

Stanly County
Bridge No. 120 on SR 1963 Over Scaly Bark Creek
Federal-Aid Project No. BRZ-1963(2)
State Project No. 8.2681901
WBS No. 33615.1.1
TIP No. B-4279

Categorical Exclusion
United States Department of Transportation
Federal Highway Administration
And
North Carolina Department of Transportation

Approved:

5/19/06
Date

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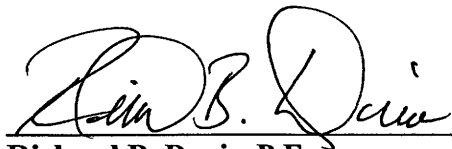
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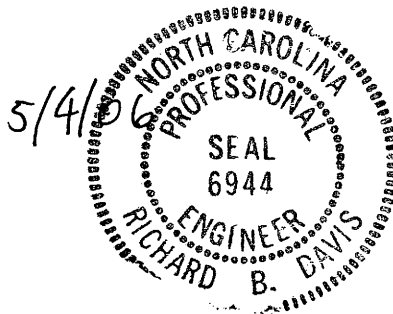
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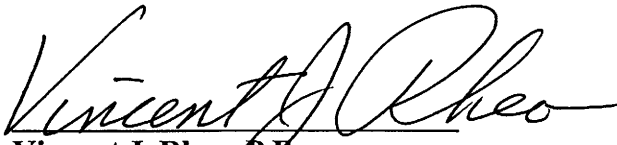
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PROJECT COMMITMENTS

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In addition to the standard Nationwide Permit #23 and #33 Conditions, the General Nationwide Permit Conditions, Section 404 Conditions, Regional Conditions, State Consistency Conditions, the North Carolina Department of Transportation's (NCDOT) Guidelines for Best Management Practices for the Protection of Surface Waters, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Federally Protected Species

The United States Fish and Wildlife Service has requested a survey for the presence or absence of Schweinitz's sunflower (*Helianthus schweinitzii*), during its flowering period of late August through October, within all areas of suitable habitat that will be disturbed by the proposed project. This survey did not occur in time to meet the document deadline; therefore, the biological conclusion for this species is currently Unresolved. All surveys should be conducted at least one year prior to the scheduled construction let date.

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INTRODUCTION: The replacement of Bridge No. 120 is included in the North Carolina Department of Transportation (NCDOT) 2006-2012 Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal “Categorical Exclusion”.

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicated that the bridge has a sufficiency rating of 32.4 out of a possible 100. The bridge is considered to be functionally obsolete and structurally deficient. The replacement of this inadequate structure would result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The project is located in Stanly County, NC on SR 1963, approximately 0.6 miles north of the junction of SR 1964 (Figure 1). The surrounding land use consists of residential properties, agricultural fields, forested areas, and a small wetland area.

Bridge No. 120 was constructed in 1963 and currently has a posted weight limit of 13 tons for single vehicles and the legal limit for truck tractors with semi trailers (TTST) is 18 tons. The overall length of the bridge is 31 feet, with a bed to crown height of 11 feet. It has a clear roadway width of 24 feet carrying two travel lanes. Bridge No. 120 has a timber deck on continuous I-beams supported by a substructure consisting of end bents, timber caps, posts, sills, and timber bulkheads.

In the vicinity of the bridge, SR 1963 is a 20-foot, two-lane roadway with 3 to 6-foot unpaved shoulders. The existing bridge is in a horizontal tangent and is skewed approximately 110 degrees. The north approach is in tangent with good sight distance. The south approach is located in a slight S-curve and also has good sight distance. The speed limit is posted at 55 miles per hour (mph) and SR 1963 is classified as a Rural Minor Collector in the Statewide Functional Classification System. SR 1963 is a designated bicycle route in “Bicycling Stanly County.” It is part of the 25 mile Bicycle Route 3 that runs from Oakboro to Richfield, and passes through Albemarle.

The current (2006) traffic volume of 3300 vehicles per day (vpd) is expected to increase to 5200 vpd by the year 2025. These volumes include 3 percent dual tired vehicles and 2 percent TTSTs.

One crash was reported in the vicinity of the bridge during a recent three-year period. The accident involved a single vehicle, hitting a fixed object, resulting in property damage only.

There are no utilities attached directly to the structure; however, there are overhead power transmission lines along the west side of SR 1963. There are also telephone lines overhead of the bridge on the east side of SR 1963. There is also an underground water line on the west side of SR 1963.

The bridge is on a designated bicycle route; this has been taken into consideration during the design process.

There are four school buses that cross the bridge twice per day. This information was obtained by Mr. Davis Moore of NCDOT, through a telephone conversation with the Director of Transportation for Stanly County Schools.

A letter dated August 31, 2004 was sent to Stanly County Emergency Services soliciting comments on the possible alternatives for the proposed bridge replacement project. No response was received regarding which alternative Stanly County Emergency Services would prefer.

III. ALTERNATIVES

A. Project Description

The proposed project would replace bridge No. 120 on SR 1963 over Scaly Bark Creek with a wider and safer structure.

Based on a preliminary hydraulic analysis that was conducted in conjunction with a field reconnaissance of the site, the proposed replacement structure for Bridge No. 120 would be either a 3 at 10-foot x 9-foot reinforced concrete box culvert or a 75-foot long bridge. If a culvert is used it would be recessed one foot below the grade of the stream to allow for fish passage. If a bridge is used, the replacement structure would provide a clear roadway width of 40 feet, carrying two 12-foot wide travel lanes with two 3-foot offsets (Figure 3B).

The roadway approaches would provide two 12-foot travel lanes, 2-foot paved shoulders, and a total shoulder width of 8 feet (Figure 3A). The roadway grade would be

approximately the same as the existing roadway. The design speed of the roadway approaches is 60 mph, with a posted speed limit of 55 mph.

B. Build Alternatives

There are four alternatives for the replacement of Bridge No. 120, which are outlined below:

Alternative 1

Alternative 1 would replace the existing with a new structure (bridge) constructed in the same location as the existing bridge (Figure 2A). Approach work would extend approximately 480 feet south of the bridge and approximately 440 feet north of the bridge with a total length (including the bridge) of approximately 950 feet. During construction, traffic would be maintained on an off-site detour (Figure 1). Traffic would be detoured on SR 1964 (Wyatt Road), NC 24/27, and SR 1963. There are no posted structures on the proposed detour. The detour would be approximately 5.1 miles long. With an additional travel time of 3 minutes over the expected detour period of six to eight months, the delay for this off-site detour is considered to be acceptable under NCDOT guidelines.

Alternative 1a

Alternative 1a would replace the existing with a new structure (box culvert) constructed in the same location as the existing bridge (Figures 2A and 2B). Approach work would extend approximately 500 feet south of the culvert and approximately 450 feet north of the culvert with a total length (including the culvert) of approximately 950 feet. During construction, traffic would be maintained on an off-site detour (Figure 1). Traffic would be detoured on SR 1964 (Wyatt Road), NC 24/27, and SR 1963. There are no posted structures on the proposed detour. The detour would be approximately 5.1 miles long. With an additional travel time of 3 minutes over the expected detour period of six to eight months, the delay for this off-site detour is considered to be acceptable under NCDOT guidelines.

Alternative 2

Alternative 2 would permanently realign SR 1963 to the east (which is the downstream direction of Scaly Bark Creek) improving the alignment of SR 1963 (Figure 2A). The existing bridge would be replaced with a new bridge approximately 10 feet, centerline to centerline, east of its current location. Approach work would extend approximately 875 feet south of the bridge and approximately 1,075 feet north of the bridge with a total length of approximately 2,000 feet. During construction, traffic would be maintained on an off-site detour (Figure 1). Traffic would be detoured on SR 1964 (Wyatt Road), NC 24/27, and SR 1963 (Saint Martin Road). There are no posted structures on the proposed detour. The detour would be approximately 5.1 miles long.

Alternative 2a

Alternative 2a would permanently realign SR 1963 to the east (which is the downstream direction of Scaly Bark Creek) improving the alignment of SR 1963 (Figure 2A). The existing bridge would be replaced in its current location with a box culvert. Approach work would extend approximately 900 feet south of the culvert and approximately 1,100 feet north of the culvert with a total length of approximately 2,000 feet. During construction, traffic would be maintained on an off-site detour (Figure 1). Traffic would be detoured on SR 1964 (Wyatt Road), NC 24/27, and SR 1963 (Saint Martin Road). There are no posted structures on the proposed detour. The detour would be approximately 5.1 miles long.

C. Alternatives Eliminated from Further Study

The “Do-Nothing” alternative is not desirable due to the poor sufficiency rating of bridge No. 120. Over time the bridge would have to be closed due to safety issues. The Do Nothing alternative is not an option because of the daily traffic flow across the bridge on SR 1963.

D. Preferred Alternative

Alternative 1a, replacing the bridge in its existing location with a culvert utilizing an off-site detour was selected as the Preferred Alternative. Alternative 1a was selected as the Preferred Alternative because using the existing alignment minimizes costs and it was determined that the slight realignment provided by Alternatives 2 and 2a would not substantially improve the alignment of the roadway. Although Alternative 1a is slightly more expensive than Alternative 1, the culvert will have a much longer life and require less maintenance than a bridge, resulting in substantially lower overall costs over the lifespan of the structure. While the culvert would result in stream impacts, the culvert would be constructed such that fish passage is not inhibited, and stream impacts are minimized. The plan sheet for the Preferred Alternative is included in Figure 2B.

IV. ESTIMATED COSTS

The estimated costs for each alternative, based on current dollars, are shown below:

Table 1. Estimated Project Costs

	ALT. 1	ALT. 1a (Preferred Alternative)	ALT. 2	ALT. 2a
Roadway Approaches	\$387,850	\$433,650	\$741,070	\$754,750
Proposed New Structure	\$255,000	\$224,730	\$255,000	\$237,354
Temporary Structure	\$0	\$0	\$0	\$0
Structure Removal	\$9,000	\$9,000	\$9,000	\$9,000
Misc. & Mobilization	\$215,650	\$230,120	\$373,430	\$377,396
Utilities	\$4,500	\$4,500	\$4,500	\$4,500
Engineering & Contingencies	\$125,000	\$148,000	\$217,000	\$217,000
Total Construction Costs	\$997,000	\$1,050,000	\$1,600,000	\$1,600,000
Right of Way	\$91,800	\$91,800	\$136,400	\$136,400
Total Project Cost	\$1,088,800	\$1,141,800	\$1,736,400	\$1,736,400

The estimated cost of the project as shown in the 2006-2012 NCDOT Transportation Improvement Program (TIP) is \$1,275,000, including \$100,000 spent in prior years, \$25,000 for right-of-way, and \$1,150,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Published information and resources were collected prior to the field investigation. Information sources used to prepare this report included the following:

- United States Geological Survey (USGS) 7.5 minute quadrangle maps (Albemarle, NC 1993)
- NCDOT aerial photograph of the project area (2001)
- Soil maps and descriptions of the soils found in the project area (Stanly County Soil Survey, Natural Resources Conservation Service [NRCS] 1989)
- North Carolina Division of Water Quality (DWQ) basin-wide assessment information (DWQ 2002)
- United States Fish and Wildlife Service (USFWS) list of protected and candidate species (USFWS 2003)

- North Carolina Natural Heritage Program (NCNHP 2004) files of rare species and unique habitats

Water resources information was obtained from data posted on the internet by the DWQ.

The USFWS provided a list of threatened and endangered species known to occur in Stanly County on December 30, 2003 (updated March 14, 2006), prior to the field investigation. Information concerning species under state protection was obtained from the NCNHP database of rare species and unique habitats. The NCNHP database was consulted to determine if known protected species occurrences were present in the coverage area of the USGS Albemarle quadrangle prior to field investigation. NCNHP files were reviewed for known locations of species on state or federal lists and locations of significant natural areas on March 29, 2004.

A field investigation was conducted within the project study area by THE LPA GROUP of North Carolina, p.a. (LPA) biologists on May 26, 2004. The project vicinity is an area extending 0.5-mile from the study area. The study area for B-4279 extends 1,100 feet southwest of the existing bridge and 1,150 feet northeast of the existing bridge (approximately 0.43 miles), and encompasses a 200-foot wide corridor centered along the existing centerline of SR 1963.

Water resources were identified, and their physical characteristics were recorded. For the purposes of this study, a habitat assessment was performed within the project study area. Plant communities and their associated wildlife were identified using a variety of observation techniques, including active searching, visual observations, and identifying characteristic signs of wildlife (sounds, tracks, scats, and burrows). Terrestrial community classifications generally follow Schafale and Weakley (1990), where appropriate, and plant nomenclature follows Radford *et al.* (1968). Biotic communities were mapped using sub-meter accuracy Global Positioning System (GPS) equipment and aerial photography of the project site. Vertebrate nomenclature follows Potter *et al.* (1980), Martof *et al.* (1980), the American Ornithologists' Union (2001), and Webster *et al.* (1991).

Jurisdictional areas were identified using the three-parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) established in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). The boundaries of the jurisdictional areas were flagged and mapped in the field using sub-meter accuracy GPS equipment. Jurisdictional wetland areas were characterized according to a classification scheme established by Cowardin *et al.* (1979).

B. Physiography and Soils

The project study area is located within the Piedmont physiographic province of North Carolina. The topography within the project study area is level to gently sloping. Elevations within the project study area range from approximately 390 to 400 feet above

mean sea level (MSL) (USGS Albemarle, NC Quadrangle). Surrounding land use includes forest, agricultural fields, and residential areas. The south side of SR 1963 is undeveloped, but appears to be a fallow agricultural field. The north side of SR 1963 consists of maintained fields, lawns and a large pond.

According to the Stanly County Soil Survey General Soil Map, the project study area is located within an area mapped as Badin-Goldston soil association (NRCS 1989). Soil associations contain one or more detailed map units occupying a unique natural landscape. Detailed map units are named for the major soil series within the unit, but may contain minor inclusions of other soil series. The soil survey describes the Badin-Goldston association as undulating to steep, well drained soils that have a loamy surface layer and a loamy to clayey subsoil; formed in residuum from Carolina slates; found on uplands.

There are four soil series mapped within the project study area which include:

- Badin channery silt loam, 8 to 15% slopes (*Typic Hapludults*);
- Badin channery silt loam, 2 to 8% slopes (*Typic Hapludults*);
- Goldston very channery silt loam, 4 to 15% slopes (*Typic Dystrochrepts*); and,
- Oakboro silt loam, frequently flooded (*Fluvaquentic Dystrochrepts*).

None of these four soils are listed as hydric by the NRCS. However, frequently flooded Oakboro silt loam, does have hydric inclusions in poorly drained soils in depressions and on adjoining upland side slopes (USDA 1991).

C. Water Resources

1.0 Waters Impacted

The project study area is located in the 03-07-13 sub-basin of the Yadkin River Basin (DWQ 2004a), and is part of the USGS hydrologic unit 03040105 (EPA 2004). The study area includes one main body of water, Scaly Bark Creek. Scaly Bark Creek originates north of the study area and flows south into Long Creek, southwest of Albemarle, in central Stanly County. The North Carolina Department of Environmental and Natural Resources, Division of Water Quality, has assigned the Stream Index Number (SIN) 13-17-31-2 to Scaly Bark Creek (DWQ 2004b).

2.0 Water Resource Characteristics

Scaly Bark Creek is a perennial stream in a well-defined stream channel with a moderate flow over a silt, sand, and cobble substrate. Water clarity at the time of the site investigation was good, and the water did not appear to be turbid or tannic. Scaly Bark Creek would provide a warmwater habitat for aquatic species. The narrow stream spreads out underneath the bridge to the edges of both bridge abutments. No scour was observed at the bridge and the depth of the stream at the bridge is estimated from 0.5 to 1.0 feet. The channel width of Scaly Bark Creek is approximately 10 feet, with a

bankfull width of approximately 20 feet. The banks have gradual slope and are approximately three to four feet high. Riffle areas are approximately 0.5 feet deep, run areas are approximately 1 foot deep, and pool areas are approximately 1 to 2 feet deep. A Rosgen analysis was not performed on Scaly Bark Creek, however based on visual observations of stream morphology the stream was given the stream type B5 (SRI 2005).

2.1 Best Usage and Water Quality Classification

Scaly Bark Creek has been assigned a Best Usage Classification of C (DWQ 2004b). The C indicates freshwaters that support aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation would include, wading, boating, and other uses involving human body contact with the water where such activities take place in an infrequent, unorganized, or incidental matter. There are also no restrictions on watershed development or types of discharges (DWQ 2004c). Point source discharges of treated wastewater are permitted in these waters, pursuant to Rules .0104 and .0211 of 15A North Carolina Administrative Code (NCAC) 2B; local programs to control non-point source and stormwater discharge of pollution are required.

There are no Outstanding Resource Waters (ORW), High Quality Waters (HQW), or Sensitive Supply Watershed (WS-I or WS-II), waters within three miles up or downstream of the study area (DWQ 2004b). Scaly Bark Creek is not designated as a North Carolina Natural and Scenic River, or as a National Wild and Scenic River (NPS 2004).

2.2 Macroinvertebrate Monitoring

There are two basinwide monitoring stations near the project study area. One located approximately five miles north of the project study area on Long Creek at SR 1401. The other station is located approximately seven miles south of the project study area on Long Creek at 1917 (NCDWQ 2003a). Both sites were sampled in August of 2001, by DWQ and both were given ratings of Good-Fair by DWQ (DWQ 2003a).

2.3 North Carolina Index of Biotic Integrity

There is DWQ fish monitoring station located approximately seven miles northwest of the study area on Big Bear Creek at NC 73. This site was sampled on April 18, 2001, by DWQ and received a NCIBI rating of Good (DWQ 2003b).

2.4 Section 303(d) Waters

None of the water resources within the project study area are designated as biologically impaired water bodies regulated under the provisions of the Clean Water Act (CWA) §303(d) (DWQ 2004d).

2.5 Permitted Dischargers

There are three permitted dischargers within a five-mile radius of the project area. The first discharge is located approximately one mile east upstream of the study area. The second discharge is located approximately five miles north upstream of the study area. The third discharge is located approximately five miles northeast upstream of the study area. All three of these discharges discharge directly into Long Creek (DWQ 2002).

2.6 Non-Point Source Discharges

LPA biologists reviewed aerial photography and conducted a limited visual observation of potential NPS discharges located within and near the project study area. Atmospheric deposition from passing vehicles, road run-off, and fertilizers, herbicides, and insecticides from nearby residential lawns and agriculture were identified as potential sources of NPS pollution near the project study area.

3.0 Anticipated Impacts to Water Resources

Short term impacts to water quality, such as sedimentation and turbidity, may occur during construction related activities. Impacts from sedimentation and erosion would be minimized during construction by the use of a stringent erosion control schedule and the use of Best Management Practices (BMPs). The contractor would follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" pursuant to NCDOT's *Standard Specifications for Roads and Structures*. These measures include: the use of dikes, berms, silt basins, and other containment measures to control runoff and the elimination of construction staging areas in floodplains and adjacent waters. Additional measures that could be taken to avoid water quality impacts would include keeping heavy equipment out of the stream channel, keeping staging areas out of wetlands, and also keeping live concrete out of the stream channel. After construction related activities are completed, abandoned approaches associated with the existing structure and/or temporary detours would be removed and re-vegetated in accordance with NCDOT guidelines.

Other impacts to water quality that would be anticipated as a result of this project include: changes in water temperature due to more exposure to sunlight (from the removal of streamside vegetation), increased shade due to construction of new structures, and changes to stormwater flows due to changes in the amount of impervious surface adjacent to the stream channel. However, due to the limited amount of overall change in the surrounding areas, impacts would be expected to be temporary in nature.

Waters within the study area have been assigned a Best Usage Classification of C Sw, which falls into the category of a Case III stream according to Best Management Practices for Bridge Demolition and Removal (BMP-BDRs). A Case III stream has no

special restrictions other than those outlined in Best Management Practices for Protection of Surface Waters.

3.1 Impacts Related to Bridge Demolition and Removal

Section 404-2 of NCDOT's *Standard Specifications for Roads and Structures* is labeled **Removal of Existing Structure**. This section outlines restrictions and BMP-BDRs, as well as guidelines for calculating maximum potential fill in the creek resulting from demolition. These standards would be followed during the replacement of Bridge No. 120.

There is the potential that the superstructure of the bridge could fall into Waters of the United States during demolition and removal of Bridge No. 120. The superstructure consists of a timber deck with a weather surface, on I-beams. The maximum (worst case) resulting temporary fill associated with demolition activities would be approximately 11 cubic yards.

D. Biotic Resources

Terrestrial and aquatic communities are included in the description of biotic resources. Systems described in the following sections refer to the dominant flora and fauna observed in each community during the field investigation. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications follow Schafale and Weakly (1990) where possible. Representative faunal species that are likely to occur in these habitats (based on published range distributions) are also cited. Scientific nomenclature and common names are used for the floral and faunal species described. Subsequent references to the same species are by the common name only. Fauna observed and/or heard (in the case of bird species) during field investigations are denoted with an asterisk (*).

1.0 Terrestrial Communities

Distribution and composition of plant communities throughout the project study area reflect landscape-level variations in topography, soils, hydrology, and past and present land use practices. The presence of SR 1963, agriculture, development, and forestry practices have resulted in the present vegetation patterns. Three terrestrial plant communities occur within the study area, a disturbed-maintained community, a dry mesic oak/hickory forest, and a wetland community. A description of each community type follows.

1.1 Disturbed-Maintained Communities

This community includes two types of habitat that have recently been or are currently impacted by human disturbance including regularly maintained road shoulders, maintained fields, and residential areas. For purposes of this report, only the flora of the

maintained road shoulder has been included together in a more simplified “disturbed-maintained community”. The majority of these habitats are kept in a low-growing or early successional state.

The maintained road shoulder consisted of the following dominant vegetation: green ash (*Fraxinus pennsylvanica*), various grasses, red maple (*Acer rubrum*), Japanese honeysuckle (*Lonicera japonica*), *Asclepias* sp., pokeberry (*Phytolacca americana*), multiflora rose (*Rosa multiflora*), winged elm (*Ulmus alata*), Chinese privet (*Ligustrum sinense*), blackberry (*Rubus* sp.), Queen Anne’s lace (*Dacus carota*), dog fennel (*Eupatorium capillifolium*), ragweed (*Ambrosia artemisiifolia*), elderberry (*Sambucus canadensis*), and eastern red cedar (*Juniperus virginiana*).

The residential areas include maintained lawns. Residential areas are dominated by various turf grasses, ornamental and exotic vegetation, with native vegetation present in transition zones between residential and natural areas.

1.2 Dry Mesic Oak-Hickory Forest

This forest type is found throughout the Piedmont and Coastal Plain and possibly ranges into some of the lower elevation areas of the Blue Ridge. The landscapes of this forest type typically include mid-slopes, low ridges, upland flats and other dry-mesic upland areas, especially on acidic soils. The soils of this forest type are typically deep, well drained, and somewhat acidic. The upland forest is located on a slope leading down to the floodplain of Scaly Bark Creek. The dominant tree species in the canopy of the hardwood forest east of the bridge include: red maple, sweet gum (*Liquidambar styraciflua*), mockernut hickory (*Carya tomentosa*), willow oak (*Quercus phellos*), white oak (*Quercus alba*), Virginia pine (*Pinus virginiana*), and winged elm. Dominant understory/shrub species observed include: eastern red cedar, Japanese honeysuckle, Chinese privet, winged elm, and multiflora rose. Dominant species observed in the herbaceous layer include: Solomon’s seal (*Polygonatum biflorum*), ebony spleenwort (*Asplenium platyneuron*), wild ginger (*Asarum canadense*), *Mirostegium vimineum*, and false strawberry (*Duchesnea indica*). Dominant species of woody vine observed in the study area include: poison ivy (*Rhus radicans*), muscadine grape (*Vitis rotundifolia*), Virginia creeper (*Parthenocissus quinquefolia*), ivy (*Hedera helix*), and trumpet creeper (*Campsis radicans*).

1.3 Wetland Communities

There is one wetland community located within the study area, Wetland C. This wetland is situated adjacent to SR 1963 in a fallow field. No standing water was observed at the time of the field investigation. This wetland appears to be an alluvial wetland in a power line right of way on the floodplain of Scaly Bark Creek. Wetland C had sparse patches of trees with open areas, and areas of dense herbaceous vegetation. The dominant tree species in the wetland include: sweet gum, green ash, willow oak, and red maple. The dominant vine observed in the study area was Japanese honeysuckle. Dominant species

observed in the herbaceous layer include: *Juncus* sp., *Sagittaria* sp., lizard's tail (*Saururus cernuus*), *Polygonum* sp., and seedbox (*Ludwigia alternifolia*). Due to previous disturbance from agriculture in the wetland, a Schafale and Weakly classification cannot be applied.

2.0 Wildlife

The study area was visually surveyed for signs of terrestrial and aquatic wildlife. Little wildlife as observed during the field investigation. Fauna likely to occur in the study area based on published ranges is also included.

2.1 Terrestrial Wildlife

Bird species observed or likely to occur in the study area include such species as American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), Carolina chickadee (*Parus carolinensis*), brown thrasher (*Toxostoma rufum*), catbird (*Dumetella carolinensis*), mockingbird* (*Mimus polygattos*), rufous-sided towhee (*Pipilo erythrophthalmus*), pileated woodpecker (*Dryocopus pileatus*), yellow-bellied sapsucker (*Sphyrapicus varius*), blue jay (*Cyanocitta cristata*), tufted titmouse (*Parus bicolor*), and golden crowned kinglet (*Regulus satrapa*).

Mammals observed or likely to occur in the study area include such species as eastern cottontail (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), gray squirrel* (*Sciurus carolinensis*), and striped skunk (*Mephitis mephitis*).

Terrestrial reptiles observed or likely to occur in the study area include such species as garter snake* (*Thamnophis sirtalis*), green anole (*Anolis carolinensis*), black rat snake (*Elaphe obsoleta*), milk snake (*Lampropeltis triangulum*), common king snake (*Lampropeltis getulus*), and eastern box turtle (*Terrapene carolina*).

Terrestrial amphibians observed or expected to occur in the study area include such species as Fowler's toad* (*Bufo fowleri*), American toad (*Bufo americanus*), mud salamander (*Pseudotriton montanus*), northern cricket frog (*Acris crepitans*), four-toed salamander (*Hemidactylum scutatum*), and green tree frog* (*Hyla cinerea*).

3.0 Aquatic Community

The aquatic community consists of the stream channel. A visual survey of the stream was conducted to document the aquatic communities. No aquatic vegetation was observed in the stream channel during the field assessment.

3.1 Aquatic Wildlife

Fish species expected to occur in drainages within the project vicinity include mosquito fish* (*Gambusia affinis*), creek chub (*Semotilus atromaculatus*), and the redbreast sunfish (*Lepomis auritus*). Benthic macroinvertebrates observed in the rocks of the streambed include nymphs of the following insect orders: mayfly* (*Ephemeroptera*), stonefly* (*Plecoptera*), caddisfly* (*Trichoptera*), and a hellgrammite* (*Megaloptera*).

Aquatic reptiles expected to occur in the study area include such species as snapping turtle (*Chelydra serpentina*), yellowbelly slider (*Trachemys scripta*), mud snake (*Farancia abacura*), and banded water snake (*Nerodia fasciata*).

Aquatic amphibians expected to occur in the study area includes such species as bull frog (*Rana catesbeiana*), three-lined salamander (*Eurycea guttolineata*), and pickerel frog (*Rana palustris*).

Potential habitat exists in the study area to support a variety of aquatic bird species (there is a pond at the edge of the study area). Suitable habitat exists for wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), and Canada goose* (*Branta canadensis*).

4.0 Anticipated Impacts to Biotic Communities

Impacts to terrestrial and aquatic communities associated with the replacement of the existing bridge are discussed in the following sections.

4.1 Terrestrial Communities

Plant communities located within the study area total 10.34 acres (Table 2). These areas are based on a 2,250-foot long study area with a width of approximately 200 feet, situated on the centerline of existing SR 1963.

Table 2. Terrestrial Communities Occurring within the B-4279 Study Area

Plant Community	Area (acres)	Potential Impacts (acres)							
		ALT 1		ALT 1a (Preferred Alternative)		ALT 2		ALT 2a	
		Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
Wetland	0.23	0.04	No	0.04	No	0.09	No	0.09	No
Dry Mesic Oak Forest	0.98	No	No	No	No	0.14	No	0.14	No
Disturbed-Maintained	9.13	0.99	No	0.99	No	2.15	No	2.15	No
Total (acres)	10.34	1.03	No	1.03	No	2.38	No	2.38	No
Total for ALT		1.03		1.05		2.38		2.38	
Perm. – Permanent Impacts Temp. – Temporary Impacts									

Impacts to wildlife resulting from the proposed project would be minimal due to the limited amount of habitat that would be impacted. Although some loss of habitat immediately adjacent to the existing road shoulders would result, these areas are of limited value to wildlife that may utilize them.

4.2 Wetland Communities

Temporary impacts include those impacts that would result from demolition of the existing bridge and construction of the replacement bridge (see Table 3). Because both construction methods involve the use of an offsite detour, no temporary impacts would result from an on-site detour. BMPs would be employed by the construction contractor to first avoid and then minimize impacts to Waters of the United States. Erosion and sedimentation would be controlled by implementation of a Sediment and Erosion Control Plan during construction.

Permanent impacts to Waters of the United States are those impacts that occur in areas within the construction limits where clearing would occur or areas would be permanently filled or excavated (Table 3). Permanent impacts to water resources associated with the replacement of the bridge in its current location (Alternative 1) with a new bridge would be limited to 0.04 acres. Alternative 1a (Preferred Alternative) would permanently impact 0.11-acre of water resources (this includes permanent wetland impacts and permanent impacts to the stream from the culvert). The realignment of the roadway to the east utilizing a new bridge (Alternative 2) would impact 0.09 acres of water resources. Alternative 2a would realign the road to the east and utilize a culvert, this alternative would impact 0.16 acres of water resources (this includes permanent wetland impacts and permanent impacts to the stream from the culvert). In both cases fill would

be placed in the wetland adjacent to the existing roadway for improvements to the bridge approaches. The existing bridge is 30.5 feet long and on timber abutments.

Table 3. Anticipated Impacts to Waters of the United States

Jurisdictional Areas	ALT. 1		ALT. 1a (Preferred Alternative)		ALT. 2		ALT. 2a	
	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
Wetland C	0.04	None	0.04	None	0.09	None	0.09	None
Total (acres)	0.04	None	0.04	None	0.09	None	0.09	None
Total Wetland Impacts (acres)	0.04		0.04		0.09		0.09	
Stream Impacts (acres)	None	None	0.07	None	None	None	0.07	None
Stream Impacts (linear feet)	None	None	99.0	None	None	None	102.0	None
Total Stream Impacts (linear feet)	No Impact		99.0		No Impact		102.0	
Perm. – Permanent Impacts Temp. – Temporary Impacts								

4.3 Aquatic Communities

Permanent impacts to wetlands would be limited to 0.04 acres of clean fill material for replacing bridge in same location with new bridge or culvert or 0.09 acres of clean fill material for a realignment utilizing a new bridge or culvert. Additionally, using a culvert as the Preferred Alternative would result in approximately 0.07 acres of stream impacts. The culvert would be recessed one foot below the grade of the stream, recessing the culvert allows for fish passage. In both cases (bridge or culvert) fill would be placed in the wetland adjacent to the existing roadway for improvements to the bridge approaches. Therefore, impacts to aquatic communities would be minimal.

Temporary impacts to aquatic organisms could result from increased sedimentation during construction. Aquatic invertebrates would likely drift downstream during construction and recolonize the disturbed area once it has been stabilized. Sediments have the potential to affect fish and other aquatic life in several ways, including the clogging and abrading of gills and other respiratory surfaces, reducing the amount of available habitat due to the filling of wetlands, and altering water chemistry. Increased sedimentation may also cause decreased light penetration through an increase in turbidity. NCDOT's Best Management Practices (BMPs) for the protection of surface waters would be enforced to reduce impacts during demolition and construction phases.

F. Special Topics

1.0 Waters of the United States

1.1 Wetlands

Jurisdictional wetlands in the project study area are palustrine in nature, as defined in Cowardin et al. (1979). Palustrine systems include all non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses and all wetlands where salinity due to ocean-derived salts is below 0.5% (Cowardin et al. 1979). The dominant wetland type within the study area is dominated by low-growing deciduous vegetation, and is saturated, giving it a Cowardin classification of PSS1B.

1.2 Streams

Scaly Bark Creek is a small perennial stream with well-defined banks. Based on a review of the USGS topographic map, the soil survey, and GPS mapping; there are approximately 217.7 linear feet of stream within the project study corridor. Alternative 1a, the Preferred Alternative (utilizing a culvert) would permanently impact 99 linear feet of stream. Alternative 2a (utilizing a culvert) would permanently impact 102 linear feet of stream.

2.0 Permits and Certifications

The following federal and state permits and certifications would be required prior to beginning construction.

2.1 Section 404

In accordance with provisions of Section 404 of the CWA (33 United States Code [USC] 1344), a permit would be required from the USACE for the discharge of dredged or fill material into Waters of the United States. Because the project is proceeding as a Categorical Exclusion, it is expected that the project would qualify for a Nationwide Permit 23, which applies to approved Categorical Exclusions. In addition, a Nationwide Permit 33 which applies to temporary construction, access, and dewatering would be required if temporary construction is required that is not described in the Categorical Exclusion.

2.2 Water Quality Certification

Section 402 of the CWA requires that the state issue or deny a Water Quality Certification (WQC) for any federally permitted or licensed activity that may result in a discharge into Waters of the United States. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. Issuance of a 401 Certification from the DWQ is a prerequisite to the

issuance of a Section 404 permit. If the general conditions of the corresponding WQC will be met, written concurrence from the DWQ will not be required.

3.0 Mitigation

Mitigation has been defined in NEPA regulations to include efforts which: a) avoid; b) minimize; c) rectify; d) reduce or eliminate; or e) compensate for adverse impacts to the environment (40 Code of Federal Regulations [CFR] 1508.20 [a-e]).

Federal Highway Administration policy stresses that all practicable measures should be taken to avoid or minimize impacts to wetlands, which would be affected by federally, funded highway construction. A sequencing (step-down) procedure is recommended in the event that avoidance is impossible. Mitigation employed outside of the highway right-of-way must be reviewed and approved on a case-by-case basis.

Avoidance –Waters of the United States are present along both sides of the proposed project, and wetlands are only present on the south side of the existing bridge. Because the project involves replacement of an existing structure, it may not be possible to avoid all impacts to adjacent wetlands caused by improvements to the existing bridge approaches. Impacts to water resources were avoided by utilizing an off-site detour, which eliminates impacts caused by temporary construction.

Minimization – Impacts to the adjacent wetlands will be minimized by using 3:1 fill slopes through wetlands, and no lateral ditches will be constructed in wetlands. The use of an off-site detour will minimize wetland impacts. Utilization of BMPs will be required of the contractor to further minimize wetland impacts. Impacts to water resources were minimized by utilizing an off-site detour, which reduces impacts caused by temporary construction. While the culvert will result in stream impacts, the culvert will be constructed such that fish passage is not inhibited and impacts to water resources are minimized.

Compensatory mitigation – According to the conditions of the Nationwide Permit, the USACE would determine if the impacts are minimal and would at the same time determine if compensatory mitigation is required. Temporary impacts to Waters of the United States would be considered permanent by the USACE until areas are restored to their original condition. The restoration is subject to approval by the USACE. Per the conditions of the Nationwide Permit, if the roadway is realigned, the abandoned bridge approaches must be removed and area must be reestablished as wetland. All four of the alternatives would impact wetlands; therefore, wetland mitigation may be required by the USACE for the bridge replacement project. Alternatives 1 and 2 would not impact streams within the project area. Alternative 1a (Preferred Alternative) would impact 99.0 linear feet of stream, and Alternative 2a would impact 102.0 linear feet of Scaly Bark Creek. Stream mitigation may be required for the Preferred Alternative. Final mitigation decision rests with the USACE.

F. Protected Species

Rare and protected species listed for Stanly County, and likely impacts to these species as a result of the proposed project are discussed in the following sections.

1.0 Species Under Federal Protection

Species with the federal classification of Endangered (E) or Threatened (T), or officially proposed (P) for such listing, are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Candidate (C) species are not protected under the ESA of 1973. However, a survey for specimens and/or suitable habitat was conducted in the event its status is elevated to either threatened or endangered by the USFWS prior to construction of the proposed project. Two federal protected species and two candidate species are listed for Stanly County (USFWS database dated March 7, 2002, Stanly County List updated March 14, 2006). See Table 4.

Table 4: Federally Protected Species Listed for Stanly County, NC

Common Name	Scientific Name	Status*	Biological Conclusion
Vertebrates			
Bald eagle	<i>Haliaeetus leucocephalus</i>	T(PD)	No Effect
Vascular Plants			
Schweinitz's sunflower	<i>Helianthus schweinitzii</i>	E	Unresolved
Georgia aster	<i>Aster georgianus</i>	C	No Effect
Yadkin River goldenrod	<i>Solidago plumosa</i>	C	No Effect
*E - Endangered, T(PD) - Threatened, proposed delisting, C - Candidate for listing			

Bald Eagle (*Haliaeetus leucocephalus*)

Adult bald eagles have a white head, white tail, and a large yellow bill, with the rest of its plumage being dark in color. Immature eagles are dark with light splotching on the body, underwing coverts, flight feathers, and tail base. The bird averages 31 to 37 inches in length with a 70 to 90 inch wingspan (NatureServe 2003a).

Breeding areas are normally within 2.5 mile of coastal areas, bays, rivers, lakes, or other bodies of water that can provide them with their main food sources; fish, waterfowl and seabirds (NatureServe 2003a). Manmade reservoirs provide an excellent habitat for bald eagles (TPW 2004). It preferably roosts in conifers or other sheltered sites in the winter, and it will typically select large accessible trees for roosting areas. However, in some areas it is common to see eagles roosting in both coniferous and deciduous trees. Eagles avoid areas with nearby human activity (boat traffic, pedestrians) and development

(buildings). Nest sites are usually in tall trees or on cliffs near water. The bald eagle will nest in a variety of trees including, pines, spruce, firs, cottonwoods, oaks, poplars, and beech. Ground nesting has been reported on the Aleutian Islands in Alaska, in Canada's Northwest Territories, and in Ohio, Michigan, and Texas. Nests located on cliffs and rock pinnacles have been reported historically in California, Kansas, Nevada, New Mexico and Utah, but currently are known to occur only in Alaska and Arizona (NatureServe 2003a). Nests are usually re-used and enlarged every year. They can reach 20 feet in diameter and weigh up to 4,000 pounds (FWS 1999).

Based on a review of NCNHP records, there are no documented occurrences of bald eagle within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect

According to NCNHP elemental occurrence database records, there are no known occurrences of bald eagle in the project vicinity. There are no large open waters near the project study area that could be used for nesting, or foraging habitat by the bald eagle. The proposed project would have No Effect on this federally threatened (proposed for delisting) species.

Analysis Detail –

Methodology: Analysis of the possible presence of and potential impacts to the bald eagle was conducted using an evaluation of existing information and an assessment of the habitat requirements. The NCNHP elemental occurrence database was consulted on March 29, 2004.

Schweinitz's Sunflower (*Helianthus schweinitzii*)

Schweinitz's sunflower is a rhizomatous perennial herb that grows from three to seven feet tall from carrot-like tuberous roots. The stem is usually pubescent but can be nearly glabrous; it is often purple, with the leaves being opposite on the lower stem and changing to alternate above. The leaves are lanceolate in shape, wider near their bases, but variable in size, being generally larger on the lower stem, and gradually reduced upwards. The lower stem leaves average 4 to 8 inches long and 0.5 to 1.0 inches wide. The leaves are thick and stiff. The upper surface of the leaves is rough, with the broad-based spinose hairs directed toward the tip of the leaf, and the lower surface is more or less densely pubescent, with soft white hairs obscuring the leaf surface. Schweinitz's sunflower blooms from September to frost, with comparatively small heads of yellow flowers. The nutlets are 0.13 to 0.14 inches long and are glabrous with rounded tips (FWS 2003a).

The species occurs in clearings and edges of upland woods on moist to dryish clays, clay-loams, or sandy clay-loams that often have a high gravel content and are moderately podzolized. The underlying rock types are highly weatherable, generally contain low amounts of resistant minerals such as quartz, and generally weather to fine-textured soils. The habitat of this sunflower tends to be dominated by members of the aster, pea, and grass families, an association emphasizing affinities of the habitat to both longleaf pine-

dominated sandhills and savannas of the southeastern coastal plain and to glades, barrens, and prairies of the Midwest and Plains (FWS 2003a). The species requires a partial to full sun habitat, which was historically maintained by fires and the grazing or native mammals, however, most occurrences are now confined to roadsides (NatureServe 2003b).

Based on a review of NCNHP records, there is one documented occurrence of Schweinitz's sunflower approximately three miles east of the project study area.

BIOLOGICAL CONCLUSION: Unresolved

Schweinitz's sunflower has been documented to occur by the NCNHP within the project vicinity. Suitable habitat consisting of roadsides, utility right-of-ways, fallow pastures, and woodland openings were observed within the study area. The USFWS has determined that a survey for the presence or absence of specimens for Schweinitz's sunflower within the project study area is needed. This survey did not occur in time to meet the document deadline. Therefore, this biological conclusion is Unresolved. A biological conclusion for Schweinitz's sunflower will be reached prior to right-of-way acquisition.

Analysis Details –

Methodology: Analysis of the possible presence of and potential impacts to Schweinitz's sunflower was conducted using an evaluation of existing information and an assessment of the habitat requirements. The NCNHP elemental occurrence database was consulted on March 29, 2004, and additional data was obtained from the USFWS on March 30, 2006. The survey for the presence or absence of specimens, for Schweinitz's sunflower should be conducted at least one year prior to the scheduled construction let date.

Georgia Aster (*Aster georgianus*)

Georgia aster is a perennial herb, 1.5 to 2.5 feet tall (NatureServe 2003c) with large heads 2 inches across, and dark purple rays up to 1 inch long. The leaves are thick lanceolate to oblanceolate, scabrous, and clasping. Disc flowers are white with purplish tips on the corollas, with purple anthers and whitish pollen. As the flowers age the corollas become a darker shade of purple, which distinguishes between early and mature disk corollas. Flowering occurs from early October to mid November (FWS 2001).

Georgia aster is a relict species of post oak savanna/prairie communities prior to fire suppression and extirpation of large native grazing animals. Georgia aster populations survive in areas that mimic natural disturbance, such as roadsides and power line right of ways. Georgia aster occupies a variety of dry upland habitats, the main factor being the availability of light. It is normally a good early successional species but dies out when larger wooded species shade an area (FWS 2001).

Based on a review of NCNHP records, there are no documented occurrences of Georgia aster within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect

According to NCNHP records there are no occurrences of Georgia aster in the project vicinity. Suitable habitat is present within the study area (road shoulders). Although Georgia aster has no legal protection under the Endangered Species Act of 1973, a survey for the plant or its suitable habitat was conducted on May 26, 2004 in the event its status is elevated to either threatened or endangered by the USFWS prior to construction of the proposed project. If the status were elevated, field surveys would be conducted within the impact footprint to determine whether any impact to Georgia aster would occur as a result of the proposed project. If the potential for any impacts exists, coordination with the USFWS would occur prior to implementation of the Proposed Action. Since no specimens were observed during field surveys the proposed project would have No Effect on this federal candidate species.

Analysis Details –

Methodology: Analysis of the possible presence of and potential impacts to Georgia aster was conducted using an evaluation of existing information and an assessment of the habitat requirements. The NCNHP elemental occurrence database was consulted on March 29, 2004.

Yadkin River Goldenrod (*Solidago plumosa*)

Yadkin River goldenrod is a robust perennial herb, one to three feet tall or taller, that produces a large branching cluster of yellow flower heads in late summer and fall (NatureServe 2006).

Yadkin river goldenrod is found along rocky river banks in flood scoured areas between dammed pools (only currently know to occur on the Yadkin River) near the fall line of the piedmont and coastal plain. There are only two known occurrences, both on the Yadkin River near Morrow Mountain State Park near Albemarle, NC (NatureServe 2006).

Based on a review of NCNHP records, there are no documented occurrences of Yadkin River goldenrod within a three-mile radius of the project study area.

BIOLOGICAL CONCLUSION: No Effect

According to NCNHP records there are no occurrences of Yadkin River goldenrod in the project vicinity. Suitable habitat is not present within the study area (rocky river banks in flood scoured areas between dammed pools). Although Yadkin River goldenrod has no legal protection under the Endangered Species Act of 1973, a survey for its suitable habitat was conducted on May 26, 2004 in the event its status is elevated to either threatened or endangered by the USFWS prior to construction of the proposed project. If the status is elevated, field surveys would be conducted within the impact footprint to determine whether any impact to Yadkin River goldenrod would occur as a result of the proposed project.

If the potential for any impacts exists, coordination with the USFWS would occur prior to implementation of the Proposed Action. Since no habitat was observed during field surveys the proposed project would have No Effect on this federal candidate species.

Analysis Details –

Methodology: Analysis of the possible presence of and potential impacts to Yadkin River goldenrod was conducted using an evaluation of existing information and an assessment of the habitat requirements. The NCNHP element occurrence database was consulted on March 29, 2004.

2.0 Federal Species of Concern

The March 7, 2002, FWS list for Stanly County (updated March 14, 2006) also includes a category of species designated as “Federal Species of Concern” (FSC). The FSC designation provides no federal protection under the ESA for the species listed. The presence of potentially suitable habitat within the project study area has been evaluated for the FSC species listed for Stanly County listed is shown in Table 5.

Table 5: Federal Species of Concern (FSC) Listed for Stanly County, NC

Common Name	Scientific Name	State Status*	Potential Habitat
Vertebrates			
American eel	<i>Anguilla rostrata</i>	#	Y
Carolina darter- central Piedmont population	<i>Etheostoma collis</i> <i>pop 1</i>	SC	Y
Carolina redhorse	<i>Moxostoma</i> sp. 2	#	N
Invertebrates			
Brook floater	<i>Alasmidonta</i> <i>varicosa</i>	#	N
Carolina creekshell	<i>Villosa vauhaniana</i>	E	Y
Vascular Plants			
Dwarf aster	<i>Eurybia mirabilis</i>	SR-T	N
Butternut	<i>Juglans cinerea</i>	#	N
Virginia quillwort	<i>Isoetes virginica</i>	SR-L	Y
Carolina birdfoot- trefoil	<i>Lotus helleri</i>	SR-T	Y
Riverbank vervain	<i>Verbena riparia</i>	SR-T~	N
E - Endangered, T - Threatened, SR- Significantly Rare, SC - Special Concern, SR-T - Rare throughout its range, SR-L – Range is limited to NC and adjacent states, SR-P – Periphery of its range in NC, * - No longer tracked by NCNHP, ** - Occurs on NCNHP list but not on USFWS list, # - Not listed as a FSC on NCNHP list, ^ - Obscure record, ~ - Historic record (last observed over 50 years ago)			

NCNHP records were reviewed to determine the known locations of FSC within the project vicinity. NCNHP records document the occurrence of one FSC within a three-

mile radius of the project study area. The Carolina darter occurred approximately 1.5 miles northeast of the project study area, and is listed as obscure by the NCNHP (unknown date of occurrence).

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

In a memorandum dated February 18, 2004, the State Historic Preservation Office (SHPO) stated, "We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed." A copy the memorandum is included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated February 18, 2004, stated, "We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed." A copy of the SHPO memorandum is included in the Appendix.

VII. SECTION 4 (f) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966, as amended, states in part "The Secretary may approve a transportation project or program requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of a historic site of national, state, or local significance (as determined by the Federal, State or local officials having jurisdiction over the park, recreation area, refuge, or site) only if –

- (1) there is no prudent and feasible alternative to using that land; and

- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use.”

No publicly owned parks or recreational facilities, wildlife and waterfowl refuges, or historic sites of national, state, or local significance would be impacted as a result of proposed project. The proposed project would not require right-of-way acquisition or easement from any land protected under Section 4(f) of the Department of Transportation Act of 1966.

VIII. ENVIRONMENTAL EFFECTS

The project is expected to have a positive effect on transportation and the surrounding community. The replacement of the inadequate bridge would result in safer and more efficient traffic operations.

This project is considered a Federal “Categorical Exclusion” due to its limited scope and lack of substantial consequences.

Replacement of Bridge No. 120 would not have a negative effect on the quality of the human or the natural environment.

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

No adverse impact on families or the community is expected. Right-of-way acquisition would be limited; no relocations are expected with the implementation of the proposed alternative.

In compliance with Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to determine the whether minority or low income populations would receive disproportionately high and adverse human health and environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low-income populations.

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. There would be some temporary inconvenience to local travel due to construction activities on SR 1963.

This project has been coordinated with the United States Department of Agriculture, Natural Resources Conservation Service (NRCS). The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impact to

prime farmland for all land acquisition and construction projects. Soils were identified within a 0.5-mile radius of the project area, and checked to see if they were classified as prime, unique, or have state or local importance. Seven of the soils were on the NRCS list, *Important Farmlands of North Carolina, May 1998*. Soils in which all areas are considered prime farmland included, Kirksey Silt Loam, 0 to 6 percent slopes (KkB), Tatum Channery Silty Clay Loam, 2 to 8 percent slopes, eroded (TuB2), and Tatum Channery Silt Loam 2 to 8 percent slopes (TbB). Soils in which only drained areas that are either protected from flooding or not frequently flooded during the growing season are considered prime farmland included, Oakboro Silt Loam, frequently flooded (Oa) and Chewacla Silt Loam, frequently flooded (Ck). Soils in which all areas are considered of statewide importance included, Badin Channery Silt Loam, 2 to 8 percent slopes (BaB) and Badin Channery Silt Loam, 8 to 15 percent slopes (BaD). If impacts to these soils occur as a result of the proposed project, they are expected to be limited in nature.

No adverse effects to air quality are anticipated from this project. This project is an air quality “neutral” project, so it is not required to be included in the regional emissions analysis, and a project level CO analysis is not required. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The proposed project area is located within Stanly County, which has been determined to be in compliance with National Ambient Air Quality Standards. Since the proposed project area is in an attainment area, 40 CFR Part 51 is not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

If vegetation or wood debris are disposed of by open burning, it shall be done in accordance with applicable local laws and regulations of the North Carolina Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520 and the 1990 Clean Air Act Amendments and the National Environmental Policy Act. This evaluation completes the assessments for air quality, and no additional reports are required.

Ambient noise levels may increase during the construction of this project; however this increase would be only temporary and usually confined to daylight hours. There should be no notable change in traffic volumes after the project is complete. Therefore, this project would have no adverse effect on existing noise levels. Noise receptors in the project area would not be impacted by this project. This evaluation completes the assessment requirements for highway noise set forth in 23 CFR Part 722. No additional reports are required.

A “Geo-Environmental Impact Evaluation” was conducted by the NCDOT at the project site to identify any properties that may contain hazardous waste materials and result in future environmental liability if acquired. These hazards include, underground storage tanks (USTs), hazardous waste sites, regulated landfills, unregulated dumpsites, and any other site or materials that are considered hazardous. A field reconnaissance survey, a file search of appropriate environmental agencies, and a Geographical Information

System (GIS) were used to identify any known problem sites along the proposed project alignment. The field reconnaissance survey yielded no anticipated UST sites within the project area. A GIS analysis of the project corridor showed no regulated landfills, or unregulated dumpsites were within the project limits. GIS analysis and field reconnaissance found no potential RCRA or CERCLA sites within the project limits. Based on field reconnaissance and a records search there should be no contamination issues for the B-4279 project.

Stanly County is a participant in the Federal Flood Insurance Program. The bridge is not located within a Study Area. The new structure should be designed to match or lower the existing 100-year storm elevation upstream of the roadway. Since the proposed replacement for Bridge No. 120 would be a structure similar in waterway opening size, it is anticipated that it would not raise floodplain levels. The Federal Emergency Management Agency Flood Rate Insurance Map (FIRM) for the project study area is attached.

Based on the above discussion, it is concluded that no substantial environmental impacts would result from the replacement of Bridge No. 120.

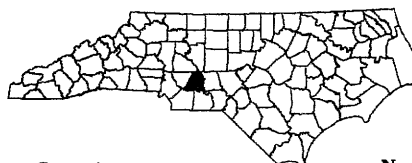
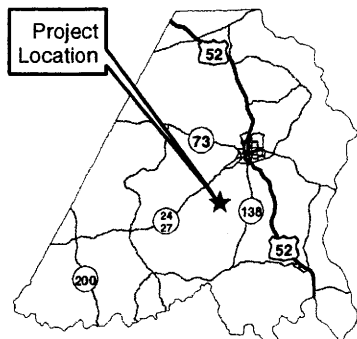
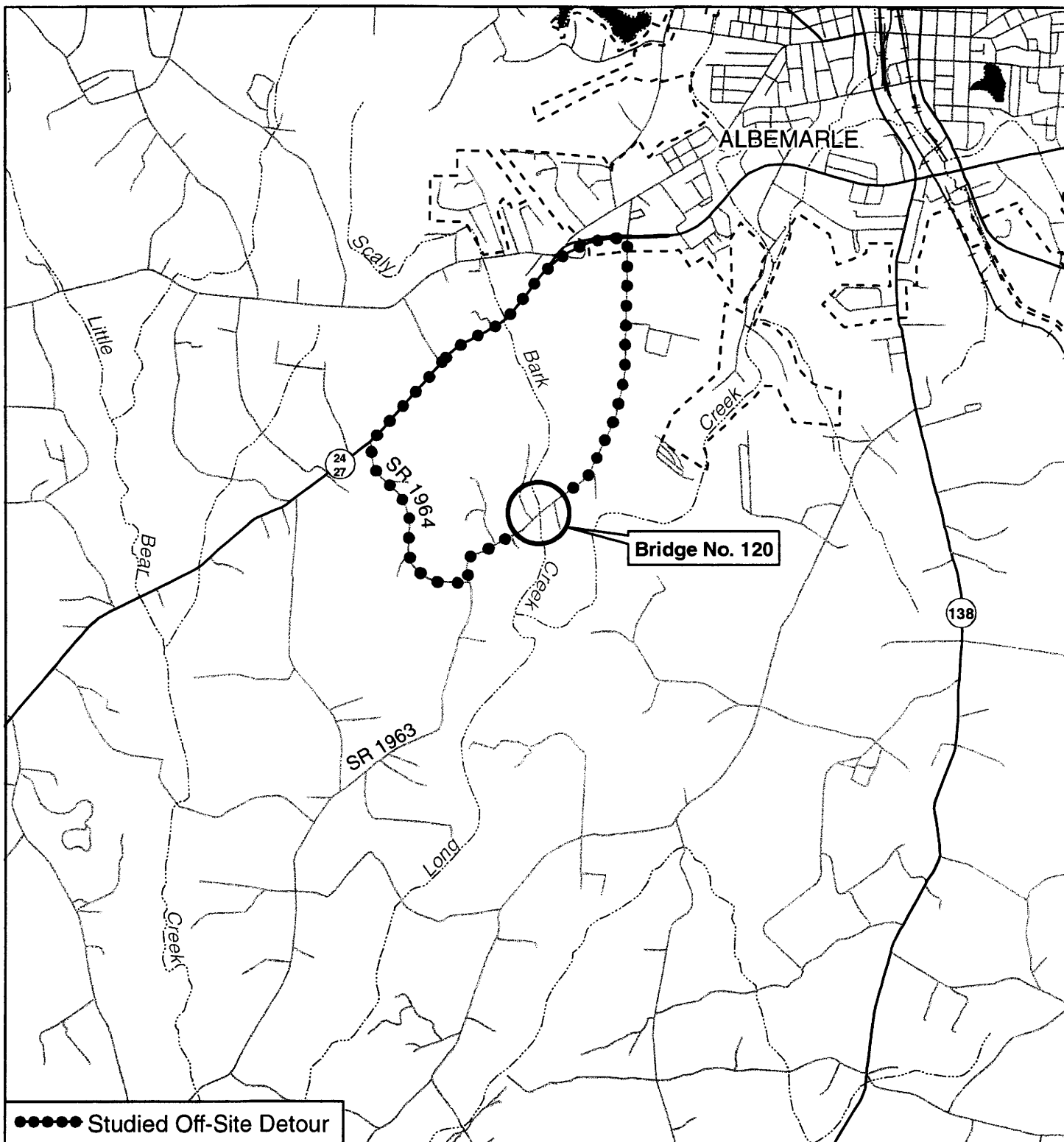
IX. PUBLIC INVOLVEMENT

Newsletters describing the proposed bridge replacement project were sent to local residents. The newsletters give the public an opportunity to comment on the possible alternatives for the proposed bridge replacement. No comments were received. A copy of the newsletter is included in the Appendix.

X. AGENCY COMMENTS

Comments on the proposed project were requested from federal, state and local agencies. Several agencies have commented upon the proposed bridge alignment. These comments have been considered during the environmental and design process and are included in the Appendix.

FIGURES



Stanly
County, NC

0 4,000
Feet



North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

Stanly County
Replace Bridge No. 120 on SR 1963
Over Scaly Bark Creek
B-4279

PROJECT VICINITY MAP

Figure 1

BRIDGE NO. 120

ALTERNATIVE 1
Replace with Bridge
Off-Site Detour
ALTERNATIVE 1a
(Preferred Alternative)
Replace with Culvert
Off-Site Detour

ALTERNATIVE 2
Permanent Realignment
Replace with Bridge
Off-Site Detour
ALTERNATIVE 2a
Permanent Realignment
Replace with Culvert
Off-Site Detour



North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

Stanly County
Replace Bridge No. 120 on S.R. 1963
Over Scaly Bark Creek
B-4279

SCALE: 1" = 150'

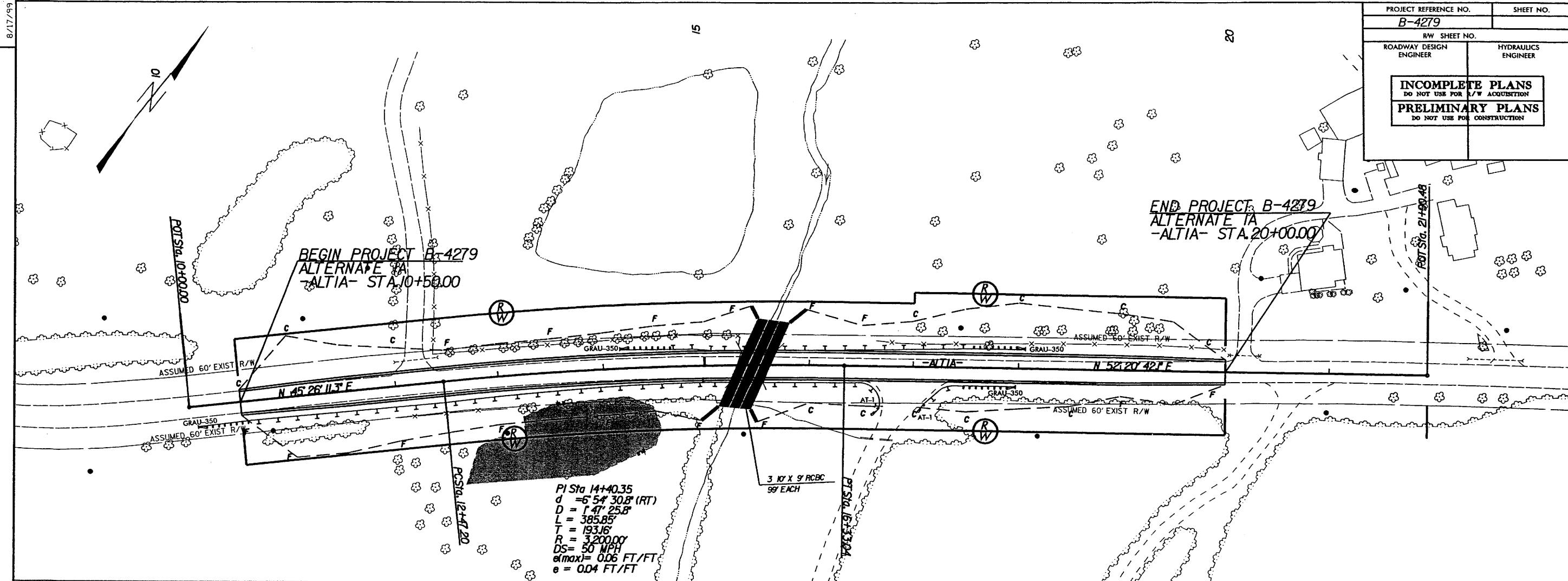
Figure 2A

GRAPHIC SCALE
0 25 50 75 100 125 150
FOOT

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4279	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

REVISIONS



B4279 (ALTERNATE 1A)

27-MAR-2006 11:41
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1/24/2006

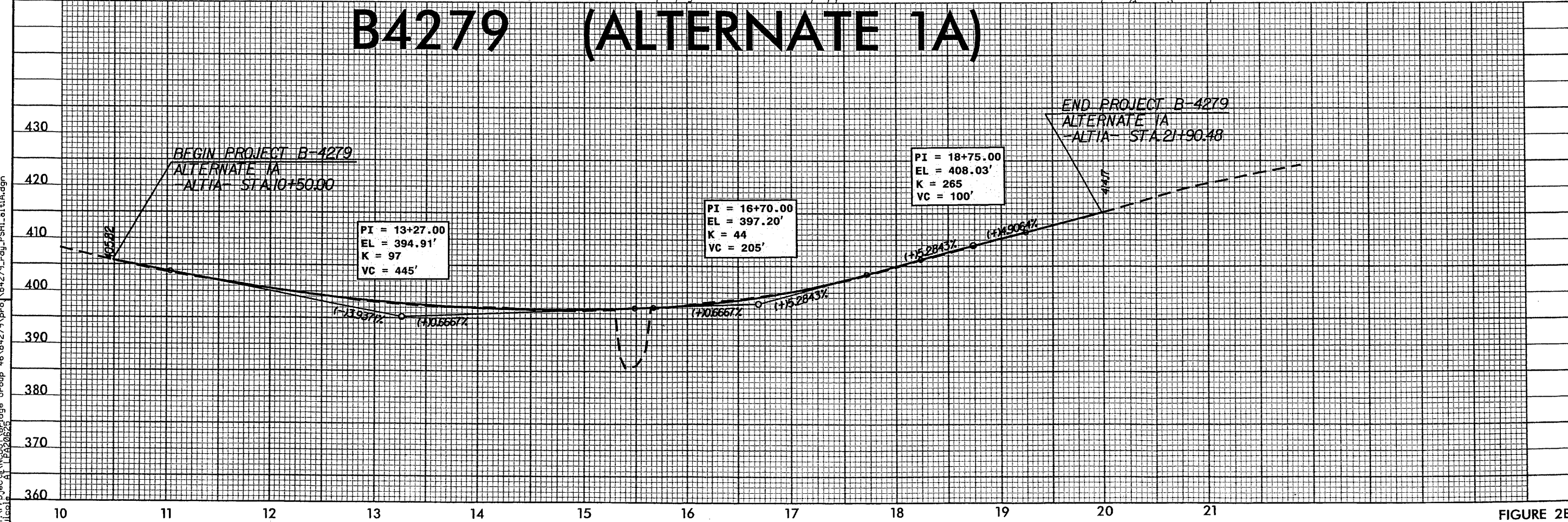
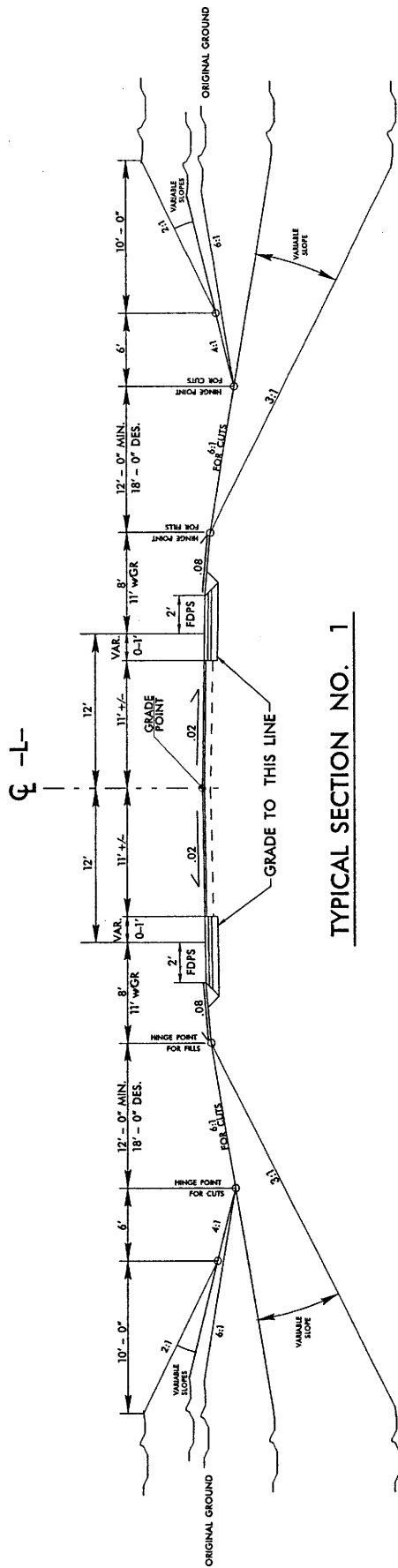


FIGURE 2B

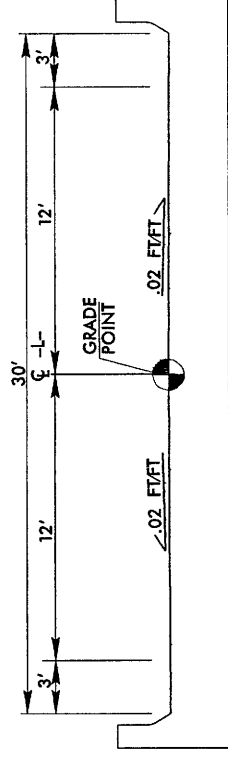


North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

Replace Bridge No. 120 on S.R. 1963
Over Scaly Bark Creek
Stanly County
B-4279

NOT TO SCALE

Figure 3A



TYPICAL BRIDGE SECTION



North Carolina Department of Transportation
Project Development and
Environmental Analysis Branch

Replace Bridge No. 120 on S.R. 1963
Over Scaly Bark Creek
Stanly County
B-4279

NOT TO SCALE

Figure 3B



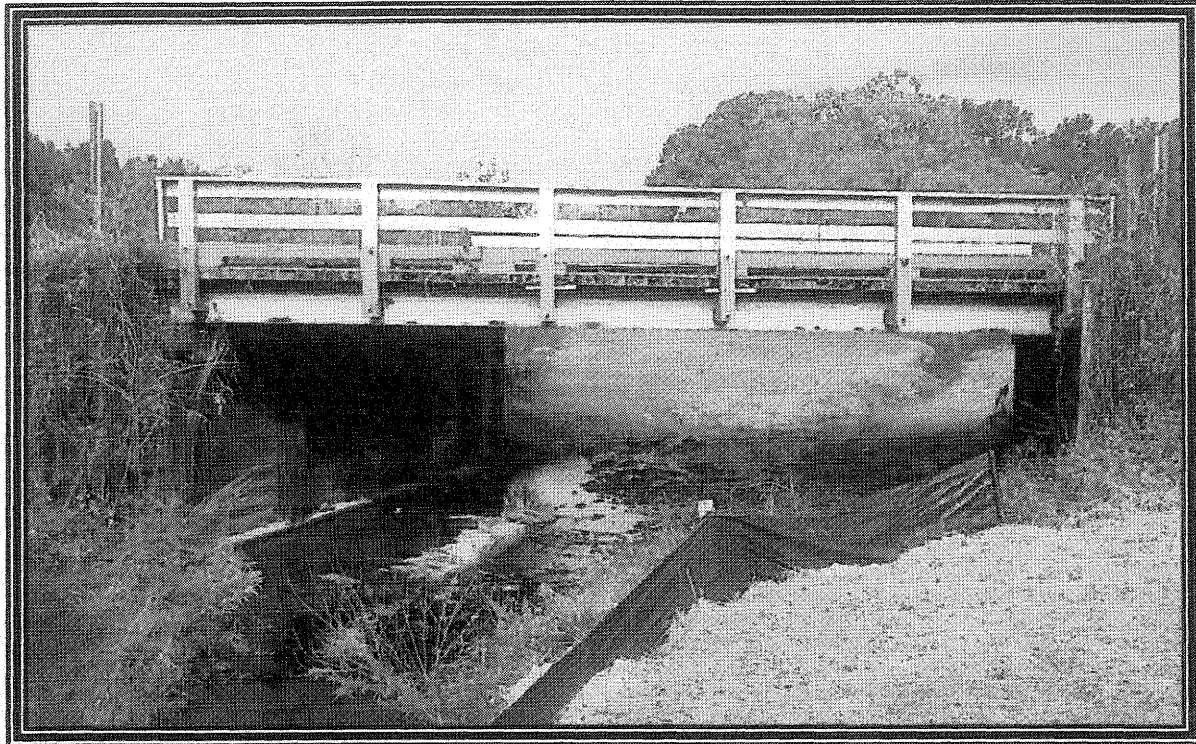
**STANLY COUNTY
BRIDGE No. 120
B-4279**

**Looking South
on SR 1963**



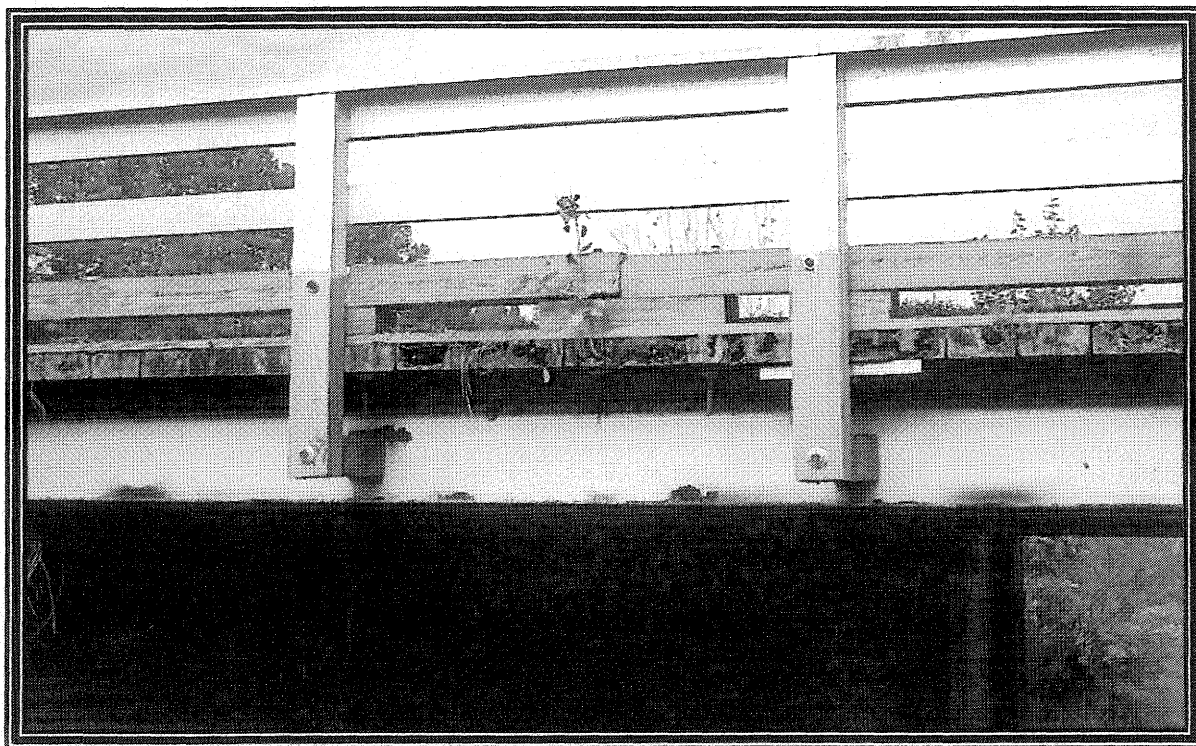
**Looking North
on SR 1963**

FIGURE 4A



**STANLY COUNTY
BRIDGE No. 120
B-4279**

**Looking at the
East Side of
Bridge No. 120**



**Looking at the
West Side of
Bridge No. 120**

FIGURE 4B



**STANLY COUNTY
BRIDGE No. 120
B-4279**

**Looking
Downstream
of Scaly
Bark Creek**



**Looking
Upstream of
Scaly Bark
Creek**

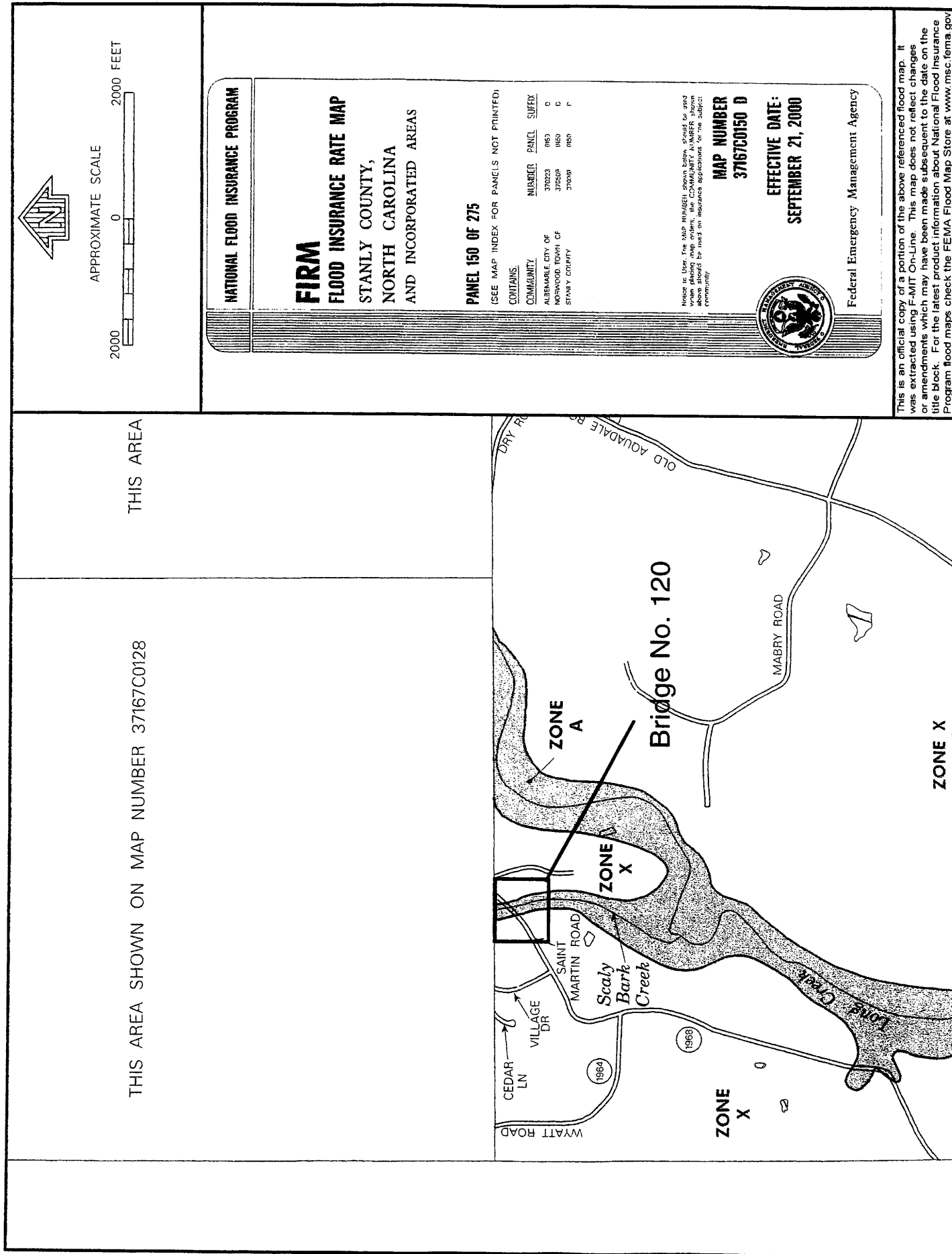


Figure 5

APPENDIX



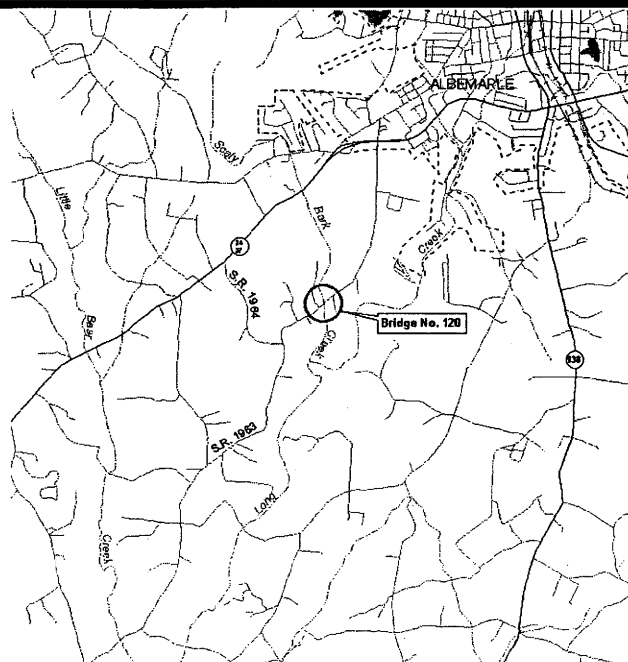
Newsletter

**NCDOT
T.I.P. B-4279**

Volume I, Issue I

Proposed Replacement of Bridge No. 120 over Scaly Bark Creek on SR 1963 (Saint Martin Road)

This newsletter is published by the North Carolina Department of Transportation to provide information on the status of proposed replacement of the bridge over Scaly Bark Creek on SR 1963 (Saint Martin Road) illustrated in the vicinity map to the right. The proposed project is needed to improve safety due to the deteriorated condition of the existing bridge.



PROJECT SCHEDULE

The acquisition of right-of-way is scheduled for federal fiscal year (FFY) 2006, with construction in FFY 2007.

PROJECT DESCRIPTION

Four (4) alternatives have been studied for the proposed bridge replacement project. Alternative 1 proposes to replace the bridge in its existing location with a new bridge. Alternative 1 would utilize an off-site detour to maintain traffic during construction. Alternative 1a would replace the bridge in its current location with a box culvert, utilizing an off-site detour. Alternative 2 proposes to realign SR 1963 (Saint Martin Road) on the downstream (east) side of the existing bridge. The existing bridge will be replaced with a new bridge. Alternative 2 would also utilize an off-site detour to maintain traffic during construction. Alternative 2a would use the same realignment as Alternative 2, replacing the existing bridge with a box culvert. All four alternatives would utilize the off-site detour route of SR 1963 (Saint Martin Road) to SR 1964 (Wyatt Road) to NC 24/27 and back to SR 1963 (Saint Martin Road). Please see the figures shown on the back of this newsletter. Alternative 1a has been recommended as the preferred alternative because utilizing the existing alignment minimizes costs and the culvert has a much longer life than a bridge with less maintenance.

NCDOT WELCOMES CITIZEN INPUT

Public involvement is an important part of the planning process. The North Carolina Department of Transportation is committed to ensuring all issues of concern to the public are addressed and considered before any final decisions are made. If you have any questions or comments concerning the project, please feel free to contact the study team members below:

Mr. Vincent J. Rhea, PE
Project Manager
NCDOT-PDEA
1548 Mail Service Center
Raleigh, NC 27699-1548
(919) 733-7844 ext. 261
vrhea@dot.state.nc.us

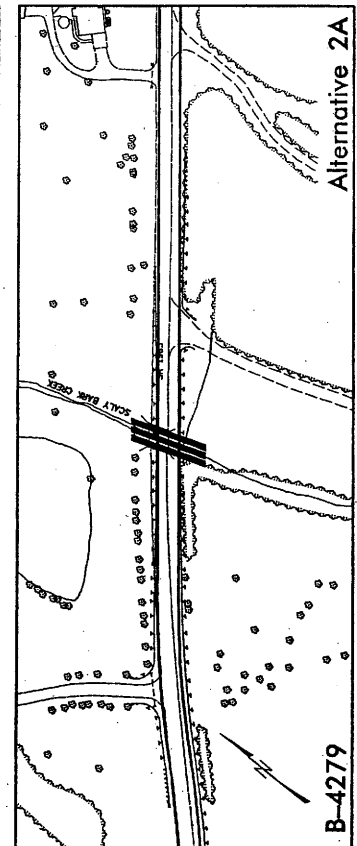
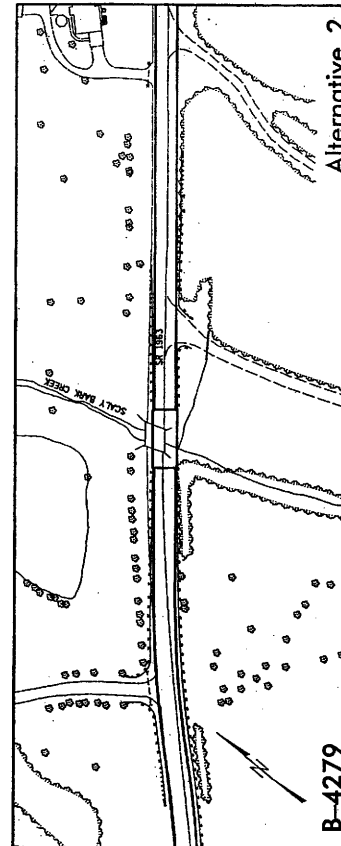
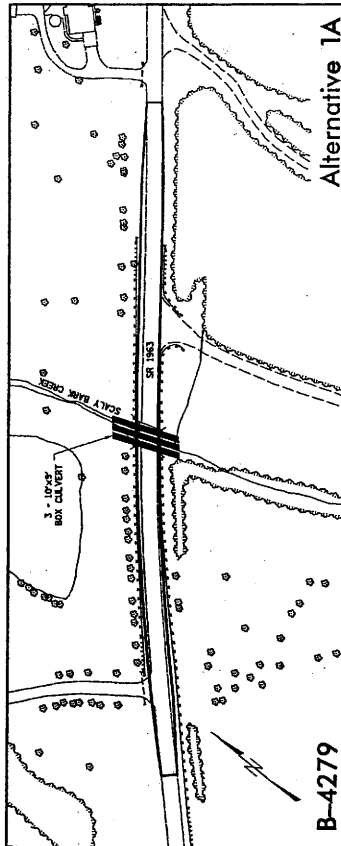
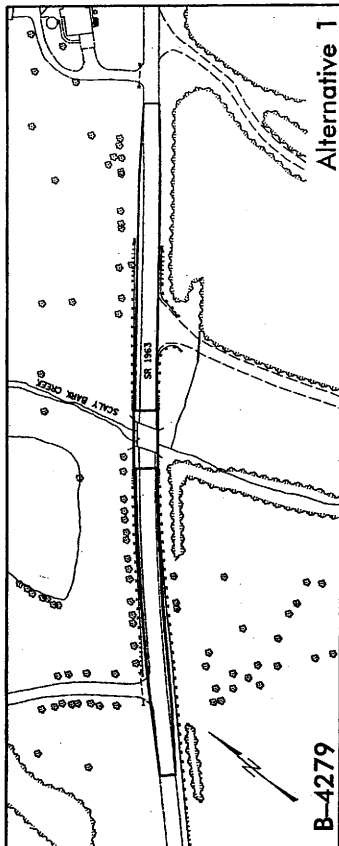
Mr. Richard Davis
Project Manager
The LPA GROUP of North Carolina, P.A.
4904 Professional Ct., Suite 201
Raleigh, NC 27609
(919) 954-1244
rdavis@lpagroup.com



NCDOT
T.I.P. B-4279

North Carolina Department of Transportation
Project Development & Environmental Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Postal Customer





United States Department of the Interior

FISH AND WILDLIFE SERVICE

Asheville Field Office
160 Zillicoa Street
Asheville, North Carolina 28801

March 30, 2006

Mr. Vincent J. Rhea
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Rhea:

Subject: Bridge Replacement No. 120 on SR 1963 over Scaly Bark Creek, Stanly County, North Carolina (TIP No. B-4279)

We have reviewed the Natural Resources Technical Report (NRTR) for the subject bridge replacement project and are providing the following comments in accordance with the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667e); the Migratory Bird Treaty Act (16 U.S.C. 703, et seq.); and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543).

Fish and Wildlife Resources – According to the information in the NRTR, the North Carolina Department of Transportation (NCDOT) is considering several alternatives for replacing the existing bridge over Scaly Bark Creek. At least two of those alternatives consider replacing the existing bridge with a culvert. We strongly recommend that the existing bridge be replaced with a bridge, and we request that the National Environmental Policy Act (NEPA) document for this project address an alternative of replacing the existing bridge with a new one. If an alternative other than the replacement of the existing bridge with a new bridge is chosen (such as replacing the existing bridge with a culvert), we request that the NEPA document include an evaluation as to why an alternative of replacing the existing bridge with a new bridge was not chosen.

We recommend that the design of the new bridge include provisions for the roadbed and deck drainage to flow through a vegetated buffer prior to reaching Scaly Bark Creek. This buffer should be large enough to alleviate any potential effects from the runoff of storm water and pollutants. The design of the bridge should not alter the natural stream or the stream-bank morphology or impede fish passage. Any piers or bents should be placed outside the bank-full width of the stream. The bridge and its approaches should be designed to avoid any fill that will result in the damming or constriction of the channel or floodplain. If spanning the floodplain is

not feasible, culverts should be installed in the floodplain portion of the approaches in order to restore some of the hydrological functions of the floodplain and to reduce high velocities of floodwaters within the affected area. Measures to control erosion and sedimentation should be in place prior to any ground-disturbing activities. Wet concrete should never be allowed to come into contact with the stream. Equipment should be inspected daily to ensure that there are no equipment leaks that could enter the stream. Construction material should not enter the water during demolition of the existing bridge and construction of the new bridge. In most cases we prefer that bridges be replaced in place by constructing new bridges through staged construction or by detouring traffic to existing off-site routes.

When reseeding/revegetating disturbed areas, we strongly recommend that only native plant species be used or, if an adequate seed source cannot be found, that noninvasive species (such as annual rye) be used until native plants can reestablish themselves. While many of the exotic plant species typically used in erosion-control and reclamation efforts have proven beneficial to some wildlife species, we now know that the invasive nature of these species outweighs any short-term erosion-control or wildlife benefits they may provide. Exotic species, including tall fescue (native to Eurasia), Korean and Sericea lespedeza (eastern Asia species), redtop (a Eurasian species), Sudan grass and Bermuda grass (native to Africa), and Kentucky bluegrass (native to Eurasia and northern Canada), choke out native vegetation and often result in monocultures that prove to be of little benefit to wildlife and can be very detrimental to the ecosystem as a whole.

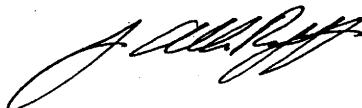
Migratory Birds – The Migratory Bird Treaty Act (16 U.S.C. 703-712) prohibits the taking, killing, possession, transportation, and importation of migratory birds (including the bald eagle), their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. To avoid impacts to migratory birds, we recommend conducting a visual inspection of the bridge and any other migratory bird nesting habitat within the project area during the migratory bird nesting season--March through September. If migratory birds are discovered nesting in the project impact area, including on the existing bridge, the NCDOT should avoid impacting the nests during the migratory bird nesting season (March through September). If birds are discovered nesting on the bridge during years prior to the proposed construction date, the NCDOT, in consultation with us, should develop measures to discourage birds from establishing nests on the bridge by means that will not result in the take of the birds or eggs, or the NCDOT should avoid construction and demolition activities during the nesting period.

Federally Listed Species - The information provided states that no suitable habitat exists within the project area for the federally threatened bald eagle (*Haliaeetus leucocephalus*). We agree that there does not appear to be suitable habitat for the bald eagle within the project area. The information provided states that the North Carolina Natural Heritage Program (NCNHP) database was reviewed for the presence of the federally endangered Schweinitz's sunflower (*Helianthus schweinitzii*) and that no records were reported within the project vicinity. According to our records, the NCNHP database does list an occurrence of Schweinitz's sunflower approximately 3 miles east of the project area. Using a Stanly County soil survey report, the NRTR concludes that the appropriate soil types for Schweinitz's sunflower are not present within the project area. While it is true that Schweinitz's sunflower is generally found growing on soils derived from mafic rocks, Schweinitz's sunflower can be found on a variety of

soil types; therefore, the presence or absence of soil type alone should not be used to determine if this species is present within a project area. The NRTR also states that the historic habitat of a prairie-like environment for Schweinitz's sunflower is not present within the project area. While historic habitat may not be present, Schweinitz's sunflower currently inhabits roadsides, power line clearings, old pastures, woodland openings, and other sunny or semi-sunny situations. This type of disturbed habitat is present within the project area; therefore, we recommend that an on-the-ground survey be conducted for Schweinitz's sunflower during its flowering period of late August through October within all areas of suitable habitat that will be disturbed by the project to ensure that no adverse effects occur to this species.

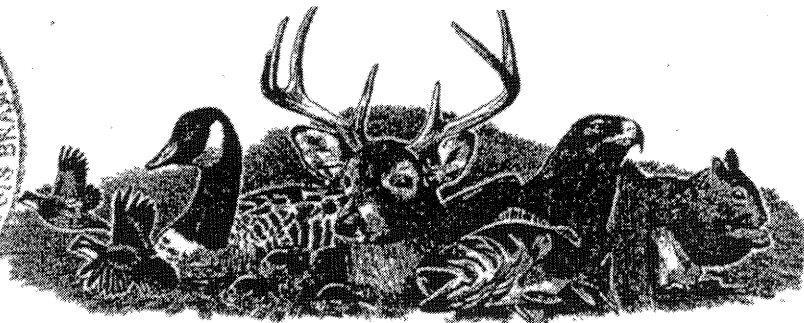
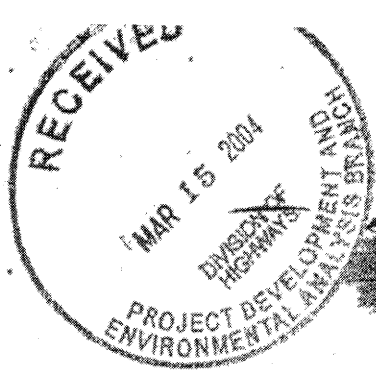
If we can be of assistance or if you have any questions about these comments, please contact Ms. Denise Moldenhauer of our staff at 828/258-3939, Ext. 226. In any future correspondence concerning this project, please reference our Log Number 4-2-06-188.

Sincerely,


Brian P. Cole
Field Supervisor

cc:

Ms. Marla J. Chambers, Western NCDOT Permit Coordinator, North Carolina Wildlife
Resources Commission, 4614 Wilgrove-Mint Hill Road, Suite M, Charlotte, NC 28227
Mr. Brian Wrenn, North Carolina Division of Water Quality, Central Office, 2321 Crabtree
Blvd., Suite 250, Raleigh, NC 27604
Mr. Steve Lund, Asheville Regulatory Field Office, U.S. Army Corps of Engineers, 151 Patton
Avenue, Room 208, Asheville, NC 28801-5006



North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: Gregory J. Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch, NCDOT

FROM: Marla Chambers, Highway Projects Coordinator *Marla Chambers*
Habitat Conservation Program, NCWRC

DATE: March 10, 2004

SUBJECT: Scoping review of NCDOT's proposed replacement of Bridge No. 120 on SR 1963 (Saint Martin Road) over Scaly Bark Creek, Stanly County. TIP No. B-4279.

North Carolina Department of Transportation (NCDOT) has requested comments from the North Carolina Wildlife Resources Commission (NCWRC) regarding impacts to fish and wildlife resources resulting from the subject project. Staff biologists 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)) 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.
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. B-4279, Stanly Co., Bridge No. 120 over Scaly Bark Creek on SR 1963 (Saint Martin Road). Scaly Bark Creek flows to Long Creek; both are Class C waters. The Carolina creekshell (*Villosa vaughaniana*), Federal Species of Concern (FSC) and state Endangered, and the Carolina darter (*Etheostoma collis*), FSC and state Special Concern, have been observed in Long Creek. A mussel survey should be conducted in the project vicinity and downstream. If state or federally listed species are found, NCDOT should consult with the appropriate resource agencies.

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) 485-2384. Thank you for the opportunity to review and comment on this project.

cc: Cynthia Van Der Wiele, NCDWQ
Marella Buncick, USFWS
Sarah McRae, NCNHP



December 30, 2003

MEMORANDUM

TO: Gregory J. Thorpe, Ph.D., Director
NCDOT Project Development & Environmental Analysis

FROM: Cynthia F. Van Der Wiele, NCDOT Coordinator *CVDW*

SUBJECT: Scoping Review of Stanley Co., Bridge No. 120 on SR 1963 over Scaly Bark Creek, F.A.
Project No. BRZ-1963(2), State Project No. 8.2681901, TIP No. B-4279.

This memo is in reply to your correspondence dated December 8, 2003 (received December 17, 2003) in which you requested comments for the above-referenced project. The NC Division of Water Quality does not have a preferred alternative. DWQ has the following comments:

General Comments Regarding Bridge Replacement Projects

1. If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used to replace the bridge, then DWQ recommends the use of Nationwide Permit No. 14 rather than Nationwide Permit 23.
2. Bridge demolition should be performed using Best Management Practices developed by NCDOT.
3. DWQ prefers 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.
4. Bridge deck drains should not discharge directly into the stream; stormwater should be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to NCDOT Best Management Practices for the Protection of Surface Waters
5. Live concrete should not be allowed to contact the water in or entering into the stream. Concrete is mostly made up of lime (calcium carbonate) and when in a dry or wet state (not hardened) calcium carbonate is very soluble in water and has a pH of approximately 12. In an unhardened state concrete or cement will change the pH of fresh water to very basic and will cause fish and other macroinvertebrate kills.
6. If possible, bridge supports (bents) should not be placed in the stream.
7. 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 re-vegetate naturally and minimizes disturbed soil.



8. A clear bank (rip rap-free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
9. Sedimentation and erosion control measures sufficient to protect water resources must be implemented prior to any ground disturbing activities. Structures should be *maintained regularly*, especially following rainfall events.
10. Bare soil should be stabilized through vegetation or other means as quickly as feasible to prevent sedimentation of water resources.
11. 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.
12. 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. This equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

cc: Christopher Militscher, USEPA
Marla Chambers, NCWRC
Vincent Rhea, P.E., NCDOT PDEA

North Carolina Department of Cultural Resources
State Historic Preservation Office

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary
Office of Archives and History

CITIZENS PARTICIPATION
RECEIVED

FEB 26 2004

February 18, 2004

MEMORANDUM

TO: Greg Thorpe, Ph.D., Director
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook *David Brook*

SUBJECT: Replace Bridge No. 120 on SR 1963 over Scaly Bark Creek, Stanly County,
ER03-3644 B-4279

Thank you for your letter of December 8, 2003, concerning the above project.

We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed.

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 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT

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