



North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary Susi H. Hamilton

Office of Archives and History
Deputy Secretary Kevin Cherry

August 21, 2018

James B. Jones
US Forest Service
160 Zillicoa Street, Suite A
Asheville, NC 28801-1082

Re: Evaluation of Bridge and Culvert Structures at Coweeta Hydrologic Laboratory, Nantahala Ranger District, Nantahala National Forest, Macon County, ER18-1786

Dear Mr. Jones:

Thank you for your letter of July 12, 2018, transmitting the report for the above-referenced undertaking. We have reviewed the report and offer the following comments.

The report is expertly researched, written, and recommends that both resources (Culvert #1 and Bridge #1) are contributing elements in a larger historic district that encompasses the Coweeta Experimental Forest/Coweeta Hydrologic Laboratory in the Nantahala National Forest. While the report does an excellent job of documenting the site's history, there is not sufficient information to document the site's National Register eligibility. In particular additional mapping and photographic documentation is necessary. Please provide the following:

- A proposed boundary for the National Register Historic District, drawn on an aerial map that shows the location of the buildings as well as Culvert #1 and Bridge #1
- A single photograph of each building located within the proposed historic district boundaries, keyed to the above map and with construction dates noted.

Given the thoroughness of the report for the two resources, we are willing to agree to your finding of no adverse effect with the conditions outlined in your letter and the addition of the following condition.

- Within ninety (90) days of receipt of this letter, the USFS will provide the additional information outlined above to finalize the boundaries of the proposed historic district and the buildings located within those boundaries.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,



for Ramona M. Bartos

Received: 07/30/2018

State Historic Preservation Office



United States
Department of
Agriculture

Forest
Service

National Forests in North Carolina
Supervisor's Office

160 Zillicoa St Ste A
Asheville NC 28801-1082
828-257-4200

File Code: 2360

Date: July 12, 2018

ER 18-1786

Ms. Ramona M. Bartos
Administrator, Division of Archives & History
4617 Mail Service Center
Raleigh, NC 27699-4617

Due -- 8/21/18

ER Letters
S-PSE
8/16/18

Dear Ms. Bartos:

Enclosed is the report *Historical Documentation and National Register of Historic Places Evaluation of Bridge and Culvert Structures at Coweeta Hydrologic Laboratory, Nantahala Ranger District, Nantahala National Forest, Macon County, North Carolina* for your review and comment. The National Forests in North Carolina submits this documentation as a Programmatic Agreement Incident, Emergency and Rapid Area Assessment Cultural Resources Reconnaissance Report. Architectural forms will be submitted separately at a later date.

+ have will
put copy
of report in
NO report/book
pile for
Anne

The Forest Service and FHWA have developed mitigation measures to protect historic properties at the following project locations:

Ball Creek Road (83-0.027). Work at this site will include the removal of tree roots from the historic CCC rock bridge facing; the installation of a flowable fill material to close the gap between the metal culvert and the historic rock bridge facing; installation of a rip rap diversion on the NE corner of the stream to divert water from the historic headwall; and repair the roadway above the bridge. To ensure No Adverse Effect to historic properties, FHWA will employ the following mitigation measures: (a) Use of hand tools to remove tree roots and make repairs between the historic headwall and the culvert; (b) Return any fallen rock pieces to their exact location.

Shope Fork Road (751-1.188). Work at this site will not include the CCC culvert. All work is within existing road prism and has been documented through a PA Exempt Undertaking.

Sincerely,

JAMES B. JONES
Engineering, Heritage, Recreation Lands and
Special Uses Staff Officer

For

Enclosures (5)

cc: Nantahala RD w/enc.
Nantahala Zone Archaeologist



**Historical Documentation and National Register of Historic Places Evaluation
of Bridge and Culvert Structures at Coweeta Hydrologic Laboratory,
Nantahala Ranger District, Nantahala National Forest,
Macon County, North Carolina**

Field Report



Submitted to:

Joel Hardison
Acting Forest Archaeologist &
Zone Archeologist
Uwharrie/Croatan National Forests
789 NC Highway 24/27 E
Troy, NC 27371-8331

Submitted by:

Scott Shumate
Blue Ridge Archaeological Consultants
Arden, North Carolina

July 8, 2018

FIELD REPORT

PROJECT TITLE: Historical Documentation and National Register of Historic Places Evaluation of Bridge and Culvert Structures at Coweeta Hydrologic Laboratory, Nantahala Ranger District, Nantahala National Forest, Macon County, North Carolina

DATE OF FIELD WORK: June 29, 2018

FIELD INVESTIGATORS: Scott Shumate & Sam Shumate

USFS CONTACT: Joel Hardison

PROJECT DESCRIPTION: At the request of the National Forests in North Carolina (USFS), archaeologists Scott Shumate and Sam Shumate of Blue Ridge Archaeological Consultants (BRAC) recently conducted historical and architectural documentation and evaluation of a stone and metal bridge and a stone and concrete box culvert located along Shope Fork at Coweeta Hydrologic Laboratory (CHL) in the southwestern portion of Macon County, North Carolina (Figures 1-3). The project scope-of-work drawn up by acting Forest Archaeologist Joel Hardison called for: 1) field documentation of the two bridge and culvert structures to include digital photographs with and without scales, and 2) evaluation of these structures for their potential to be nominated to the National Register of Historic Places (NRHP). If evaluated as ineligible for nomination to the NRHP, then USFS plans call for the replacement of both structures.

PROJECT LOCATION: The general Coweeta Hydrologic Laboratory bridge/culvert project area may be described as located in the south-central portion of the Nantahala National Forest in the southwestern most portion of North Carolina. The more immediate project area is located within the south-central portion of Macon County, nearly 8.9 miles (as the crow flies) south/southwest of central, downtown Franklin, and approximately 2.3 linear miles west of the small community of Otto, North Carolina. The Macon County line, coincident with the North Carolina-Georgia state line, lies approximately 4.6 miles south of the Coweeta Bridge/Culvert project area. The structure herein designated Culvert No. 1 is situated along Shope Fork Road (FR 751), and more specifically, is located approximately 3.6 linear miles west of U.S. 441 and at approximately 1.47 miles west of the intersection of Coweeta Lab Road (SR 1110), Shope Fork Road (FR 751) and Ball Creek Road (FR 83). The structure herein designated Bridge No. 1 is located near the eastern end of Ball Creek Road, approximately 2.3 linear miles west of U.S. 441, and only about 50 meters southwest of the point at which Ball Creek Road, Shope Fork Road and Coweeta Lab Road have their intersection. Note that the creek that flows beneath Bridge No. 1 and beneath Ball Creek Road is actually the easternmost portion of Shope Fork, which has its confluence with Ball Creek only a dozen or so meters to the south. Together the two drainages form Coweeta Creek, which has its confluence with the Little Tennessee River at approximately 3.1 linear miles to the northeast.

HISTORICAL CONTEXT: As in the case of most of western North Carolina, the area including the Shope Fork and Ball Creek drainages was formerly part of the Cherokee Nation, and before the Cherokee it was the land of their ancestors and

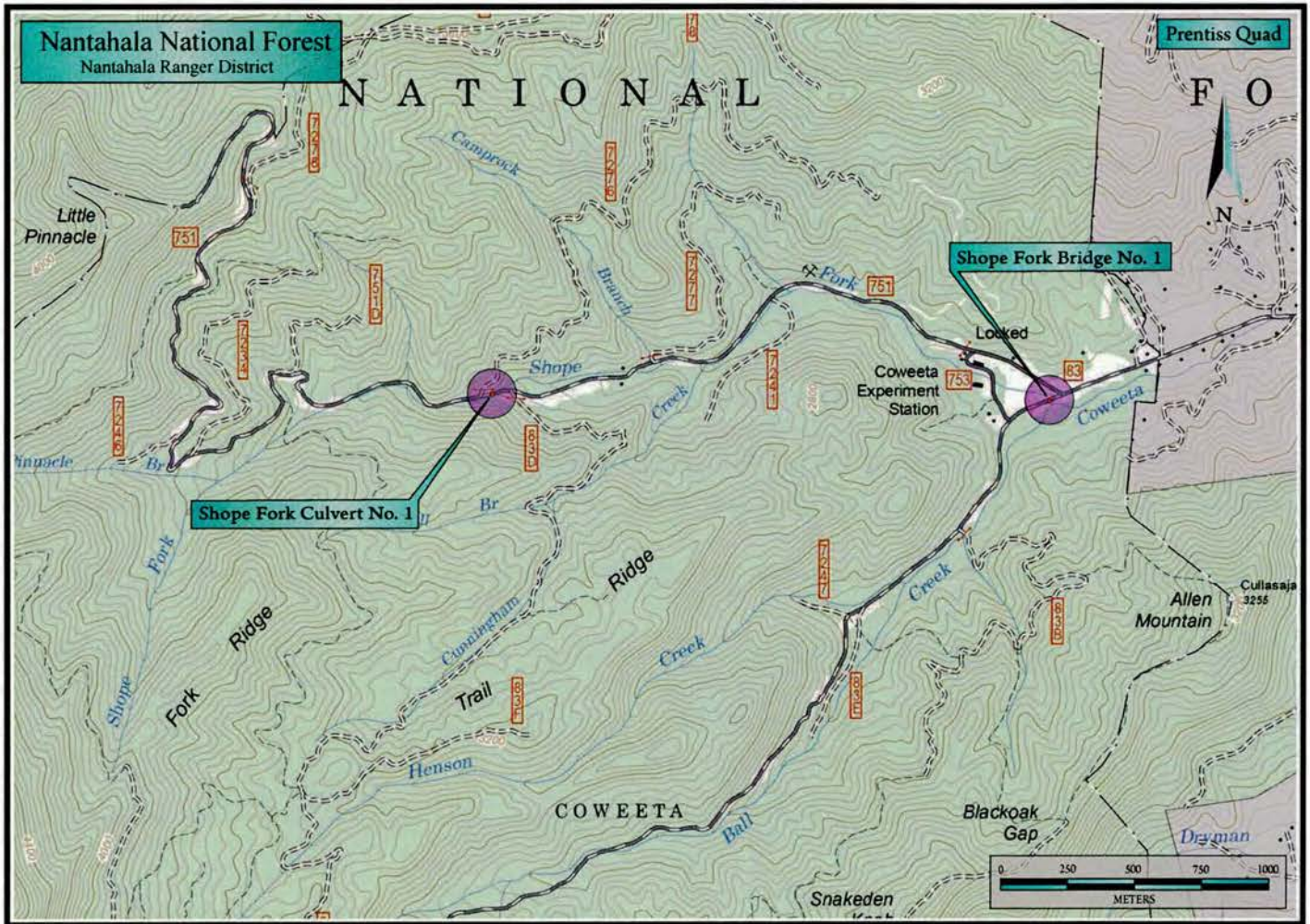


Figure 1. The locations of recently documented bridge and culvert structures on Shope Fork at Coweeta Hydrologic Laboratory on a portion of the 2013 Prentiss, North Carolina, USFS topographic quadrangle.

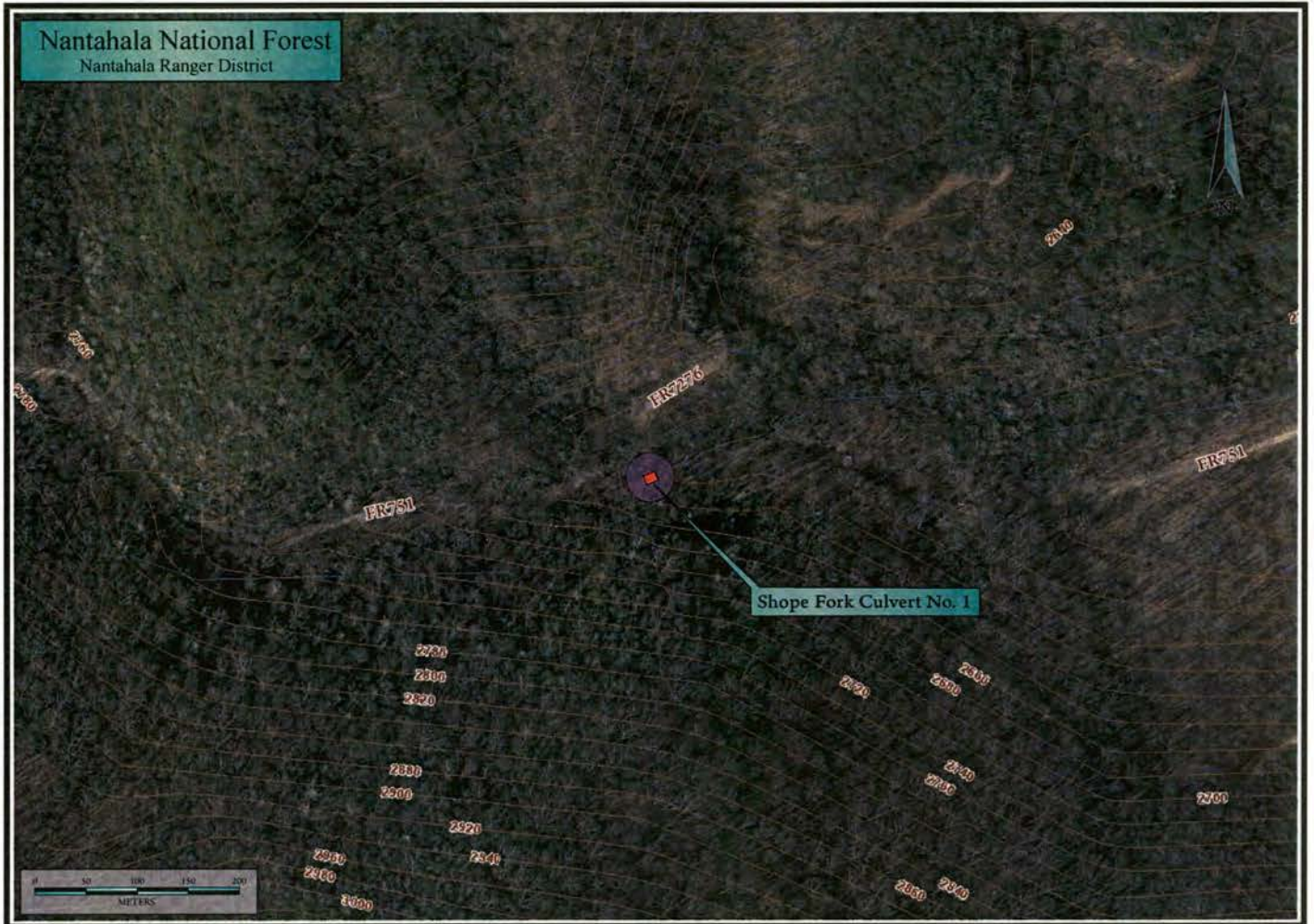


Figure 2. The location of recently documented Culvert No. 1 on Shoep Fork at Coweeta Hydrologic Laboratory on a 2015 aerial.
*Macon Co. GIS placement of Shoep Fork not precise.

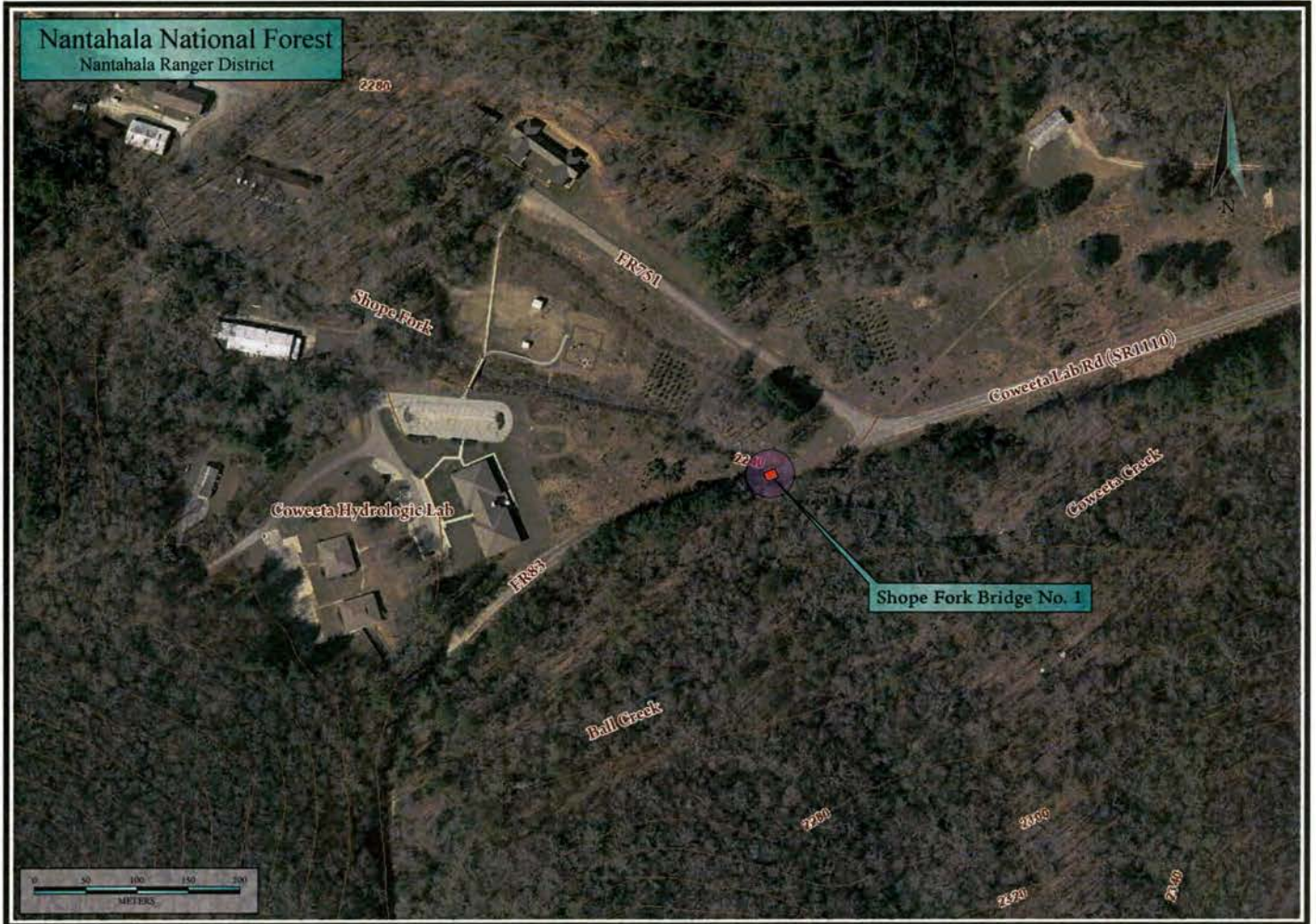


Figure 3. The location of recently documented Bridge No. 1 on Shope Fork at Coweeta Hydrologic Laboratory on a 2015 aerial.

still earlier Native American groups for thousands of years. Located at the mouth of Coweeta Creek at its confluence with the Little Tennessee River, the Coweeta Creek townhouse and mound complex and its surrounding village was one of the principal Cherokee settlements along this portion of the Little Tennessee River. A few miles to the north at the current town of Franklin, the Cherokee mound and village site of Nikwasi (or Naquassee, Nequassee, Nucossey, Nucasee, Noucassih) was another such settlement and one that occurs as a nearly constant landmark on maps of the area dating from the early eighteenth century to the present. For the most part, the first permanent Euro-American/African-American settlement in the Coweeta Creek drainage basin occurred following the Calhoun Treaty of 1819, while many other non-Native American claims to this area were not entered until after the Treaty of New Echota in 1836, in which the Cherokee Nation surrendered their claim [or were swindled out of it] to virtually all of their former territory east of the Mississippi.

Following the Calhoun Treaty of 1819, the area located west of the Little Tennessee River, south and southwest of the mouth of Coweeta Creek, east of the Nantahala Mountains, and north of the Georgia state line was designated District 14. As illustrated on the Robert Love map of 1820, which in that year laid out no more than 22 tracts or Sections in District 14, much of the Coweeta Creek drainage was taken up by Sections 1-6. In 1820, District 14 was included within the limits of early Haywood County as first established in 1808, and only later became part of Macon County following its formation in 1828. Thus, some of the earliest land grants for the Coweeta Creek project area were entered in Haywood County. Among these were Grant No. 72, Section 1 of District 14, issued to William Carpenter in 1827 (but likely entered soon after 1819). The 158.5 acres of Carpenter's grant included the mouth of "Coweater" Creek at its confluence with the Little Tennessee River. Joining Carpenter's tract on the southwest was Grant No. 91, Section 2 in District 14, including 165 acres issued to John Wilkins in 1828. Including 167.5 acres located between Coweeta Creek and the Little Tennessee River, Grant No. 115 Section 3 in District 14 was issued to John Leatherwood in 1828. Farthest to the southwest along Coweeta Creek and the last of those laid out by Robert Love along this drainage was Section 6 in District 14. Though named only as a "Fork of Coweter," Section 5 located immediately to the northeast of Section 6 appears to have included the North Fork of Coweeta Creek. Section 6 in District 14, that tract located closest to the Coweeta Hydrologic Laboratory and the current project area, appears to have included most of the better-quality bottom lands located along Coweeta Creek and primarily west of it. This tract was likely situated approximately one mile east of the confluence of Shope Fork and Ball Creek. A much later land grant (No. 3423) registered in Macon County in 1875 to R.S. Norton identifies Miss Norton as the assignee of John Howard who first entered his claim for Section 6, District 14 in October of 1821 and including 250.5 acres.

No other sections or tracts were laid out on the Robert Love map of 1820 to the south/southwest of John Howard's Section 6 in District 14 but claims to bottom lands like those located at the headwaters of Coweeta Creek—i.e. its

confluence with Shope Fork and Ball Creek—were likely not long in being taken up. A 1948 publication (author unknown 1948:3) on the history of Coweeta Hydrologic Laboratory and its research suggests that the first white settler to occupy the project area constructed a cabin in the area of the administrative center of the research facility. The author further states that eventually as many as 10 other homes were constructed in the CHL project area and estimates that “... at one time 1500 head of sheep, 3500 hogs, 600 cattle, and 80 horses were on the area. To favor grazing, the area was burned over annually, a practice said to have been started by the Indians.” Referencing Douglas and Hoover (1988), Ashcraft and Matthews (2009:5) add that it was Charles Dryman who in 1842 built the first house on the site of the present-day administrative building at CHL. These sources suggest that Dryman was soon followed by John Shope, who in 1847 settled near the mouth of Hurricane Creek—located to the west of CHL and adjoining the Nantahala River.

The 1948 CHL publication (unknown author 1948:4) claims that by 1902 most if not all of the earlier settlers in the area of the future 5,400-acre CHL preserve were relocated elsewhere when the area was purchased by a land company who soon thereafter sold the property to one or more timber companies. Logging began in 1909 and continued until 1918, at which time the tract was purchased by the United States Forest Service. However, the timber rights were extended until 1923 and timber harvest continued until that date. In their study of the CHL project area, Ashcraft and Matthews (2009:5) add that it was the Nantahala Company that acquired the tract in 1902, and it was this company that sold much of the land to the W.M. Ritter Lumber Company in 1906. By the time the last tree fell, eight million board feet of lumber had been extracted. The USFS acquisition of most of the CHL project area occurred in 1920 as part of a larger 24,000 plus-acre purchase of Tract N-179.

Establishment of the Coweeta Experiment Station (changed to Coweeta Hydrologic Laboratory in 1948) was spearheaded by USFS ecologist Dr. Charles R. Hursh. Hired in 1926 and initially working from USFS offices at the Southern Forest Experiment Station in Asheville, it was Hurst that championed the selection of the upper Coweeta drainage basin as the site of the future hydrologic research station. Already within the limits of the recently established Nantahala National Forest, the Coweeta Experiment Station was formally established in March of 1934 (Ashcraft and Matthews 2009:7; Swank et al. 2001:144).

The extent to which the 5,400-acre CHL preserve was accessible by passable roads at the time of its creation in 1934, and the extent to which the area was “settled” during the nineteenth and early twentieth-centuries can be told in part through a review of topographic quadrangles and other maps specific for the current project area. An 1886 Cowee, North Carolina topographic quadrangle (not shown) illustrates only the north-south road located west of the Little Tennessee River that today is the route of U.S. 441 and was formerly a part of U.S. 23. That

very few secondary roads are illustrated on this map should not be considered evidence that none existed at that time. An updated 1897 Cowee topographic quadrangle (not shown) includes a secondary road departing from the main north-south road in the area west of the confluence of Coweeta Creek and the Little Tennessee River. This road roughly parallels the north bank of Coweeta Creek to the southwest up to a point just south of the northwest-trending North Fork of Coweeta Creek. A small number of houses are illustrated as located on either side of this southwest-trending road. In the area south of the North Fork of Coweeta Creek the 1897 quadrangle illustrates a number of tertiary roads—perhaps little more than footpaths or horse trails. One of these followed the North Fork of Coweeta Creek—crossing it several times on its way west then north to intersect with a secondary road along Skeenah Creek. A second path departed from the North Fork of Coweeta Creek terminus of the secondary road turning south for a short distance before reaching a fork—the southernmost portion of which continued south then southwest to follow Drymans Creek, while the other turned harder to the west/southwest to follow “Shoop Fork.” Undoubtedly meant to be Shope Fork, the placement of this creek’s identifying label is also somewhat incorrect. For example, on this 1897 map the word “Fork” is placed above what is now considered the headwaters of Coweeta Creek. Moreover, the word “Shoop” should most likely have been placed on the next drainage to the north—i.e. the first major east-west trending drainage south of the North Fork of Coweeta Creek. If correct, then the path illustrated in the “Shoop Fork” area of the 1897 Cowee quadrangle is most likely shown as turning to follow what is now known as Ball Creek. By the time that the 1907 Cowee topographic quadrangle was published, the project area drainages had come to more closely resemble their correct alignments (Figure 4a). The “Shoop Fork” label continued to be misspelled and the word “Fork” continued to be placed in association with the headwaters of Coweeta Creek, but the word “Shoop” was by then placed in the correct location. By 1907, the former path that was illustrated in 1897 as running along the north bank of the headwaters portion of Coweeta Creek was by the later date depicted as a more improved secondary road and at this date continued significantly farther to the west to parallel the north bank of Shope Fork as far as the confluence of Shope Fork and Cunningham Creek. At this point the road is illustrated as a less improved two-track, which continued along the northwest bank of Cunningham Creek for almost half a mile before turning into a path or trail on the south side of this creek. As a trail, it continued to the top of the ridge running between Bearpen Gap and Pickens Nose. A number of houses are illustrated along the margins of this road and trail from its departure from the main road near the North Fork of Coweeta up to the point at which the path or trail begins to climb the ridge to Bearpen Gap and Pickens Nose. The Ball Creek drainage is not labeled on the 1907 quadrangle. Nor are any roads or trails illustrated in association with it. As illustrated in Figure 4a, no road or path is depicted in the area of Shope Fork Culvert No. 1, nor in the vicinity of Shope Fork Bridge No. 1, though the earlier 1897 map appears to indicate at least a path in the latter area. Figure 4b offers the location of these two structures on a portion of the 1910-1919 Macon County postal route map. Although this 1910-1919 map offers

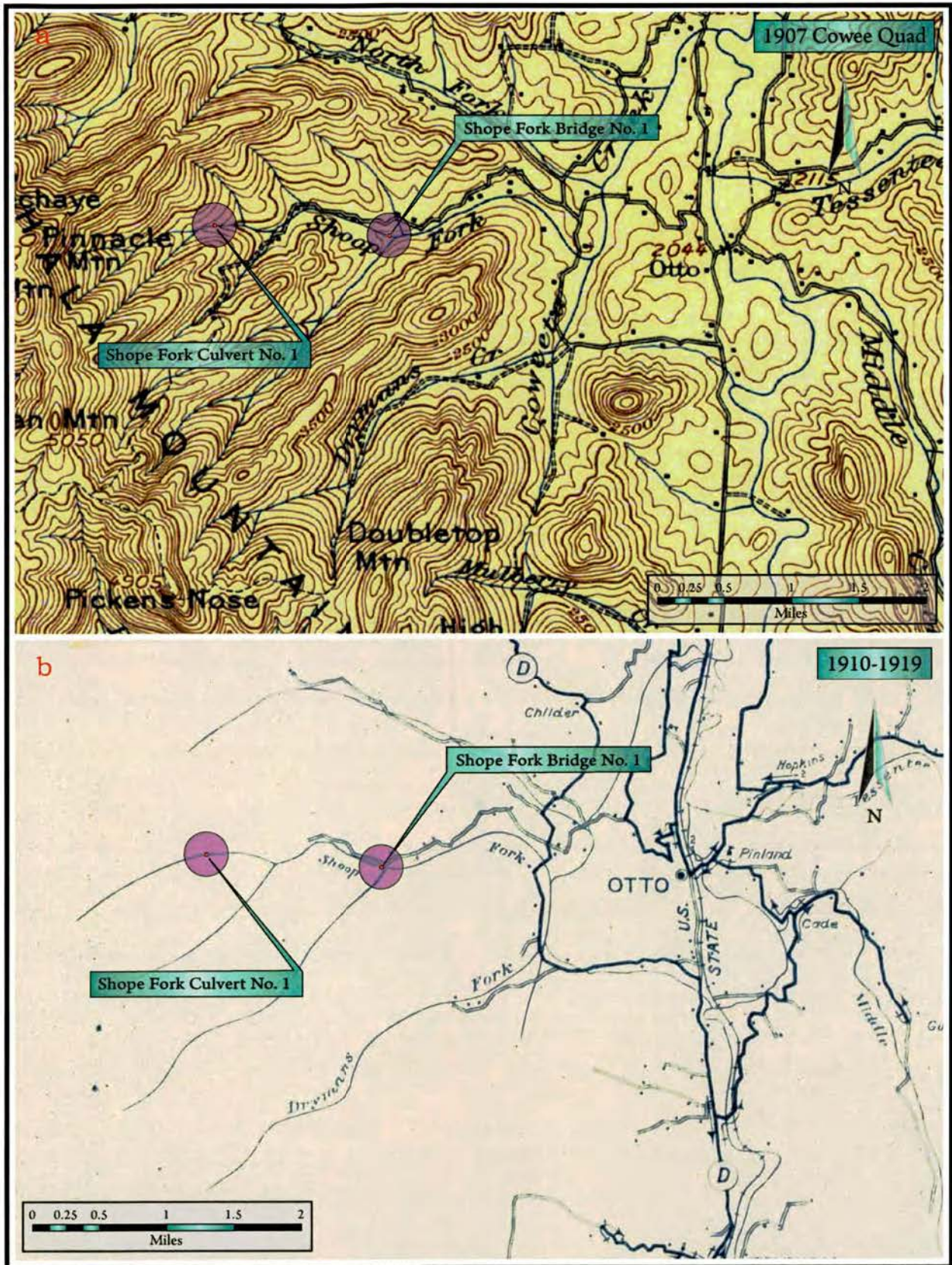


Figure 4. The locations of Shope Fork Culvert No. 1 and Shope Fork Bridge No. 1 on: a) a portion of the 1907 Cowee, NC topographic quadrangle; b) a portion of the 1910-1919 Macon County Postal Delivery map.

less detail than the 1907 quadrangle, in other respects it confirms the extent of at least the more improved secondary roads in the area of Shope Fork and the mouth of Ball Creek. Figure 5 provides the locations of the Shope Fork culvert and bridge on a portion of the 1924 Nantahala National Forest map, illustrating the boundaries of the newly minted national forest and extending some of the same project area roads at least in the form of trails farther along Ball Creek (now named as such) to the southwest than as depicted on earlier maps.

Civilian Conservation Corps

Perhaps second only to the creation of and subsequent administration of the Coweeta Hydrologic Laboratory within the young Nantahala National Forest, one other federally administered agency that had a lasting impact on the immediate Shope Fork/Ball Creek project area was the establishment of the Civilian Conservation Corps during the second quarter of the twentieth century. The Civilian Conservation Corps (CCC) was authorized by the Emergency Conservation Work Act of March 31, 1933. Designed to alleviate the plight of the poor and unemployed during the Great Depression, the CCC employed nearly three million 18 to 25-year-olds to improve and preserve America's forests, parks, and agricultural lands (Rawick 1957; Salmond 1976). Projects undertaken by the CCC included erosion control, land and forest restoration, transportation improvements, and towards this end the construction of hundreds of miles of new roads, and thousands of bridges and culverts like those in the current project area. In North Carolina alone, a total of 1,502 bridges of various types were constructed by the workers from as many as 45 CCC camps located across the Tarheel state. Nationwide, the total number of bridges constructed by the CCC totaled more than 47,000 (Merrill 1981; Jackson 1994; Ashcraft and Snedeker 1999). Of the 25 camps eventually constructed on National Forest lands in North Carolina, the camps that operated from locations closest to the Coweeta Hydrologic Laboratory were Camp NC F-23 at Otto (or more accurately within the limits of the CHL), Camp NC F-9 at Neorakada located approximately two miles south of Franklin, Camp NC F-12 Rainbow Springs at approximately 12 miles southwest of Franklin and on the west side of the Nantahala Mountains from the CHL, and Camp NC F-20 (formerly known as NC F-12) at Buck Creek located nearly 21 miles west of Franklin (Jolley 2007:140-143).

Roads, trails, support buildings, scientific gauging stations and weirs were among those structures begun or improved upon soon after the establishment of the Coweeta Experimental Station (or CHL) in the Spring of 1934. Swank et al. (2001:145) note that some, if not many of the early construction projects at the Experimental Station were carried out with labor provided under the Public Works Administration and more specifically by members of the Civilian Conservation Corps. In particular, they point to Weir #9 on Ball Creek as the work of a CCC crew in 1934. As CCC Camp NC F-23 was not established east of the CHL administrative complex until May of 1935, it must have been one or more of the

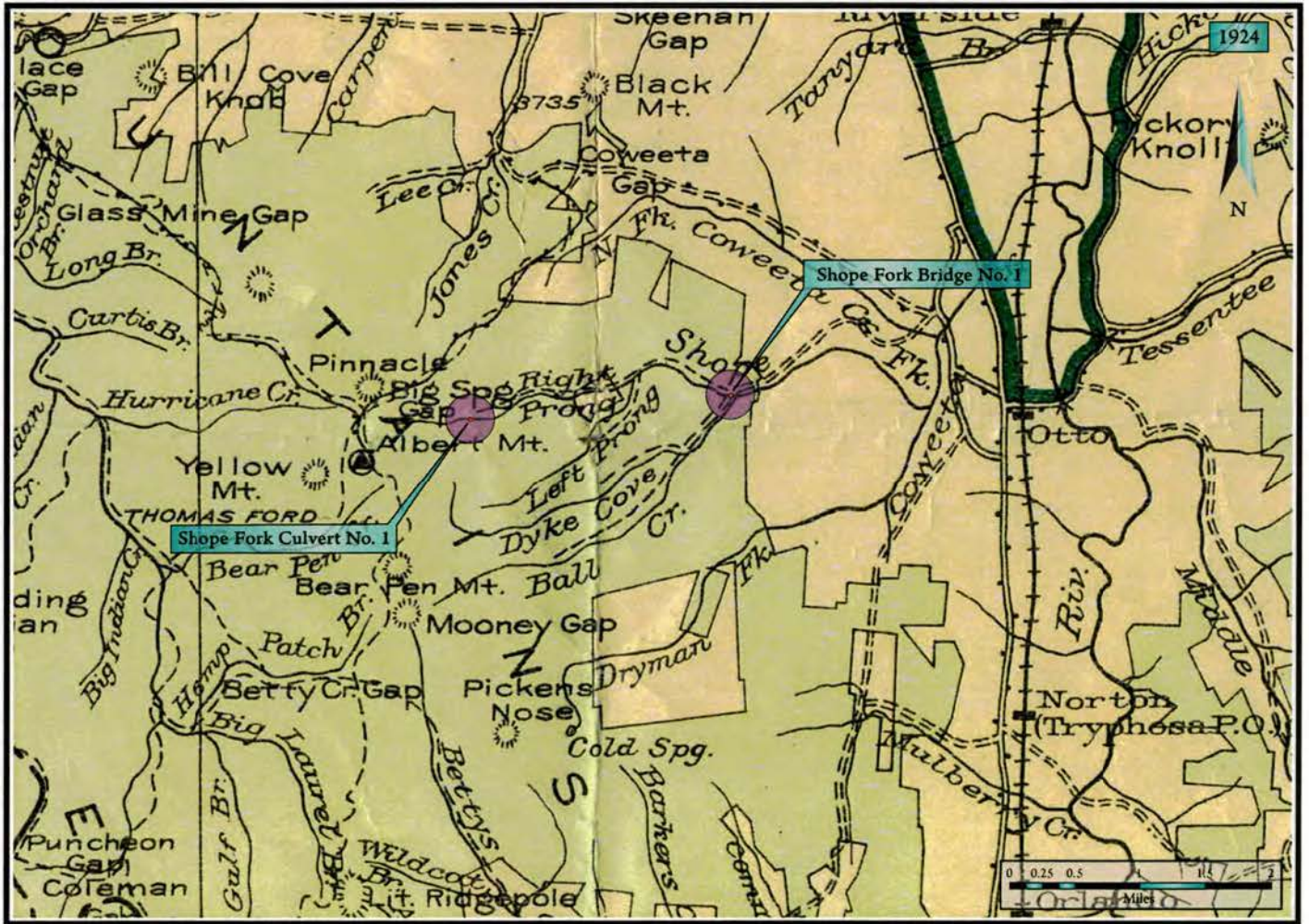


Figure 5. The locations of Shope Fork Culvert No.1 and Bridge No.1 on a portion of the 1924 Nantahala National Forest map.

other Franklin-area CCC work crews that conducted the earliest construction efforts at the Experimental Station. Construction of Camp NC F-23 on the north side of Coweeta Creek and just downstream of the confluence of Shope Fork and Ball Creek was a monumental and labor-intensive project all its own. In their joint report (Ashcraft and Matthews 2009:8), Ashcraft draws from his earlier work on other CCC camps in North Carolina (e.g. Ashcraft & Snedeker 2006) to suggest that such camps typically included, “Officer’s quarters, mess hall and kitchen, infirmary, forestry and supply complex, education and recreation center, barracks, bathhouse and latrine, garage & carpenter shop, a power house, and numerous substructures and facilities like an outdoor recreation area (basketball, baseball, etc.), dumping and trash burning, and the central flag-pole/gathering location.” Figure 6 below provides a circa 1935-1942 view of CCC Camp NC F-23 located on both sides of the road to Otto, North Carolina and on the east side of Shope Fork. In fact, the crossing of Shope Fork only a few dozen yards east of the fork in the road visible in the foreground is almost certainly at the same location as Shope Fork Bridge No. 1 of the current investigation. Whether the same bridge construction or an earlier iteration of a bridge at this location is difficult to discern.

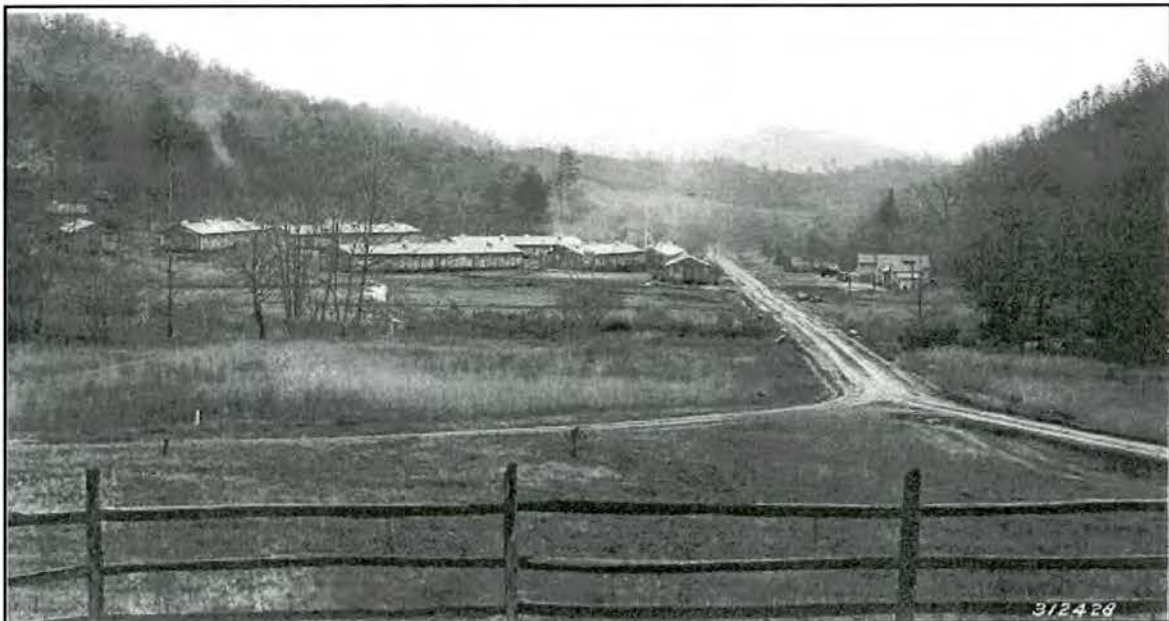


Figure 6. A circa 1935-1942 overview photograph of CCC Camp NC F-23. Courtesy Rodney Snedeker, USFS.

Figure 7 below offers a view of the former location of CCC Camp NC F-23 on a portion of the 1935 Prentiss, North Carolina topographic quadrangle and a somewhat schematic representation of its core buildings. For example, the size and orientation of buildings, if not also their number is significantly different between the photograph of these structures presented in Figure 6 and the map provided in

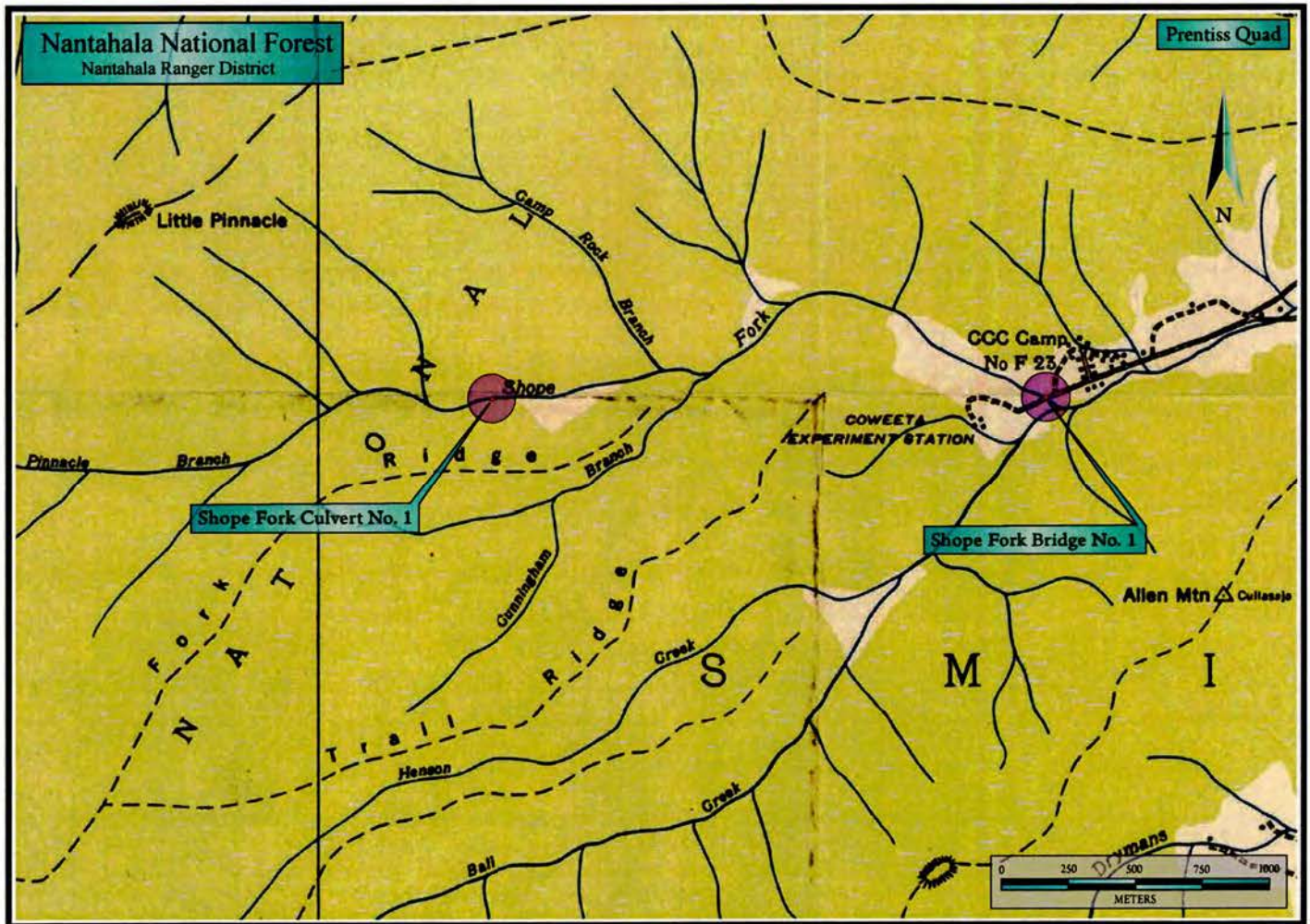


Figure 7. The locations of recently documented culverts on Shope Fork at the Coweeta Hydrologic Laboratory on a portion of the 1935 Prentiss, North Carolina topographic quadrangle.

Figure 7. While some of the project area roads are illustrated on this 1935 quadrangle, such as that one crossing at the location of Shope Fork Bridge No. 1, other roads or trails along the western portions of Shope Fork are not, despite their depiction on earlier maps.

With its own dedicated labor force literally camped at its doorstep, the Coweeta Hydrologic Laboratory took full advantage of these resources. Swank et al. (2001:145) note that by the summer of 1936, CCC crews had constructed “19 km of roads, 38 km of trails, 16 stream gauges, groundwater wells, buildings in the administrative area, and ten weather stations” (see also Douglass and Hoover 1988). Camp NC F-23 continued to operate, if however, with somewhat reduced staff, until 1942, at which time virtually all CCC camps across the country were disbanded and their men and resources committed to World War II.

ARCHAEOLOGICAL CONTEXT: Any investigation of CCC-constructed facilities such as bridges, roads, and culverts in the Pisgah and Nantahala National Forests, if not also the wider National Forests in North Carolina region, must inevitably draw heavily upon the comprehensive work of Ashcraft and Snedeker (1999) in their investigation of the CCC-built English Chapel Bridge and three other CCC-constructed bridges in the Davidson River and Avery Creek portions of Transylvania County. In this study, Ashcraft and Snedeker (1999) developed a number of important contexts specific for their study area, but also widely applicable to any similar project conducted within the region and concerning transportation, bridges, roads, and/or the Civilian Conservation Corps. Architectural historians Clay Griffin and Deborah Bevin also contributed to these transportation and bridge-related contexts (see also Griffin and Bevin 1999). In the Avery Creek and Davidson River project area, Ashcraft and Snedeker (1999) documented four CCC-constructed, Warren Pony Metal Truss bridges. Thought to have been constructed between 1935 and 1936, the four bridges in their study area were evaluated as eligible for nomination to the National Register of Historic Places under Criteria A and C as structures (a) “associated with events that have made a significant contribution to the broad patterns of our history” and as structures that (c) “embody the distinctive characteristics of a type, period” and “method of construction.”

Within the limits of the 5,400-acre Coweeta Hydrologic Laboratory at least six other archaeological and/or architectural studies have been conducted. The earliest of these was performed by USFS archaeologists David Dyson and Alain Burchett (1994) whose survey in advance of the proposed Commissioner/Mulberry Creek Timber Sale resulted in the identification of a multicomponent site (31MA427) observed within a rock shelter located on the southern boundary of the CHL near Rock House Knob. In 2000, Forest Archaeologist Rodney Snedeker and William Speer provided survey, documentation, and recommendations for the Coweeta Dormitory Renovation Project that included a CCC-built structure located in the administrative portion of the CHL. In 2002, Scott Shumate (then with Appalachian State Laboratories of Archaeological Science) with assistance from

USFS archaeologists Rodney Snedeker and David Dyson, conducted a Phase I archaeological survey of then proposed Coweeta Conference Center site. During this survey one prehistoric archaeological resource (31MA582) was identified. Investigation revealed stratified deposits dating from circa 1935 to the present. The lowest of these was an easily recognizable gravel roadway and associated ditch features likely attributable to the former Coweeta CCC Camp NC F-23 formerly located on an adjacent landform on the opposite side of Shope Fork. No prehistoric cultural features from which the few potsherds and lithic materials might have derived were observed. For these reasons, site 31MA582, or at least that portion of it under investigation within the area of project effect, was recommended as ineligible for nomination to the National Register of Historic Preservation (NRHP).

During the 2004-2005 Storm Recovery project conducted across a wide-ranging portion of the National Forests in North Carolina in the western part of the state, USFS archaeologist Alicia Beat conducted survey along a portion of Ball Creek Road within the limits of the CHL. Beat (2005) documented historic site 31MA644 in the area northwest of Reynolds Gap, which she described as including CCC-constructed stone catchment basins associated with roadway culverts on Ball Creek Road. In addition, Beat identified as many as 94 other CCC-era structures located throughout the CHL, and (at least within a site form completed for 31MA644) recommended a more intensive archaeological and historic structure survey within this area. Moreover, she ventured that the Coweeta Hydrologic Laboratory would likely qualify as a historic district and as such would be eligible for nomination to the NRHP.

On the low slopes adjoining the south terrace of Coweeta Creek and located a few dozen meters south of the intersection of Shope Fork Road (FR 751) and Ball Creek Road (FR 83), USFS archaeologists Scott Ashcraft and William Matthews (2009) identified a single archaeological site (31MA729) during their survey for the proposed Coweeta Tower Project within the limits of the CHL. In this area Ashcraft and Matthews (2009) recorded a multi-component site consisting primarily of a prehistoric lithic scatter, but whose northern periphery also contained elements and artifacts associated with the former CCC Camp NC F-23. Ashcraft and Matthews (2009) recommended avoidance of the former CCC camp portion of site 31MA729 but evaluated the prehistoric component of the site as ineligible for nomination to the NRHP.

Finally, in 2014 Scott Shumate and Lorie Hansen of Blue Ridge Archaeological Consultants (BRAC) conducted reconnaissance and historic structures documentation along Shope Fork Road (FR 751) from its intersection with Ball Creek Road and Coweeta Lab Road to the end of its improvement a short distance east of Little Pinnacle Mountain. A total of 53 structures (i.e. culverts, wing walls, retaining walls) was recorded along this roadway. In addition, a single historic structure on Ball Creek Road (FR 83) was also documented. Of the 53 structures documented on Shope Fork Road, Shumate and Hansen evaluated all

but three as most likely constructed during the period of ca. 1935-1942 and therefore likely represent the work of members of CCC Camp NC F-23. The historic-era culvert documented along Ball Creek Road was also considered referable to CCC-construction, but its significant state of disrepair due to storm damage resulted in its replacement soon after the survey was completed.

METHODS OF INVESTIGATION: As noted above, the scope-of-work agreed to between the USFS/National Forests in North Carolina and BRAC called for the documentation and evaluation of a stone and concrete box culvert (Culvert No. 1) located on Shope Fork Road (FR 751) and a stone and metal bridge located on Ball Creek Road (FR 83). Field investigations at these two structure locations were conducted on June 29, 2015 by BRAC archaeologist Scott Shumate with the assistance of Sam Shumate—who helped with site clearing and photographic documentation. In both project areas, the architectural subjects of our investigation required significant cleaning (i.e. clearing of leaves, weeds, vines, shrubs, fallen trees, etc.) prior to their photo-documentation. All photographs were made in digital format. More than 150 photographs were taken—the vast majority of which represent different exposures and different angles of the same few subjects. Each subject bridge, culvert, headwall, etc. was photographed with and without either a metric scale or stadia rod (in meters). In most instances, measurements cited in the body of this report are given in tenths of feet and in tenths of meters. Field sketches, both plan and profile, were accomplished with the aid of a flexible reel tape and hand-held compass. A battery of measurements was recorded for each structure to assist with field sketches and site and structure descriptions. In addition to these measurements, field notes also included descriptions of construction details, materials used, landform modifications, and site and structure condition. At each structure within the Coweeta Bridge/Culvert project area, at center points on major structures, a locational coordinates were recorded using a hand-held GPS unit.

INVESTIGATION RESULTS: The 2018 investigations in the Coweeta Bridge/Culvert project areas along Shope Fork conducted by BRAC included the documentation of one ca. 1935-1942 stone and concrete box culvert and one stone and steel-lined bridge likely of comparable age. Both structures are located within the boundaries of the Coweeta Hydrologic Laboratory and are separated by approximately 1.3 linear miles. While located within the historic hydrological research station, both structures and this research facility are situated within the Nantahala Ranger District of the Nantahala National Forest. Previous accounts and similar investigations in the area have documented the historic character of the hydrological research station, which was established in 1934 under the name of the Coweeta Experimental Forest. In addition to their association with this historically significant research facility, the bridge and culvert of the current study are also almost certainly associated with and likely represent the products of Civilian Conservation Corps construction efforts in the Coweeta project area. Figures 1-3 above provide the locations of these structures on recent maps and aerial views of

the general project area, while each structure is photo-documented and discussed in greater detail below.

⊕ **Shope Fork Culvert No. 1**

Location (UTM's @ NAD WGS 84): Zone: 17 @ Easting: 276450 Northing: 3882447 (at center of headwall)		
Elevation: 2,625 feet AMSL		
Adjacent Roadway: FR 751 (Shope Fork Road) @ Mile Post: BMP ~1.46; a few meters east of intersection of FR751 and FR 7276		
Principal Drainage: Shope Fork		
Drain/Culvert Orientation: ~17° NE-SW		
Construction Details: concrete and stone box culvert; full-length concrete slab at top/crown with mortared stone support walls; stone wing walls adjacent to box opening at both ends; NW wing wall of outflow incorporates large natural boulder		
	Headwall	Outflow Wall
Max. Height:	7.3 feet (2.1 meters);	7.9 feet (2.4 meters)
Max. Width:	22.3 feet (6.8 meters)	19.3 feet (5.9 meters)
	(wing wall to wing wall)	
Max. Length:	34.4 feet (10.5 meters)	
	(interior length of box culvert-not including wing walls)	
Box Opening:	5.7 ft (1.74 m) x 4.9 ft (1.52 m)	6.2 ft (1.90 m) x 5.9 ft (1.80 m)
Condition Overall: good		
Headwall: largely intact; some weakening and erosion of mortar		
Outflow Wall: some weakening and erosion of mortar; loss of stones in lower portion of northwest wing wall; eroding slope above box culvert; discarded, crushed metal drain pipe above (not associated; non-functional)		
Research Potential: fair; partially realized through present study		
NRHP Recommendation: eligible (as contributing element of larger district)		

From central Franklin, North Carolina the site of Culvert No. 1 at the Coweeta Hydrologic Laboratory can be reached by traveling south on U.S. 441 for a distance of approximately 9.75 miles (or ~0.85 miles south of Otto, NC) to reach Coweeta Lab Road (SR 1110). Turn west onto the latter road and travel for nearly 3.1 miles to reach the point at which Coweeta Lab Road bifurcates into the northwest-trending Shope Fork Road (FR 751) and the southwest-trending Ball Creek Road (FR 83). Follow Shope Fork Road to the northwest/west for a distance of approximately 1.46 miles to arrive at Culvert No. 1 and the point at which Shope Fork passes beneath the road through the culvert on a southwest to northeast-oriented axis. As an additional landmark, Forest Road 7276 has its intersection with FR 751 only a few meters to the west of Culvert No. 1 (see Figures 1 and 2 above). Figure 8a below provides an overview of the headwall at Culvert No. 1, while Figure 8b offers a close-up of the box culvert opening and its southeast wing wall. Figure 8c provides an overview of the outflow or downstream end of the box



Figure 8. Overview photographs of Culvert No.1 on Shope Fork: a) intake and wing walls, view to northeast; b) close-up of southeast wing wall of intake, view to east; c) outflow and wing walls, view to south; d) loss of stones at base of west wing wall of outflow, view to southwest.

culvert and Figure 8d offers a close-up view of the cavity formed by the loss of stones at the base of the northwest wing wall.

Description

As summarized above, the headwall or upstream portion of the stone and concrete box culvert that channels a portion of Shope Fork beneath FR 751 includes a roughly rectangular opening that measures approximately 5.7 ft (1.74 m) wide by 4.9 ft (1.52 m) tall. The side walls of this box opening and its adjacent wing walls are formed by irregularly or random-spaced tabular stones that are at best roughly dressed, if at all altered from their natural state. The mortar bond between these stones, where present, is also roughly dressed. These stone side walls that line the edges of this portion of Shope Fork serve to support a poured concrete slab that measures 8.5 feet (2.6 m) wide (e-w) by nearly 1.9 feet (0.57 m) thick. This concrete roof of the box culvert extends beneath one to three feet of dirt and gravel road fill of FR 751 for a length of approximately 34.4 feet (~10.5 m) to reach the outflow wall of Culvert No. 1.

Located on the northern edge of FR 751, the outflow wall of Culvert No. 1 includes the northern end of the same continuous length of concrete, which exhibits virtually the same dimensions as recorded atop the headwall. However, at the outflow wall, the top surface of the concrete slab lies approximately one-half foot higher above the creek bottom and is covered by several feet of earth, stone, and road gravel. The box opening of the outflow wall created by the concrete slab and its supporting stone walls measures approximately 6.2 ft (1.90 m) by 5.9 ft (1.80 m), and in this is slightly larger than the opening recorded on the headwall. As in the case of the headwall, the stones of the outflow wall may be characterized as tabular in shape and were likely cut from a nearby quarry or roughly dressed from even more local sources. Many, if not most of the stones of both walls are at least loosely mortared together.

Condition

A comparison of the June 2018 condition of the head and outflow walls of Culvert No. 1 to their condition recorded in August of 2014 (cf. Shumate and Hanson 2014) suggests that there has been little if any change to the headwall portion of this box culvert or to its adjacent wing walls. According to conversation with an unnamed Coweeta Hydrologic Laboratory employ who had first-hand knowledge of the 2016 flood damage to this culvert and to FR 751, a fallen tree washed downstream and blocked the headwall entrance to Culvert No. 1, thereby forcing the stream out of its channel along its eastern bank and down the road until it reentered the normal creek channel a few dozen meters below the outflow of Culvert No. 1. Despite the shift of the normal flow of water to the area of the southeastern wing wall of the headwall portion of Culvert No. 1, no apparent damage to the wing wall occurred (see Figure 8b). Unfortunately, the same cannot

be said for a portion of the outflow wall and its adjacent northwest wing wall. During the 2014 reconnaissance of this structure, a few stones were noted as missing from the lowest courses at that point where the supporting interior wall of the culvert meets the northwest wing wall. The 2018 inspection of this portion of the outflow indicates that at least a few more stones have been lost. While the overall integrity of the structure is not currently threatened, loss of any additional stones should be avoided, and the necessary repairs made.

✦ **Shope Fork Bridge No. 1**

Location (UTM's @ NAD WGS 84): Zone: 17 @ Easting: 278484 Northing: 3882388 (at center of headwall/intake)		
Elevation: 2,235 feet AMSL		
Adjacent Roadway: FR 83 (Ball Creek Road) @ Mile Post: BMP ~0.027 ~50 meters southwest of intersection of FR 83 and FR 751		
Orientation (flow of stream): ~160° NW-SE		
Principal Drainage: Shope Fork		
Construction Details: mortared natural stone headwall, outflow wall & flanking wing walls; lap-seamed, riveted corrugated steel pipe (CSP) arch support below; stone & soil fill above CSP & below asphalt roadway		
	Headwall & Outflow Wall	Corrugated Steel Pipe
Max. Height:	~7.2 feet (2.2 meters)	~5.2 feet (1.6 meters; @ center)
Max. Width:	1.5 feet (0.45 meters)	~13.1 feet (4.0 meters; @ base)
Max. Length:	15 feet (4.6 meters)	~20.2 feet (6.15 meters)
Condition Overall: fair		
Headwall: largely intact; loss of a few stones at base of NE wing wall; CSP intact, but has slipped off its foundation on NE corner; tree roots forcing separation		
Outflow Wall: intact; no apparent loss of mortar or loose stones; CSP intact		
Research Potential: fair; partially realized through present study		
NRHP Recommendation: eligible (as contributing element of larger district)		

From central Franklin, North Carolina the site of Bridge No. 1 at the Coweeta Hydrologic Laboratory can be reached by traveling south on U.S. 441 for a distance of approximately 9.75 miles (or ~0.85 miles south of Otto, NC) to reach Coweeta Lab Road (SR 1110). Turn west onto the latter road and travel for nearly 3.1 miles to reach the point at which Coweeta Lab Road bifurcates into the northwest-trending Shope Fork Road (FR 751) and the southwest-trending Ball Creek Road (FR 83). From this point, Bridge No. 1 lies approximately 165 feet (~50 meters) to the southwest along Ball Creek Road. Note that Bridge No. 1 spans the southeastern most end or mouth of Shope Fork, while the confluence of this stream with Ball Creek lies only a dozen or so meters to the south (see Figures 1 and 3 above). Figure 9a below provides an overview of the outflow or downstream wall of Bridge No. 1 and its adjacent wing walls, while Figure 9b offers a similar view of the headwall and its adjacent wing walls. Figure 9c provides a close-up the northeast wing wall of the headwall and illustrates some of its failures, while Figure 9d offers a view of failures to the roadway surface and its substrate on that portion of Ball Creek Road that spans Bridge No. 1.

Description

Bridge No. 1 may be described as a narrow double lane, single span bridge including stone and mortar head and outflow walls with adjacent wing walls connected by curved sheets or corrugated steel pipe whose lapped and riveted



Figure 9. Overview photographs of Bridge No. 1 near confluence of Shope Fork and Ball Creek: a) outflow and wing walls, view to north; b) headwall and wing walls, view to south; c) damaged northeast wing wall and CSP liner, view to southeast; d) Forest Road 83 failure, view to north.

seams form a semi-circular arch that supports the largely earthen fill on which a single layer of asphalt has been poured to span the length of the bridge. As summarized above, the headwall or upstream portion of Bridge No. 1 that channels a portion of Shope Fork beneath FR 83 includes a semi-circular opening that measures approximately 13 ft (4.0 m) wide at its base by 5.2 ft (1.6 m) tall at its center (from creek bottom to top of steel arch). Above this corrugated steel arch the headwall or intake wall and its adjacent wing walls are formed by irregularly or random-spaced tabular stones that are at best roughly dressed, if at all altered from their natural state. The mortar bond between these stones is also roughly dressed, but more uniformly applied than observed at Culvert No. 1. The stonework of the headwall measures 15 ft. (4.6 m) long (ne-sw) and rises approximately 2.1 ft (0.65 m) above the center of the steel arch and extends only a few inches (and in places not at all) above the surface of the roadway and the grassy margin that separates the two surfaces. The adjoining wing walls do not rise as high as the head wall and their top surfaces slope downward on angles of approximately 45 degrees. These wing walls are not of equal size and a soil and grass mantle over the northwest wing wall make it difficult to measure accurately. Minimally, the northwest wing wall measures 4.1 ft (1.25 m) long by 3.9 ft (1.20 m) tall. The northeast wing wall is better exposed and measures 6.1 ft (1.85 m) long by 4.8 ft (1.45 m) tall and 2.5 ft (0.75 m) tall at its low end. The dimensions of the outflow wall and its supporting corrugated steel arch are the same or very nearly so as those of the headwall and its steel casing. Adjoining wing walls of the outflow wall are similarly sloped and at least in the case of the southeast wing wall measure slightly longer and taller than those on the north side of the road. The southwest wing wall is particularly difficult to measure as it is almost completely covered by soil and grass. As in the case of the headwall, the stones of the outflow wall may be characterized as tabular in shape and were likely cut from a nearby quarry or roughly dressed from even more local sources. On average, the stones of the outflow wall and its adjoining wing walls appear slightly smaller in size than those of the headwall and its associated wing walls.

Condition

Bridge No. 1 on Ball Creek Road was not inspected during the 2014 reconnaissance of similar structures in the Coweeta Hydrologic Laboratory project area (cf. Shumate and Hansen 2014). As such, no comparison can be made to any earlier condition of Bridge No. 1. As in the case of Culvert No. 1 on Shope Fork Road, significant storm damage occurred to the Bridge No. 1 roadway in 2016, and damage to the northeast wing wall and steel arch supports on the headwall side also likely occurred at this time or were at least aggravated in 2016. As illustrated in Figure 9b and 9c above, storm waters have resulted in the loss of some of the lowest stones of the distal end of the northeast wing wall, while the mortar bond of at least one of the lowest stones on the eastern side of the headwall has failed. At least some of this damage may predate the 2016 storm event as an earlier attempt to harden with riprap the eastern bank of Shope Fork in the area of the northeast wing wall was observed. Though not confirmed by any below-water inspection, it

appears that the northeast corner of the foundation on which the CSP liner or arch of Bridge No. 1 has failed and resulted in its separation from the stone headwall above. This separation is worsened by the growth of tree roots in the gap formed between the stonework and the steel casing. The size of the largest of these tree roots suggests that this separation may have occurred earlier than 2016. Nevertheless, it was apparently the storm waters associated with an extended 2016 rain event that undermined a portion of FR 83 above the CSP lining of Bridge No. 1 (see Figure 9d). These storm waters created a cavity measuring a maximum of 7.5 ft (2.3 m) long (ne-sw) by 2.1 (0.65 m) wide and more than 3.3 ft (>1.0 m) deep. Erosion of those soils situated between the CSP lining and the asphalt paving resulted in a complete collapse of the paving in the area defined above and a subsidence of pavement measuring 9.5 ft (2.9 m) long (nw-se) in an area extending from the northeast end of the cavity. The south outflow wall and its adjoining wing walls do not appear to have been affected by recent or past storm waters to any significant degree. There is no separation of the CSP liner or arch support on this end of Bridge No. 1 and no loss of stones or mortar. An inspection of the CSP liner does not reveal any major rust, holes, or separation at joints.

SUMMARY REMARKS, EVALUATIONS, & RECOMMENDATIONS: The June of 2018 BRAC architectural survey and evaluation efforts in the Coweeta Hydrologic Laboratory project area in the Nantahala National Forest in Macon County has provided photo-documentation and descriptions of Culvert No. 1 and Bridge No. 1 along different portions of the Shope Fork drainage on Shope Fork Road (FR 751) and Ball Creek Road (FR 83), respectively. While definitive supporting documents have yet to be found, both structures are most likely the result of Civilian Conservation Corps projects in the Nantahala National Forest during the second half of the 1930s or early 1940s. Indeed, as detailed above, the limits of the former CCC Camp NC F-23 may well have included Bridge No. 1. In addition, both structures possess association with the historic Coweeta Hydrologic Laboratory, which predates the nearby CCC camp by more than a decade. As detailed more fully above, the overall condition of Culvert No. 1 may be characterized as good, while that of Bridge No. 1 is fair. Certainly, the condition of the roadway above Bridge No. 1 may be evaluated as poor, but a distinction between the historic bridge and the more modern paving should be made. The research potential of both Bridge No. 1 and Culvert No. 1 may be evaluated as fair and is only partially addressed by the present study. Given the association of both structures with the Coweeta Hydrologic Laboratory and CCC Camp NC F-23, Culvert No. 1 and Bridge No. 1 are recommended as eligible for nomination to the National Register of Historic Places. While both structures may be considered eligible to the NRHP in their own right, they are especially so if evaluated as contributing elements to a larger historic resource or district—i.e. the combined Coweeta Hydrologic Laboratory and CCC Camp NC F-23. In conclusion, it is hoped that the photo-documentation and historical context developed in this report may be considered to have realized at least a portion of the research potential of both historic structures in the Coweeta Hydrologic Laboratory project area. Preservation in place and

repairs in keeping with the existing forms and materials are recommended at both site locations. However, should any proposed repairs to these structures call for significant alteration to their historic fabric or should plans call for their removal, then more intensive documentation at the level of HABS-HAER standards will be warranted. If Bridge No. 1 is to be repaired and preserved in place, then a realignment of the current stream channel slightly to the east may be necessary to avoid future impacts to the CSP liner and northeast wing wall.

Table 1. Summary of structures recently documented in the Coweeta Hydrologic Laboratory project area.

PROJECT SUBJECT NO.	SITE TYPE/CONTENT	TIME PERIOD/AFFILIATION	CONDITION	RESEARCH POTENTIAL	NRHP ELIGIBILITY
Culvert No. 1	stone & concrete box culvert w. stone head & outflow walls, stone wing walls	ca. 1935-1942; CCC construction likely	good	fair	eligible
Bridge No. 1	single-span bridge w. stone head & outflow walls, stone wing walls; CSP arch/liner	ca. 1935-1942; CCC construction likely	fair	fair	eligible

REFERENCES CITED

Author Unknown

1948 Watershed Management Research, Coweeta Experimental Forest, Macon County, North Carolina. Ms. on file, U.S. Department of Agriculture, Southeastern Forest Experiment Station, Asheville, North Carolina.

Ashcraft, A. Scott and Rodney J. Snedeker

1999 *National Register of Historic Places Determination of Eligibility for the Avery Creek and English Chapel Warren Pony Metal Truss Bridges, Nantahala Ranger District, Nantahala National Forest, Macon County, North Carolina.* Ms. on file, National Forests in North Carolina, Asheville.

2006 *Heritage Resource Evaluation of the Curtis Creek CCC Camp and Improvements Project, Grandfather Ranger District, Pisgah National Forest, McDowell County, N.C.* Ms. on file, National Forests in North Carolina, Asheville.

Ashcraft, A. Scott and William Matthews

2009 *Cultural Resources Survey for the Proposed Coweeta Tower Project, Infra Event # R2008081111004, Coweeta Hydrologic Laboratory, Nantahala Ranger District, Nantahala National Forest, Macon County, North Carolina.* Ms. on file, National Forests in North Carolina, Asheville.

Beat, Alicia

2005 North Carolina Archaeological Site Form VI for 31MA644. Ms. on file, National Forests in North Carolina, Asheville.

Douglass, J.E. & M.D. Hoover

1988 History of Coweeta. In *Ecological Studies, Vol. 66: Forest Hydrology at Coweeta.* Edited by W.T. Swank and D.A. Crossley, JR. Springer-Verlag, New York.

Dyson, David McDaniel & Alain H. Burchett

1994 *Heritage Resources Survey for the Proposed Commissioner Creek & Mulberry Creek Timber Sale, Wayah Ranger District, Nantahala National Forest, Macon County, North Carolina.* Ms. on file, National Forests in North Carolina, Asheville.

Griffith, Clay and Debra Kraybill Bevin

1999 *North Carolina's Metal Truss Highway Bridges.* Raleigh: Federal Highway Administration, North Carolina Department of Transportation, North Carolina State Historic Preservation Office.

Jackson, Donald Dale

1994 "They were poor, hungry, and they built to last." *Smithsonian*, December 1994 pp. 66 - 77.

Jolley, Harley E.

2007 "That Magnificent Army of Youth and Peace," *The Civilian Conservation Corps in North Carolina, 1933-1942.* Office of Archives and History, North Carolina Department of Cultural Resources, Raleigh.

Merrill, Perry H.

1981 *Roosevelt's Forest Army. A History of the Civilian Conservation Corps 1933 - 1942.* Published by Perry H. Merrill, Montpelier, Vermont.

Rawick, George Phillips

1957 *The New Deal and Youth: The Civilian Conservation Corps.* National Archives and Records Service, General Services Administration, Washington.

Salmond, John A.

1967 *The Civilian Conservation Corps, 1933 - 1942: A New Deal Case Study.* Duke University Press, Durham, N.C.

Shumate, M. Scott

2002 *An Intensive Archaeological Survey of the Proposed Coweeta Conference Center Site at the Coweeta Experimental Station, Nantahala National Forest, Macon County, North Carolina.* Ms. on file, National Forests in North Carolina, Asheville.

Shumate, M. Scott and Lorie Hansen

2014 *Reconnaissance and Documentation of Historic Culverts at the Coweeta Hydrologic Laboratory in the Wayah Ranger District of the Nantahala National Forest, Macon County, North Carolina.* Ms. on file, National Forests in North Carolina, Asheville.

Snedeker, Rodney J. and William A. Speer

2000 *Heritage Resource Coweeta Dormitory Renovation and Design Considerations, Coweeta Hydrologic Laboratory, Wayah Ranger District, Nantahala National Forest, Macon County, North Carolina.* Ms. on file, National Forests in North Carolina, Asheville.

Swank, Wayne T., Judith L. Meyer, Deyree A. Crossley, Jr.

2001 *Long-Term Ecological Research: Coweeta History and Perspectives*, pp. 143-163. In: *Barrett, Gary W. and Terry L. Barrett, Holistic Science: The Evolution of the Georgia Institute of Ecology (1940-2000).* Sheridan Books, Ann Arbor, Michigan.