Yancey County
Bridge No. 49 on NC 80
over Brown Creek
Federal Aid Project No. BRSTP-0080(6)
W.B.S. No. 48058.1.1
T.I.P. No. B-5864

OCTOBER 2016

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

10/7/16
DATE

Beverley G. Robinson
Beverley G. Robinson, Western Region Group Leader
Project Development & Environmental Analysis Unit

10/14/16
DATE

John F. Sullivan, III, Division Administrator
Federal Highway Administration

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Documentation Prepared By
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10/7/16
DATE

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10/7/2016
DATE

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PROJECT COMMITMENTS:

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Roadway Design Unit, Division 13
Based on the Yancey County CTP recommendation to improve bicycle and pedestrian accommodations on the facility, the bridge will include 8-foot 3-inch offsets, between the outside of the travel lane and the bridge rail parapet. Additionally, the structure will provide 42 inch Oregon railing, as appropriate for bicycle and pedestrian use.

All Design Groups/Division 13 Resident Construction Engineer
The NCWRC has identified Brown Creek in the study area as trout waters. Based on the NCWRC's designation as trout waters, a mandatory trout moratorium on all in water work and within the 25-foot trout stream buffer will be present from **October 15 to April 15** of any given year, for Brown Creek along with all other tributaries in the project study area.

NCDOT will implement *Guidelines for Construction of Highway Improvements Adjacent to or Crossing Trout Waters in North Carolina* in the design and construction of this project.

NES, Roadside Environmental, Division 13
NCDWR has designated this stream as trout waters and therefore *Design Standards in Sensitive Watersheds* will be incorporated. Additionally, NCDOT's *Best Management Practices for Protection of Surface Waters* (March 1997) will be followed throughout the design and construction of the project.

Hydraulics Unit
The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Division 13 Construction
This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

Structure Design
The proposed project is located in the Tennessee Valley Authority's (TVA) Land Management District. The project will require approval under Section 26a of the TVA Act.

Geotechnical Unit
Preliminary site assessments will be conducted for potentially contaminated sites within the proposed right of way prior to right of way acquisition.

Project Development and Environmental Analysis Unit/Project Development and Environmental Analysis Unit-Natural Environment Section/Division 13/FHWA
The proposed project involves the replacement of a bridge over Brown Creek which flows into South Tow River, and designated critical habitat for Appalachian elktoe is found 4.7 miles downstream of the project area. No freshwater bivalves were found during surveys, and impacts are unlikely to occur, but cannot be completely discounted. NCDOT will request concurrence from USFWS on a **May Affect, Not Likely to Adversely Affect** biological conclusion, once final designs are available. However, due to projected limited impacts from the construction of this project, a non-jeopardy biological opinion is anticipated. Strict adherence to erosion control standards should minimize the potential for any adverse impacts to occur. Construction authorization will not be required until consultation with USFWS is completed.

All Design Groups
The replacement structure will be a new bridge to promote long term bank stability for the stream.

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INTRODUCTION: The proposed project will replace Yancey County Bridge No. 49 on NC 80 over Brown Creek. The project is included in the current 2016 – 2025 North Carolina State Transportation Improvement Program (STIP) as project number B-5864. The location is shown in **Figure 1**(Vicinity Map). No substantial environmental impacts are anticipated with this project. The project is classified as a Federal Categorical Exclusion (CE).

I. PURPOSE AND NEED STATEMENT

NCDOT Bridge Management Unit records indicate Bridge No. 49 has a sufficiency rating of 9 out of a possible 100 for a new structure. The bridge is considered functionally obsolete due to a structural evaluation appraisal of 3 out of 9, which indicates that corrective action is required, according to Federal Highway Administration (FHWA) standards.

Components of both the concrete superstructure and substructure have experienced an increasing degree of deterioration that can no longer be addressed by maintenance activities. The weight limit (not posted) on the bridge is down to 12 tons for single vehicles and 16 tons for truck-tractor semi-trailers. The bridge currently does not have guard rails or a posted weight limit. The bridge, originally built in 1923 and reconstructed in 1968, is an aging structure (some components are 93 years old and others are 48 years old), and is approaching the end of its useful life.

II. EXISTING CONDITIONS

Bridge No. 49 is located approximately 17 miles southeast of the Town of Burnsville in Yancey County, on NC 80 (see **Figure 1**). Development in the area contains residential, institutional and commercial businesses.

NC 80 is classified as a Major Collector in the Statewide Functional Classification System and it is not a National Highway System Route.

In the vicinity of the bridge, NC 80 has an 18-foot pavement width with 2-foot grass shoulders. The roadway grade is in a sag vertical curve through the project area. The existing bridge is skewed 90 degrees to Brown Creek and was built in 1923. The bridge roadway deck is situated approximately 11.0 feet above the creek bed.

Bridge No. 49 is a single-span structure that consists of reinforced concrete span filled arch that has been widened with a reinforced concrete floor on steel I-beams. The substructure of the bridge consists of reinforced concrete abutments. The existing bridge was constructed in

1923 and reconstructed in 1968. The overall length of the structure is 31 feet. The clear roadway width is 29.3 feet. The bridge is not posted.

There are no utilities attached to the existing structure, but overhead power lines cross over NC 80 approximately 180 feet south of the bridge. Frontier Telephone has aerial telephone lines that run along the east side on NC 80, with service lines crossing over NC 80.

The current (2016) traffic volume of 2,544 vehicles per day (VPD) is expected to increase to 2,900 VPD by the year 2040. The projected volume includes one percent truck-tractor semi-trailer (TTST) and three percent dual axel trucks (Duals). The posted speed limit is 45 miles per hour in the project area. Three school buses cross the bridge daily on their morning and afternoon routes serving South Toe Elementary School.

There were four accidents reported in the vicinity of Bridge No. 49 during the period between June 2011 and July 2015. None of the accidents were associated with the alignment or geometry of the bridge or its approach roadway.

The Yancey County Comprehensive Transportation Plan (CTP) recommends improving the on-road bicycle facilities on this bridge to accommodate pedestrians and bicyclists as part of the proposed improvements.

III. ALTERNATIVES

A. Preferred Alternative

Build Alternative 1

Build Alternative 1 was studied in detail for replacing Bridge No. 49 and involves replacement of the structure in place with a temporary on-site detour located downstream (east side) of the existing structure. The total length of the on-site detour alignment is 787 feet. The temporary on-site detour will require construction of a temporary 55-foot long by 15-foot wide one-lane bridge, to maintain traffic during construction (see Figure 2). The one-lane temporary on-site detour bridge will require the use of temporary traffic signals to facilitate an alternating one-lane traffic pattern on NC 80 during construction.

Alternative 1 leaves the final alignment in a similar pattern to the existing alignment. The permanent replacement structure will be a bridge approximately 50 feet long, and providing 38.5 feet clear deck width. The bridge length is based on preliminary design information and is set by hydraulic requirements. The bridge will be built at the existing location and at approximately the same elevation as that of the existing bridge, with a minimum 0.3% gradient to facilitate deck drainage. The bridge will be sufficient width to provide for two 11-foot lanes with a posted speed of 45 mph.

Based on the Yancey County CTP recommendation to improve bicycle and pedestrian accommodations on the facility, the bridge will include 8-foot 3-inch offsets, between the

outside of the travel lane and the bridge rail parapet. Additionally, the structure will provide 42 inch Oregon railing, as appropriate for bicycle and pedestrian use.

Improvements to the approach roadway will extend approximately 170 feet from the south end of the new bridge and 124 feet from the north end of the new bridge. The approaches will be widened to include a 22-foot pavement width providing two 11-foot lanes. Eight foot shoulders will be provided and consist of variable width pavement (0 to 8-foot) and grass shoulders. The roadway will be designed as a Major Collector using Regional Tier Guidelines with a 50 mile per hour design speed.

NCDOT Division 13 concurs that this is the preferred alternative.

B. Alternatives Eliminated from Further Consideration

No Build

The no build alternative will eventually necessitate closure of the bridge and NC 80. This is unacceptable given the volume of traffic served by NC 80 and the limited connectivity to other major routes in the vicinity.

Rehabilitation

Rehabilitation of the old bridge is not practical due to its age, structure type and deteriorated condition. Bridge No. 49 was built in 1923 and rehabilitated once in 1968; however upon recent inspection (2015), priority maintenance has been issued for this bridge. The structure has reached its life expectancy, and therefore, further rehabilitation of Bridge No. 49 is impractical.

Off-site Detour

An off-site detour alternative is not feasible given the limited connectivity to other major routes in the project vicinity. Not only would an off-site detour increase emergency response time none of the possible detour routes allow for the similar volume of truck traffic provided for on NC 80. Additionally, due to the topographic characteristics of the area, most routes in the vicinity are not acceptable detours due to their tight curves and turns.

Staged Construction

Staged construction is not a viable alternative for replacement of Bridge No. 49, due to the original construction utilizing a reinforced concrete span filled arch. The bridge cannot be partially deconstructed, as would be needed for a staged construction alternative.

IV. ESTIMATED COSTS

Table 1: The estimated costs (Date of Estimate 06/22/2015)

Cost Estimates	Alternative 1 (Preferred)
Structure	$ 259,500
Roadway Approaches	146,395
Detour Structure	60,000
Detour Approaches	285,365
Structure Removal	27, 249
Misc. & Mob. (Structures)	34, 491
Misc. & Mob. (Roadway)	151, 000
Total Contract Cost	$ 964,000
Eng. & Contingencies	136,000
Total Construction Cost	**$ 1,100,000**
Business Relocatees	$ 100,000
Land, Improvements and Damages	300,000
Acquisition	45,000
Total Estimated R/W Cost	**$ 445,000**
Total Estimated Utility Relocation	**$ 71,402**
Total Project Cost	**$ 1,616,402**

V. NATURAL ENVIRONMENT

Natural Resources in the project area were reviewed in the field in March 2013 and documented in a Natural Resources Technical Report (NRTR) (June 2013), incorporated by reference. This section includes a summary of the existing conditions, as well as the potential environmental impacts of the alternatives. A full version of the NRTR can be viewed at the Project Development & Environmental Analysis Unit located at Century Center Bldg. A, 1000 Birch Ridge Drive, Raleigh, NC.

A. Physical Characteristics

The study area lies in the mountain physiographic region of North Carolina. Topography in the project vicinity is comprised of steep ridges, deep valleys and limited areas of relatively level topography. Elevations in the study area range from approximately 2,700 feet to 2,800 feet above mean sea level. Lane use in the project vicinity consists primarily of residential and commercial development along the roadways, with forestland located along Brown Creek.

Soils

The Yancey County Soil Survey identifies four soil types within the study area (**Table 2**).

Table 2: Soils in the study area

Soil Series	Mapping Unit	Drainage Class	Hydric Status
Dellwood-Reddies complex	DeA	Moderately Well Drained	Hydric*
Evard-Cowee complex, moderately eroded	EaC2	Well Drained	Nonhydric
Saunook sandy loam	SaB	Well Drained	Nonhydric
Unison loam	UsB	Well Drained	Nonhydric

*Soils which are primarily nonhydric, but which may contain hydric inclusions

Water Resources

Water resources in the study area are part of the French Broad River basin [U.S. Geological Survey (USGS) Hydrologic Unit 06010108]. Five streams were identified in the study area (**Table 3**). The location of each water resource is shown on **Figure 2.** The physical characteristics of these streams are provided in **Table 4**.

Table 3: Water Resources in the study area

Stream Name	Map ID	NCDWQ Index No.	Best Usage Classification
Brown Creek	Brown Creek	7-2-52-28	C;Tr;ORW
UT to Roaring Spout Branch	SB	7-2-52-28-1	C;Tr;ORW
UT to Roaring Spout Branch	SC	7-2-52-28-1	C;Tr;ORW
UT to Brown Creek	SD	7-2-52-28	C;Tr;ORW
UT to Brown Creek	SE	7-2-52-28	C;Tr;ORW

Table 4: Physical characteristic of water resources in the study area

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Brown Creek	.2	25	10	Silt, Sand, Gravel, Cobble, Bedrock	Fast	Clear
SB	1	5	6	Silt, Sand, Gravel, Cobble	Fast	Clear
SC	.5	3	1	Silt, Sand, Gravel	Moderate	Clear
SD	2	4	8	Silt, Sand, Gravel, Cobble	Moderate	Clear
SE	.5	3	2	Silt, Sand, Gravel	Slow	Clear

One pond (PA) is located in the study area in the northwest quadrant and can be seen in **Figure 2**. This pond consists of an artificially excavated pit that is sustained by high groundwater levels. Approximately 0.13 acres of the pond are located in the study area. It is hydrologically connected to a jurisdictional wetland (WA) and a jurisdictional stream feature (SE).

Brown Creek has been designated an Outstanding Water Resource (ORW) from its source to its confluence with South Toe River. In addition, the North Carolina Division of Water Recourses (NCDWR) has identified Brown Creek as trout water. There are no designated anadromous fish waters or Primary Nursery Areas (PNA) present in the study area. There are no designated High Quality Waters (HQW) or water supply watersheds (WS-I or WS-II) within 1.0 mile downstream of the study area. There are no waters within 1.0 mile downstream of the study area listed on the North Carolina 2014 Final 303(d) list of impaired waters due to sediment and turbidity.

Biotic Resources

One terrestrial community was identified in the study area: maintained/disturbed.

Maintained/disturbed areas are located in places where the vegetation is periodically mowed, such as roadside shoulders, agricultural fields and maintained lawns. The vegetation in this community is comprised of shrubs and low growing grasses, including fescue, wild onion, flowering dogwood, and multiflora rose. Vines present in this community include blackberry and oriental bittersweet. Included within this community is one wetland, which is classified as a headwater forest using the North Carolina wetland assessment Method (NCWAM) classification.

The maintained/disturbed community makes up 5.1 acres of the study area.

Invasive Species

Three species form the NCDOT Invasive Exotic Plant List for North Carolina were found to occur in the study area. The species identified were common periwinkle (Watch), oriental bittersweet (Threat), and multiflora rose (Threat). NCDOT will manage invasive plant species as appropriate.

B. Jurisdictional Topics

Clean Water Act Waters of the U.S.

Five jurisdictional streams were identified in the study area (**Table 5**). All jurisdictional streams in the study area have been designated as cool water streams for the purpose of stream mitigation.

Table 5: Jurisdictional characteristics of water resources in the study area

Map ID	Length (ft)	Estimated Impacts (ft)	Classification	Compensatory Mitigation Required	River Basin Buffer
Brown Creek	215	149.0	Perennial	Yes	Not Subject
SB	105	0	Perennial	Yes	Not Subject
SC	48	0	Intermittent	Yes	Not Subject
SD	141	86.7	Intermittent	Yes	Not Subject
SE	339	0	Intermittent	Yes	Not Subject
Total	**848**	**235.7**			

One jurisdictional wetland was identified within the study area. Characteristics of this wetland can be found in **Table 6**. The location of this wetland can be seen on **Figure 2**.

Table 6: Jurisdictional characteristics of wetlands in the study area

Map ID	NCWAM Classification	Hydrologic Classification	NCDWR Wetland Rating	Area (ac.)	Estimated Impacts (ac)
WA	Headwater Forest	Riparian	29	0.12	0
			Total	**0.12**	**0**

Permits

The proposed project has been designated as a Categorical Exclusion (CE) for the purposes of National Environmental Policy Act (NEPA) documentation. As a result, a Nationwide Permit (NWP) 23 will likely be applicable. A NWP No. 33 may also apply for temporary construction activities such as stream dewatering, work bridges, temporary causeways that are used during bridge construction. The USACE holds final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required then a Section 401 Water Quality Certification (WQC) from the NCDWR will be needed.

Construction Moratoria

In a letter dated July 30, 2013, the North Carolina Wildlife Resources Commission (NCWRC) has determined Brown Creek and Roaring Spout Branch as trout streams in the study area. A mandatory trout moratorium will be present from October 15 to April 15 of any given year for Brown Creek and all other tributaries in the project study area. Sediment and erosion control measures should adhere to the *Design Standards in Sensitive Watersheds.*

Federally Protected Species

As of July 24, 2015 the U.S. Fish and Wildlife (USFWS) lists nine federally protected species in Yancey County, listed in **Table 7**. A brief description of each species' habitat requirements follows, along with the Biological Conclusion rendered based on survey results in the study area.

Table 7: Federally protected species assessment in the study area

Common Name	Scientific Name	Federal Status	Habitat Present	Biological Conclusion
Bog turtle	*Clemmys muhlenbergii*	T (S/A)	Yes	Not Required
Carolina northern flying squirrel	*Glaucomys sabrinus coloratus*	E	No	No Effect
Northern long-eared bat	*Myotis septentrionalis*	T	Yes	**
Appalachian elktoe*	*Alasmidonta raveneliana*	E	Yes	May Affect Not Likely to Adversely Affect
Spruce-fir moss spider	*Microhexura montivaga*	E	No	No Effect
Roan mountain bluet	*Hedyotis purpurea var. montana*	E	No	No Effect
Spreading avens	*Geum radiatum*	E	No	No Effect
Virginia spiraea*	*Spiraea virginiana*	T	Yes	No Effect
Rock gnome lichen	*Gymnoderma lineare*	E	No	No Effect

E – Endangered
T – Threatened
T(S/A) – Threatened due to similarity of appearance
*- Historic record (the species was last observed in the county more than 50 years ago)
**- May Affect – NLEB is exempt due to consistency with the 4(d) rule

Bog turtle

Habitat Description: Bog turtle habitat consists of open, groundwater supplied (springfed), graminoid dominated wetlands along riparian corridors or on seepage slopes. These habitats are designated as mountain bogs by the NCNHP, but they are technically poor, moderate, or rich fens that may be associated with wet pastures and old drainage ditches that have saturated muddy substrates with open canopies. Plants found in bog turtle habitat include sedges, rushes, marsh ferns, herbs, shrubs (tag alder, hardhack, blueberry, etc.), and wetland tree species (red maple and silky willow). These habitats often support sphagnum moss and may contain carnivorous plants (sundews and pitcherplants) and rare orchids. Potential habitats may be found in western Piedmont and Mountain counties from 700 to 4500 feet elevation in North Carolina. Soil types (poorly drained silt loams) from which bog turtle habitats have been found include Arkaqua, Chewacla, Dellwood, Codorus complex, Hatboro, Nikwasi, Potomac – Iotla complex, Reddies, Rosman, Tate – Cullowhee complex, Toxaway, Tuckasegee – Cullasaja complex, Tusquitee, Watauga, and Wehadkee.

Biological Conclusion: **Not Required.**

Species listed as threatened due to similarity of appearance do not require Section 7 consultation with the USFWS. Marginal wetland habitat for the bog turtle is present in the study area. Although not a mountain bog, Wetland A (WA) is a graminoid dominated wetland with vegetation and hydrology similar to habitat where bog turtles are found. A review of the North Carolina Natural Heritage Program (NCNHP) records, updated June 2016, indicates no known bog turtle occurrence within 1.0 mile of the study area.

Carolina northern flying squirrel

Habitat Description: There are several isolated populations of the Carolina northern flying squirrel in the mountains of North Carolina. This nocturnal squirrel prefers the ecotone between coniferous (red spruce, Fraser fir, or hemlock) and mature northern hardwood forests (beech, yellow birch, maple, hemlock, red oak, and buckeye), typically at elevations above 4,500 feet mean sea level. In some instances, the squirrels may be found on narrow, north-facing valleys above 4,000 feet mean sea level. Both forest types are used to search for food and the hardwood forest is used for nesting sites. Mature forests with a thick evergreen understory and numerous snags are most preferable. In winter, squirrels inhabit tree cavities in older hardwoods, particularly yellow birch.

Biological Conclusion: **No Effect**.

Suitable habitat for the Carolina northern flying squirrel does not exist within the study area. According to the NCNHP database, the nearest known occurrence of Carolina northern flying squirrel was 3.3 miles from the project.

Northern long-eared bat

Habitat Description: The Northern long-eared bat is found across much of the eastern and north central US and all Canadian provinces. Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. They typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents. Specific areas where they hibernate have very high humidity, so much so that droplets of water are often seen on their fur. Within hibernacula, surveyors find them in small crevices or cracks, often with only the nose and ears visible. Summer roosting occurs singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. It has also been found, rarely, roosting in human-made structures such as buildings, barns, behind window shutters, on utility poles and in bat houses. This species is a medium-sized bat with females tending to be slightly larger than males. Average body length ranges from 3 to 4 inches with a wingspan ranging from 9 to 10 inches. This species is distinguished by its relatively long ears that extend beyond the nose when laid forward.

Biological Conclusion: **May Affect**.

According to the North Carolina Natural Heritage Program (NHP) Biotics Database, most recently updated January 2016, the nearest NLEB hibernacula record is 2 miles west and no known NLEB roost trees occur within 150 feet of the project area. NCDOT has also reviewed the USFWS Asheville office website for consistency with NHP records. This project is located entirely outside of the red highlighted areas (12-digit HUC) that the USFWS Asheville Field Office has determined to be representative of an area that may require consultation. See referenced Memo attached.

NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016. NCDOT may presume its determination is informed by best available information and consider Section 7 responsibilities fulfilled for NLEB.

Appalachian elktoe

Habitat Description: The Appalachian elktoe is known from the French Broad River watershed in North Carolina. The Appalachian elktoe has been observed in moderate-to fast-flowing water, in gravelly substrates often mixed with cobble and boulders, in cracks of bedrock and in relatively silt-free, coarse, sandy substrates. Apparently, stability of the substrate is critical to this species, as it is seldom found in stream reaches with accumulations of silt or shifting sand, gravel, or cobble.

Biological Conclusion: **May Affect Not Likely To Adversely Affect**.

While appropriate habitat for the Appalachin elktoe is present in the surveyed reach, no freshwater bivalves were found during these efforts. However, the target species is known from the South Toe River, approximately four river miles downstream of the

project area. Given the distance (approximately 3.1 miles to NCNHP records and 4.7 miles to designated critical habitat) of the project area to known occupied habitat, impacts are unlikely to occur, but cannot be completely discounted. Strict adherence to erosion control standards should minimize the potential for any adverse impacts to occur.

NCDOT will request concurrence from USFWS on a **May Affect, Not Likely to Adversely Affect** biological conclusion, once final designs are available. Construction authorization will not be requested until consultation with USFWS is completed.

Spruce-fir moss spider

Habitat Description: This species is known only from spruce-fir forests in the Appalachian mountains of North Carolina and Tennessee. The spruce-fir moss spider occurs in well-drained moss and liverwort mats growing on rocks or boulders. These mats are found in well-shaded areas in mature, high elevation (> 5,000 feet mean sea level) Fraser fir and red spruce forests. The spruce-fir moss spider is very sensitive to desiccation and requires environments of high and constant humidity. The need for humidity relates to the moss mats, which cannot become too parched or else the mats become dry and loose. Likewise, the moss mats cannot be too wet because large drops of water can also pose a threat to the spider. The spider constructs its tube-shaped webs in the interface between the moss mat and the rock surface. Some webs have been found to extend into the interior of the moss mat.

Biological Conclusion: **No Effect**

Suitable habitat for the Spruce-fir moss spider does not exist within the study area. According to the NCNHP data layer, the nearest known occurrence of this spider was over 3.9 miles away from this project.

Roan Mountain bluet

Habitat Description: Roan Mountain bluet occurs on thin, gravelly talus slopes of grassy balds, cliff ledges, shallow soils in crevices of rock outcrops, and steep slopes with full sun at the summits of high elevations peaks of the southern Blue Ridge Mountains. The plant is found at elevations of 4,200-6,300 feet above mean sea level, and often has a north, northwest, south, or southwest aspect. Known occurrences typically grow in gravel-filled, acidic, and metamorphic-derived soil pockets between underlying mafic rock. Fraser fir and red spruce dominate the forests adjacent to known occurrences. Blue Ridge goldenrod, Heller's blazing star, and spreading avens are a few of its common associate species.

Biological Conclusion: **No Effect**

Suitable habitat for the Roan Mountain bluet does not exist in the study area. There are no grassy balds and steep slopes that receive full sun at or above 4,200 feet above mean sea level in the study area. Elevations in the study area do not exceed 2,800 feet above

mean sea level. A review of the NCNHP records, updated June 2016, indicates no known roan mountain bluet occurrence within 1.0 mile of the study area.

Spreading avens

Habitat Description: Spreading avens occurs in areas exposed to full sun on high elevation cliffs, outcrops, and bases of steep talus slopes. This perennial herb also occurs in thin, gravelly soils of grassy balds near summit outcrops. The species prefers a northwest aspect, but can be found on west-southwest through north-northeast aspects. Forests surrounding known occurrences are generally dominated by either red spruce-Fraser fir, northern hardwoods with scattered spruce, or high-elevation red oaks. Spreading avens typically occurs in shallow, acidic soil (such as the Burton series) in cracks and crevices of igneous, metamorphic, or metasedimentary rocks. Soils may be well drained but almost continuously wet, with soils at some known occurrences subject to drying out in summer due to exposure to sun and shallow depths. Known populations occur at elevations ranging from 4,296 to 6,268 feet above mean sea level. Blue Ridge goldenrod, Heller's blazing star, and Roan Mountain bluet are a few of its common associate species.

Biological Conclusion: **No Effect**

Suitable habitat for spreading avens does not exist within the study area. There are no areas exposed to full sunlight and at or above 4,200 feet above mean sea level within the study area. Elevations in the study area do not exceed 2,800 feet above mean sea level. A review of the NCNHP records, updated June 2016, indicates no known spreading avens occurrence within 1.0 mile of the study area.

Virginia spiraea

Habitat Description: Virginia spiraea occurs in flood-scoured, high-gradient sections of rocky river banks of second and third order streams, often in gorges or canyons. This perennial shrub grows in sunny areas on moist, acidic soils, primarily over sandstone. The shrub tends to be found in thickets with little arboreal or herbaceous competition along early successional areas that rely on periodic disturbances such as high-velocity scouring floods to eliminate such competition. Virginia spiraea also occurs on meander scrolls and point bars, natural levees, and other braided features of lower stream reaches, often near the stream mouth. Scoured, riverine habitat sites are found where deposition occurs after high water flows, such as on floodplains and overwash islands, rather than along areas of maximum erosion. Occurrences in depositional habitats are found among riparian debris piles, on fine alluvial sand and other alluvial deposits, or between boulders.

Biological Conclusion: **No Effect**

Suitable habitat for Virginia spiraea in the form of flood scoured, high gradient sections of rocky river banks on second and third order streams exists within the study area. Surveys were performed on June 5, 2013. No individuals were found. A review of the

NCNHP records, updated June 2016 indicates no known Virginia spiraea occurrence within 1.0 mile of the study area.

Rock gnome lichen

Habitat Description: Rock gnome lichen occurs in high elevation coniferous forests (particularly those dominated by red spruce and Fraser fir) usually on rocky outcrop or cliff habitats. This squamulose lichen only grows in areas with a great deal of humidity, such as high elevations above 5,000 feet mean sea level where there is often fog, or on boulders and large outcrops in deep river gorges at lower elevations. Habitat is primarily limited to vertical rock faces where seepage water from forest soils above flows only at very wet times. The species requires a moderate amount of sunlight, but cannot tolerate high-intensity solar radiation. The lichen does well on moist, generally open sites with northern exposures, but requires at least partial canopy coverage on southern or western aspects because of its intolerance to high solar radiation.

Biological Conclusion: **No Effect**

Suitable habitat for the rock gnome lichen does not exist within the study area. There are no rocky outcrops or cliff habitats with a great deal of humidity and seepage that flows only during wet periods. Elevations in the study area do not exceed 2,800 feet above mean sea level. A review of the NCNHP records, updated June 2016, indicates no known rock gnome lichen occurrence within 1.0 mile of the study area.

Bald and Golden Eagle Protection Act

Since there was no foraging habitat within the review area, a survey of the study area and the area within 660 feet of the project limits was not conducted. A review of NCNHP records updated June 2016 revealed no know occurrences of this species within 1.0 mile of the study area, therefore it has been determined that this project will not affect this species.

VI. HUMAN ENVIRONMENT

A. Section 106 Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at Title 36 CFR Part 800. Section 106 requires Federal agencies to take into account the effect of their undertakings (federally funded, licensed, or permitted) on properties included in or eligible for inclusion in the National Register of Historic Places and afford the Advisory Council a reasonable opportunity to comment on such undertakings.

Historic Architecture

NCDOT – Human Environment Section, under the provisions of a Programmatic Agreement with FHWA, NCDOT, HPO, OSA and the Advisory Council on Historic Preservation

(effective July 1, 2009), reviewed the proposed project and determined that no historic properties are located within the project's area of potential effect and that no surveys are required (see Historic Architecture and Landscapes No Survey Required Form dated March 21, 2013 in Appendix A).

Archaeology

NCDOT – Human Environment Section, under the provisions of a Programmatic Agreement with FHWA, NCDOT, HPO, OSA and the Advisory Council on Historic Preservation (effective July 1, 2009), reviewed the proposed project and determined that no prehistoric or historic properties are located within the project's area of potential effect. A subsurface investigation did not reveal the presence of any archaeological resources considered eligible for the National Register (see No Archeological Survey Required Form dated July 26, 2013 in Appendix A).

B. Community Impacts

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. Two business relocations and no residential relocations are expected with implementation of the proposed alternative.
No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from the construction of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to prime farmland of all land acquisition and construction projects. All construction will take place along the existing alignment. There are soils classified as prime, unique, or having state or local importance in the vicinity of the project. Farmland Protection Policy Act eligible soils are located in the northeast and southeast quadrants of the Direct Bridge Impact Area. Therefore, the project will involve the direct conversion of farmland acreage within these classifications.

As is required by the Farmland Protection Policy Act, Form NRCS-AD-1006 has been completed according to FHWA guidelines. A preliminary screening with the AD 1006 form resulted in a score of 52 points out of 160. Since this project received a total point value of less than 160 points, this site falls below the NRCS minimal criteria and will not be evaluated further for farmland impacts. No other alternatives than those discussed in this document will be considered without a re-evaluation of the project's potential impacts upon farmland. The project will not have a significant impact to farmland.

The project will not have a disproportionately high and adverse human health and environmental effect on any minority or low-income population.

C. Noise & Air Quality

The project is located in Yancey County, which has been determined to comply with the National Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

This project will not result in any meaningful changes in traffic volume, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. As such FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently this effort is exempt from analysis for MSAT's.

Noise levels may increase during project construction; however, these impacts are not expected to be substantial considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

This project has been determined to be a Type III Noise Project and therefore, no traffic noise analysis is required to meet the requirements of 23 CFR 772.

VII. GENERAL ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of the current North Carolina Department of Transportation standards and specifications.

The proposed project will not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

Two suspected underground storage tank (UST) facilities were identified within the project limits. The sites are described in **Table 8** and the location of each is shown in **Figure 2**. These sites are anticipated to present low geoenvironmental impacts to the project. No hazardous waste sites, landfills or other geoenvironmental concerns were identified within the project limits.

Table 8: Known and Potential GeoEnvironmental Impact Sites

Property Location	Property Owner	UST Owner	Facility ID#
Old Path Curch/Blue Ridge PC 4188 State Highway 80 Burnsville, NC 28714	Celo Investment Partners LLC 478 England Branch Road Burnsville, NC 28714	N/A	N/A
This structure is located 75 feet south from the replacement bridge 049 on NC 80 over Brown Creek on the west side of NC 80 in Burnsville. The site is utilized as Old Path Church and Blue Ridge PC Repair and Services. This parcel does not appear on the UST Section registry. No evidence of USTs were observed on the site, however, a concrete pad was observed on the northeastern corner of the structure that could have been a former dispenser island. There are no monitoring wells on site and no ground water incidents listed for this facility. However, because the site history is unknown, USTs, petroleum and/or solvent contamination may be a concern at this facility. **This site is anticipated to present low geoenvironmental impacts to the project.**			
Property Location	**Property Owner**	**UST Owner**	**Facility ID#**
Browns Creek Baptist Church PIN: 0758032125040000 Address: N/A	Browns Creek Baptist Church Address: N/A	N/A	N/A
This vacant structure is located 75 feet south from the replacement bridge 049 on NC 80 over Brown Creek on the east side of NC 80 in Burnsville. This parcel does not appear on the UST Section registry. No evidence of USTs were observed on the site. There are no monitoring wells on site and no ground water incidents listed for this facility. However, because the site history is unknown, USTs, petroleum and/or solvent contamination may be a concern at this facility. This site is anticipated to present low geoenvironental impacts to the project.			

Yancey County is a participant in the National Flood Insurance Program. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in an impact area of about the same magnitude. The proposed project is not anticipated to increase the level or extent of upstream flood potential.

The NCDOT's Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of project with regard to applicability of NCDOT's Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

VIII. COORDINATION & AGENCY COMMENTS

NCDOT has sought input from the following agencies as a part of the project development: U.S. Forest Service, U.S. Environmental Protection Agency, Tennessee Valley Authority, U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, N.C. Division of Water Resources,

N.C. Wildlife Resource Commission, North Carolina State Historic Preservation Office, Yancey County Planning Department and Eastern Band of Cherokee Indians..

The N.C. Wildlife Resource Commission and U.S. Fish & Wildlife Service in standardized letters provided a request that they prefer any replacement structure to be a spanning structure.

Response: NCDOT will be replacing the existing structure with a new bridge.

The **N.C. Wildlife Resource Commission,** in a standardized letter, stated that Brown Creek supports wild Brook Trout in the area. A moratorium prohibiting in-stream work and land disturbance within the 25 foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of the trout. Sediment and erosion control measures should adhere to the *Design Standards in Sensitive Watersheds*.

Response: NCWRC has designated this stream as trout waters and therefore *Design Standards for Sensitive Watersheds* will be incorporated throughout design and construction of the project. Based on the NCWRC's designation as trout waters, a mandatory trout moratorium will be present from October 15 to April 15 of any given year, for Brown Creek along with all other tributaries in the project study area. Additionally, NCDOT's *Best Management Practices for Protection of Surface Waters* (March 1997) will be followed throughout the design and construction of the project. NCDOT will also implement *Guidelines for Construction of Highway Improvements Adjacent to or Crossing Trout Waters in North Carolina* in the design and construction of this project.

The **U.S. Fish & Wildlife Service** indicated that the South Toe River is known to have a substantial population of the Appalachian elktoe, a federally endangered species. The Appalachain elktoe is sensitive to habitat degradation from erosion and excessive sedimentation of stream habitat. We recommend that the replacement structure be designed in a way that promotes long term bank stability.

Response: The replacement structure will be a new bridge to promote long term bank stability for the stream.

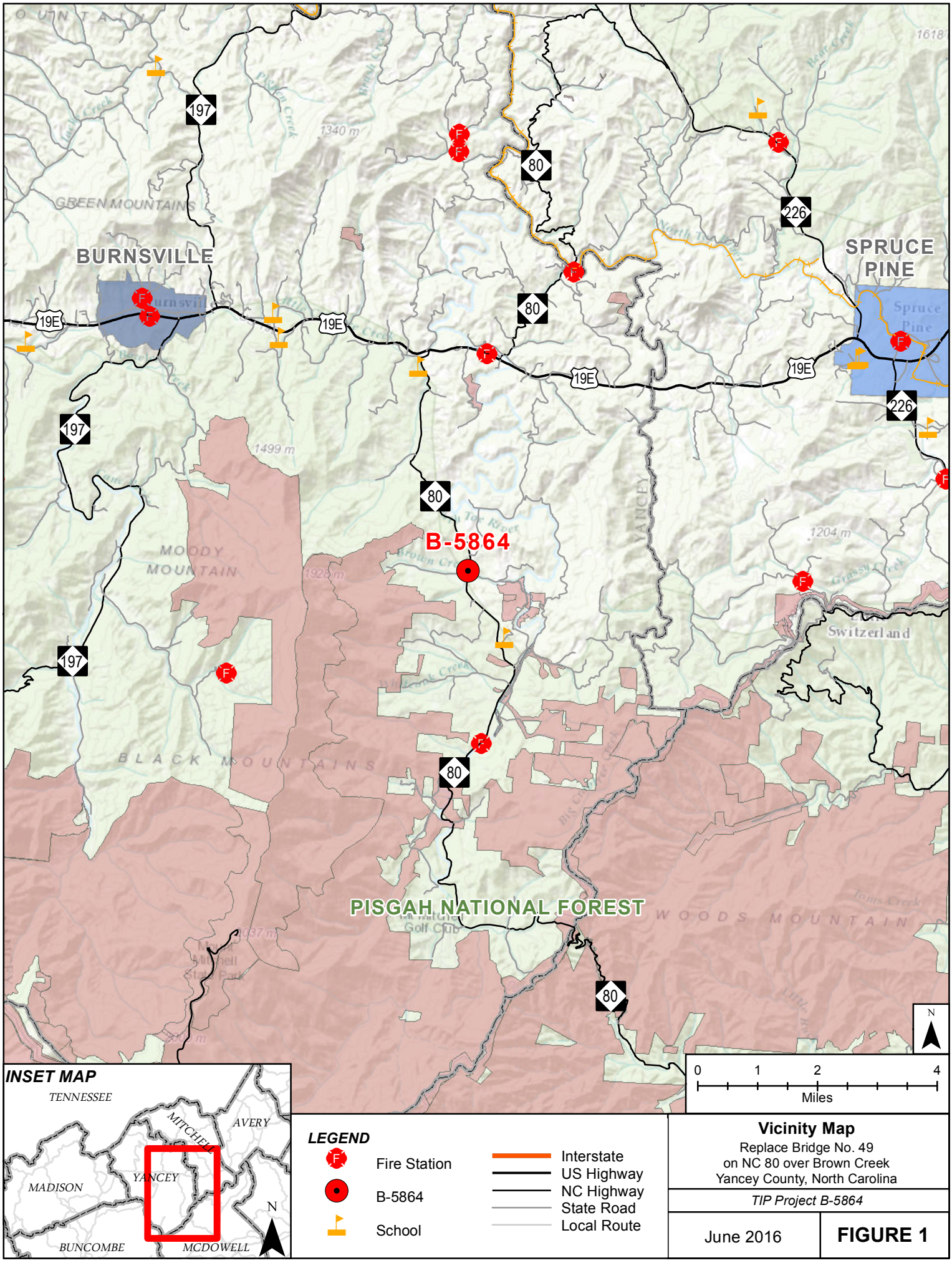
IX. PUBLIC INVOLVEMENT

A Landowner Notification letter was sent out to all property owners affected directly by this project. Property owners were invited to comment. No comments have been received to date.

Based on responses, or lack thereof, to the landowner notification letter, a Public Meeting was determined unnecessary.

X. CONCLUSION

On the basis of the above discussion, it is concluded that no substantial adverse environmental impacts will result from implementation of the project. The project is therefore considered to be a federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.


BURNSVILLE
SPRUCE PINE
B-5864
PISGAH NATIONAL FOREST
GREEN MOUNTAINS
MOODY MOUNTAIN
BLACK MOUNTAINS
WOODS MOUNTAIN
YANCEY
Switzerland
Spruce Pine
Golf Club
1340 m
1499 m
1204 m
1618
19E
80
197
226
INSET MAP
TENNESSEE
MITCHELL
AVERY
MADISON
YANCEY
BUNCOMBE
MCDOWELL
N
LEGEND
Fire Station
B-5864
School
Interstate
US Highway
NC Highway
State Road
Local Route
0 1 2 4
Miles
Vicinity Map
Replace Bridge No. 49
on NC 80 over Brown Creek
Yancey County, North Carolina
TIP Project B-5864
June 2016
FIGURE 1

Proposed Design
B-5864
Replace Bridge No. 49
on NC 80 over Brown Creek
Yancey County, North Carolina

North Carolina Department of Transportation, Project Development & Environmental Analysis Unit

September 2016

FIGURE 2

Appendix A

Forms

- Historic Architecture and Landscapes No Survey Required Form
- No Archeological Survey Required Form

North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

TO: Carla Dagnino, Project Management, Western Region
Natural Environment Section, PDEA Branch, NCDOT

FROM: Marla Chambers, Western NCDOT Review Coordinator
Habitat Conservation Program, NCWRC

Marla Chambers

DATE: July 30, 2013

SUBJECT: Scoping review of 14 bridge replacement projects proposed by NCDOT in Buncombe, Cherokee, Jackson, Macon, Madison, Polk, Transylvania, Wilkes, and Yancey Counties. TIP Nos. B-5400, B-4462, B-5410, B-5905, B-5910, B-5406, B-4777, B-5882, B-5407, B-5405, B-4978, B-4848, B-5401, and B-5864.

The North Carolina Department of Transportation (NCDOT) has requested comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources for 14 bridge replacement projects proposed by the North Carolina Department of Transportation (NCDOT). Staff biologists with the North Carolina Wildlife Resources Commission (NCWRC) have reviewed the information provided. The following preliminary comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)), the Clean Water Act of 1977 (33 U.S.C. 466 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

Our standard recommendations for bridge replacement projects of this scope are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.

2. Bridge deck drains should not discharge directly into the stream.

Mailing Address: N.C. Wildlife Resources Commission • 1701 Mail Service Center • Raleigh NC 27699-1701
Telephone: (919) 707-0010

3. Live concrete should not be allowed to contact the water in or entering into the stream.

4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.

7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.

8. In streams that contain threatened or endangered species, Mr. Logan Williams with the NCDOT - ONE should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.

9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.

10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.

11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.

12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.

13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.

14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.

15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.

16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

17. If culvert installation is being considered, conduct subsurface investigations prior to structure design to determine design options and constraints and to ensure that wildlife passage issues are addressed.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for aquatic life and fish passage. Generally, the culvert or pipe invert should be buried at least 1 foot below the natural streambed (measured from the natural thalweg depth). If multiple barrels are required, barrels other than the base flow barrel(s) should be placed on or near stream bankfull or floodplain bench elevation (similar to Lyonsfield design). These should be reconnected to floodplain benches as appropriate. This may be accomplished by utilizing sills on the upstream end to restrict or divert flow to the base flow barrel(s). Silled barrels should be filled with sediment so as not to cause noxious or mosquito breeding conditions. Sufficient water depth should be provided in the base flow barrel during low flows to accommodate fish movement. If culverts are longer than 40-50 linear feet, alternating or notched baffles should be installed in a manner that mimics existing stream pattern. This should enhance aquatic life passage: 1) by depositing sediments in the barrel, 2) by maintaining channel depth and flow regimes, and 3) by providing resting places for fish and other aquatic organisms. In essence, the base flow barrel(s) should provide a continuum of water depth and channel width without substantial modifications of velocity.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.

3. Culverts or pipes should be situated along the existing channel alignment whenever possible to avoid channel realignment. Widening the stream channel must be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

4. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be professionally designed, sized, and installed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to

avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. Tall fescue should not be used in riparian areas. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. Buncombe Co., B-5400, Bridge No. 259 over South Hominy Creek on SR 3466. We do not expect significant, reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.

2. Cherokee Co., B-4462, Bridge No. 148 over Persimmon Creek on SR 1127. Persimmon Creek supports wild Rainbow Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

3. Jackson Co., B-5410, Bridge No. 221 over Little Savannah Creek on SR 1367. Little Savannah Creek is expected to support Rainbow Trout in the project area and a number of protected aquatic species occur further downstream. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

4. Jackson Co., B-5905, Bridge No. 27 over Scott Creek and Southern Railroad on US 23 Business. Scott Creek supports wild Rainbow Trout in the project area and a number of protected aquatic species occur further downstream. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

5. Jackson Co., B-5910, Bridge No. 32 over Savannah Creek on NC 116. Savannah Creek is expected to support Rainbow Trout. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

6. Macon Co., B-5406, Bridge No. 67 over Rabbit Creek on SR 1513. Rabbit Creek is expected to support Rainbow Trout downstream and a number of protected aquatic species occur further downstream. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from January 1 to April 15 to protect the egg and fry

stages of Rainbow Trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

7. Madison Co., B-4777, Bridge Nos. 8 and 9 over Ivy River on NC 251. We do not expect reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.

8. Madison Co., B-5882, Bridge No. 145 over Big Pine Creek on SR 1151. Big Pine Creek supports wild Brown Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

9. Polk Co., B-5407, Bridge No. 34 over Walnut Creek on SR 1311. We do not expect significant, reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.

10. Transylvania Co., B-5405, Bridge No. 139 over East Branch Toxaway Creek on SR 1139. East Branch Toxaway Creek supports Brown Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

11. Wilkes Co., B-4978, Bridge No. 82 over South Prong Lewis Fork Creek on SR 1154. We do not expect reproducing trout resources downstream of the project and therefore, are not requesting a trout moratorium. Stringent sedimentation and erosion control measures and standard recommendations should apply.

12. Yancey Co., B-4848, Bridge No. 3 over Possum Trot Creek on SR 1128. Possum Trot Creek supports wild Brown and Rainbow trout in the project area and protected aquatic species occur further downstream in the Cane River. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

13. Yancey Co., B-5401, Bridge No. 184 over what appears to be an unnamed tributary to North Fork Cattail Creek on SR 1102. The North Fork Cattail Creek supports wild Brook Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

14. Yancey Co., B-5864, Bridge No. 49 over Browns Creek on NC 80. Browns Creek supports wild Brook Trout in the project area. A moratorium prohibiting in-stream work and land disturbance within the 25-foot trout buffer is recommended from October 15 to April 15 to protect the egg and fry stages of trout. Sediment and erosion control measures should adhere to the Design Standards in Sensitive Watersheds.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases. Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (704) 485-8291. Thank you for the opportunity to review and comment on this project.

cc: Mike Parker, NCDWQ
Amy Euliss, NCDWQ
Jason Mayes, USFWS

HISTORIC ARCHICTECTURE AND LANDSCAPES NO SURVEY REQUIRED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	B-5864	***County***:	Yancey
WBS No.:	48058.1.1	***Document Type***:	PCE or CE
Fed. Aid No:	BRSTP-0080(6)	***Funding***:	☐ State ☒ Federal
Federal Permit(s):	☐ Yes ☐ No	***Permit Type(s)***:	

Project Description:
Replace Bridge No. 49 on NC 80 over Browns Creek in Yancey County. Project length is approximately 1000 feet. The existing right-of-way is assumed to be 60 feet and the proposed right-of-way is 100 feet from each side of the centerline.

SUMMARY OF HISTORIC ARCHICTECTURE AND LANDSCAPES REVIEW

Description of review activities, results, and conclusions:
Review of HPO quad maps, HPOweb GIS mapping, historic designations roster, and indexes was conducted on 3/19/13. Based on this review, there are no existing NR, SL, LD, DE, or SS properties in the Area of Potential Effects (APE). Bridge No. 49 is not eligible for listing to the National Register of Historic Places (NRHP) according to the NCDOT Historic Bridge Inventory. The CRS also reviewed Yancey County GIS and tax records which revealed three properties over the age of fifty years within the project APE, however, they do not possess enough integrity or architectural significance to be considered for eligibility to the NRHP according to photos on the property cards. One of the properties is a frame gabled residence or store with a side-gabled addition and gabled porch, the second property (built in 1950) is a heavily altered frame residence with side gabled roof and gabled dormer windows, and the third property (built in 1950) is a gabled frame residence. The APE runs along US 80 near the Celo community and consists mostly of residential properties with a few small commercial or agricultural buildings. Thus, a survey is not required for this project.

Why the available information provides a reliable basis for reasonably predicting that there are no unidentified significant historic architectural or landscape resources in the project area:

HPO quad maps, HPOweb GIS mapping, Google maps and Yancey County property records are considered valid tools for the purposes of determining the likelihood of historic resources being present. A survey is not required for this project.

SUPPORT DOCUMENTATION

☒Map(s) ☐Previous Survey Info. ☒Photos ☐Correspondence ☐Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- NO SURVEY REQUIRED

Megan Privett 3/21/13

NCDOT Architectural Historian Date

13-03-0033

NO NATIONAL REGISTER OF HISTORIC PLACES ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES PRESENT OR AFFECTED FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.

PROJECT INFORMATION

Project No:	**B-5864**	*County:*	**Yancey**
WBS No:	**48058.1.1**	*Document:*	**PCE OR CE**
F.A. No:	**BRSTP-0080(6)**	*Funding:*	☐ State ☒ Federal

Federal Permit Required? ☐ Yes ☐ No *Permit Type:* **unknown**

Project Description: Replace Bridge 49 on NC 80 over Brown's Creek. Area of Potential Effects (A.P.E.) is approximately 305 meters (1,000 ft.) long and 60 meters (200 ft.) wide. No design plans provided. Federally-funded; no permit information provided; no easement information provided.

SUMMARY OF ARCHAEOLOGICAL FINDINGS

The North Carolina Department of Transportation (NCDOT) Archaeology Group reviewed the subject project and determined:

☒ There are no National Register listed ARCHAEOLOGICAL SITES within the project's area of potential effects.
☐ No subsurface archaeological investigations are required for this project.
☒ Subsurface investigations did not reveal the presence of any archaeological resources.
☐ Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
☐ All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
☒ There are no National Register Eligible or Listed ARCHAEOLOGICAL SITES present or affected by this project. (*Attach any notes or documents as needed*)

Brief description of review activities, results of review, and conclusions:
The review included an examination of a topographic map, the Yancey County soil survey, an aerial photograph, and listings of previously recorded sites, previous archaeological surveys, and previous environmental reviews at the Office of State Archaeology (OSA). An archaeological survey of the A.P.E. was conducted on 4/17/2013.

The A.P.E. is located in a wide creek valley at the community of Celo. The landform in all four quadrants is level floodplain. The area was cleared (for agriculture?) in 1960. The 1960 and 1994 maps show structures within the southwest quadrant, and one adjacent to the A.P.E. in the southeast quadrant. The northwest and northeast quadrants are unoccupied.

The Yancey County soil survey depicts the soils in the A.P.E. as Dellwood-Reddies complex (0-3% slopes) within most of the A.P.E., Saunook sandy loam (2-8% slopes) along the north end, and Unison loam (2-8% slopes) at the south end. All three are described as level, well-drained soils.

The aerial photograph shows the southwest quadrant is occupied by an apartment (?) building and two houses. There is one structure in the A.P.E. in the southeast quadrant. The northeast quadrant is a cleared area with no structures. The northwest quadrant appears to be used as a residential yard. There is a pond on the north side of the yard, and another residential yard north of the pond.

A review of the information at the OSA shows there are no previously recorded archaeological sites within or adjacent to the A.P.E. The project has not been included in any previous archaeological surveys. The project is not within the boundary of any projects that have been previously reviewed by the State Historic Preservation Office (HPO).

The review indicated that the project has a moderate to high potential to impact prehistoric archaeological sites. An Archaeological Survey Required form was NOT completed for the project. The archaeological survey of the A.P.E. was conducted on 4/16-4/17/2013.

The southwest quadrant has a low potential for archaeological sites and no shovel tests were excavated. The A.P.E. is occupied by a parking lot for a commercial building and apartment (?) complex from the bridge south for approximately 50 meters (164 ft.), then it is occupied by the front yards of two houses.

The part of the southeast quadrant within 60 meters (197 ft.) of the bridg has a low potential for archaeological sites. It consists of a moderate slope up from bridge south for approximately 30 meters (100 ft.), then a gravel driveway to a house located approximately 60 meters (200 ft.) east of the road, then a parking lot for a commercial building from 30-60 meters (100-200 ft.). The A.P.E. from 60-120 meters (200-394 ft.) south of the bridge is a level terrace (fallow field). The fallow field has potential for archaeological sites, but no shovel tests were excavated due to the distance from the existing bridge. The 1960 topographic map shows a structure located at the northeast corner of NC 80 and SR 1154 (Lower Brown's Creek Rd.).

The northeast quadrant consists of level floodplain from the bridge north for 10 meters (32 ft.), then an elevated access road, then floodplain for 30 meters (100 ft.), then an elevated driveway. The elevation of the land on the north side of Brown's Creek is somewhat lower than the south side, and the NC 80 roadbed is raised approximately 3 meters (10 ft.) above the natural ground elevation. One shovel test (ST 1) was excavated in this quadrant, approximately 30 meters (100 ft.) north of the creek and 5 meters (16 ft.) east of the road ditch. There has been some disturbance in this area from the raised access road ramp (down from NC 80) located 10 meters (33 ft.) south of the shovel test, and a raised structure pad (?) located 20 meters (66 ft.) north. The landform appears to be a raised terrace but it is hard to tell with so much artificial earth-moving in the vicinity. The shovel test contained approximately 40 centimeters (16

inches) of silty loam with a very high pebble/cobble content. There were too many large cobbles in the soil to continue any deeper. No artifacts were found in the shovel tests. Also, a plowed garden spot approximately 40 meters (131 ft.) northeast of the shovel test identified no artifacts on the surface of the garden.

The northwest quadrant consists of a wide dirt and gravel driveway from the bridge north for 30 meters (100ft.), then a flat floodplain from the bridge north for 30 meters (100 ft.), than a pond. There is a stream that runs in the ditch along the west side of NC 80, and another stream runs along the south side of the pond and joins the NC 80 stream. One shovel test (ST 2) was excavated in this quadrant, approximately 30 meters (100 ft.) north of the stream and 5 meters (16 ft.) west of NC 80. The soil consisted of approximately 50 centimeters (20 inches) of brown silty loam with very few rocks. No artifacts were recovered from the shovel test. There were no pebbles or rocks of any kind in the top 40 centimeters (16 inches) of soil, and very few in the soil below it. The lack of stone in the soil is noteworthy because ST 1 in the northeast quadrant had so many large cobbles. Perhaps because ST 2 was located in a front yard the large rocks had been removed from years of minor yardwork and landscaping. Also, there is a pond located approximately 15 meters (50 ft.) north of ST 2 with two streams that run along its south and east sides. The streams are very straight and have probably been channelized to some extent. It is possible that this landform and the streams have been altered to create the pond and to drain NC 80.

SUPPORT DOCUMENTATION

See attached: ☒ Map(s) ☐ Previous Survey Info ☒ Photos ☐ Correspondence

Other:

Signed:

Caleb Smith 7/26/2013

NCDOT ARCHAEOLOGIST Date

Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

June 15, 2016

TO: Bill Barrett, Environmental Senior Specialist
Environmental Coordination & Permitting Group Western, NES - PDEA

CC: Lisa Feller, Project Development Engineer
Project Development Group - Western Region, PDEA

FROM: Cheryl Gregory, Environmental Program Consultant
Biological Surveys Group, NES - PDEA

SUBJECT: *Streamline Section 7 Consultation for the Northern Long-Eared Bat* associated with the replacement of Bridge 49 over Browns Creek on NC 80 in Yancey County, **TIP No. B-5864**.

The North Carolina Department of Transportation (NCDOT, Division 13) proposes to replace Bridge No. 49 over Browns Creek on NC 80 in Yancey County, TIP No. B-5864. The existing bridge is a single span structure with a reinforced concrete spandrel filled arch on I beams and concrete abutments. There are no guardrails. The overall length of the structure is 31 feet.

The project to replace Bridge No. 49 has been reviewed for effects on the northern long-eared bat (NLEB). As of May 4, 2015, NLEB is listed by the U.S. Fish and Wildlife Service (USFWS) as "Threatened" under the Endangered Species Act of 1973. As of March 31, 2016 NLEB is listed by USFWS (http://www.fws.gov/raleigh/species/cntylist/nc_counties.html) as "current" in Yancey County. USFWS also established a final rule under the authority of section 4(d) of the Endangered Species Act that provides measures for the conservation of NLEB. The USFWS has tailored the final 4(d) rule to prohibit the take of NLEB from certain activities within areas where they are in decline. This incidental take protection applies only to known NLEB occupied maternity roost trees and known NLEB hibernacula. Effective February 16, 2016, incidental take resulting from tree removal is prohibited if it 1) occurs within a ¼ mile radius of known NLEB hibernacula; or 2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot radius from the known maternity tree during the pup season (June 1-July 31).

According to the North Carolina Natural Heritage Program (NHP) Biotics Database, most recently updated January 2016, **the nearest NLEB hibernacula record is 2 miles west (EO ID 34325) and no known NLEB roost trees occur within 150 feet of the project area**. EO 34325 represents Celo Knob site with an observation from 2005.

NCDOT has also reviewed the USFWS Asheville Field office website (http://www.fws.gov/asheville/htmls/project_review/NLEB_in_WNC.html) for consistency with NHP records. This project falls within one of the red highlighted areas (12 digit HUC) that the USFWS Asheville Field Office has determined to be representative of an area that may require consultation. However, based on the above NHP data, the project is further than 0.25 mile from a known hibernacula, therefore, incidental take is not prohibited.

For the proposed action, NCDOT has committed to the conservation measures listed below:

1) No alterations of a known hibernaculum's entrance or interior environment if it impairs an essential behavioral pattern, including sheltering northern long-eared bats (January 1 through December 31);
2) No tree removal within a 0.25 mile radius of a known hibernacula (January 1 through December 31); and
3) No cutting or destroying a known, occupied maternity roost tree, or any other trees within a 150-foot radius from the known, occupied maternity tree during the period from June 1 through and including July 31.

NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016. NCDOT may presume its determination is informed by best available information and consider Section 7 responsibilities fulfilled for NLEB.

If you need any additional information, please contact Cheryl Gregory at 919-707-6142.