and masonry walls that extend into the abutment. The total length of the complex extends approximately 170 ft from the spillway into the abutment.

The majority of the stone dam that is exposed is located on the east side of the river. The dam wall is about 2 ft wide at the top (Figure 96); the area north of the wall has filled with silt and at the time of the field investigation had areas with standing water (Figure 97). Observable features in the south face of the dam include the dogleg section (Figure 98), a 4- to 6 ft wide drainage ditch at the base of the wall (Figure 99 and Figure 100), a square-cut (1 ft x 1 ft) drainage channel in the dam wall (Figure 101), and quarry marks at are about 1-in wide, 2-in long and spaced 8-in apart (Figure 102).

Figure 96. Architectural Resource WA1677 (Milburnie Dam), terminus of east wall.

Figure 97. Architectural Resource WA1677 (Milburnie Dam), view of sediment accumulation behind the dam wall east of the Neuse River, view north from the dam wall.

Figure 98. Architectural Resource WA1677 (Milburnie Dam), view of dogleg section showing the drainage channel, view northwest from the pathway parallel to the dam.

Figure 99. Architectural Resource WA1677 (Milburnie Dam), view of the east wall showing the drainage channel and granite blocks and variation in the surface treatment of the granite blocks, view east.

Figure 100. Architectural Resource WA1677 (Milburnie Dam), view of the east wall showing the drainage channel and granite blocks and pathway south of the dam, view east.

Figure 101. Architectural Resource WA1677 (Milburnie Dam), view of the east wall showing the drainage channel cut into the base of the wall.

Figure 102. Architectural Resource WA1677 (Milburnie Dam), view of quarry marks in the east wall.

Architectural Resource WA4330 – Stone Piers

The two stone piers were recorded as an architectural resource in 2006 (Webb and Turco 2006). They are located on the west bank of the river approximately 300 ft north of the dam. These were reported as probably dating from around 1920 (Webb and Turco 2006). The piers are about 10-ft high and 3-ft wide and are constructed of uncut stone and concrete mortar. It was reported in 2006, that the bridge piers seem to align with an earthen embankment, possible former road bed, on the east side of the river.

This architectural resource has also been included as a component of archaeological site 31WA1873** and is described further above (see pages 96-104 of this report). Recent research indicates that more than likely these bridge piers were constructed in 1870 (see Figure 91).

SUMMARY AND RECOMMENDATIONS

Cultural resource field investigations for the Milburnie Dam Mitigation Bank Project were conducted between February and May 2014. Fieldwork focused on conducting investigations defined as Tasks 1-3 and 5 in the Mitigation Plan (Appendix A). The work resulted in expanding the boundaries of one previously recorded archaeological site (31WA1625/1625**), recording two new archaeological sites (31WA1872/1872** and 31WA1873**), and revisiting two previously recorded architectural resources (WA1677 and WA4330) (see Figure 45). A summary of the results and recommendations for these resources follows.

Archaeological Site 31WA1625/1625** - Milburnie East

Site 31WA1625/1625** is a multicomponent prehistoric (Early to Middle Woodland) and historic (nineteenth- and early-twentieth-century) site that covers approximately 3.5 acres of land on the east side of the Neuse River on floodplain and first terrace south and east of Milburnie Dam. The site has not been assessed for eligibility for listing in the NRHP.

Archaeological Evidence of Site Occupation

The prehistoric component of 31WA1625/1625** within the Project study area has been identified as an Early to Middle Woodland period (1000 BC – AD 800) occupation, based on the presence of Vincent series ceramics. Subsurface testing documented areas with intact soil stratigraphy and a moderate density of cultural material that indicates the possibility that intact subsurface features, such as hearths and/or storage pits, may exist at the site. Similarly, the prehistoric component that was identified in the woodland area to the east of the Project study area in 2006 found areas with intact soils indicating the possibility that subsurface features may be present (Webb and Turco 2006; Olson 2007). The small prehistoric lithic scatter within the sewerline corridor and outside the Project study area contains limited information; however, some intact deposits may be present within the sewerline corridor in areas that were not trenched.

The historic component of 31WA1625/1625** in the Project study area consists of nineteenth- and early-twentieth-century architectural and kitchen-related artifacts and a surface scatter of bricks that suggest a former domestic occupation. The historic component in the woodland to the east of the Project study area that was recorded in 2006 identified two cut-stone chimney bases with hand-made brick that may date to the mid-nineteenth century and surface scatters of machine-made brick and late-nineteenth to early-twentieth-century artifacts that is evidence of "… at least two or three buildings …" that probably date to the mid to late 1900s when the papermill and gristmill were in operation (Webb and Turco 2006; Olson 2007).

Historic Documentation of Site Occupation

Historic documents indicate that land near Milburnie Dam on the east side of the Neuse River had been owned by Col. Hinton in the late eighteenth century and inherited by his son Major John Hinton in 1784. Major Hinton's 1818 will states that at the time his death he had been constructing a mill dam at the falls on his property. The property was inherited on to Major Hinton's daughter, Elizabeth Hinton; and, in 1853, she sold some of the land to Neuse Manufacturing Company for the construction of papermill. Neuse Manufacturing Company, also known as Milburnie Mill, produced paper for the North Carolina State papers and had a

standing order with the *New York Times*. In the 1860 Industrial Census, it was the only papermill reported in Wake County. The annual product for the business was 520,000 pounds of paper that were produced from rags and bleaching material. During the Civil War, the Milburnie Mill bought cloth and sold paper to the Confederate Army for paper cartridges. On April 13-14, 1865, Union troops (93rd Illinois, 15th Army Corps, 30th Ohio, and 81st Ohio) camped at or near Neuse Mills near Hinton's Bridge. The papermill was reportedly burned in 1865 by Union troops, and was later used for a gristmill operation. The Milburnie gristmill business was reported in the *Branson's North Carolina Business Directory* from 1867-1869 and in 1872. The presence of both a papermill and gristmill on each bank of the Neuse River is supported by the 10th US Census (1880) report that states "...the power was a formerly used by a paper-mill on the left bank and a grist and saw mill on the other, the fall utilized being 12.5 ft; but the papermill burnt, and the dam, not being taken care of, is gone. The grist and saw mill buildings were standing, although it had been about five years since any power has been utilized" (Trowbridge 1885).

Proposed Undertaking at 31WA1625/1625**

Limited ground disturbance is planned for the Milburnie East area. The dam wall that extends on land to the east of the river beyond the current river bank will not be removed. To stabilize and support the east wall, a buttress will be constructed using stone that has been removed from the main spillway of the dam. In addition to supporting the remaining dam wall, the buttress will maintain the wetland and floodplain upstream from the dam.

The buttress will consist of stacked granite blocks at a slope of approximately 2:1 to the elevation of the existing groundline on the upstream side of the wall. The width of the buttress will be approximately 37 ft and the depth extending southward from the face of the dam will be approximately 22 ft.

Recommendations

Recommendations for the proposed construction of the buttress are (1) restrict access to the buttress construction area from the west side of the river and (2) avoid the intact deposits at 31WA1625/1625** on the first terrace, which is about 30 m (100 ft) east of the area identified for the proposed buttress.

No construction activity is planned in the 31WA1625/1625** area; therefore, no further archaeological work is recommended. However, precautions to protect this area should include (1) identifying it on construction plans as being "environmentally sensitive," (2) avoiding the area during staging and stockpiling activities, and (3) preventing the use of construction machinery within the site boundaries.

Archaeological Site 31WA1872/1872** - Milburnie West

Site 31WA1872/1872** is a multicomponent prehistoric (Woodland) and historic (nineteenth and early twentieth century) site that covers approximately 4 acres of land on the west side of the Neuse River on the floodplain and first terrace south and west of Milburnie Dam. The site has not been assessed for eligibility for listing in the NRHP.

Archaeological Evidence of Site Occupation

The archaeological survey in the Project study area on the west side of the Neuse River resulted in identifying above-ground and subsurface evidence of prehistoric and historic occupation (see Figure 54). Six areas with cultural material define the site (see Figure 55). These include (1) the Milburnie Hydroelectric Project, excluding Milburnie Dam; (2) the area north of Milburnie Hydroelectric Project; (3) the area between Milburnie Powerhouse and the Neuse River Trail; (4) the former Raleigh Beach area south of Milburnie Powerhouse; (5) the woodland west of the Neuse River Trail; and (6) the area along Old Milburnie Road/Raleigh Beach Road.

No cultural material was recovered from Area 1 and Area 2; limited investigations found that at least 1 ft of modern fill (sand and gravel) has been deposited and compacted in these areas. It is unknown how much sand and gravel was backfilled into the foundation or what may have been buried underneath the fill.

Area 3 was also found to have modern fill deposited and compacted on the surface probably during the 1980 construction associated with the Milburnie Hydroelectric Project. Limited investigation in Area 3 found evidence that the historic stone foundation (Structure 2) has been buried beneath the modern fill. A total 40 artifacts were recovered from Area 3; all are historic or modern. They include early- to mid-twentieth-century machine-made bottle glass, brick fragments, nails (square cut and wire), and window pane fragments that are very likely associated with the ca. 1984 demolition of the ca. 1900-1903 brick powerhouse that was built by Raleigh Ice & Electric Company.

Area 4 contains archaeological evidence of prehistoric and historic occupation on the Neuse River floodplain located south of Milburnie Dam. A total of 38 artifacts were recovered from deep deposits of undifferentiated sand. The prehistoric artifacts are diagnostic of the Woodland period (1000 BC – AD 1600) and the historic artifacts date between 1820 and present day. In addition, a possible former building area was identified by a large depression bordered by large boulders on the north and surrounded by old trees. The depression appears to be oriented to the river; it is approximately 40 ft by 50 ft and is sunken to depths of 2 to 4 ft bs.

Area 5 contains subsurface deposits of prehistoric and historic material and above-ground evidence of historic occupation that consists of three building foundations, a fieldstone wall, and a surface scatter of modern metal cans and machine-made glass bottles. A total of 179 artifacts were recovered from Area 5; of these only four (tertiary flakes made from rhyolite and porphyritic rhyolite) are indicative of a prehistoric occupation and were recovered from a stratigraphic zone between 45 and 63 cm bs. The historic artifacts indicate an occupation between 1820 and present day. These artifacts are representative of architectural (window glass, nails, and brick fragments) and kitchen-related activities (ceramics, bottle glass, and a stove leg).

The historic artifact recovery in Area 5 is consistent with the documented occupation of the property from 1853 to 1940 that includes the Neuse Manufacturing Company papermill, the Raleigh Ice & Electric Company hydroelectric plant, and the Milburnie gristmill. Also, the close proximity of Area 5 with the milling operations suggests that some of these materials may be

associated with the ca. 1874 "storehouse, a little cluster of Eight houses for operatives, two barns and stables, {and} Blacksmith Shop" as described in Murray (1983:683-685). One ca. 1943 map (see Figure 43) depicts an unidentified structure in the approximate location of Structure 3. It is likely that this building that is contemporaneous with the Twiggs gristmill operation may be a former miller's house.

Area 6, along existing Milburnie Road, contains prehistoric and historic archaeological material. Only two are indicative of a prehistoric (non-diagnostic) occupation and were recovered from a stratigraphic zone that also yielded historic artifacts. Historic artifacts from Area 6 indicate an occupation between 1820 and present day. These artifacts are representative of architectural (tiles, window glass, and nails) and kitchen-related activities (ceramics and bottle glass).

Proposed Undertaking at 31WA1872/1872**

The majority of land-altering activities associated with the proposed undertaking are planned on the west side of the river in the vicinity of 31WA1872/1872**. These include the following:

Phase 1 – Staging and access will be conducted in five archaeological areas (Figure 103). These include a staging and stockpiling area north of the powerhouse (Area 2), staging area west of the powerhouse (Area 3), and an access that crosses through Area 4, Area 5, and Area 6 (existing Raleigh Beach Road).

Phase 3 – Removal of the Former Power-Generating Facility will include three modifications/alterations that will affect Area 1 (Figure 104). These include (1) constructing a rock causeway at the entrance of the forebay, (2) removing the steel superstructure (beams, railings, catwalks, and mechanical features not providing structure integrity to the dam and water-retention features) and the remaining turbine and draft tubes, and (3) demolishing the concrete spillway.

Phase 5 – Restoration will be conducted in the former Raleigh Beach (Area 4) with a 36-in baseflow bypass line and along the river bank (stone toe and bank stabilization). Figure 105 depicts the work in these two areas. The restoration plan also includes sediment disposal in Area 4 and sediment removal in Areas 1 and 2 (Figure 106). In addition, upon completion of all construction and deconstruction phases, all access roads and stage/stockpile/storage areas will be restored according to pre-Project cover.

Recommendations

A summary of recommendations for the 31WA1872/1872** follows.

> Areas 1 and 3 - additional archaeological investigation is needed to complete the identification of buried deposits, primarily the historic ca. 1853-1855 foundations associated with Structure 2. Also, following the deconstruction of the ca. 1980-1984 modifications (concrete spillway, control building, switchyard, and equipment building), complete the documentation of historic foundation that may be exposed after the modern structures are removed. The ca. 1980-1984 modifications to the historic powerhouse are not eligible for the National Register.

Area 2 – no further work is needed. This area appears to have been extensively disturbed during the 1980s construction of the Milburnie Hydroelectric Project.

Areas 4 and 6 – if these areas can not be avoided during construction, then additional archaeological work is recommended to determine the NRHP eligibility for the areas that are planned for destruction as a result of the proposed access road and, if eligible, to determine how to avoid and/or mitigate project-related effects.

Area 5 – no construction activity is planned in this area. No further archaeological work is recommended. Precautions to protect this area should include (1) identifying it on construction plans as being "environmentally sensitive," (2) avoiding the area during staging and stockpiling activities, and (3) preventing the use of construction machinery within the site boundaries.

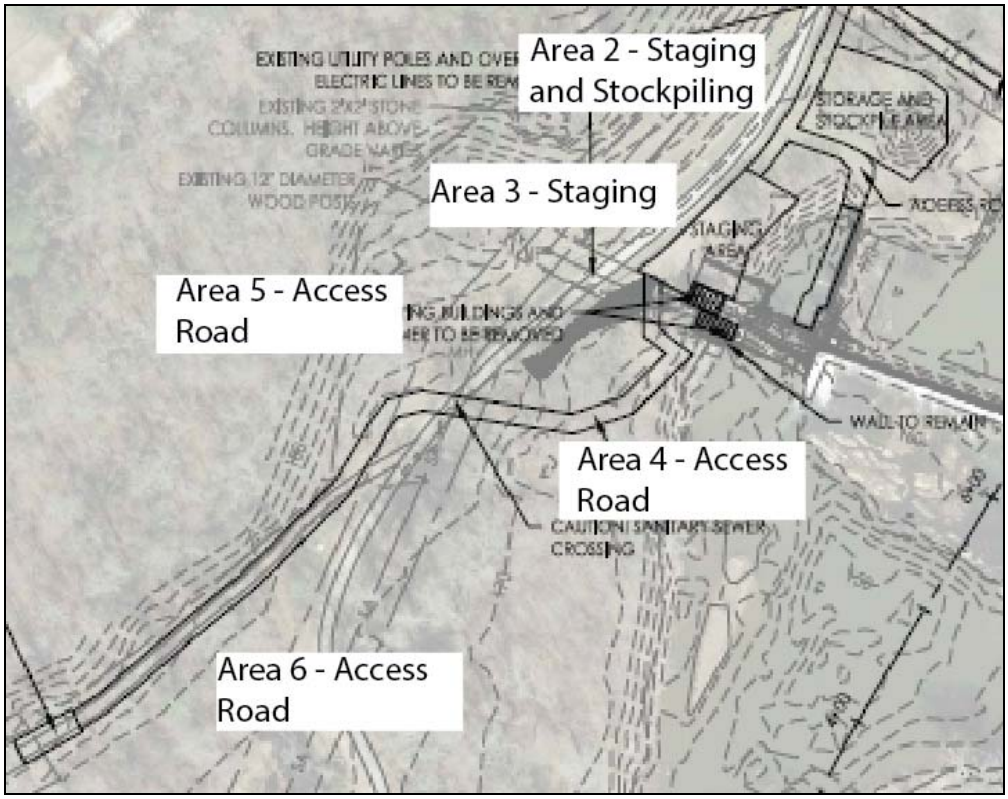


Figure 103. Proposed Undertaking – Phase 1 Staging and Access - at 31WA1872/1872**.

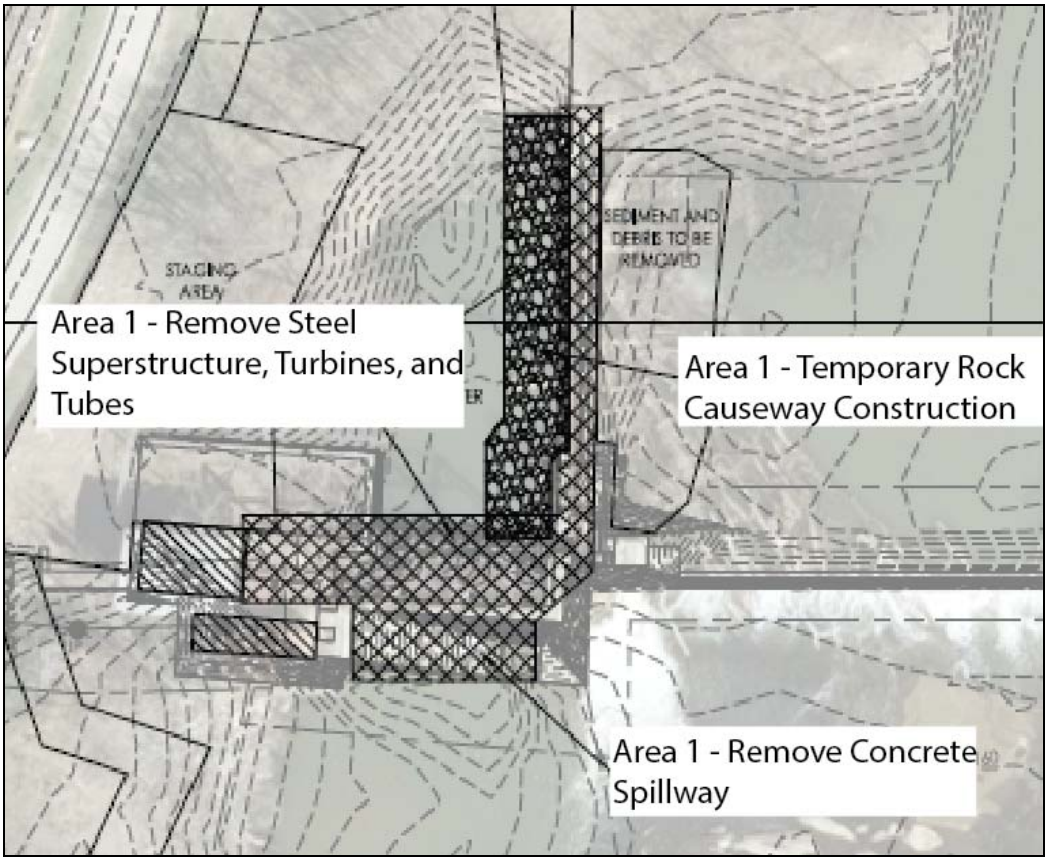


Figure 104. Proposed Undertaking – Phase 3 Removal of Former Power-Generating Facility - at 31WA1872/1872**.

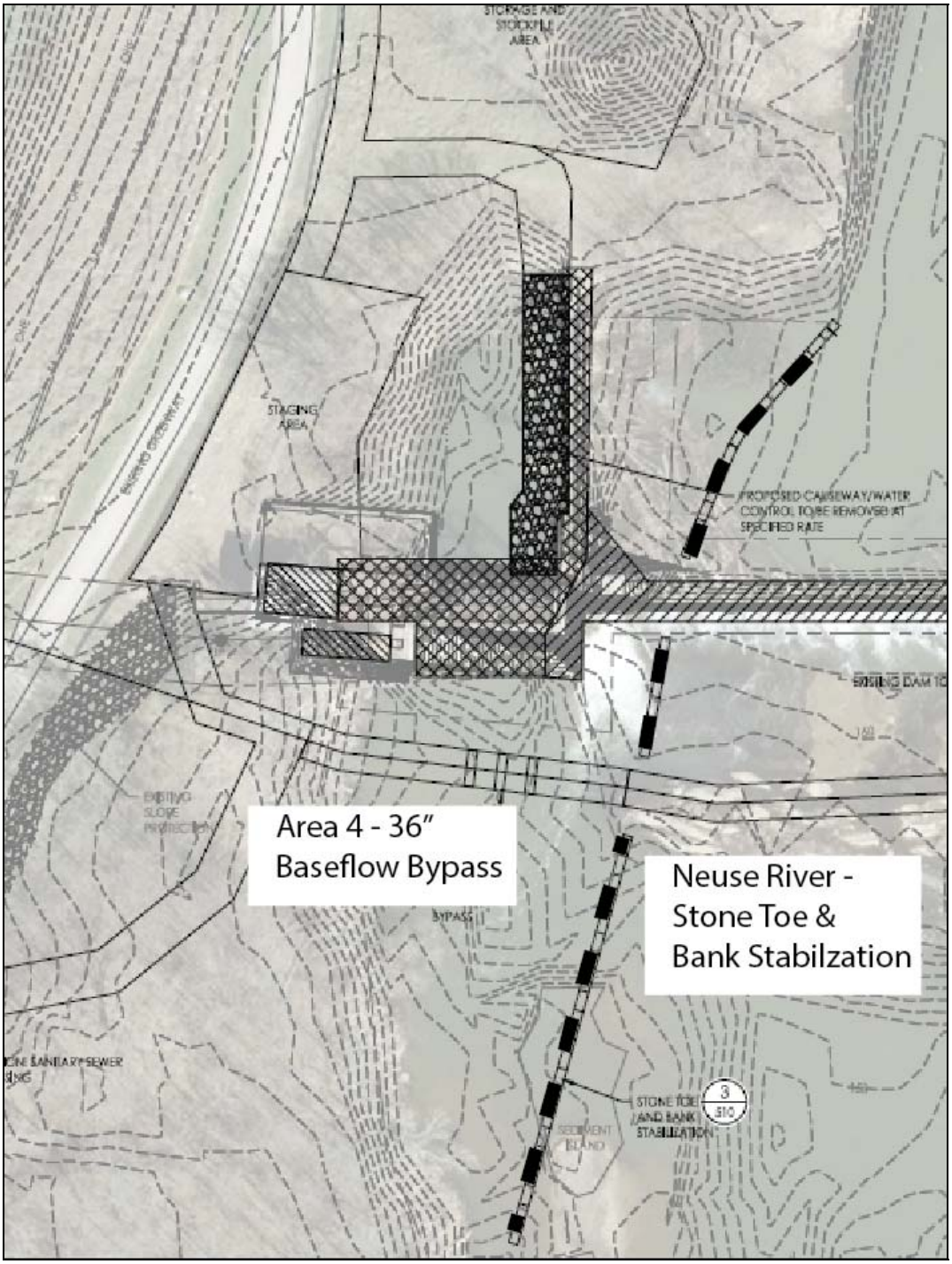


Figure 105. Proposed Undertaking – Phase 5 Restoration - at 31WA1872/1872**.

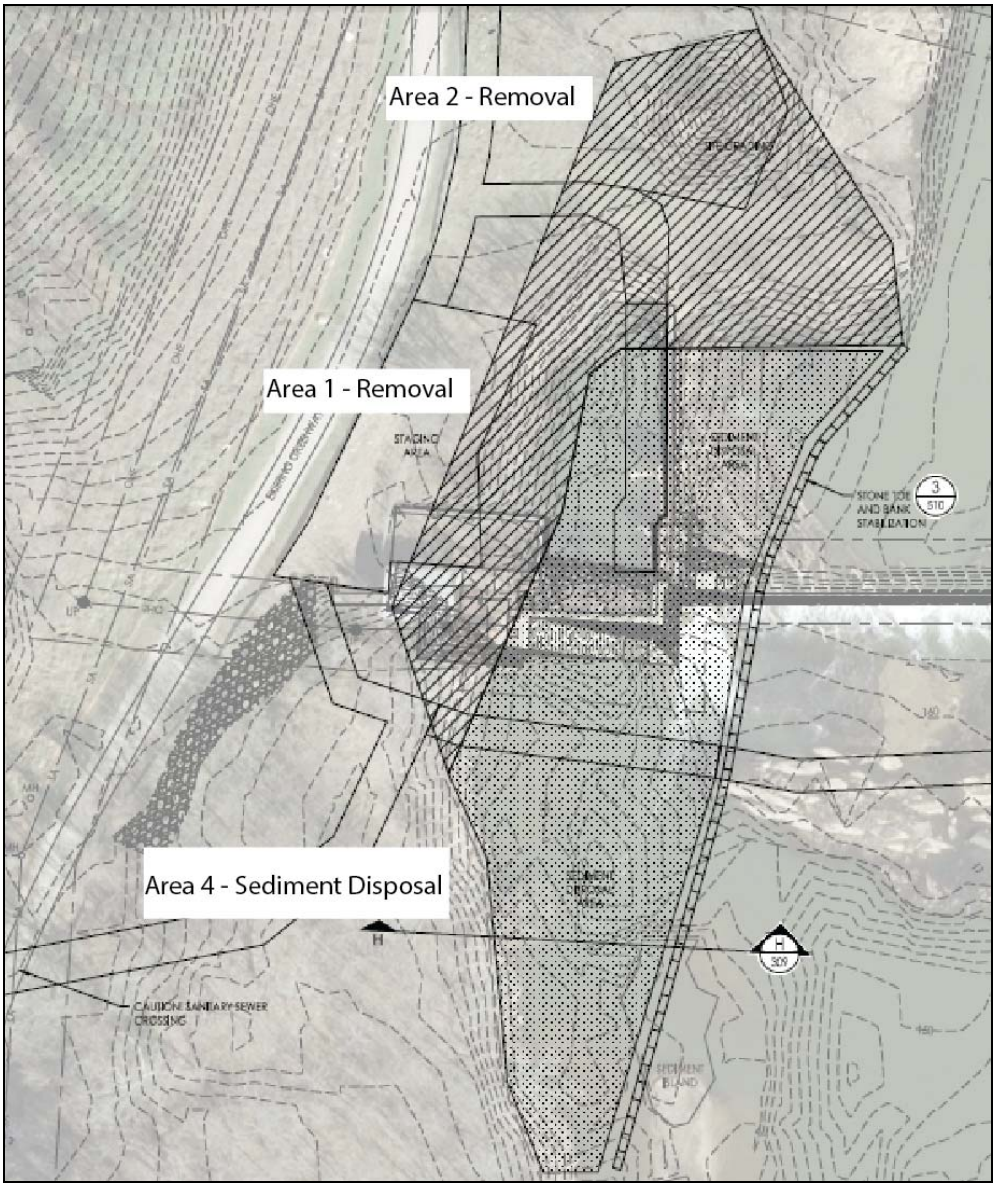


Figure 106. Proposed Undertaking – Phase 5 Restoration, Sediment Disposal and Removal Areas - at 31WA1872/1872**.

Archaeological Site 31WA1873**

Site 31WA1873** consists of three components (see Figure 85 and Figure 86). These include a section of historic Tarboro Road on the east side of the river; evidence of a bridge crossing on the west side of the river (stone piers and bridge approach); and a continuation of the historic Tarboro Road on the west side of the river. The road section on the west side of the river has

been known more recently as "Old Milburnie Road" and "Raleigh Beach Road." This site has not been assessed for NRHP eligibility.

Two components of this site are in areas that are planned for ground-disturbing activities. These are the bridge approach embankment that lies north of the dam and existing Raleigh Beach Road south of the dam. A description of the proposed construction work in these areas and Project recommendations follows.

The bridge approach embankment is located in the area planned for constructing an access path to the wetlands north of the dam. The proposed plan is to have the path generally parallel to the Neuse River Trail east of the sanitary sewer easement (Figure 107). The recommendation is site avoidance to minimize potential destruction of the earth embankment during the construction of the path (Phase 1), while the path is being used by construction equipment during the wetland outlet modification work (Phase 2), and when the path is restored (Phase 5). Concerns for this component of 31WA1873** is the potential destruction or alteration of the characteristics, such as integrity of location, setting, feeling, and association, which may make the site eligible for the NRHP. Construction plans should include a minimum 10-ft buffer between the proposed path and the documented embankment. Furthermore, the area should be identified on construction plans as being "environmentally sensitive" and should be protected during construction/use/deconstruction activities by orange safety fencing.

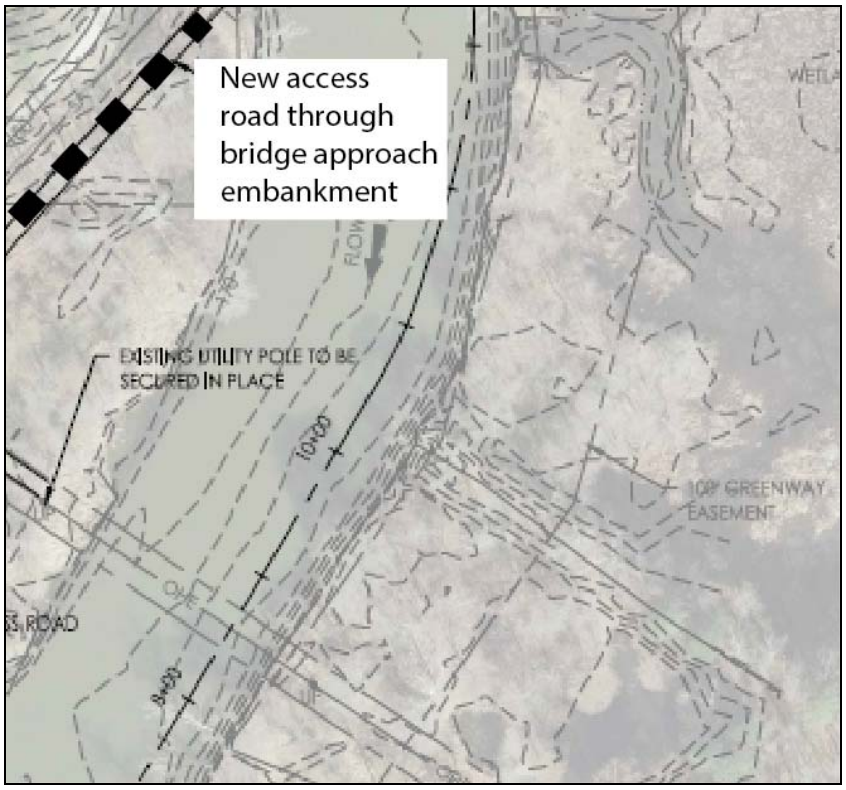


Figure 107. Proposed Undertaking – Phase 1 Access – bridge approach embankment at 31WA1873**.

Existing Raleigh Beach Road is planned to have two construction elements (Figure 108). One will be stabilizing the construction entrance at the present gate that separates the state-maintained paved section of the roadway from the unpaved and undeveloped section of the roadway. Construction work at the entrance will include installing a new gate beyond the edge of the pavement. The other construction element at existing Raleigh Beach Road will be constructing an access road along the existing cleared pathway until it reaches the Neuse River Trail.

More information is needed about the final design plan that will be used to prepare existing Raleigh Beach Road so that it can serve as an access road for equipment during the Project. Concerns for this historic archaeological site are the potential destruction or alteration of the characteristics, such as integrity of location, setting, feeling, and association, which may make the site eligible for the NRHP. These attributes may be compromised either during the construction of the access road, while the access road is being used by construction equipment, and/or when the Raleigh Beach Road is restored.

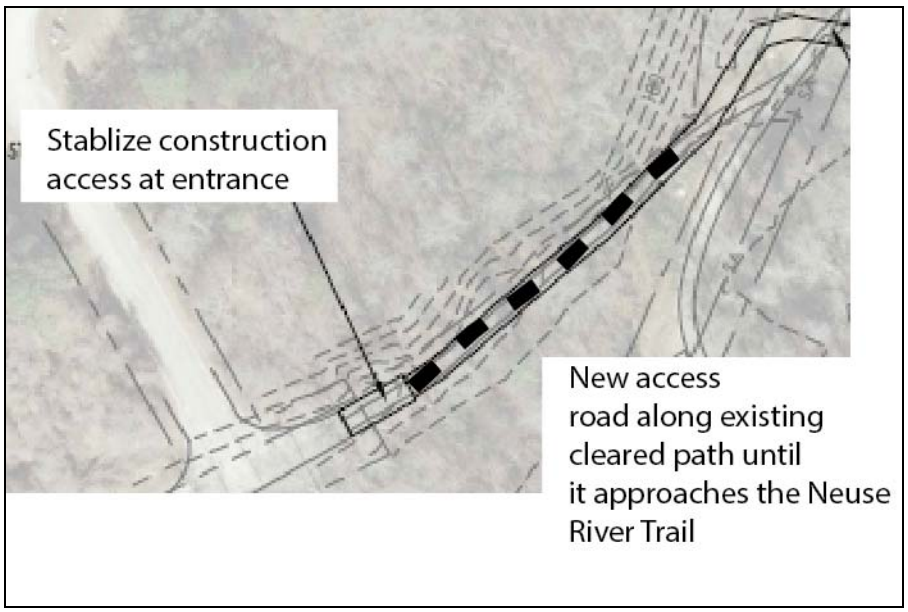


Figure 108. Proposed Undertaking – Phase 1 Access – Old Milburnie Road/Raleigh Beach Road at 31WA1873**.

Architectural Resource WA1677 (Milburnie Dam)

Milburnie Dam was constructed between 1900 and 1903 with granite blocks from the former ca. 1853-1855 Neuse Manufacturing Company papermill that reportedly had been burned by Federal troops in April 1865. The ca. 1853-1855 papermill dam was described in 1880 as being "… 8 ft high and race 150-ft long" (Trowbridge 1885:51-53). In 1883, the North Carolina Geological Survey reported that "Milburny" has "… an open-frame dam across the river, eight feet high and 250-ft long, built on the site of the old dam …" (NCGS 1883).

The following is a description of the ca. 1900-1903 stone dam (constructed with granite blocks from the ca. 1853-1855 papermill) by the property owner in 1980 (Twiggs 1980).

> The flat-crested spillway is 202.47 ft wide. The non-overflow section on the east side of the Neuse River extends 198 ft into the abutment before dog-legging and extending from the massive block wall for approximately another 103 ft. The total non-overflow length on the east side of the Neuse River is 310 ft. The west side of the spillway is constructed into a series of abutments and piers, a 4-ft wide sluiceway, two existing powerhouse bays with about 18-ft wide opening, the remains of an old brick mill building, and masonry walls that extend into the abutment. The total length of the complex extends approximately 170 ft from the spillway into the abutment.

The proposed undertaking plans to deconstruct the granite dam main spillway (Figure 109). The granite blocks will be removed incrementally so that the water level in the impoundment does not lower at a rate greater than one foot per day. As the granite blocks are removed they will be transported to the west and east sides of the river for reuse during Phase 5 – Restoration (Figure 110). On the east side of the river, the granite blocks will be used to construct a buttress along the dam wall that extends beyond the current riverbank. The remaining granite blocks will be used to construct a low-profile bench on the west side of the river (see Figure 106).

Although Milburnie Dam can be associated with events that have made a significant contribution to the broad patterns of our history (criterion a) and embodies distinctive characteristics of a type, period, or method of construction (criterion c), it was extensively modified in the 1980s when Solar Energy Inc. began demolition of the historic Raleigh Ice & Electric brick powerhouse and modified the historic dam near the powerhouse. The dam has had significant alteration that affects the integrity of the property; therefore, it is recommended as being ineligible for the National Register. However, it may be eligible for the National Register as a contributing element if the other cultural resources (31WA1625/1625**. 31WA1872/1872**, and 31WA1873**) are found to be eligible.

Documentation of the dam's historic, engineering, and cultural significance have been the primary historic preservation tool used for this Project. Appendix F contains the project mapping and photodocumentation for Milburnie Dam.

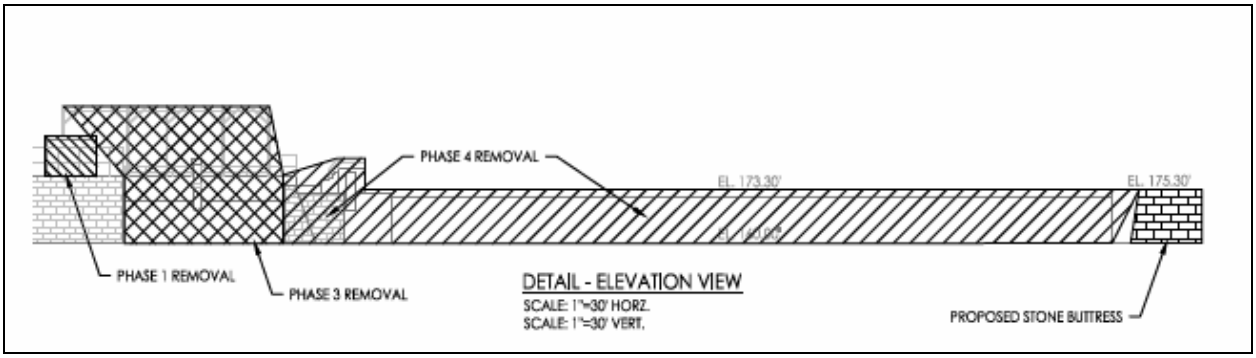


Figure 109. Proposed Undertaking – Phase 4 Dam Removal - at WA1677.

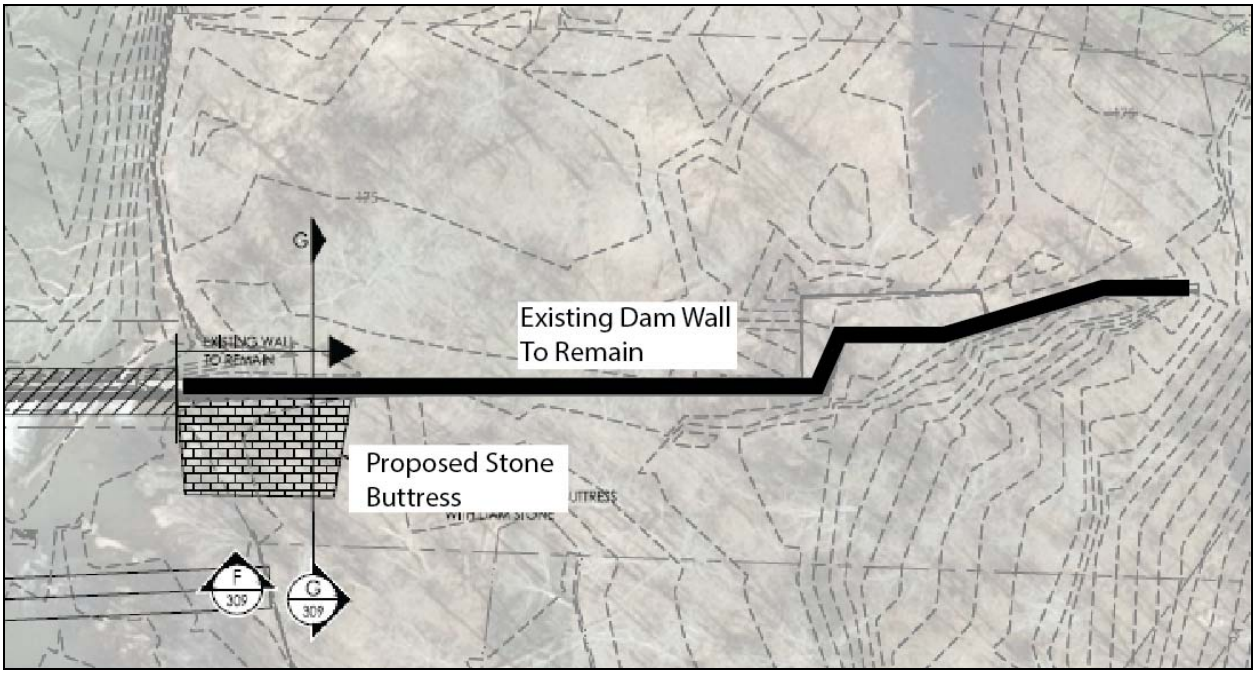


Figure 110. Proposed Undertaking – Phase 5 Restoration - at WA1677.

The main spillway will be the only part of the dam that is removed; the section of the dam on the east side of the river will remain intact and will be stabilized with a stone buttress that will be constructed of stone that has been removed from the main spillway.

Recommendations for the section of dam that will not removed is (1) confine all construction associated with the buttress to the river's edge and (2) avoid and protect 31WA1625/1625** during construction. The section of dam that will be preserved will allow for historical interpretation.

Recommendations for the section dam that will be removed are (1) document the dam with photographs during demolition and (2) if earlier archaeological evidence associated with earlier wood dams or other submerged resources is exposed while the dam is being removed, then document with photography and mapping.

Architectural Resource WA4330 (Bridge Piers)

This architectural resource is a component of archaeological site 31WA1873** and is described further above (see pages 96-104 of this report). The bridge pier component of this site is not located in an area that is planned for ground-disturbing activities. No further work is recommended for this resource.

REFERENCES CITED

Barrett, John G.
1963 *The Civil War in North Carolina*. University of North Carolina Press, Chapel Hill.

Bevers, Fendol
1871 *Map of Wake County, North Carolina.* Nichols and Gorman, Raleigh. http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/241

Branson's North Carolina Business Directory
1868 Wake County, Gristmills: Milburnie, Neuse Manufacturing Co., page 110.
1869 Wake County, Gristmills: Milburnie, page 158.
1872 Wake County, Gristmills: Milburnie, page 228.
1877 Wake County, Gristmills: Milburnie, page 301.
1884 Wake County, Gristmills: Milburnie, page 653.

Brinkley, Lonn L.
1916 *Soil Survey of Wake County, North Carolina.* U. S. Department of Agriculture, Washington, D.C.

Butler, W.
1987 Significance and Other Frustrations in the CRM Process. *American Antiquity* 52(4):820-829.

Cawthorn, Joel W., et al.
1970 *Survey of Wake County, North Carolina*. United States Department of Agriculture, Soil Conservation Service, in cooperation with the North Carolina Agricultural Experiment Station.

Clark, Walter
1901 *Histories of the several regiments and battalions from North Carolina, in the great war 1861-'65. v. 3*. Persistent URL http://digital.lib.ecu.edu/16955

Clements, W.G.
1904 *School Map of Wake County, North Carolina.* Drawn by W.G. Clements, Supt. of Schools.

Coe, J. L.
1964 The Formative Cultures of the Carolina Piedmont. *Transactions of the American Philosophical Society, N.S.*, Vol. 54 (5).

Collet, John
1770 *A Compleat map of North-Carolina from an actual survey*. http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/467.

Corbitt, David Leroy
1950 *The Formation of the North Carolina Counties 1663-1943*. North Carolina Department of Cultural Resources, Division of Archives and History.

Davis, George B., Leslie J. Perry, and Joseph W. Kirkley
1891–1895 *Atlas to Accompany the Official Records of the Union and Confederate Armies.* Government Printing Office, Washington, D.C. Republished by Guild Press of Indiana.

Davis, R.P. Stephen, Jr., and I. Randolph Daniel, Jr.
1990 *The Projectile Point Classification Project.* Technical Report 19, Research Laboratories of Anthropology, UNC-Chapel Hill.

Dunbar, Aaron (compiler)
1898 *History of the Ninety - Third Regiment Illinois Volunteer Infantry: From Organization To Muster Out – Statistics,* revised and edited by Harvey M. Trimble. Accessed online http://www.illinoiscivilwar.org/cw93-hist-ch11.html, accessed March 16, 2014.

Eastman, Jane M.
1994a "The North Carolina Radiocarbon Date Study (Part 1)" in *Southern Indian Studies*, Volume 42, October 1994. Published jointly by the North Carolina Archaeological Society, Inc. and the Research Laboratories of Anthropology, UNC, Chapel Hill.
1994b "The North Carolina Radiocarbon Date Study (Part 2)" in *Southern Indian Studies*, Volume 43, October 1994. Published jointly by the North Carolina Archaeological Society, Inc. and the Research Laboratories of Anthropology, UNC, Chapel Hill.

Edwards, Cornelius B.
1946 *A History Of Printing In North Carolina, A Detailed Account Of The Pioneer Printers, 1749-1800, And Of The Edwards & Broughton Company, 1871-1946, Including A Brief Account Of The Connecting Period.* Edwards & Broughton Co.

Fayetteville Observer
1853 New Paper Mill announcement, May 19, 1853.

Federal Census
1860 *US Industry Census for Wake County, North Carolina, Schedule 5.*

Fowle, Daniel G.
1874 *The Best Water Power in Middle North Carolina for Sale*. On file, Louis Round Wilson Special Collections Library, The University of North Carolina at Chapel Hill.

Gilmer, Jeremy Francis
1861 *Field map of the Raleigh-Goldsboro-Rocky Mount area.* Accessed online at http://www.lib.unc.edu/dc/gilmer/.

Hargrove, Thomas H.
1986 *An Archaeological Reconnaissance Survey for the Neuse River/Perry Creek Sewer Interceptor Project, Wake County, North Carolina.* Archaeological Research Consultants, Inc., Raleigh. On file at Office of State Archaeology, Raleigh.

Henderson, Archibald
1941 *North Carolina: The Old North State and the New.* Lewis Publishing Company.

Hinton, John
1818 Will. Accessed online at www.midwayplantation.com/wills/1818.doc.

Hinton, Mary Hilliard
1903 Clay-Hill-on-the-Neuse. *The North Carolina Booklet* III:23–27. The North Carolina Society Daughters of the Revolution, Commercial Printing Company, Raleigh. Available on line at http://www.mindspring.com/~baumbach/hinton/clayhill.htm.

1915 Colonel John Hinton. *The North Carolina Booklet* XIV:225–236. The North Carolina Society Daughters of the Revolution, Commercial Printing Company, Raleigh. Available on line at http://www.mindspring.com/~baumbach/hinton/jhinton.htm.

Hough, Thomas C., and Paul Opila, PE
1991 Design and Application of an Open-Loop Systems or Run of River Sites. Published in *Waterpower... Conference Proceedings, Vol. 1*. Contributors, US Army Corps of Engineers, Bureau of Reclamation, US Department of Energy, American Society of Civil Engineers.

Kossak, William, and John B. Muller
1865 *Military Map showing the Marches of the U. S. Forces under the Command of Major General W. T. Sherman, 1865*. Accessed through http://teva.contentdm.oclc.org/cdm/ref/collection/p15138coll2/id/34 on May 21, 2014.

Lally, Kelly A.
1994 *The Historic Architecture of Wake County, North Carolina*. Wake County Government, Raleigh.

Lawson, John
1967 *A New Voyage to Carolina*. University of North Carolina Press, Chapel Hill. http://docsouth.unc.edu/nc/lawson/lawson.html

Legrande, Harry E.
2003 *Inventory of significant natural areas in Wake County, NC*. North Carolina Natural Heritage Project, Division of Parks and Recreation, Department of Environment and Natural Resources, Raleigh.

Little, John J.
1981 Letter to Mr. Howard Twiggs. On file, Office of State Archaeology, Raleigh. May 21.

Lukezic, Craig
2002 Nineteenth-Century Roads in Virginia. In *Archaeological Society of Virginia Quarterly Bulletin*, Volume 57, Number 2. pp. 97-104.

MacRae, John
1933 *A New Map of the State of North Carolina*. John Mac Rae, Fayetteville, and H.S. Tanner, Philadelphia. http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/968/rec/13

McSween, Murdoch John
2012 *Confederate Incognito: The Civil War Reports of "Long Grabs," a.k.a. Murdoch John McSween, 26th and 35th North Carolina Infantry*, edited by E. B. Munson. MacFarland.

Murray, Elizabeth Reid
1983 *Wake: Capital County of North Carolina.* Capital County Publishing Company, Raleigh.

National Archives
1862 Payment from Ordnance Office, Raleigh, NC, to Neuse Manufacturing Company, June 14, 1862 (ID 2133274, RG 109, Roll 0486, Document 223).
1864a Payment for Ordnance Service to Neuse Manufacturing Company, October 31, 1863 (ID 2133274, RG 109, Roll 0486, Document 223).
1864b Payment from the Confederate State to W.H. Husted, October 5, 1864 (ID 2133274, RG 109, Roll 0486, Document 223).
1864c Payment to the QM Department, Major John Deveraux, from HW Husted, Neuse Manufacturing Company, January 16, (ID 2133274, RG 109, Roll 0486, Document 223).

Neuse River Sanitary Sewer Line
2013 Photograph of the sanitary sewer line construction on the west side of the Neuse River near Milburnie. Photograph dated September 16, 2013, and posted on http://raleighnature.com/ (accessed May 19, 2014).

NC Department of Transportation
1978 *The History of Transportation in North Carolina*. NCDOT, Public Affairs Office.

NC Geological Survey
1883 *North Carolina Geological Bulletin, Issue 8*.

NC Office of State Archaeology
2007 ER 06-3114 Tracking Review Comments dated 02/07/07.

NC State Archives
1760 Granville Land Grant to John Hinton. S.108.270-283, folder 12.12.47.15.
nd. *View of Millburnie Development on Neuse River, No. 66. CP&L*. Photo Archives.

NC State Highway and Public Works Commission
1944 *Wake County, North Carolina*. North Carolina Department of Natural Resources and Community Development, Raleigh.

North Carolina Supreme Court
1924 *North Carolina Reports: Cases Argued and Determined in the Supreme Court of North Carolina, Vol. 188*. Edwards & Broughton.

Olivia Rainey Library
nd Photo archives, undated photograph of Milburnie Beach.

Olson, Heather
2007 Additional field assessment at the Milburnie East Site, Raleigh, NC. Prepared for ARCADIS on behalf of the City of Raleigh.

Overstreet, William C.
1967 The Geological occurrence of Monazite. *Geological Survey Professional Paper, Volume 530*. GPO.

Parker, John M.
1995 *Geology and Mineral Resources of Wake County, Bulletin 86*. North Carolina Department of Environment, Health and Natural Resources, Division of Land Resources, Geological Survey Section.

Platter, Cornelius C.
1865 *Cornelius C. Platter Civil War Diary*, entry dated April 13, 1865, pages 169-170. Hargrett Rare Book & Manuscript Library, University of Georgia.

Powell, William S.
1968 *The North Carolina Gazetteer, A Dictionary of Tar Heel Places*. The University of North Carolina Press, Chapel Hill.

Price, Jonathan, and John Strother
1808 *This First Actual Survey of the State of North Carolina.* W. Harrison Engraver, Philadelphia. http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/1210

Purrington, B. L.
1983 Ancient Mountaineers: An Overview of the Prehistoric Archaeology of North Carolina's Western Mountain Region. In *The Prehistory of North Carolina* edited by Mark A. Mathis and Jeffrey Crow. North Carolina Division of Archives and History, Raleigh.

Raleigh News & Observer (Raleigh, NC)
1883a *New Advertisement – Important Sale Water Power at Milburnie*, August 30, 1883, page 4.
1883b *An Important Matter*, September 8, 1883, page 4.
1890 *Electric Transmission of Power*, October 26, 1890, page 2.
1899a *Milburnie To Be Sold,* June 18, 1899, page 6.
1899b *A New Power and Lighting Plant, Raleigh Ice and Electric Company,* December 13, 1899, page 5.
1899c Immediately after New Year's Day, December 31, 1899, page 2.
1900 *Work Begins at Milburnie*, May 19, 1900, page 8.
1903 *Electric Power from Neuse River, Feb. 15th*, January 19, 1903, page 9.
1919 *Grist Mill in Place of Electric Plant*, March 19, 1919, page 9.

Raleigh Weekly Register (Raleigh, NC)
1803 *To Bridge Builders*, September 5, 1803, page 3.
1807 *A Bridge to be Built*, August 20, 1807, page 3.

Riley, Jack
1958 *Carolina Power & Light Company, 1908-1958*. Edwards & Broughton Co., Raleigh.

Scarry, Margaret, editor
1993 *Foraging and Farming in the Eastern Woodlands*. Ripley P. Bullen Monographs in Anthropology and History, University Press of Florida, Gainesville.

Semi-Weekly Raleigh Register
1861 Rags - Neuse Manufacturing Company. May 7, 1861; June 19, 1861; November 13, 1861. Accessed online http://www.uttyler.edu/vbetts/raleigh%201861.htm, accessed February 16, 2014.

Shaffer, A.W.
1871 *Shaffer's Map of Wake County, N.C.* Raleigh. Accessed online at http://dc.lib.unc.edu/cdm/singleitem/collection/ncmaps/id/968/rec/13, April 22, 2014.

Seibel, Scott, and Terri Russ
2011 *Archaeological Survey of the Neuse River Trail: Sites 31WA27/27*8, WA214/214**, and 31WA1617** and Mail Plantation Road Parking Lot, Wake County, North Carolina.* Environmental Services, Inc., Raleigh, for The City of Raleigh and Steward Engineering, Inc.. On file at Office of State Archaeology, Raleigh.

Southerlin, Bobby, and Rachel Tibbetts
2004 *Archaeological Survey of the Neuse River East Parallel Interceptor Sewer Line, Wake County, North Carolina.* Archaeological Consultants of the Carolinas, Inc., Raleigh. On file at Office of State Archaeology, Raleigh.

Spoon, William Luther
1911 *Map of Wake County, North Carolina*, ca. 1907-1911. Accessed online at http://dc.lib.unc.edu/cdm/ref/collection/ncmaps/id/419, April 22, 2014.

Stroupe, Vernon S. (editor)
1996 *Post Offices and Postmasters of North Carolina*. North Carolina Postal History Society, Charlotte.

Swain, George F.
1885 *Report on the Water-Power of the Southern Atlantic Water-shed. Reports on the Water-Power of the United States, Part. 1.* Census Office, Department of the Interior, Washington, D.C.

Swain, George F., J.A. Holmes, and E.W. Myers
1899 *Papers on the Waterpower in North Carolina*. North Carolina Geological Survey Bulletin 8.

Taylor, Tim
2014 *Milburnie Dam Removal Design Report.* Prepared for Restoration Systems LLC by Stantec Consulting Services, Inc.

The Greensboro North State (Greensboro, NC)
1887 *Milburnie Bridge over the Neuse*, November 10, 1887, page 7.

The Farmer and Mechanic (Raleigh, NC)
1901 *Handsome house at Milburnie.* October 15, 1901, page 8.

The Progressive Farmer (Raleigh, NC)
1888a *Wake County Disbursements for 1888*, December 25, 1888, page 6.
1888b *King Bridge Company Payment for Milburnie Bridge*, December 25, 1888, page 6.

The Smithfield Herald (Smithfield,, NC)
1893 *Contract for Iron Bridge at Hinton's Bridge over the Neuse*, July 6, 1893, page 3.

The Standard (Concord, NC)
1889 *Talk of a new paper mill at Milburnie*, January 25, 1889, page 2.

The Weekly Standard (Raleigh, NC)
1870 *Wake County Commissioners – Bridge at Milburnie*, July 20, 1870.

Thompson, Mrs. W.C.
1983 Dr. L.P. Sorrell. In *The Heritage of Wake County, North Carolina*. Wake County Genealogical Society and Hunter Publishing Company, Winston-Salem, edited by Lynne Belvin and Harriette Riggs, pp. 499–500.

Townsend, J., J. H. Sprinkle, and J. Knoerl
1993 *Guidelines for Evaluation and Registering Historical Archaeological Sites and Districts*. National Register Bulletin 36. United States Department of the Interior, Washington, DC.

Trowbridge, W. P.
1887 *Statistics of Power and Machinery Employed in Manufactures: Reports on the Water-Power of the United States,* Census Office 10th Census, Government Printing Office.

Twiggs, Howard F.
1981 Letter to Dr. John Little, Division of Archives and History, [North Carolina] Department of Cultural Resources, Raleigh. On file, Office of State Archaeology, Raleigh, dated May 4, 1981.

US Department of Agriculture, Natural Resources Conservation Service
2014 Congaree Series, Wake Series, and Wehadkee/Bibb Series soils descriptions accessed online at https://soilseries.sc.egov.usda.gov/ on April 22, 2014.

US Federal Energy Regulatory Commission (FERC)
2013 Order Terminating Exemption, Milburnie Hydro Inc. Project No. 7910-006. Docket FERC-2012-1997. http://www.gpo.gov/fdsys/pkg/FR-2012-12-11/html/2012-29794.htm.

US Geological Survey (USGS)
1938 *Raleigh, N.C.*, revised 1951. USGS topographic map, scale 1:62,500. Digital version provided by the NC Department of Cultural Resources, Office of State Archaeology.

Wake County, North Carolina, Register of Deeds
1818 Probate of Major John Hinton's Estate, Will 426, Will Book 14:367.
1836 Conveyance from William Hinton to Joshua A. Hinton, Deed Book 12:267.
1836 Conveyance from William Hinton to Addison Hinton, Deed Book 12:267-268.
1837 Conveyance from Addison Hinton to Joshua A. Hinton, Deed Book 12:349.
1839 Conveyance from Joshua A. Hinton to William Shauck, Deed Book 15:169.
1839 Conveyance from William Shauck to Geo. Haywood, Trustee et al., Deed Book 16:129.
1853 Conveyance from Sion Rogers, et al. to Neuse Manufacturing Company Deed Book 19:556-559.
1853 Conveyance from Elizabeth Hinton to Neuse Manufacturing Company, Deed Book 33:379-380.
1853 Conveyance from Elizabeth Hinton to Neuse Manufacturing Company, Deed Book 33:381.
1859 Conveyance from Joshua A. Hinton to Neuse Manufacturing Company, Deed Book 22:485.
1899 Conveyance from Neuse Manufacturing Company to T. L. Eberhardt, Deed Book 158:398.
1899 Conveyance from W. M. Russ, Clerk of Commissioners, to T. L. Eberhardt, Deed Book 154:415.
1916 Conveyance from Raleigh Ice and Electric to Carolina Power and Light, Deed Book 307:197.
1934 Conveyance from Carolina Power and Light to Samuel Warren Twiggs, Deed Book 678:339-340.

Wake County, North Carolina, GIS, Interactive Maps (IMaps)
2013 Aerial view of Milburnie Dam and Powerhouse, accessed online February 16, 2014, at http://maps.raleighnc.gov/iMAPS/.

Ward, H. T.
1983 A Review of Archaeology in the North Carolina Piedmont: A Study of Change. In *The Prehistory of North Carolina* edited by M. A. Mathis and J. Crow. North Carolina Division of Archives and History, Raleigh.

Ward, H. Trawick, and R. P. Stephen Davis, Jr.
1999 *Time Before History: The Archaeology of North Carolina*. The University of North Carolina Press.

Watson, Thomas Leonard, and Francis B. Laney
1906 "Building and Ornamental Stones of North Carolina" in *North Carolina Geological Survey Bulletin*, No. 2.

Webb, Paul, and Ellen Turco
2006 *Cultural Resource Assessments of the Alvis Farm, Milburnie, and Trott-Strickland Park Sites, Raleigh, North Carolina*. Prepared for ARCADIS on behalf of the City of Raleigh.