STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 29, 2005

U. S. Army Corps of Engineers
Regulatory Field Office
6508 Falls of the Neuse Road
Suite 120
Raleigh, NC 27615

ATTN: Mr. Dave Timpy
NCDOT Coordinator

Subject: **Application for Nationwide Permit 23** for the Replacement of Bridge No. 19 over Stones Creek on NC 210, Onslow County. Federal Aid Project No. BRSTP-0210(3), State Project No. 8.1262101, Division 3; TIP Project No. B-4215.

Dear Sir:

Please find enclosed a copy of the Categorical Exclusion (CE) document as well as permit drawings, ½ size plans (roadway plans), and Utilities drawing for the subject project. The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 19 on SR NC 210 over Stones Creek with a 130-foot long bridge in approximately the same location and roadway elevation as the existing bridge. The cross-section of the new bridge will include two 12-foot travel lanes, and one 8-foot, 10-inch shoulder and one 12-foot shoulder. The approach roadway will consist of two 12-foot travel lanes with 8-foot shoulders, with 4 feet of each shoulder to be paved. The new bridge will have one bent in the water.

Proposed impacts include 0.003 acre of permanent impact (fill) to 404 wetlands, 0.043 acre of hand-clearing impact to 404 wetlands, 0.003 acre of permanent surface water impact from the placement of a single bridge bent, and 1.82 square feet of permanent surface water impact from the installation of two piers for an aerial sewer line.

IMPACTS TO WATERS OF THE UNITED STATES

General Description: Stones Creek is located within sub-basin 030502 of the White Oak River Basin with a Hydrologic Unit Code of 03030001. The Division of Water Quality

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
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TELEPHONE: 919-715-1500
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WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH NC 27604

(DWQ) has assigned Stones Creek a Stream Index Number of 19-30-3. DWQ has assigned a best usage classification of SA HQW.

Permanent Impacts: There will be 0.003 acre of permanent impact to 404 wetlands from the placement of riprap for slope stabilization (Permit Drawings – Sheet 7 of 15, Sheet 8 of 15, Sheet 9 of 15, and Sheet 10 of 15).

There will be 0.043 acre of wetland impact from hand-clearing wetlands (Permit Drawings – Sheet 7 of 15, Sheet 8 of 15, Sheet 9 of 15, and Sheet 10 of 15).

There will be 0.003 acre of permanent surface water impact from the installation of a single bridge bent. There will be an additional 1.82 square feet of permanent surface water impact from the installation of two piers (2 piles per pier) for an aerial sewer line.

Temporary Impacts: An off-site detour will be used to route traffic during construction, and there will be no work pad in jurisdictional streams or wetlands for bridge construction. Therefore, there will be no temporary impacts for this project.

Utility Impacts: The following utilities are located at the project site: Onslow County Water Department, North Topsail Utilities, Inc., U.S. Marines, Jones Onslow EMC, and Sprint. Each utility is described below.

Onslow County Water Department: Two (2) existing 12-inch ductile iron water lines, one located on top of the other and supported on wooden piers are located on the south side of the bridge. These water lines are in conflict with the bridge construction and will be removed. The water lines will be replaced with HDPE pipe using the directional bore method, eliminating any impacts to environmentally sensitive/wetland areas. The ingress and egress points of the directional drill will be located outside of the wetlands.

North Topsail Utilities, Inc.: An existing 10-inch ductile iron force main sewer line, supported on wooden piers, is located on the north side of the bridge. This sewer line is in conflict with the bridge construction and will be removed. The original approach for relocating the sewer line, using directional drill, is not feasible for the utility owner. In the sewer system, two schools and two small businesses use the sewer line for their sewage disposal. During summer months when school is out, a very low flow of waste is present in the system. Because of the low flow, the utility has experienced problems with solids settling in their existing system, especially in low spots along the sewer line. A directional bore with HDPE pipe under Stones Creek would increase the likelihood of problems with the settling of solids in the pipe. To maintain the same level of operation of the existing sewer system and not increase the likelihood of problems, the proposed pipe needs to remain at the same elevation as the existing line, eliminating the low spot that the installation of the HDPE by directional bore would introduce into the system. To achieve this, the use of piers supporting the proposed sewer line is the only feasible means to relocate the sewer line with no adverse impact to the environment. A pier support system with 40-foot centers will have minimal impact to Stones Creek. Two piers (2 pilings per pier) of the support system, one pier located at each edge of the creek, will reduce the likelihood of debris entrapment that may result from a pier located in the center of the creek. The piers will be installed by pile driving method, and the equipment to drive the piers will not enter the creek or any wetland

areas. Small areas of temporary impacts to the adjacent CAMA buffer area will be incurred from the staging of equipment for pier installations (see Utility Drawings - Sheet 1 of 1).

U.S. Marine Corp.: A utility line located outside of the existing right of way is not in conflict with bridge construction. This line will remain in place.

Jones Onslow EMC: Existing power lines run on the north side of the bridge, outside of the existing right of way. These power lines are of sufficient height and location to not be in conflict with bridge construction. These lines will remain in place.

Sprint Telephone: Existing aerial telephone poles/lines, and fiber optic cable with associated underground lines will be replaced with underground lines, installed by directional bore. These lines will be located within the existing right of way and will not impact wetlands or streams.

Bridge Demolition: Bridge No. 19 has five main spans and totals 90 feet in length. The deck and railings of the superstructure are composed of reinforced concrete slab. The substructure is composed of reinforced concrete abutments and reinforced concrete caps on timber piles. The bridge crown is approximately 20 feet from crown to streambed. During bridge demolition, dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. In the event that no other practical method is feasible, the maximum potential temporary fill entering waters of the United States is estimated to be 119 cubic yards, as a worst-case scenario. NCDOT's Best Management Practices for Bridge Demolition and Removal will be followed to minimize the amount of temporary fill.

Moratoria: The CE included two project commitments requested by the North Carolina Wildlife Resource Commission (NCWRC): 1) an in-water construction moratorium due to the potential for anadromous fish to occur in the project area, and 2) the implementation of *Stream Crossing Guidelines for Anadromous Fish Passage.* It was later determined that the project is not located within the jurisdiction of the NCWRC, but rather, within the jurisdiction of the North Carolina Division of Marine Fisheries (NCDMF). These commitments and the proper jurisdiction issue were discussed with Travis Wilson of the NCWRC. Mr. Wilson subsequently rescinded the two requested project commitments. As the proper jurisdictional agency, NCDMF was contacted. Fritz Rhode with NCDMF informed NCDOT that based on his personal knowledge and the NCDMF's sampling of Stones Creek, there will be no anadromous fish using the creek, nor will any shortnose sturgeon be present. NCDMF did not request any moratoria for this project or any project conditions.

ESSENTIAL FISH HABITAT

As stated in the CE, it was determined that an Essential Fish Habitat (EFH) assessment was not warranted for this project. Ron Sechler with the National Marine Fisheries Service (NMFS) was contacted prior to submittal of this application regarding EFH. Mr. Sechler stated that due to the project's design for avoidance/minimization of impacts (e.g. replacing bridge on same location, reducing the number of bents in the water, using an off-site detour, etc.), NMFS does not require an EFH assessment.

FEDERALLY PROTECTED SPECIES

As of January 29, 2003, the US Fish and Wildlife Service (USFWS) lists 12 federally protected species for Onslow County, as listed in Table 1. The biological conclusions of No Effect contained in the CE remain valid.

Table 1. Federally Protected Species for Onslow County.

Common Name	Scientific Name	Status	Habitat Present	Biological Conclusion
American alligator	*Alligator mississippiensis*	T(S/A)[1]	Yes	Not Applicable
Loggerhead sea turtle	*Caretta caretta*	T	No	No Effect
Piping plover	*Charadrius melodus*	T	No	No Effect
Green sea turtle	*Chelonia mydas*	T	No	No Effect
Leatherback sea turtle	*Dermochelys coriacea*	E	No	No Effect
Eastern cougar	*Felis concolor couguar*	E	No	No Effect
Bald eagle	*Haliaeetus leucocephalus*	T[1]	No	No Effect
Red-cockaded woodpecker	*Picoides borealis*	E	No	No Effect
Seabeach amaranth	*Amaranthus pumilus*	T	No	No Effect
Golden sedge	*Carex lutea*	E	No	No Effect
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E	No	No Effect
Cooley's meadownrue	*Thalictrum colleyi*	E	No	No Effect

T(S/A) = Threatened due to similar appearance

[1] Proposed for delisting

T = Threatened - a taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."

E = Endangered- a taxon "in danger of extinction throughout all or a significant portion of its range."

AVOIDANCE AND MINIMIZATION

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize wetland impacts, and to provide full compensatory mitigation of all remaining wetland impacts. Due to the location of this project and that of the adjacent wetlands and surface waters, total avoidance of impacts during the construction of this project is not feasible. NCDOT has taken the following steps to avoid/minimize impacts to the resources:

- NCDOT will be replacing Bridge No. 19 in its existing location, and an off-site detour will be utilized for re-routing traffic during construction.

- The existing 90-foot long bridge will be replaced with a 130-foot long bridge, increasing the floodplain under the bridge.
- The existing bridge has two (2) bents in the water. The proposed bridge will have a single bent in the water.
- Minimum widths for the approaches and structure have been utilized. To allow for the capture of water on the bridge to prevent direct discharge to Stones Creek, the bridge needs to be wide enough to alleviate hydraulic concerns for safety regarding the spread of water on the bridge. As such, the proposed bridge has a 12-foot wide shoulder on the south side, and an 8-foot, 10- inch wide shoulder on the north side.
- Fill slopes in the wetlands will be 2:1, utilizing rock plating (riprap) to avoid major erosion and slope failure due to the loose alluvial sandy soils of coastal areas.
- Two (2) preformed scour holes, located on the north side of the bridge on either side of Stones Creek, will be constructed to filter stormwater runoff.
- Where feasible, utility relocation is to be conducted by directional boring under Stones Creek to avoid impacts.
- *Design Standards for Sensitive Watersheds* will be followed for this project.

Mitigation: NCDOT will provide compensatory mitigation for the 0.003 acre of permanent wetland impact through the Ecosystem Enhancement Program (EEP). The EEP acceptance letter is enclosed with this application.

Mitigation is not required, nor proposed by NCDOT, for the following impacts: 0.043 acre of impact from hand-clearing wetlands, 0.003 acre of permanent surface water impact from the single bridge bent, and 1.82 square feet of permanent surface water impact from the installation of two piers (2 piles per pier) for the aerial sewer line.

REGULATORY APPROVALS

Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that the above-described activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002). Since the CE summarizes the potential temporary impacts from bridge demolition activities, the NCDOT requests that temporary fill from bridge demolition, if any, also be authorized by the Nationwide Permit 23.

Section 401 Permit: We anticipate 401 General Certification number 3403 will apply to this project. All general conditions of the Water Quality Certifications will be met. Therefore, in accordance with 15A NCAC 2H, Section .0500(a) and 15A NCAC 2B.0200 we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality for their information.

CAMA Permit: This project is under jurisdiction of the Coastal Area Management Act (CAMA). In compliance with the Division of Coastal Management, NCDOT is applying for a CAMA General Permit under separate cover. NCDOT has received the State Stormwater

Permit (Permit No. SW8 050917), which will be included in the CAMA application submittal.

Thank you for your time and assistance with this project. A copy of this permit application will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/. If you have any questions or need additional information please contact Bill Barrett at (919) 715-1624.

Sincerely,

E. L. Fluck

for Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

w/attachment

Mr. John Hennessy, NCDWQ (2 Copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Mr. Ron Sechler, NMFS
Mr. Michael Street, NCDMF
Mr. Steve Sollod, NCDCM
Mr. Bill Arrington, NCDCM
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. H. Allen Pope, P.E., Division Engineer
Mr. Mason Herndon, Division Environmental Officer

w/out attachment

Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Elmo Vance, PDEA Project Planning Engineer
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch

Ecosystem Enhancement PROGRAM

November 7, 2005

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-4215, Bridge 19 over the Stones Creek on NC 210**,** Onslow County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riverine wetland mitigation for the subject project. Based on the information supplied by you in a letter dated September 13, 2005, the impacts are located in CU 03030001 of the White Oak River Basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Riverine Wetland Impacts: 0.003 acre

The subject project is not listed in Exhibit 2 of the Memorandum of Agreement among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, Wilmington District dated July 22, 2003. Mitigation for this project will be provided in accordance with the above referenced agreement. EEP will commit to implementing sufficient compensatory riverine wetland mitigation to offset the impacts associated with this project by the end of the MOA year in which this project is permitted, in accordance with Section X of the Tri-Party MOA.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. David Timpy, USACE-Wilmington
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4215

Ecosystem Enhancement PROGRAM

November 7, 2005

Mr. David Timpy
U. S. Army Corps of Engineers
Wilmington Regulatory Field Office
Post Office Box 1890
Wilmington, North Carolina 28403-1890

Dear Mr. Timpy:

Subject: EEP Mitigation Acceptance Letter:

B-4215, Replace Bridge 19 over Stones Creek, Onslow County; White Oak River Basin (CU 03030001); Southern Outer Coastal Plain (SOCP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide compensatory riverine wetland mitigation for the unavoidable impacts associated with the above referenced project. As indicated in the NCDOT's mitigation request letter, the impacts associated with this project are as follows:

Riverine Wetland: 0.003 acre

EEP will commit to implementing sufficient compensatory riverine wetland mitigation to offset the impacts associated with this project by the end of the MOA year in which this project is permitted, in accordance with Section X of the Memorandum of Agreement between the U. S. Army Corps of Engineers, N. C. Department of Environment and Natural Resources and N. C. Department of Transportation (Tri-Party MOA), signed on July 22, 2003. EEP understands the USACE will allow remaining high quality preservation assets to be utilized as a component in the mitigation strategy at a 5:1 ratio. Therefore, EEP intends to utilize high quality riverine wetland preservation assets in the following manner:

High Quality Riverine Wetland Preservation (5:1) in Same Eco-Region

NE Cape Fear Wells Tract, Pender County — 0.015 acre
Southern Outer Coastal Plain Eco-Region
White Oak River Basin, CU 03030001

The reminder of the required 1:1 riverine wetland mitigation will be in the form of riverine wetland restoration. Currently, EEP does not have riverine wetland restoration in this cataloging unit; however, EEP will commit to implementing sufficient riverine wetland restoration mitigation at a 1:1 ratio to offset the impacts associated with this project by the end of the MOA year in which this project is permitted.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4215

NC 210
Bridge No. 19 over Stones Creek
Onslow County
Federal-Aid Project No. BRSTP-0210(3)
State Project No. 8.1262101
T.I.P. No. B-4215

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

12-17-03
DATE

Stacy Baldwin for
Gregory J. Thorpe, Ph.D.,
Environmental Management Director
Project Development and Environmental Analysis Branch, NCDOT

12-17-03
DATE

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

NC 210
Bridge No. 19 over Stones Creek
Onslow County
Federal-Aid Project No. BRSTP-0210(3)
State Project No. 8.1262101
T.I.P. No. B-4215

CATEGORICAL EXCLUSION

December 2003

Document Prepared by:
Mulkey Engineers and Consultants
Cary, North Carolina

12-15-03
Date

J. A. Bissett, Jr., PE
Branch Manager

12-15-03
Date

Pamela R. Williams
Project Manager

For the North Carolina Department of Transportation

12-15-03
DATE

Elmo Vance
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

NC 210
Bridge No. 19 over Stones Creek
Onslow County
Federal-Aid Project No. BRSTP-0210(3)
State Project No. 8.1262101
T.I.P. No. B-4215

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, Design Standards for Sensitive Watersheds, Erosion and Sediment Control Guidelines for Contract Construction, 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:

Project Development and Environmental Analysis- Office of Natural Environment

A bald eagle survey will be conducted one to two years prior to construction.

Division

An in-water construction moratorium will be in effect from February 15 to June 15 due to the potential for anadromous fish to occur in the project area. Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable.

The construction and road closure will be coordinated with Camp Lejeune Military Base, Onslow County Schools Transportation, and Emergency 911 Dispatchers.

NC 210
Bridge No. 19 over Stones Creek
Onslow County
Federal-Aid Project No. BRSTP-0210(3)
State Project No. 8.1262101
T.I.P. No. B-4215

INTRODUCTION: The replacement of Bridge No. 19 is included in the North Carolina Department of Transportation (NCDOT) 2004-2010 Transportation Improvement Program (T.I.P.) and in the Federal-Aid Bridge Replacement Program. The location of the bridge is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

I. PURPOSE AND NEED

The NCDOT Bridge Maintenance Unit records indicate that Bridge No. 19 has a sufficiency rating of 25.5 out of a possible 100 for a new structure and is considered structurally deficient and functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations by providing wider travel lanes and shoulders and improved load capacity.

II. EXISTING CONDITIONS

Bridge No. 19 is located on NC 210 over Stones Creek, just east of Dixon. NC 210 is classified as a rural major collector by the statewide functional classification system. It provides access for the many residents of Topsail Island and the Sneads Ferry area who work and shop in Jacksonville, and serves a regional demand during tourist season in Onslow County, when traffic volumes may double.

Land use in Sneads Ferry and Dixon is rural with a mix primarily of residential and agricultural uses including a small amount of commercial development. Jacksonville provides most of the urban amenities for rural residents. Camp Lejeune Marine Corps Base property is located along the north side of NC 210.

The 2003 estimated average daily traffic (ADT) volume is 8,550 vehicles per day (vpd). The projected ADT is 17,900 vpd by the design year 2030. The percentages of truck traffic is 4% dual tired vehicles (DUALS) and 3% truck-tractor semi trailer (TTST). The posted speed limit is 55 miles per hour (mph) {90 kilometers per hour (km/h)}.

Bridge No. 19 was built in 1942 with a clear roadway width of approximately 26 feet (7.9 meters), which provides for two 9-foot (2.7-meter) travel lanes with 4-foot (1.2-meter) shoulders. The bridge has five main spans and totals 90 feet (27 meters) in length. The deck and railings of the superstructure are composed of reinforced concrete slab. The substructure is composed of reinforced concrete abutments and reinforced concrete caps on timber piles. The bridge deck is approximately 20 feet (6 meters) from crown to streambed. Bridge No. 19 is not presently posted for single vehicle (SV) or truck-tractor semi trailer (TTST). The drainage area of Stones Creek at the proposed crossing is 6.61 square miles (17.1 square kilometers).

The approach roadway consists of two 9-foot (2.7-meter) lanes with 6-foot (1.38-meter) grass shoulders. The existing roadway through the project area is on a curve with a radius of approximately 1432 feet (436 meters).

There is an overhead power line, a buried fiber optic cable, and an aerial sewer crossing located on the northeastern (downstream) side of the bridge. There are also two aerial pipe crossings along the southwestern (upstream) (See Figure 4). Utility impacts are anticipated to be low.

This section of NC 210 in Onslow County is not part of a state-designated bicycle route, nor is it listed in the T.I.P. as needing incidental bicycle accommodations.

There are approximately 42 school bus crossings on Bridge No. 19 each day.

No accidents were reported in the project area during the period from December 1, 1999 to November 30, 2002.

III. ALTERNATIVES

A. Project Description

A design speed of 60 miles per hour (100 kilometers per hour) will be used for this project. The recommended replacement structure is a bridge approximately 100 feet (30 meters) in length, with two 12-foot (3.6-meter) travel lanes and two 8-foot (2.4-meter) shoulders (Figure 3). The proposed bridge length is based on a preliminary hydraulic analysis. The length of the new structure may be increased or decreased as necessary to accommodate peak flows as determined by a detailed hydrologic analysis during the final design phase. A minimum 0.3 percent grade is recommended to facilitate bridge deck drainage. The proposed bridge will be super elevated due to the horizontal curve. The proposed bridge will be designed to possess, at a minimum, a load class MLC-90 (90-ton capacity) and allow passage of vehicles 12 feet (3.6 meters) in width.

The proposed approach roadway will consist of two 12-foot (3.6-meter) travel lanes with 8-foot (2.4-meter) shoulders, including 4 feet (1.2 meters) paved shoulder (Figure 3). NC 210 is on a continuous curve through the project area, with a radius of approximately 1432 feet (436 meters). All practicable efforts will be made to avoid impacts to Camp Lejeune property located on the north side NC 210.

B. Build Alternatives

One build alternative was evaluated for this project. The alternative is described below.

Alternative A (Preferred) will replace the bridge in-place utilizing an off-site detour. The detour length is approximately 7.4 miles (11.9 kilometers), and traffic will be detoured along NC 210, US 17, and NC 172 (Figure 2).

C. Alternatives Eliminated From Further Study

Alternative B will replace the bridge in-place with an on-site detour located northeast (downstream) of the existing structure.

Alternative B was eliminated from further studies because of the additional impacts to the USMC property, potential environmental impacts to the stream and wetlands. Alternative B does not provide for a construction staging area. This alternative will require the relocation of several utilities. Alternative B is less economical than the preferred alternative.

The "do-nothing" alternative will eventually necessitate closure of the bridge. This is not desirable due to the traffic service and community connectivity provided by NC 210 and Bridge No. 19.

Investigation of the existing structure by the Bridge Maintenance Unit indicates that "rehabilitation" of this bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternative

Alternative A was selected as the preferred alternative because it minimizes utility impacts, USMC property impacts, wetlands impacts, and is more economical. Use of an off-site detour will expedite construction.

The NCDOT Division Engineer concurs with Alternative A as the preferred alternative.

E. Anticipated Design Exceptions

A design exception is anticipated for sight distance requirements for a design speed of 60 mph (100 km/h) due to the bridge being on a horizontal curve.

IV. ESTIMATED COST

The estimated costs, based on current prices are as follows:

	Alternative A (Preferred)
Structure Removal (Existing)	$ 22,680
Structure Proposed	300,000
Roadway Approaches	267,760
Miscellaneous and Mobilization	168,900
Engineering Contingencies	115,660
ROW/Const. Easements/Utilities	12,000
TOTAL	$887,000

The estimated cost of the project as shown in the 2004-2010 Transportation Improvement Program is $1,010,000, including $10,000 for right-of-way, $800,000 for construction, and $200,000 in previous years.

V. NATURAL RESOURCES

A. Methodology

Materials and research data in support of this investigation have been derived from a number of sources. The Sneads Ferry, NC (1988), U.S. Geological Survey (USGS) 7.5-minute topographic map was consulted to determine physiographic relief and to assess landscape characteristics. U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping was also consulted to determine what potential wetland types may be encountered in the field. The *Soil Survey of Onslow County, North Carolina* (USDA 1992), and aerial photography (1 inch = 100 feet) were also used in the evaluation of the project study area.

The aerial photograph served as the basis for mapping plant communities and wetlands. Plant community patterns were identified from available mapping sources and then field verified. Plant community descriptions are based on a classification system utilized by the NC Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names typically follow nomenclature found in Radford *et al.* (1968).

Jurisdictional areas were identified using the three parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979).

Water resource information for Stones Creek was derived from the most recent versions of the White Oak River Basinwide Water Quality Plan (DWQ 1997), Basinwide Assessment Report-White Oak River Basin (DWQ 2000), and several NC Division of Water Quality (DWQ) Internet resources. Quantitative sampling was not undertaken to support existing data.

The on-line FWS list (last updated February 25, 2003, checked via web on December 15, 2003) of federal protected species with ranges extending into Onslow County was reviewed prior to completion of this document. In addition, NHP records documenting occurrences of federal or state-listed species were consulted before commencing the field investigation. Direct observations of terrestrial and aquatic wildlife were documented, and expected population distributions were determined through observations of available habitat and review of supportive documentation found in Martof *et al.* (1980), Webster *et al.* (1985), Menhinick (1991), Hamel (1992), Rohde *et al.* (1994), and Palmer and Braswell (1995).

The project study area is approximately 1700 feet (518 m) in length and ranges in width from 90 feet (27 m) at the terminus to approximately 420 feet (128 m) at the existing bridge. The bridge is located approximately 1.1 miles (1.8 km) east of the intersection of US 17 and NC 210.

The project vicinity describes an area extending 0.5 mile (0.8 km) on all sides of the project study area.

B. Physiography and Soils

The project study area is located in the lower Coastal Plain physiographic province of North Carolina. The topography in the project study area is generally characterized as nearly level. Elevations in the project study area range from sea level to approximately 20 feet (6.1 meters) above mean sea level (USGS 1988). The project study area consists of existing maintained right-of-way, urban disturbed areas, mixed hardwood forest, pine/hardwood forest, and clearcut areas. The existing land use within the project vicinity includes a mixture of residential areas and undisturbed land.

The project study area crosses four soil-mapping units (USDA 1992). These mapping units include Muckalee loam (Typic Fluvaquents), Marvyn loam (Typic Hapludults), Baymeade fine sand (Arenic Hapludults), and Pactolus fine sand (Aquic Quartzipsamments). Hydric soils mapped as occurring within the project study area include only the Muckalee series. Nonhydric soils that may contain hydric inclusions mapped as occurring within the project study area include the Marvyn series, Baymeade series, and Pactolus series. The Marvyn series is well drained but may contain inclusions of the hydric Muckalee series in narrow drainageways. The Baymeade series is well drained but may contain inclusions of the hydric Leon and Muckalee series in narrow depressions and drainageways. The Pactolus series is moderately well drained but may contain inclusions of the hydric Leon series in small depressions.

From a broader perspective, the project study area is located in one soil association, the Muckalee-Dorovan association (USDA 1992). This soil association contains nearly level, poorly drained soils that are loamy throughout and very poorly drained soils that are muck throughout.

C. Water Resources

1. Waters Impacted

The project study area is located within sub-basin 030502 of the White Oak River Basin (DWQ 2000) and is part of USGS hydrologic unit 03030001 (USGS 1974). Stones Creek is the only water resource likely to be impacted by the proposed bridge replacement project. Stones Creek originates south of the project study area near NC 172 and flows northeast to its confluence with the New River at Stones Bay. Stones Creek has been assigned Stream Index Number (SIN) 19-30-3 by the DWQ from its source to Stones Bay.

2. Water Resource Characteristics

Stones Creek is a perennial stream with moderate flow over substrate consisting of mud, sand, and silt. Bottomland hardwood forest is adjacent to the stream channel. The channel ranges from approximately 15 to 30 feet (5 to 9 meters) wide and depths are estimated to range from 1 to 6 feet

(0.3 to 2 meters). The drainage area of Stones Creek at the proposed crossing is 6.61 square miles (17.1 square kilometers). Preliminary observations indicate that this particular section of Stones Creek may represent a "C" type channel pursuant to Rosgen (1996).

A Best Usage Classification is assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. Stones Creek has been assigned a best usage classification of **SA HQW** (DEM 1993, DWQ 2001) from its source to Stones Bay. The **SA** designation indicates tidal salt waters suitable for shellfishing for market purposes as well as primary recreation, aquatic life propagation and survival, fishing, and wildlife. The **HWQ** supplemental designation indicates waters that are rated as excellent based on biological and physical/chemical characteristics through division monitoring or special studies. The portion of Stones Creek located within the project study area appears to be a freshwater stream. The tidal salt water influence is likely more prevalent closer to its confluence with Stones Bay.

The entire length of Stones Creek is considered "Coastal Waters" (NCMFC 2001). "Coastal Waters" include the Atlantic Ocean, the various coastal waters, and estuarine waters up to the dividing line between coastal fishing waters and inland fishing waters agreed upon by the NC Marine Fisheries Commission (NCMFC) and the NCWRC (NCMFC 2001). The portion of Stones Creek within the project study area is not considered a primary nursery area pursuant to *NC Fisheries Rules for Coastal Waters* (NCMFC 2001). A portion of Stones Creek near the confluence with Stones Bay is considered a primary nursery area (NCMFC 2001). No shellfish beds were observed during the field investigation.

Stones Creek is classified as **HQW** from its source to Stones Bay. The **HQW** supplemental designation indicates waters that are rated as excellent based on biological and physical/chemical characteristics through DWQ monitoring or special studies. No Outstanding Resource Waters (**ORW**), **WS I**, or **WS-II** waters occur within 3.0 miles (4.8 km) upstream or downstream of the project study area.

One method used by DWQ to monitor water quality is through long-term monitoring of macroinvertebrates. Another measure of water quality being used by the DWQ is the North Carolina Index of Biotic Integrity (NCIBI), which assesses biological integrity using the structure and health of fish communities. Between 1994 and 1999, monitoring stations in the 5 subbasins of the White Oak River Basin were sampled to determine overall water quality. No sampling stations are located on Stones Creek based on the most recent Basinwide Assessment Report (DWQ 2000). The closest benthic macroinvertebrate monitoring station is located on the New River at Sneads Ferry, approximately 8 miles (13 km) downstream from the project study area. The New River near Sneads Ferry has been sampled nine times since 1983. Salinity is generally high and taxa richness has generally climbed over time. Compared with reference sites in other subbasins, the Biotic Index at the New River site near Sneads Ferry indicates slightly depressed water quality (DWQ 1997).

3. Essential Fish Habitat Assessment

Essential Fish Habitat (EFH) is defined by the National Marine Fisheries Service (NMFS) as "those waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity" (NMFS

1999). For the purpose of interpreting the definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (NMFS 1999). An EFH Assessment is an analysis of the effects of a proposed action on EFH. Pursuant to 50 CFR 600.920 (g) mandatory contents include: a description of the proposed action, an analysis of the effects of that action on EFH, the Federal action agency's views on those effects; and proposed mitigation, if applicable. An adverse effect includes any impact which reduces the quality and/or quantity of EFH. Pursuant to 50 CFR 600.810 adverse effects may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey, or reduction in a species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Any substantial stream or river in a county under the jurisdiction of the Coastal Area Management Act (CAMA) may be considered EFH unless otherwise documented by the NMFS. The current species list prepared by the NMFS pertaining to EFH was reviewed, and all listed species are either marine or estuarine species. The portion of Stones Creek within the project study area is classified as "Coastal Waters" by the NCMFC but is not considered EFH.

4. Permitted Dischargers

Discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge are broadly referred to as "point sources." Wastewater point source discharges include municipal (city and county) and industrial wastewater treatment plants and small domestic wastewater treatment systems serving schools, commercial offices, residential subdivisions, and individual homes (DWQ 1997). Stormwater point source discharges include stormwater collection systems for municipalities and stormwater discharges associated with certain industrial activities. Point source dischargers in North Carolina must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit. Discharge permits are issued under the NPDES program, delegated to DWQ by the Environmental Protection Agency (EPA). Within subbasin 030502 there are now three major NPDES dischargers out of the total 32 permitted dischargers (DWQ 2000, DENR 2001). No NPDES dischargers are located on Stones Creek. Additionally, no major NPDES dischargers are documented as occurring in the downstream receiving waters of the project study area. Four of the five discharging facilities at Camp Lejeune ceased discharging in 1998 (DWQ 2000). The remaining discharger is located on the New River, upstream from the Stones Creek confluence.

Runoff from the road surface and nearby residential areas may contribute non-point source discharge to Stones Creek.

5. Anticipated Impacts to Water Resources

a. General Impacts

Short-term impacts to water quality, such as sedimentation and turbidity, may result from construction-related activities. Best Management Practices (BMPs) can minimize impacts during construction, including implementation of stringent erosion and sedimentation control measures, and avoidance of using wetlands as staging areas. Development activities which require an Erosion and Sedimentation Control Plan in accordance with rules established by the NC Sedimentation Control Commission or local erosion and sedimentation control program approved in accordance with 15 NCAC 4B .0218, and which drain to and are within one mile of **HQW** shall be required to follow stormwater management rules as specified in 15A NCAC 2H .1000. Stormwater management requirements are described in 15A NCAC 2H .1006.

Other impacts to water quality, such as changes in water temperature as a result of increased exposure to sunlight due to the removal of stream-side vegetation or increased shade due to the construction of the bridge, and changes in stormwater flows due to changes in the amount of impervious surface adjacent to the stream channels, can be anticipated as a result of this project if roadway or bridge surface area increases. However, due to the limited amount of overall change anticipated in the surrounding areas, impacts are expected to be temporary in nature.

In-stream construction activities will be scheduled to avoid and minimize impacts to aquatic resources/organisms.

b. Impacts Related to Bridge Demolition and Removal

In order to protect the water quality and aquatic life in the area affected by this project, NCDOT and all potential contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in three NCDOT documents entitled "Pre-Construction Guidelines for Bridge Demolition and Removal", "Policy: Bridge Demolition and Removal in Waters of the United States", and "Best Management Practices for Bridge Demolition and Removal" (all documents dated 9/20/99). Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters.

The rails will be removed without dropping them into the waters of the U.S. There is potential for components of the deck and substructure to be dropped into waters of the U.S.

Dropping any portion of the structure into waters of the United States will be avoided unless there is no other practical method of removal. In the event that no other practical method is feasible, a worst-case scenario is assumed for calculations of fill entering waters of the United States. The maximum potential temporary fill associated with demolition procedures is estimated to be 119 cubic yards (91 cubic meters). Due to potential sedimentation concerns resulting from demolition of the bridge, where it is possible to do so, a turbidity curtain is recommended to contain and minimize sedimentation in the water. The resident engineer will coordinate with appropriate agencies prior to demolition and removal.

Under the guidelines presented in the documents noted in the first paragraph of this section, work done in the water for this project would fall under Case 2, which states that **no work shall be performed in the water during moratorium periods from February 15 to June 15 associated with fish migration, spawning, and larval recruitment into nursery areas.** This conclusion is based upon the classification of the waters within the project area and vicinity, and agency comments received from the North Carolina Wildlife Resources Commission.

D. Biotic Resources

1. Plant 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. When appropriate, the plant community names have been adopted and modified from the NHP classification system (Schafale and Weakley 1990) and the descriptions written to reflect local variations within the project study area. Three natural plant communities occur within the project study area and one community results from human activities. These communities total approximately 10.19 acres (4.13 ha), which does not include the open water attributed to Stones Creek.

Pine/Hardwood Forest - Pine/hardwood forest covers approximately 1.16 acres (0.47 ha) [11.4 percent] of the project study area. This plant community is primarily located west of the existing bridge. Tree species consist of loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), and water oak (*Quercus nigra*). Midstory and shrub species consist of red maple (*Acer rubrum*), American holly (*Ilex opaca*), wax myrtle (*Myrica cerifera*), and buckeye (*Aesculus pavia*). Groundcover species consist of Japanese honeysuckle (*Lonicera japonica*) and jessamine (*Gelsemium sempervirens*).

Mixed Hardwood Forest – Mixed hardwood forest covers approximately 2.80 acres (1.14 ha) [27.5 percent] of the project study area. This plant community is located on the higher slopes above the floodplain of Stones Creek. Tree species include water oak, laurel oak (*Quercus laurifolia*), red maple, sweetgum, sycamore (*Plantanus occidentalis*), and American beech (*Fagus grandifolia*). Shrub species consist of wax myrtle, American holly, and buckeye. Groundcover species include Japanese honeysuckle, bracken fern (*Pteridium aquilinum*), and jessamine.

Coastal Plain Bottomland Hardwood Forest – Coastal plain bottomland hardwood forest covers approximately 2.28 acres (0.92 hectares) [22.4 percent] of the project study area. This community type is located at lower elevations that the mixed hardwood forest, which is primarily upland habitat. Dominant tree species include laurel oak (*Quercus laurifolia*), red maple, sweetgum, ironwood (*Carpinus caroliniana*), swamp tupelo (*Nyssa biflora*), sycamore (*Plantanus occidentalis*), American elm (*Ulmus americana*) and green ash (*Fraxinus pennsylvanica*). Shrub species consist of wax myrtle, elderberry (*Sambucus canadensis*), tag alder (*Alnus serrulata*), and dwarf palmetto (*Sabal minor*). Herbaceous species consist of sedges (*Carex* spp.), cardinal flower (*Lobelia cardinalis*), netted chain-fern (*Woodwardia areolata*), and Jack-in-the-pulpit (*Arisaema triphyllum*). Coastal

plain bottomland hardwood forests are periodically flooded, although the duration is much less than that experienced in other wetland types such as cypress-gum swamps.

Clearcut Area – The clearcut area covers approximately 0.86 acre (0.35 hectares) [8.4 percent] of the project study area. This area appears to have originally been vegetated with hardwood species, likely the same species as in the adjacent mixed hardwood forest community. What appears to be a utility easement runs parallel with NC 210 in this clearcut area. No substantial amount of intact vegetation occurs in the clearcut area.

Maintained/Disturbed Land – Maintained/disturbed land covers approximately 3.09 acres (1.25 hectares) [30.3 percent] of the project study area. Maintained/disturbed land within the project study area include: roadways, roadsides, maintained residential yards, powerline rights-of-way, and areas where other human related activities dominate the landscape. Roadsides and right-of-way are typically maintained by mowing and/or herbicides. Species observed within the road right-of-ways include Japanese honeysuckle, red maple, various grasses, loblolly pine, and blackberry (*Rubus argutus*).

The plant communities within the project study area were mapped on an aerial photograph base and field verified. A summary of the coverage of each plant community within the project study area is presented in Table 1. This does not take into account the final alignment and actual right-of-way width, which will result in much less impact than the acreages presented below.

Table 1. Impacts to Plant Communities.

	Pine/ Hardwood Forest	Mixed Hardwood Forest	Coastal Plain Bottomland Hardwood Forest	Clear cut Area	Maintained/ Disturbed Land
Alternative A (Preferred)	0.09ac (0.03ha)	0.45ac (0.18ha)	0.38ac (0.15ha)	0.22ac (0.09ha)	2.7ac (1.1ha)

2. Wildlife

The project study area was visually surveyed for signs of terrestrial wildlife. Very little terrestrial wildlife was observed within the project study area. Mammals expected to occur in and around the project study area include raccoon (*Procyon lotor*), marsh rabbit (*Sylvilagus palustris*), white-tailed deer (*Odocoileus virginanus*), black bear (*Ursus americanus*), and Virginia opossum (*Didelphis virginiana*).

Very few terrestrial reptiles were observed within the project study area. Reptile species observed include black racer (*Coluber constrictor*) and green anole (*Anolis carolinensis*). Other reptile species expected to occur in and around the project study area include eastern box turtle (*Terrapene carolina*), rough greensnake (*Opheodrys aestivus*), ground skink (*Scincella lateralis*), and rat snake (*Elaphe obsoleta*).

No terrestrial or arboreal amphibians were observed within the project study area. Terrestrial or aboreal amphibians expected to occur in and around the project study area include such species as southern leopard frog (*Rana utricularia*), and spring peeper (*Pseudacris crucifer*).

Avian species observed within the project study area include great blue heron (*Ardea herodias*), belted kingfisher (*Ceryle alcyon*), and green heron (*Butorides virescens*). Other species expected to occur in and around the project study area include such species as snowy egret (*Egretta thula*), great egret (*Ardea alba*), common yellowthroat (*Geothlypis trichas*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), and various warblers (*Dendroica* spp.).

Most of the terrestrial wildlife occurring in the project study area are typically adapted to life in or around fragmented landscapes, and overall impacts will be minor. Due to the lack of, or limited, infringement on natural communities, the proposed project will not result in substantial loss or displacement of known terrestrial animal populations. Wildlife movement corridors are not expected to be substantially impacted by the proposed project.

3. Aquatic Communities

The aquatic habitat located within the project study area includes Stones Creek and the adjacent littoral fringe, where regular flooding is evident. This littoral fringe is vegetated with such aquatic species as pickerelweed (*Pontederia cordata*), cattail (*Typha latifolia*), giant tearthumb (*Polygonum sagittatum*), and alligatorweed (*Alternanthera philoxeroides*).

Kick-netting, seining, dip-netting, and electroshocking were limited due to the unstable substrate. Visual observation of stream banks and channel within the project study area were conducted along Stones Creek to document the aquatic community. The unstable substrate prevented the use of the back-mounted electro-shocker, thus limiting the results of the fisheries survey.

Fish species documented in Stones Creek during the field investigation include eastern mosquitofish (*Gambusia holbrooki*) and bluegill (*Lepomis macrochirus*). Additional species that likely utilize this section of Stones Creek include yellow bullhead (*Ictalurus natalis*), pirate perch (*Aphredoderus sayanus*), redbreast sunfish (*Lepomis auritus*), and redfin pickerel (*Esox americanus*). Menhinick (1991) documents bay anchovy (*Anchoa mitchilli*) and the Atlantic menhaden (*Brevoortia tyrannus*) from Stones Creek and adjacent Stones Bay.

Coastal streams are often used by anadromous fish species such as striped bass (*Morone saxatillis*) and shad (*Alosa* spp. and *Dorosoma* spp.). Anadromous fish may occur in Stones Creek. Menhinick (1991) does not document any of these species from Stones Creek, but does document these species from the adjacent New River system. Menhinick (1991) does not document either the Atlantic sturgeon (*Acipenser oxyrhynchus*) or the shortnose sturgeon (*A. brevirostrum*) as occurring in Stones Creek; however, he does document the Atlantic sturgeon from the New River Inlet area.

The NCWRC requested a moratorium on in-water work from February 15 to June 15 due to the potential for anadromous fish to occur in the project area.

Limited benthic macroinvertebrate sampling was conducted in Stones Creek. Samples were collected pursuant to current DWQ methodology. Table 2 provides a list of benthic organisms collected and identified Order and Family when possible.

Table 2. Benthic Macroinvertebrates Collected from Stones Creek.

Order	Family
Odonata	Coenagrionidae
	Gomphidae
	Corduliidae
Hemiptera	Corixidae
Coleoptera	Haliplidae
Diptera	Chironomidae
	Dixidae
Hydracarina	
Amphipoda	
Decapoda	

4. Anticipated Impacts to Biotic Communities

a. Terrestrial Communities

The replacement of Bridge No. 19 is expected to involve minor impacts to the terrestrial communities located within the project study area. The replacement of the existing structure will reduce permanent impacts to plant communities and limit community fragmentation. Impacts resulting from bridge replacement are generally limited to narrow strips adjacent to the existing bridge structure and roadway approach segments. Plant communities within the project study area are presented in Table 1; however, actual impacts will be limited to the designed right-of-way and permitted construction limits. Due to the anticipated lack of, or limited, infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. Wildlife movement corridors will not be substantially impacted by the proposed project. Wildlife known to utilize the project study area are generally acclimated to fragmented landscapes, and the bridge replacement will not create any additional detrimental conditions within the project study area.

b. Aquatic Communities

The replacement of Bridge No. 19 may cause temporary impacts to the aquatic communities in and around the project study area. Potential impacts to downstream aquatic habitat will be avoided by bridging Stones Creek to maintain regular flow and stream integrity. Support structures will be designed to avoid wetland or open water habitats whenever possible. In addition, temporary impacts to downstream habitat from increased sediment during construction will be reduced by limiting in-stream work to an absolute minimum, except for the removal of the portion of the sub-structure below the water. Waterborne sediment flowing downstream can be minimized by use of a floating silt curtain. Stockpiled material will be kept a minimum of 50 feet (15.2 m) from the stream channel. Silt fences will also be erected around any stockpiled material to minimize the chance of

erosion or run-off from affecting the stream channel. Bridge Demolition and Removal (BDR) will follow current NCDOT Guidelines. Best Management Practices (BMPs) for the protection of surface waters will be strictly enforced to reduce impacts during all construction phases including the BMPs for **HQW**s.

Aquatic wildlife may be temporarily displaced during the bridge replacement project. No long-term impacts are expected to result from this project. Anadromous fish species have been documented by Menhinick (1991) as occurring in the subbasin and may occur in the project study area. The NC Wildlife Resources Commission recommends following NCDOT's *Stream Crossing Guidelines for Anadromous Fish* to ensure that the replacement of the bridge will not impede anadromous fish. A moratorium on in-water work is requested from February 15 to June 15.

Resident aquatic species may be displaced during construction activities; however, anticipated impacts are expected to be minor and temporary.

E. Special Topics

1. Waters of the United States

Water bodies such as rivers, lakes, and streams are subject to jurisdictional consideration under the Section 404 program of the Clean Water Act (CWA). Additionally, wetlands are also considered "Waters of the United States" and are also subject to jurisdictional consideration. Wetlands have been defined by EPA and COE as:

> Those areas that are inundated or saturated by groundwater at a frequency and duration sufficient to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)(1986)].

Wetlands subject to review under Section 404 of the CWA (33 U.S.C. 1344) are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987).

One wetland type occurs within the project study area. The wetlands adjacent to the surface waters of Stones Creek exhibit characteristics of palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated (PFO1E) wetlands pursuant to Cowardin *et al.* (1979). This wetland classification is consistent with a coastal plain bottomland hardwood forest. The surface waters within the channel of Stones Creek exhibit characteristics of riverine, lower perennial, unconsolidated bottom, permanently flooded (R2UBH) waters (Cowardin et al. 1979).

Jurisdictional wetland areas were delineated based on current COE methodology, and the areas were subsequently mapped with Trimble ™ Global Positioning System (GPS) units. A Notification of Jurisdictional Determination from the COE dated January 2, 2002 concurred with delineated boundaries. Table 3 contains the approximate impacts to wetlands and surface waters.

Table 3. Jurisdictional Wetlands and Surface Waters.

Alternative	Wetland PFO1E Acres (Hectares)	Stream Impact R2UBH Feet (Meters)
Alternative A (Preferred)	.004 (.002)	0

Impacts to open water areas of Stones Creek are not expected due to the use of channel-spanning structures.

2. Permits

It is anticipated that this project will fall under Nationwide Permit 23, which is a type of general permit. Nationwide Permit 23 is relevant to approved Categorical Exclusions. Activities under this permit are categorically excluded from environmental documentation because they are included within a category of activities, which neither individually nor cumulatively have a substantial effect on the human environment. Activities authorized under nationwide permits must satisfy all terms and conditions of the particular permit.

A Section 401 Water Quality Certification from the state is necessary for projects that require Section 404 Permits. The state has General Certifications, which will match the permit type authorized by the USACE. Although a single form is utilized to request both the 404 Permit and the 401 Certification, the state must issue the 401 Certification before the USACE will issue the 404 Permit. Written concurrence/notification is not always required by the state, and varies depending upon the General Certification. If this project qualifies under Nationwide Permit 23, the DWQ must be notified, however written concurrence from the DWQ is not required.

Onslow County is a coastal county and is therefore under the additional jurisdiction of the Coastal Area Management Act (CAMA) as regulated by the Coastal Resources Commission (CRC) and the NCDCM. Activities that impact certain coastal wetlands under the jurisdiction of CAMA or Areas of Environmental Concern (AEC) typically require CAMA approval through the NCDCM (NCDCM 2001). A portion of the project study area qualifies as AEC because Stones Creek is public trust waters. Public trust waters are the coastal waters and submerged lands that every North Carolinian has the right to use. These areas often overlap with estuarine waters, but also include many "Inland" fishing waters (NCDCM 2001). Stones Creek is classified as a "Coastal Water" by the NCMFC. The replacement of Bridge No. 19 will require CAMA approval.

The United States Coast Guard (USCG) is responsible for authorizing bridges pursuant to Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946. The purpose of these Acts are to preserve the public right of navigation and to prevent interference with interstate and foreign commerce. Stone Creek is subject to tidal influence and thus considered legally navigable for Bridge Administration purposes. Stones Creek meets the criteria for advance approval waterways outlined in Title 33, Code of Federal Regulations, Section 115.70. Advance approval waterways are those that are navigable in law, but not actually navigated by other than small boats.

The Commandant of the Coast Guard has given his advance approval to the construction of bridges across such waterways; therefore, an individual permit will not be required for this project.

Impacts to open water areas of Stones Creek are not expected due to the use of channel-spanning structures. During bridge removal procedures, NCDOT's BMP's will be utilized, including erosion control measures.

Wetland Avoidance –Due to the extent of wetlands and surface waters within the project study area, complete avoidance of jurisdictional impacts may not be possible.

Minimization – Minimization of jurisdictional impacts will be achieved by utilizing as much of the existing bridge corridor as possible. The following guidelines will be used during construction of this project: "Pre-Construction Guidelines for Bridge Demolition and Removal", "Policy: Bridge Demolition and Removal in Waters of the United States", and "Best Management Practices for Bridge Demolition and Removal." Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters. If removal of the substructure will create disturbance in the streambed, a turbidity curtain will be used due to sediment concerns. Spanning of Stones Creek will also serve to minimize direct impacts to the stream channel.

If no practical alternative exists to remove the current bridge other than to drop it into the water, prior to removal of debris off-site, fill related to demolition procedures will need to be considered during the permitting process. A worst-case scenario will be assumed with the understanding that if there is any other practical method available, the bridge will not be dropped into the water. Permitting will be coordinated such that any permit needed for bridge construction will also address issues related to bridge demolition.

3. Mitigation

Compensatory mitigation is not proposed for this project due to the limited nature of project impacts. However, utilization of BMPs is recommended in an effort to minimize impacts. Fill or alteration of more than 150 linear feet (45.8 meters) of stream may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE.

F. Rare and Protected Species

1. Federally Protected Species

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.). The following federally protected species are listed for Onslow County (FWS list last updated February 25, 2003, search performed via web on December 15, 2003):

Table 4. Federally Protected Species Listed for Onslow County, NC.

Common Name	Scientific Name	Status	Biological Conclusion
American alligator	*Alligator mississippiensis*	T(S/A)[1]	Not applicable
Loggerhead sea turtle	*Caretta caretta*	T	No effect
Piping plover	*Charadrius melodus*	T	No effect
Green sea turtle	*Chelonia mydas*	T	No effect
Leatherback sea turtle	*Dermochelys coriacea*	E	No effect
Eastern cougar	*Felis concolor couguar*	E	No effect
Bald eagle	*Haliaeetus leucocephalus*	T[1]	No effect
Red-cockaded woodpecker	*Picoides borealis*	E	No effect
Seabeach amaranth	*Amaranthus pumilus*	T	No effect
Golden sedge	*Carex lutea*	E	No effect
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E	No effect
Cooley's meadowrue	*Thalictrum cooleyi*	E	No effect

T(S/A) = Threatened due to similar appearance
[1] Proposed for delisting
T = Threatened
E = Endangered

American alligator – American alligator is listed as threatened based on the similarity in appearance to other federally listed crocodilians; however, there are no other crocodilians native to North Carolina. American alligators can be found in a wide variety of freshwater to estuarine habitats including swamp forests, bottomland hardwood forests, marshes, large streams, canals, ponds and lakes (Palmer and Braswell 1995). This habitat exists within the project study area, and the potential for alligators within the project study area does exist. No individuals or direct evidence of occurrence was observed during the field investigation.

BIOLOGICAL CONCLUSION: Not Applicable

NHP records do document occurrences of the American alligator in Stones Creek as recently as 1992. Construction activities may temporarily displace any American alligators in the vicinity; however, no long-term impact to the American alligator is anticipated as a result of this project. No biological conclusion is required for the American alligator since it is listed as T(S/A).

Sea turtles - Three marine turtles are listed for Onslow County: leatherback sea turtle, green sea turtle, and loggerhead sea turtle.

The loggerhead sea turtle is the most common sea turtle on the coast of the North Carolina and is most numerous from late April to October. This species averages 31 to 47 inches (0.8 to 1.2 meters) in length and weighs from 170 to 500 pounds (lbs) (77 to 227 kg) (Martof *et al.* 1980). The loggerhead sea turtle is temperate or subtropical in nature, and is primarily oceanic, but it may also

stray into freshwater bays, sounds, and large rivers. Nesting habitat for loggerhead sea turtles consists of ocean beaches.

Both the green sea turtle and leatherback sea turtle typically nest on sandy beaches in tropical areas. The green sea turtle is most commonly found in the Caribbean where they breed, although individuals, usually immatures, are occasionally found along the North Carolina coast. Although primarily tropical in nature, the range of the leatherback sea turtle may extend to Nova Scotia and Newfoundland (Martof *et al.* 1980). The leatherback sea turtle sometimes moves into shallow bays, estuaries, and even river mouths. The green sea turtle reaches lengths of 30 to 60 inches (0.8 to 1.5 meters) and weighs of 220 to 650 lbs. (100 to 295 kg), and has a smooth, heart-shaped shell (Martof *et al.* 1980). The leatherback sea turtle is distinguished by its larger size (46 to 70-inch [1.2 to 1.8-meter] carapace, 650 to 1,500 lbs. [295 to 680 kg]) and a ridged shell of soft, leathery skin. Green sea turtles are omnivorous, primarily eating jellyfish and seaweeds. The leatherback sea turtle also feeds extensively on jellyfish, although its diet often includes other sea animals and seaweed.

BIOLOGICAL CONCLUSION: No Effect

These species are not expected to occur in the project study area due to lack of nesting habitat and minimal feeding opportunities. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. This project will not have an affect on sea turtles due to the lack of suitable nesting and foraging habitat for these species.

Piping plover - Piping plovers are small shorebirds that occur along beaches above the high tide line, sand flats at the ends of sand spits and barrier islands, gently sloping foredunes, blowout areas behind primary dunes, and washover areas cut into or between dunes (FWS 1996a). Nests are typically found on open, wide sandy stretches of beach similar to those associated with inlets and capes.

BIOLOGICAL CONCLUSION: No Effect

There is no suitable habitat in the project study area for this species. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. The proposed project will not affect the piping plover or any suitable habitat.

Eastern cougar - The eastern cougar is a possibly extinct eastern subspecies of the widespread mountain lion species. This species was possibly extirpated from North Carolina by the late 1800's although recent sporadic sightings have been reported from remote areas of the Mountains and Coastal Plain (Lee 1987). Mountain lions are large, long-tailed cats; adult males may measure 7.0 to 9.0 feet (2.1 to 2.7 meters) total length with females averaging 30 to 40 percent smaller (Handley 1991). Adult mountain lion tracks measure approximately 3.5 inches (0.09 meters) (Lee 1987).

Recent specimens of mountain lion taken in North Carolina and elsewhere in mid-Atlantic states have proved to be individuals of other subspecies that have escaped or been released from captivity

(Lee 1987, Handley 1991). The eastern cougar would require large tracts of relatively undisturbed habitat that support large populations of white-tailed deer (Webster *et al.* 1985).

BIOLOGICAL CONCLUSION: No Effect

No tangible evidence has been produced documenting the existence of this subspecies in Onslow County. Due to the lack of wilderness area within the project study area, no suitable habitat for this subspecies is believed to be present. No cat tracks of sufficient size for eastern cougar were identified during field investigations. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. The proposed project will not affect this species.

Bald eagle - The bald eagle is a large raptor with a wingspan greater than 6.0 feet (1.8 meters). Adult bald eagles are dark brown with white head and tail. Immature eagles are brown with whitish mottling on their tail, belly, and wing linings. Bald eagles typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May (Potter *et al.* 1980).

Bald eagles typically nest in tall, living trees in a conspicuous location near water and forage over large bodies of water with adjacent trees available for perching (Hamel 1992). Preventing disturbance activities within a primary zone extending 750 to 1500 feet (229 to 457 meters) outward from a nest tree is considered critical for maintaining acceptable conditions for eagles (FWS 1987). FWS recommends avoiding any disturbance activities, including construction and tree-cutting, within this primary zone. Within a secondary zone extending from the primary zone boundary out to a distance of 1 mile (1.6 km) from a nest tree, construction and land-clearing activities will be restricted to the non-nesting period. FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding substantial land-clearing activities within 1500 feet (457 meters) of roosting sites.

BIOLOGICAL CONCLUSION: No effect

No bald eagle nests were observed within the project study area. Stones Creek may provide potential foraging habitat; however, development and human disturbances reduce the likelihood for bald eagles to utilize the project study area. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. **A follow up survey will be conducted 1 to 2 years prior to project construction.**

Red-cockaded woodpecker (RCW) - This small woodpecker (7 to 8.5 inches [0.2 meters] long) has a black head, prominent white cheek patch, and black and white barred back. Males often have red markings (cockades) behind the eye, but the cockades may be absent or difficult to see (Potter *et al.* 1980). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly, longleaf (*Pinus palustris*), slash (*P. elliotii*), and pond (*P. serotina*) pines. Nest cavities are constructed in the heartwood of living pines, generally older than 60 years, that have been infected

with red-heart disease. Nest cavity trees typically occur in clusters, which are referred to as colonies. The woodpecker drills holes into the bark around the cavity entrance, which results in a shiny, resinous buildup around the entrance. This allows for easy detection of active nest trees due to the high visibility of the resin deposit at the cavity entrance. Pine flatwoods or pine savannas that are fire maintained serve as ideal nesting and foraging sites for this species. Development of a thick understory within a given area usually deters nesting and foraging. Potential nest sites for RCW's include pine and pine/hardwood stands greater than 60 years of age. Hardwood/pine stands (<50% pine) greater than 60 years of age may also be considered potential nesting habitat if adjacent to potential foraging habitat (Henry 1989).

Foraging habitat is typically comprised of open pine/mixed hardwood stands over 30 years of age (Henry 1989). Pines must comprise at least 60 percent of the canopy in order to provide suitable foraging for RCW's. Somewhat younger pine stands may be utilized if the trees have an average diameter at breast height (DBH) greater than or equal to 9 inches (0.2 meters). Foraging stands must be connected to other foraging areas or nesting areas in order to be deemed a viable foraging site. Open spaces or unsuitable habitat wider than approximately 330 feet (100 meters) are considered a barrier to RCW foraging.

BIOLOGICAL CONCLUSION: No Effect

No RCW nesting or foraging habitat was observed within the project study area. The pines located in the pine/hardwood forest community do not appear to be old enough for nesting and foraging would likely be inhibited due to thick groundcover and lack of a connection to other foraging or nesting areas.

NHP records document the known occurrence of RCW's within 1.5 miles (2.4 km) of the project study area. Several colonies were identified by NHP along NC 172 south of the project study area; and they were last observed in 1980. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. Project construction will not affect the RCW or any suitable habitat.

Seabeach amaranth - This species is an annual herb that grows on barrier island beaches. It is a succulent annual that is sprawling or trailing and may reach 2 feet (0.6 meter) or more in length. Inconspicuous flowers and fruits are produced in the leaf axils, typically beginning in July and continuing until frost. Primary habitat for seabeach amaranth consists of bare sand, especially on overwash flats at accreting ends of islands, and lower foredunes and upper strands of non-eroding beaches. The only remaining large populations are in coastal North Carolina (FWS 1996b).

BIOLOGICAL CONCLUSION: No Effect

No suitable habitat for seabeach amaranth (barrier beaches) occurs within the project study area. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. No impacts to seabeach amaranth will result from this project.

Golden sedge - Golden sedge is a member of the sedge family and is endemic to North Carolina. The fertile culm (stem) can reach over 3 feet (1 meter) in height. This perennial sedge has yellowish green leaves that are grass-like with those of the culm mostly basal and up to 10 inches (0.3 meters) long. The leaves of the vegetative shoots reach a length of 25 inches (0.6 meters). Fertile culms produce two to four flowering spikes in early and mid April. Fruits mature by mid-May, with most or all fruit fallen by late June. Golden sedge occurs on sites where subterranean coquina limestone influences an otherwise acidic sandy-peaty soil, typically Grifton fine sandy loam. Soils are typically wet to saturated during spring maturation. Golden sedge typically occupies the partially wooded ecotone between longleaf pine savanna and nonriverine swamp forest. This sedge appears to be dependent on occasional-to-frequent fire associated with the adjacent savanna to suppress the shrub understory. Golden sedge is known from only Pender and Onslow counties in North Carolina and all populations are in one 4-mile (6.4 km) wide area (LeBlond 1996).

BIOLOGICAL CONCLUSION: No effect

No suitable habitat for golden sedge was observed within the project study area. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. No impacts to golden sedge will result from this project.

Rough-leaved loosestrife - The rough-leaved loosestrife is a rhizomatous perennial that flowers from late May to June with seeds forming by August and capsules dehiscing in October. This species can grow up to 2 feet (0.6 meter) tall has yellow flowers that typically bloom in late May through June. Rough-leaved loosestrife typically occurs along the ecotone between long-leaf pine savannas and wetter, shrubby areas where lack of canopy vegetation allows abundant sunlight into the herb layer (*i.e.*, pocosins). This species is endemic to the Coastal Plain and Sandhills region of North Carolina. This species is fire maintained, and suppression of naturally occurring fires has contributed to the loss of habitat in North Carolina.

BIOLOGICAL CONCLUSION: No effect

NHP records show that rough-leaved loosestrife has been documented approximately 1.8 miles (2.9 km) west of the project study area in an area known as Great Sandy Run. NHP records indicate that this population was last observed in 1992. No suitable habitat that would support rough-leaved loosestrife occurs in the project study area. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001. No impacts to rough-leaved loosestrife will result from this project.

Cooley's meadowrue - Cooley's meadowrue is a rare perennial herb endemic to the Southeastern Coastal Plain. The species grows in circumneutral soil in moist wet savannas and savanna-like areas kept open by fire or other disturbance. In North Carolina, Cooley's meadowrue has been documented as growing in the following soil series: Foreston, Grifton, Muckalee, Torhunta, and Woodington. All of these series have sandy loam textures. Tulip poplar and cypress (*Taxodium* sp.) growing together, bordering a savanna-like area, has been the best indicator of Cooley's meadowrue sites (FWS 1994b).

BIOLOGICAL CONCLUSION: No Effect

Suitable habitat for Cooley's meadowrue is not located within the project study area. Although Muckalee loam occurs within the project study area, the vegetative community types are not consistent with those associated with the known populations of Cooley's meadowrue. NHP does not document any occurrences of this species within 1.0 mile (1.6 km) of the project study area as of December 20, 2001.

2. Federal Species of Concern

The FWS list 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 potential suitable habitat (Amoroso 1999, LeGrand et al. 2001) within the project study area has been evaluated for the following FSC species listed for Onslow County (Table 5). Information for this table was obtained from the FWS website (last updated February 25, 2003), and the North Carolina Natural Heritage Program website (last updated January 2003, checked on December 15, 2003).

Table 5. Federal Species of Concern (FSC) Listed for Onslow County, NC.

Common Name	Scientific Name	State Status	Potential Habitat
Bachman's sparrow	*Aimophila aestivalis*	SC	No
Henslow's sparrow	*Ammodramus henslowii*	SR	No
Southern hognose snake	*Heterodon simus*	SC	Yes
Black Rail	*Laterallus jamaicensis*	SR	No
Mimic glass lizard	*Ophisaurus mimicus*	SC	Yes
Eastern painted bunting	*Passerina ciris ciris*	SR	No
Carolina gopher frog	*Rana capito capito*	T	No
Croatan crayfish	*Procambarus plumimanus*	NL	Yes
Carolina spleenwort	*Asplenium heteroresiliens*	E	No
Chapman's sedge	*Carex chapmanii*	NL	No
Hirst's panic grass	*Panicum hirstii* (= *Dicanthelium* sp. 1)	E	No
Venus flytrap	*Dionaea muscipula*	SR-L, SC	No
Pondspice	*Litsea aestivalis*	SR-T	No
Boykin's lobelia	*Lobelia boykinii*	SR-T	No
Loose watermilfoil	*Myriophllum laxum*	T	No
Carolina grass-of-parnassus	*Parnassia caroliniana*	E	No
Awned meadowbeauty	*Rhexia aristosa*	T	No
Thorne's beaksedge	*Rhynchospora thornei*	E	No
Carolina goldenrod	*Solidago pulchra*	E	No
Spring-flowering goldenrod	*Solidago verna*	SR-L	Yes
Carolina asphodel	*Tofieldia gladra*	NL	No
A quillwort	*Isoetes microvela*	SR-L	Yes
Coastal beaksedge	*Rhynchospora pleiantha*	SR-T	No
Coastal goldenrod	*Solidago villosicarpa*	SR-L	No
An undescribed skipper*	*Atrytonopsis* sp. 1	SR	No
Savanna onion*	*Alluim* sp. 1	SR-L	No
Many-flowered grass-pink	*Calopogon multiflorus*	E	No
Pineland plantain*	*Plantago sparsiflora*	E	No
Swamp forest beaksedge*	*Rhynchospora decurrens*	SR-P	Yes

E-Endangered, T-Threatened, SC-Special Concern, SR–Significantly Rare, L-Limited, NL-Not listed by NHP, P-Peripheral, -T-Throughout, * These FSCs were listed by NHP as occurring in Onslow County, but the FWS list did not include them for that county.

3. Summary of Anticipated Impacts

Three FSCs have been documented by the NHP as occurring within 3.0 miles (4.8 km) of the project study area. These three species include Venus flytrap, Carolina goldenrod, and awned meadowbeauty. All of the known occurrences are on Camp Lejeune property. The closest occurrence of Venus flytrap is approximately 1.5 miles (2.4 km) southeast of the project study area and was last observed in 1990. The closest known occurrence of Carolina goldenrod is approximately 1.3 miles (2.1 km) from the project study area and was last observed in 1992. The closest known occurrence of awned meadowbeauty is approximately 1.3 miles (2.1 km) away and was last observed in 1991. No FSCs were observed within the project study area during the field investigation

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

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on May 2, 2002. All structures over 50 years of age within the APE were photographed, and later reviewed by the North Carolina State Historic Preservation Office (HPO). In a concurrence form dated October 1, 2002 the State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed on or eligible for listing in the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

The SHPO, in a memorandum dated December 20, 2002 stated, "There are no known archaeological sites within the proposed project area...it is unlikely that any archaeological resources that may be eligible for conclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project." A copy of the SHPO memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

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

The project is a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

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

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

No adverse impact on families or communities is anticipated. Right-of-way acquisition will be limited. No relocations of residents or businesses are expected with 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 whether minority or low-income populations were receiving disproportionately high and adverse human health or 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 anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

There are no publicly owned recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). Since the proposed bridge will be replaced at the existing location the Farmland Protection Policy does not apply.

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

This project is an air quality "neutral" project, so it is not required to be included the regional emission analysis (if applicable) and a project level CO analysis is not required.

The traffic volumes will not increase or decrease because of this project. There are no receptors located in the immediate project area. The project's impact on noise and air quality will not be substantial.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise (23 CFR Part 772) and for air quality (1990 CAAA and NEPA) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Division of Solid Waste Management indicates no hazardous waste sites in the project area. A field reconnaissance survey was conducted in the vicinity of the project. Based on the field survey, this project is not anticipated to impact USTs.

Onslow County is currently participating in the National Flood Insurance Regular Program. This project site on Stones Creek is within an approximate flood hazard zone. This project is not anticipated to have any adverse impacts on the existing flood plain. Attached is a copy of the Flood Insurance Rate Map, Figure 5, on which are shown the approximate limits of the 100-year flood plain in the vicinity of the project. There are no practical alternatives to crossing the floodplain area. Any shift in alignment will result in a crossing of about the same magnitude. This project is not expected to increase the level or extent of the upstream flood hazard.

On the basis of the above discussion, it is concluded that no significant adverse environmental effects will result from implementation of the project.

VIII. PUBLIC INVOLVEMENT

Efforts were undertaken early in the planning process to contact local officials to involve them in the project development with scoping letters. Scoping letters were also sent to various agencies including the United States Marine Corps.

A workshop notice was mailed out in May 2003 to local officials and citizens notifying them of the preferred alternative and public workshop. An informal public workshop was held on June 19, 2003 at Dixon High School and the preferred alternative was displayed. Three citizens attended the workshop.

IX. AGENCY COMMENTS

County of Onslow-Department of Emergency Services

Comments: This project will affect four fire departments, one rescue quad, and two EMS stations that cover approximately 100 square miles of Onslow County. In some cases...units may have to divert nearly fourteen miles around the construction site.

Response: The proposed detour route is approximately 7.4 miles in length; use of an offsite detour will expedite construction and minimize environmental impacts.

Comment: Questions to consider include, "Will the highway be completely impassible at any given time?" "What are the expected traffic delays?" "When access has been discontinued for more than a reasonable amount of time, will NCDOT notify Emergency 911 Dispatchers?"

Response: NCDOT will notify Emergency 911 Dispatchers of the road closure and it will be completely impassable.

Comment: The project could involve disruption of emergency access to three schools – two at Highway 17 from the Sneads Ferry side, and another one closer to Highway 172, which could be affected from the Highway 17 direction.

Response: NCDOT will notify Onslow County Schools Transportation about the road closure.

Comment: Disruption of the water system is a concern during bridge construction. Water mains travel either side of Highway 210. Water pressure is important in providing fire protection at schools, local businesses, and residential properties.

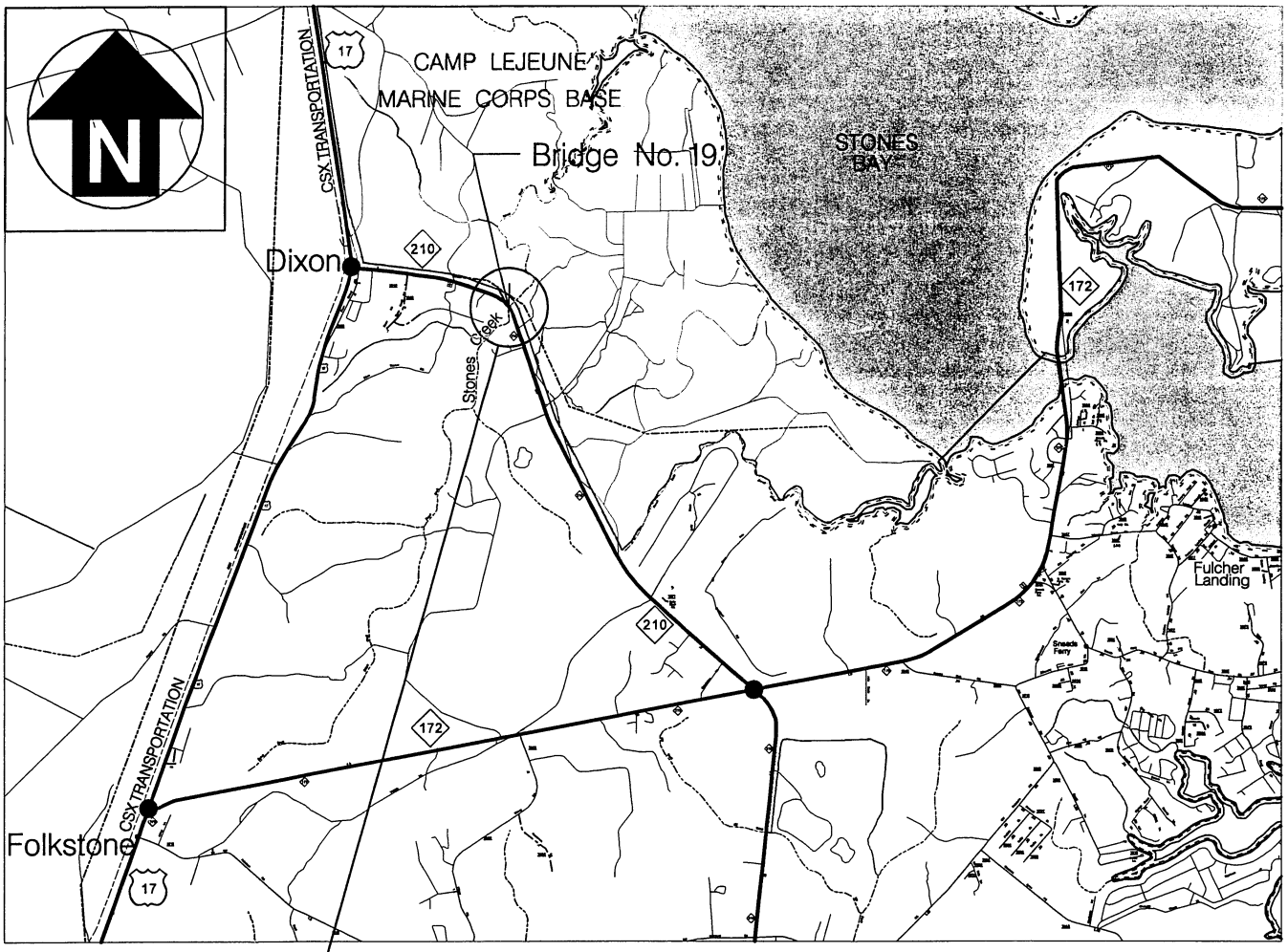
Response: Disruption of the utility lines is not anticipated. All reasonable measures to avoid impacts to the utility lines will be implemented as applicable.

Comment: We are already experiencing some delays due to bridges under construction at two locations: Piney Green Road and the bridge leading from Swansboro into Carteret County on Highway 24 East. Arrangements have been made to contact the person in charge at the Swansboro Bridge (Gary Butters 252-241-1945) to pass along information concerning emergency vehicles.

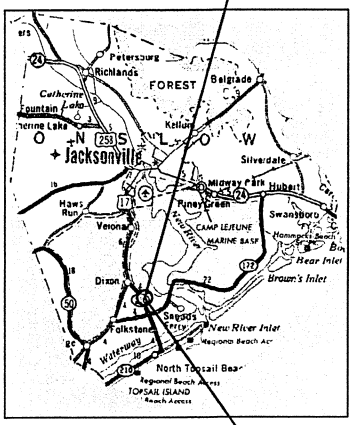
Response: NCDOT will make a reasonable effort to notify the public prior to closing the roadway. The Swansboro Bridge on US 24 has been completed.

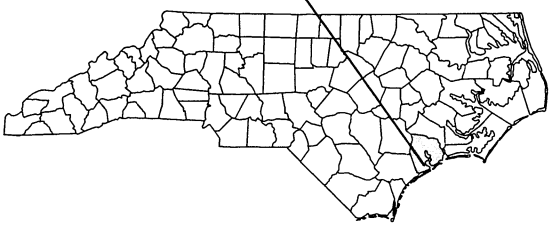
Comment: The school located near the Highway 172 end of the bridge, at Four Corners in Sneads Ferry, serves as a citizen shelter during hurricane season, and construction could cause some problems during that time regarding relocating a hurricane shelter.

Response: So noted.



PROPOSED DETOUR ROUTE 7.4 MILES

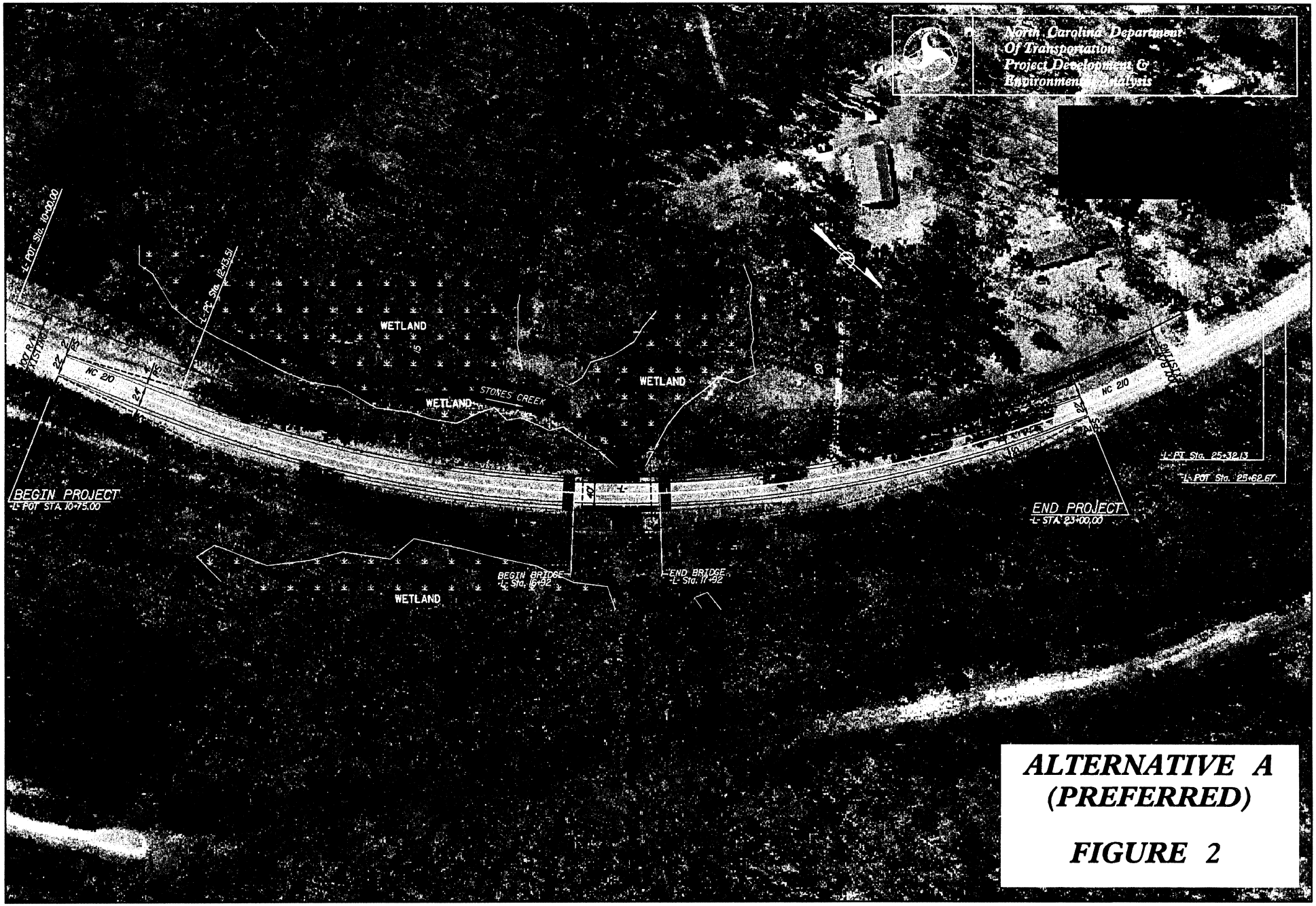


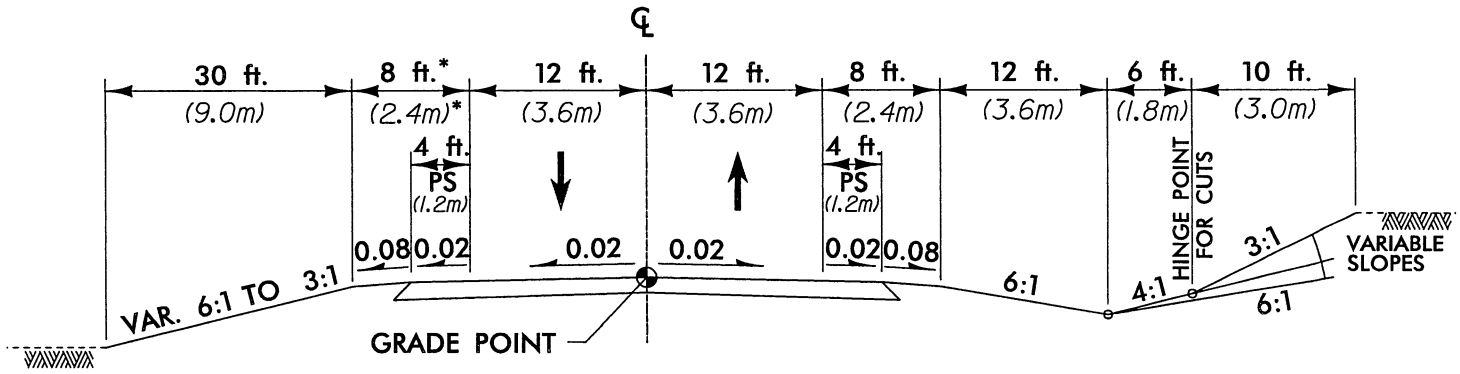


North Carolina Department of Transportation
Project Development & Environmental Analysis

ONSLOW COUNTY
BRIDGE NO. 19 ON NC 210
OVER STONES CREEK
B-4215

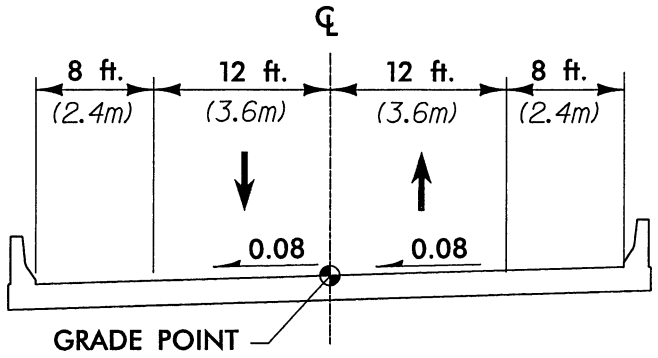
FIGURE 1


North Carolina Department
Of Transportation
Project Development &
Environmental Analysis
WETLAND
WETLAND
WETLAND
WETLAND
STONES CREEK
NC 210
NC 210
BEGIN PROJECT
-L- POT STA. 10+75.00
END PROJECT
-L- STA. 23+00.00
BEGIN BRIDGE
-L- Sta. 16+92
END BRIDGE
-L- Sta. 11+92
-L- PT Sta. 10+00.00
-L- PT Sta. 12+15.51
-L- PT Sta. 25+32.13
-L- POT Sta. 25+62.67
ALTERNATIVE A
(PREFERRED)
FIGURE 2



TYPICAL APPROACH SECTION
(PROPOSED)

* 11 ft. (3.3m) WHEN GUARDRAIL IS WARRANTED



TYPICAL BRIDGE SECTION
(PROPOSED)

TRAFFIC DATA

(EXISTING YR.) 2003 ADT = 8,550 LOS D
(CONST. YR.) 2005 ADT = 9,250 LOS D
(DESIGN YR.) 2030 ADT = 17,900 LOS E
DUAL 4%
TTST 3%

FUNCTIONAL CLASSIFICATION :
MAJOR COLLECTOR – RURAL

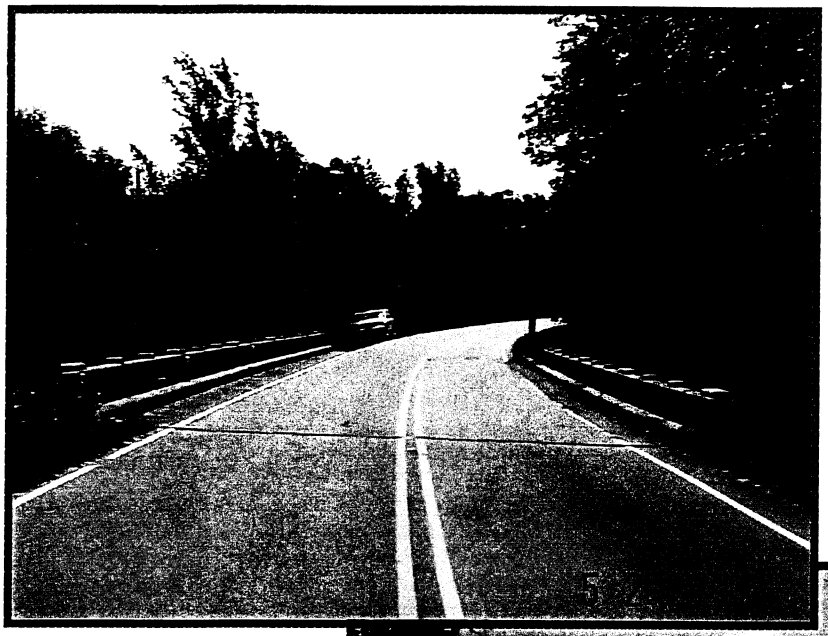
North Carolina Department Of Transportation
Project Development & Environmental Analysis

ONSLOW COUNTY
BRIDGE NO. 19 ON NC 210
OVER STONES CREEK
TIP NO: B–4215

FIGURE 3

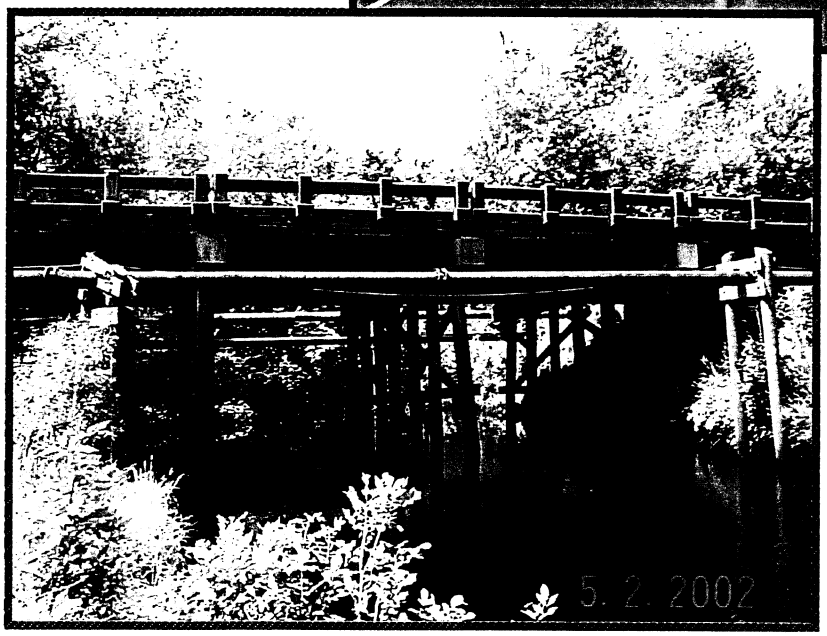
10/14/02

T.I.P. No. B-4215, Federal-Aid Project No. BRSTP-0210(3), State Project No. 8.1262101 Onslow County, NC 210, Bridge No. 19 over Stone Creek



View of east approach looking across Bridge No. 19.

View of west approach looking across Bridge No. 19



Side view of Bridge No. 19

FIGURE 4

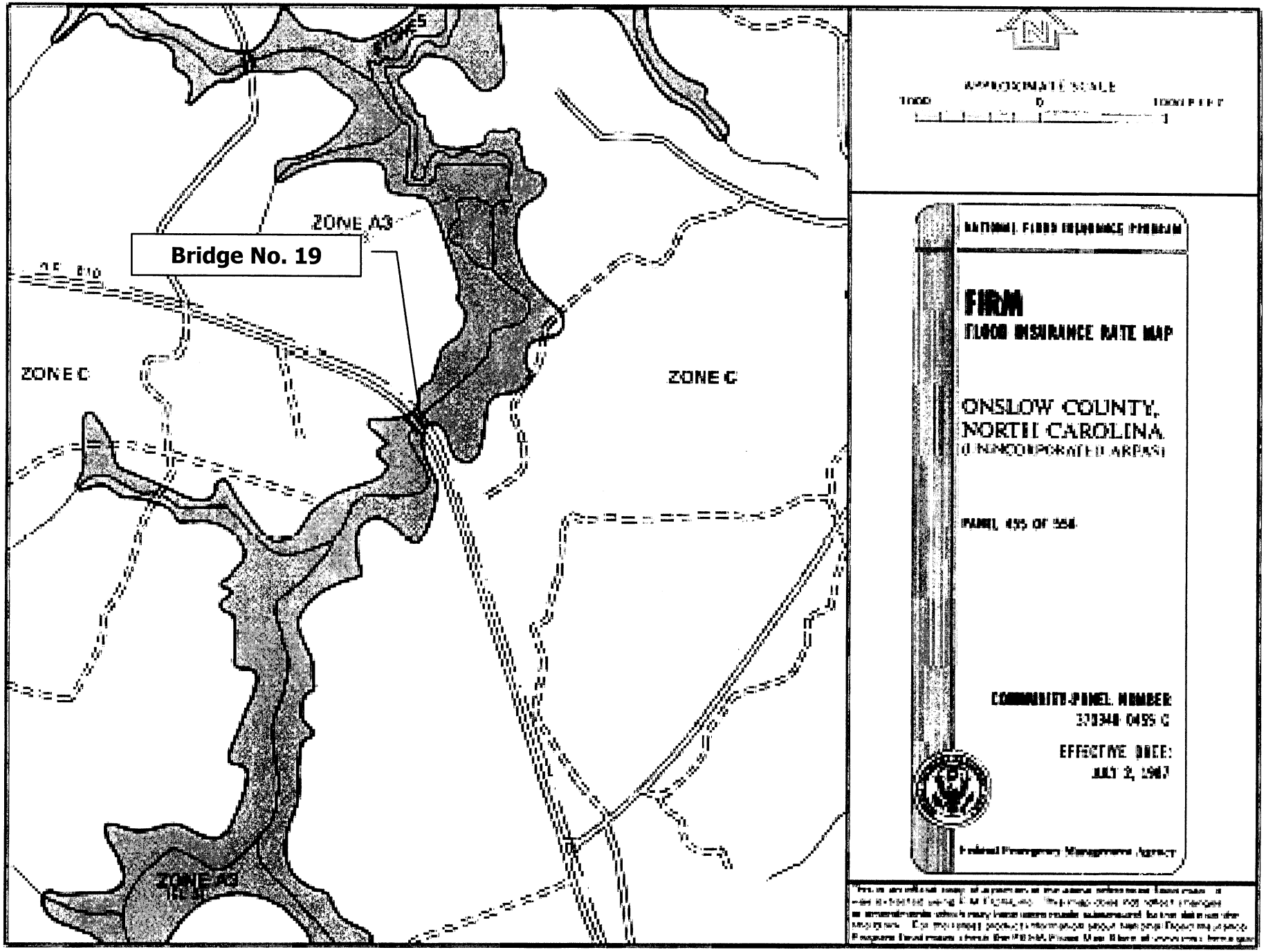

Bridge No. 19
ZONE A3
ZONE C
ZONE C
ZONE A3
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
ONSLOW COUNTY, NORTH CAROLINA
(UNINCORPORATED AREAS)
PANEL 455 OF 550
COMMUNITY-PANEL NUMBER
370348 0455 C
EFFECTIVE DATE:
JULY 2, 1987
Federal Emergency Management Agency

FIGURE 5

APPENDIX

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC Box 20004
Camp Lejeune, North Carolina 28542-0004

IN REPLY
1000
IDD
12 DEC 2002

Dr. Gregory J. Thorpe, PhD.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dr. Thorpe:

This letter is in response to your request for input concerning the Department's proposed bridge replacement projects identified as B-4214 (US Highway 17 and New River) and B-4215 (NC Highway 210 and Stones Creek).

B-4214

- Routing military vehicles through Jacksonville on Old Bridge Street is not an acceptable alternative due to current parking arrangements, volume of pedestrian traffic, and the width of certain portions of the route.

B-4214

- Completion of the US Highway 17 Bypass Project prior to replacement of the bridges over the New River would significantly reduce the impact to the military community. Removal of both existing bridges over the New River on US Highway 17 prior to the completion of the US Highway 17 Bypass will result in significant delays for ambulance, law enforcement, and fire department personnel due to congestion on the Old Bridge Street alternate routing.

B-4215

- The closing of NC Highway 210 during construction increases the response time for emergency services. This would include response time by: emergency services, fire department, and Base Forestry responses for wildfire suppression.

B-4215

- Bridge replacement for NC Highway 210 should be designed to possess, at a minimum, a load class MLC-90 (90-ton capacity), and allow safe passage of vehicles twelve (12) feet in width.

B-4215

- Any encroachment on Federal lands associated with the NC Highway 210 replacement will trigger a NEPA review.

- New evacuation routes must be identified to manage traffic flows during evacuations due to dangerous weather situations.

If you have any questions or require additional information, please contact Mr. Dave Adkins, Installation Development Division, Installations and Environment Department, at telephone (910) 451-9448.

Sincerely,

K. R. SLATES
Captain, U. S. Navy
By direction of the
Commanding General

1000
IDD

cc: II MEF, G-4
AC/S T&O
AC/S TMO
AC/S ISS

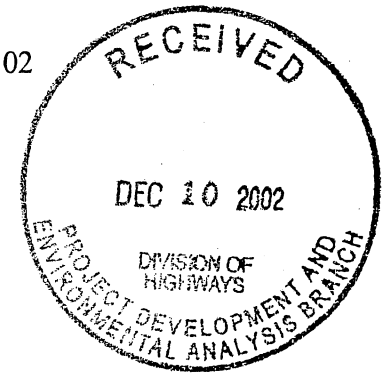
Bill Goodwin B-4215

U.S. Department of Transportation
United States Coast Guard

Commander
United States Coast Guard
Atlantic Area

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (Aowb)
Phone: (757)398-6587

16590
03 DEC 02



Mr. Gregory J. Thorpe, Ph. D.
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Thorpe:

This is in response to your letter dated October 24, 2002 requesting the Coast Guard to review the proposed projects to replace the following nine bridges: Black River Over Flow, Black River, Jenny's Branch, Beaver Dam Creek, New River, Stone Creek, N.E. Cape Fear River, Withrow Creek and Pinch Gut Creek all located throughout North Carolina.

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard bridge permits when the bridge project crosses nontidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. Such conditions for some of these waterways were confirmed in a telephone conversation on November 27, 2002. Due to this, the bridge projects on Beaver Dam, Withrow, and Pinch Gut Creeks and Black River Over Flow are exempt, and will not require Coast Guard Bridge Permits.

Black River, Jenny's Branch, and Stone Creek are subject to tidal influence and thus considered legally navigable for Bridge Administration purposes. But these waterways also meet the criteria for advance approval waterways outlined in Title 33, Code of Federal Regulations, Section 115.70. Advance approval waterways are those that are navigable in law, but not actually navigated by other than small boats. The Commandant of the Coast Guard has given his advance approval to the construction of bridges across such waterways; therefore, an individual permit will not be required for these projects either.

Further information is required to assess the bridge replacement projects over the New River and the North East Cape Fear River. Such information as, is the waterway affected by lunar tides? Is there any commercial navigation? What types and sizes of boats operate on the waterway? Bridge Permits may be required based on the answers to these questions. If a permit is required, a higher level of environmental review will also be required.

The fact that Coast Guard permits are not required for some of these projects does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or

local agency who may have jurisdiction over any aspect of the project. If you have any questions, please contact Terrance Knowles at the phone number or address show above.

Sincerely,

ANN B. DEATON
Chief, Bridge Administration Section
By direction of the Commander
Fifth Coast Guard District

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Habitat Conservation Division
101 Pivers Island Road
Beaufort, North Carolina 28516-9722

December 6, 2002

Gregory J. Thorpe, Ph. D.
Environmental Management Director
Project Development and
Environmental Analysis Branch
NC Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Attention: John Wadsworth, P.E.

Dear Dr. Thorpe:

The National Marine Fisheries Service (NOAA Fisheries) has reviewed your October 24, 2002, letter requesting comments on eight bridge replacement projects included in the North Carolina Department of Transportation 2002-2008 Transportation Improvement Plan. We understand that the NCDOT is preparing the planning and environmental studies necessary to process these projects as Categorical Exclusions and offers the following comments for your consideration.

The environmental documents for these projects should address measures designed to avoid and minimize loss of open water and wetlands that support fishery resources. In addition, we support findings contained in the May 9, 2002, letter from the Wilmington District, U.S. Army Corps of Engineers, which identified the following issues and concerns as being relevant to the proposed bridge replacement projects:

- Replacing bridges with culverts
- Permanent and temporary wetland losses
- Offsite versus onsite detours
- Time of year restrictions on instream work
- Treatment of wetland restoration areas
- Existing bridge demolition and removal
- Lengthening existing bridges as a wetland restoration measure

Group I - The following projects will have no impact on resources for which NOAA Fisheries has stewardship responsibility; therefore, we have no comments:

Bridge Number	Project Number	County
No. 416	B - 4103	Davidson County
No. 28	B - 4255	Rowan County
No. 54	B - 4282	Stokes County

Group II - These projects have the potential to affect fishery resources and their associated habitat for which NOAA Fisheries has stewardship responsibility:

Bridge Number	Project Number	County
No. 12	B - 1382	Sampson County
No. 26	B - 1382	Sampson County
No. 72	B - 4031	Brunswick County
No. 24	B - 4214	Onslow County
No. 21	B - 4223	Pender County

Bridges 12, 26, 21 and 24 are located in the Cape Fear and New River basins and in areas which provide habitat for anadromous fishery resources including American shad and river herring. Bridges 72 and 24 are located in areas with brackish to saline waters that also support estuarine dependent fishery resources such as spot, Atlantic croaker, and blue crab. In addition, these projects may affect **Essential Fish Habitat** for Federally managed species such as red drum and shrimp which are managed by the South Atlantic Fishery Management Council, and summer flounder which is managed by the Mid-Atlantic Fishery Management Council. Accordingly, we recommend that an Essential Fish Habitat Assessment be included in any environmental document for these projects.

Spawning and nursery habitat for anadromous and estuarine fishes may be adversely impacted by these projects unless measures to avoid and minimize impacts to waters and wetlands are included in the project plans. Therefore, NOAA Fisheries may recommend against Department of the Army authorization of these projects under Nationwide Permit 23 unless the following recommendations are incorporated:

1. Following impact avoidance and minimization, unavoidable wetland losses shall be offset through implementation of a compensatory mitigation plan that has been approved by the Corps of Engineers and in consultation with NOAA Fisheries.

2. All construction activities in waters and associated wetlands shall utilize techniques that avoid and minimize adverse impacts to those systems and their associated flora and fauna

Although the stated purpose of the project is to improve timber production, no information is provided regarding any ongoing silviculture operation. Furthermore, there is no indication of existence of a forest management plan for the site which might indicate that the existing excavation and filling of wetlands is in compliance with the Clean Water Act (CWA), Section 404 (f)(1)(A) exemptions for silviculture.

NOAA Fisheries concludes that the loss of wetlands at this site is highly detrimental to commercially, recreationally, and ecologically important fishery resources that utilize the Newport River. Therefore, we recommend that Department of the Army authorization not be granted in this case. We further recommend that if authorization is denied, the applicant should be required to restore pre-project elevations and contours and restore, through planting and other measures, all impacted wetlands.

Thank you for the opportunity to provide these comments. Related questions or comments should be directed to the attention of Mr. Ronald S. Sechler at our Beaufort Office, 101 Pivers Island Road, Beaufort, North Carolina, or at (252) 728-5090.

Sincerely,

Ron Sechler

for Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

B 6 3 e
B-4215

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Habitat Conservation Division
101 Pivers Island Road
Beaufort, North Carolina 28516-9722

June 7, 2002

William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement Unit
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Goodwin:

The National Marine Fisheries Service (NMFS) has reviewed the Natural Systems Technical Reports (NSTR) - Group 2, for 22 bridge replacement projects identified in your March 1, 2002, letter. These projects are scheduled for construction in fiscal year 2005.

By letter dated May 9, 2002 (copy enclosed), the Wilmington District, U.S. Army Corps of Engineers identified the following issues and concerns as being relevant to the proposed bridge replacement projects:

- Replacing bridges with culverts
- Permanent and temporary wetland losses
- Offsite versus onsite detours
- Time of year restrictions on instream work
- Treatment of wetland restoration areas
- Existing bridge demolition and removal
- Lengthening existing bridges as a wetland restoration measure

The NMFS agrees that these issues should be fully addressed with regard to impacts and mitigation. We also agree with the Corps' determination that identifying projects involving these activities as Green Light Projects is misleading and should not be used. Therefore, the following Group 2 projects should be identified as either Yellow or Red Light Projects.

Section I - Yellow Light Projects (YLPs)

The bridge replacement projects listed below are located in areas that do not support NMFS trust fishery resources. Otherwise, they have normal environmental concerns and, therefore, are identified as YLPs.

Bridge Number	Project Number	Location
Bridge No.136	B - 4025	Beaufort County
Bridge No. 108	B - 4154	Hyde County
Bridge No. 118	B - 4235	Pitt County
Bridge No. 191	B - 4272	Sampson County

Section II - Yellow Light Projects (YLPs)

The bridge replacement projects listed below are located in the Roanoke River, Neuse River, Tar River, Chowan River, Trent River, Cape Fear River basins which are likely to support NMFS trust anadromous fishery resources and are, therefore, classified as YLPs.

Bridge Number	Project Number	Location
Bridge No. 45	B - 4026	Bertie County
Bridge No. 29	B - 4314	Washington County
Bridge No. 10	B - 4086	Craven County
Bridge No. 46	B - 4125	Greene County
Bridge No. 49	B - 4126	Greene and Lenoir Counties
Bridge No. 43	B - 4127	Green County
Bridge No. 67	B - 4150	Hertford County
Bridge No. 7	B - 4169	Jones County
Bridge No. 5	B - 4187	Martin County
Bridge No. 21	B - 4223	Pender County
Bridge No. 69	B - 4227	Perquimans County
Bridge No. 98	B - 4234	Pitt County

Spawning and nursery habitat for anadromous fishes may be adversely impacted by these projects unless measures to avoid and minimize impacts to waters and wetlands are included in the project plans. Accordingly, the NMFS may recommend against Department of the Army authorization of these projects under Nationwide Permit 23,unless the following recommendations are incorporated:

1. Following impact avoidance and minimization, unavoidable wetland losses shall be offset through implementation of a compensatory mitigation plan that has been approved by the Corps of Engineers and in consultation with the NMFS.

2. All construction related activities in waters and associated wetlands shall utilize techniques that avoid and minimize adverse impacts to those systems and their associated flora and fauna.

3. In order to protect anadromous fishery resources that may utilize the project areas as spawning or nursery habitat, work in the waters of the creek shall be restricted to the period October 1 and March 1 of any year unless prior approval is granted by the Corps of Engineers following consultation with the NMFS.

Section III - Red Light Projects (RLPs)

Red Light Projects are those that include extraordinary resources or concerns that will require close coordination to complete successfully. These projects involve high quality wetlands, extremely valuable or rare endangered species habitats, or other limited or unusual resources.

The bridge replacement projects listed below may effect estuarine waters, intertidal salt marshes, and tidal freshwater marshes and may be located in areas designated as primary nurseries by the North Carolina Division of Marine Fisheries or the North Carolina Wildlife Resources Commission. In view of the fact that work in these locations could adversely effect NMFS trust fishery resources, they are classified as RLPs. In addition, some of these project areas include Essential Fish Habitat (EFH) for species managed under authority of the Magnuson Stevens Fisheries Conservation and Management Act(P.L. 104-297) and other statutory and regulatory provisions. If these projects are processed under Nationwide 23, they will be carefully reviewed for incorporation of the recommendations listed above and we may elect to provide additional comments and recommendations that are intended to avoid, minimize, and offset impacts to living marine resources. Our recommendations, if any, will be sent to the Wilmington District, U. S. Army Corps of Engineers, and a copy will be forwarded to you.

Bridge Number	**Project Number**	**Location**
Bridge No. 77	B - 3611	Beaufort County
Bridge No. 72	B - 4031	Brunswick County
Bridge No. 19	B - 4215	Onslow County
Bridge No. 24	B - 4214	Onslow County
Bridge No. 65	B - 4219	Pamlico County
Bridge No. 4	B - 4221	Pamlico County

Finally, the shortnose sturgeon, a Federally protected species under the purview of the NMFS is found in the Cape Fear and Roanoke Rivers. These comments do not satisfy Federal agency consultation responsibilities under Section 7 of the Endangered Species Act of 1973, as amended. If any activity "may effect" listed species and habitats under NMFS purview, consultation should be initiated with our Protected Resources Division at 9721 Executive Center Drive North, St. Petersburg, Florida 33702.

We appreciate the opportunity for early participation in the review of these bridge replacement projects. If I can be of further assistance, please contact me at the letterhead address or at 252-728-5090.

Sincerely,

Ron Sechler

Ron Sechler
Fishery Biologist

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

November 14, 2002

Dr. Gregory J. Thorpe
Environmental Management Director
North Carolina Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

This letter is in response to your request for comments from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of the proposed replacement of several bridges in multiple counties of North Carolina. Please note that the projects listed for Davidson, Rowan and Stokes Counties in your October 24, 2002 letter were forwarded to the Service's Asheville Ecological Services Office for review. The following projects were reviewed by the Raleigh Ecological Services Office:

- B-1382, Sampson County, Replace Bridge No. 26 over the Black River Overflow and Bridge No. 12 over the Black River on NC 41;
- B-4031, Brunswick County, Replace Bridge No. 72 over Jinnys Branch (tributary to Saucepan Creek) on NC 179 (Beach Drive);
- B-4214, Onslow County, Replace Bridge No. 24 over the New River on US 17 (Marine Boulevard);
- B-4215, Onslow County, Replace Bridge No. 19 over Stone Creek on NC 210; and,
- B-4223, Pender County, Replace Bridge No. 21 over the North East Cape Fear River on NC 210.

These comments provide scoping information in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

For bridge replacement projects, the Service recommends the following general conservation measures to avoid or minimize environmental impacts to fish and wildlife resources:

1. Wetland, forest and designated riparian buffer impacts should be avoided and minimized to the maximum extent practical;

2. If unavoidable wetland impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity via conservation easements, land trusts or by other means should be explored at the outset;

3. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along the side of the existing structure which has the least and/or least quality of fish and wildlife habitat. At the completion of construction, the detour area should be entirely removed and the impacted areas be planted with appropriate vegetation, including trees if necessary;

4. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons. In waterways that may serve as travel corridors for fish, in-water work should be avoided during moratorium periods associated with migration, spawning and sensitive pre-adult life stages. The general moratorium period for anadromous fish is February 15 - June 30;

5. New bridges should be long enough to allow for sufficient wildlife passage along stream corridors;

6. Best Management Practices (BMP) for Protection of Surface Waters should be implemented;

7. Bridge designs should include provisions for roadbed and deck drainage to flow through a vegetated buffer prior to reaching the affected stream. This buffer should be large enough to alleviate any potential effects from run-off of storm water and pollutants;

8. The bridge designs should not alter the natural stream and stream-bank morphology or impede fish passage. To the extent possible, piers and bents should be placed outside the bank-full width of the stream;

9. Bridges and approaches should be designed to avoid any fill that will result in 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 approach to restore some of the hydrological functions of the floodplain and reduce high velocities of floodwaters within the affected area.

Enclosed are lists of species from Sampson, Brunswick, Onslow and Pender Counties that are on the *Federal List of Endangered and Threatened Wildlife and Plants*, as well as federal species of concern. Federal species of concern are not legally protected under the ESA and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as

endangered or threatened. We are including these species in our response to give you advance notification and to request your assistance in protecting them if any are found in the vicinity of your project. Information about the habitats in which these endangered and threatened species are often found is provided on our web site, **http://endangered.fws.gov.** If suitable habitat for any of the listed species exists in the project areas, biological surveys for the listed species should be conducted. All survey documentation must include survey methodologies and results.

We reserve the right to review any federal permits that may be required for these projects, at the public notice stage. Therefore, it is important that resource agency coordination occur early in the planning process in order to resolve any conflicts that may arise and minimize delays in project implementation. In addition to the above guidance, we recommend that the environmental documentation for these projects include the following in sufficient detail to facilitate a thorough review of the action:

1. A clearly defined and detailed purpose and need for the proposed project;

2. A description of the proposed action with an analysis of all alternatives being considered, including the "no action" alternative;

3. A description of the fish and wildlife resources, and their habitats, within the project impact area that may be directly or indirectly affected;

4. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory (NWI). Wetland boundaries should be determined by using the 1987 Corps of Engineers Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers;

5. The anticipated environmental impacts, both temporary and permanent, that would be likely to occur as a direct result of the proposed project. The assessment should also include the extent to which the proposed project would result in secondary impacts to natural resources, and how this and similar projects contribute to cumulative adverse effects;

6. Design features and construction techniques which would be employed to avoid or minimize the fragmentation or direct loss of wildlife habitat and waters of the US;

7. If unavoidable wetland impacts are proposed, project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts.

The Service appreciates the opportunity to comment on these projects. Please continue to advise us during the progression of the planning processes, including your official determination of the impacts of this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

For Garland B. Pardue, Ph.D.
Ecological Services Supervisor

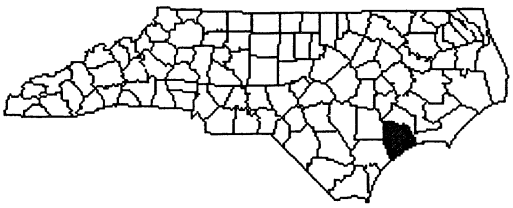
Enclosure

cc: Dave Timpy, USACE, Wilmington, NC
John Hennessy, NCDWQ, Raleigh, NC
David Cox, NCWRC, Northside, NC
Chris Militscher, USEPA, Raleigh, NC

Updated: 02/25/2003

U.S. Fish & Wildlife Service

ONSLOW COUNTY



Critical Habitat Designation:

Piping Plover, *Charadrius melodus* - Critical Habitat designation in Federal Register 66:36038-36136, for a description of the primary constituent elements essential for the conservation of wintering piping plovers within the designated units. This document also contains a map and a description of each designated unit.

Common Name	Scientific Name	Status
Vertebrates		
American alligator	*Alligator mississippiensis*	T(S/A)
Bachman's sparrow	*Aimophila aestivalis*	FSC
Bald eagle	*Haliaeetus leucocephalus*	Threatened(Proposed for delisting)
Black rail	*Laterallus jamaicensis*	FSC
Carolina gopher frog	*Rana capito capito*	FSC
Eastern cougar	*Puma concolor couguar*	Endangered
Eastern painted bunting	*Passerina ciris ciris*	FSC*
Green sea turtle	*Chelonia mydas*	Threatened
Eastern Henslow's sparrow	*Ammodramus henslowii*	FSC
Leatherback sea turtle	*Dermochelys coriacea*	Endangered
Loggerhead sea turtle	*Caretta caretta*	Threatened
West Indian Manatee	*Trichechus manatus*	Endangered
Mimic glass lizard	*Ophisaurus mimicus*	FSC
Piping Plover	*Charadrius melodus*	Threatened
Red-cockaded woodpecker	*Picoides borealis*	Endangered
Southern hognose snake	*Heterodon simus*	FSC
Invertebrates		
Croatan crayfish	*Procambarus plumimanus*	FSC
Vascular Plants		

A quillwort	*Isoetes microvela*	FSC
Awned meadowbeauty	*Rhexia aristosa*	FSC
Boykin's lobelia	*Lobelia boykinii*	FSC
Carolina asphodel	*Tofieldia glabra*	FSC
Carolina goldenrod	*Solidago pulchra*	FSC
Carolina grass-of-parnassus	*Parnassia caroliniana*	FSC
Carolina spleenwort	*Asplenium heteroresiliens*	FSC
Chapman's sedge	*Carex chapmanii*	FSC
Coastal beaksedge	*Rhynchospora pleiantha*	FSC
Coastal Goldenrod	*Solidago villosicarpa*	FSC
Cooley's meadowrue	*Thalictrum cooleyi*	Endangered
Golden sedge	*Carex lutea*	Endangered
Hirst's panic grass	*Dichanthelium sp. 1*	FSC
Loose watermilfoil	*Myriophyllum laxum*	FSC
Many-flower grass-pink	*Calopogon multiflorus*	FSC
Pondspice	*Litsea aestivalis*	FSC
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	Endangered
Seabeach amaranth	*Amaranthus pumilus*	Threatened
Spring-flowering goldenrod	*Solidago verna*	FSC
Thorne's beaksedge	*Rhynchospora thornei*	FSC
Venus flytrap	*Dionea muscipula*	FSC

KEY:

Status	Definition
Endangered -	A taxon "in danger of extinction throughout all or a significant portion of its range."
Threatened -	A taxon "likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
Proposed -	A taxon proposed for official listing as endangered or threatened.
C1 -	A taxon under consideration for official listing for which there is sufficient information to support listing.
FSC -	A Federal species of concern--a species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing).
T(S/A) -	Threatened due to similarity of appearance (e.g., American alligator)--a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically endangered or threatened and are not subject to Section 7 consultation.
EXP -	A taxon that is listed as experimental (either essential or nonessential). Experimental, nonessential endangered species (e.g., red wolf) are treated as threatened on public land, for consultation purposes, and as species proposed for listing on private land.

Species with 1, 2, 3, or 4 asterisks behind them indicate historic, obscure, or incidental records.

*Historic record - the species was last observed in the county more than 50 years ago.

**Obscure record - the date and/or location of observation is uncertain.

***Incidental/migrant record - the species was observed outside of its normal range or habitat.

B-4015

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

June 12, 2002

Mr. William T. Goodwin, Jr.
North Carolina Department of Transportation
Project Development and Environmental Analysis
Unit Head, Bridge Replacement Planning
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Goodwin:

This responds to your letters of March 1 and March 18, 2002, providing the U. S. Fish and Wildlife Service (Service) with Natural Resources Technical Reports (NRTR) on 26 bridges proposed for replacement in Construction Fiscal Year (CFY) 2005. Your letters requested the Service to review these reports and determine the level of concerns we might have for trust resources under our jurisdiction. This report provides scoping information in accordance with provisions of the Fish and Wildlife, Coordination Act (FWCA) (16 U.S.C. 661-667d) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543). This report also serves as initial scoping comments to federal and state resource agencies for use in their permitting and/or certification processes for this project.

The bridges scheduled for replacement are:

1. B-3611, Bridge No. 77 on NC 99 over Pantego Creek, Beaufort County;
2. B-4024, Bridge No. 136 on SR 1626 over Pantego Creek [Canal?], Beaufort County
3. B-4026, Bridge 45 on SR 1110 over Choowatic Creek, Bertie County;
4. B-4028, Bridges Nos. 12 and 18 over the Cape Fear River, Bladen County;
5. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County;
6. B-4077, Bridge No. 25 on NC 130 over Waccamaw River outflow, Columbus County
7. B-4082, Bridge 280 on SR 1843 over Dan's Creek, Columbus County;
8. B-4086, Bridge No. 10 on SR 1111 over Brices Creek, Craven County;
9. B-4090 - Bridge No. 125 on NC 24 over Cross Creek, Cumberland County;
10. B-4125, Bridge No. 46 on SR 1091 over Wheat Swamp Creek, Greene County;
11. B-4126, Bridge No. 49 on SR 1434 over Wheat Swamp Creek, Greene and Lenoir Counties;
12. B-4127, Bridge No. 43 on SR 1438 over Rainbow Creek, Green County;
13. B-4150, Bridge No. 67 on SR 1118 over Ahoskie Creek, Herford County;
14. B-4154, Bridge No. 108 on SR 1340 over Old State Canal, Hyde County;
15. B-4169, Bridge No. 7 on SR 1129 (Free Bridge Road) over Big Chinquapin Branch Jones County;

16. B-4187, Bridge No. 5 on SR 1417 over Conoho Creek, Martin County;
17. B-4214, Bridge No. 24 on US 17 over the New River, Onslow County;
18. B-4215, Bridge No. 19 on NC 210 over Stones Creek, Onslow County;
19. B-4219, Bridge No. 65 on SR 1304 over an unnamed tributary to the Neuse River, Pamlico County;
20. B- 4221 , Bridge No. 4 on SR 1344 over South Prong Bay River, Pamlico County;
21. B- 4223, Bridge No. 21 on NC 210 over the Northeast Cape Fear River, Pender County;
22. B-4227, Bridge No. 69 on SR 1222 over Unnamed tributary to Mill Creek, Perquimans County;
23. B-4234, Bridge No. 98 on SR 1407 over Conetoe Creek, Pitt County;
24. B-4235, Bridge No. 118 on SR 1538 over Grindel Creek, Pitt County;
25. B-4248, Bridge No. 170 on SR 1101 over Shoe Heel Creek (Gaddy Mill Road), Robeson County;
26. B-4272, Bridge No. 191 on SR 1845 over Great Coharie Creek, Sampson County; and,

General Scoping Comments

Some NRTRs contained only maps of the immediate project site and a verbal description of the project location. In reviewing our records of known locations for Federally listed species, it would be beneficial to the Service to have a map showing the location of the project. Each location map should include at least one municipality or sizable community to facilitate locating the project area.

The title page for B-4024 (Beaufort County) states that Bridge No. 136 on SR 1626 is over "Canal." The body of the report states that this bridge crosses Pantego Creek which appears to be the correct designation. Title pages should reflect the correct location of the project.

General Fish and Wildlife Habitat and Wetlands

For each project, we recommend the following conservation measures to avoid or minimize adverse environmental impacts to fish and wildlife resources:

1. Wetland impacts should be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. Areas exhibiting high biodiversity or ecological value important to the watershed and region should be avoided. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

2. Off-site detours should be used rather than construction of temporary, on-site bridges. For projects requiring an on-site detour in wetlands or open water, such detours should be aligned along or adjacent to existing, roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. At the completion of construction, the entire detour area, including any previous detour from past construction

activities, should be entirely removed and the impacted areas should be planted with appropriate, endemic vegetation, including trees if necessary;

3. If unavoidable wetland impacts are proposed, every effort should be made to identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity, preferably via conservation easement, should be explored at the outset;

4. In waterways that may serve as travel corridors for fish, in-water work should be avoided during moratorium periods associated with migration, spawning, and sensitive pre-adult life stages. The general moratorium period for anadromous fish is February 15 - June 15;

5. Best Management Practices (BMP) for Protection of Surface Waters should be implemented; and,

6. Activities within designated riparian buffers should be avoided or minimized.

Federal Species of Concern and State Listed Species

Federal Species of Concern (FSC) are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSCs receive no statutory protection under the ESA, we would encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

Federally Protected Species

Several NRTRs make determinations that a project will not affect a particular species, primarily plants based on surveys in the recent past. The Service believes such determinations are premature and that additional surveys will be required prior to construction in approximately 2004-2005. It would be more appropriate to note that the species was not found during preliminary surveys and that results provide early indications that the project is not likely to adversely affect the species.

Effect determinations for plants based on surveys within the project area may require work at a particular time of year for accurate identification. The biological conclusions of the NCDOT for plants should include the time of year that a survey was conducted, the person hours of surveying, and the approximate size of the area surveyed. Surveys should be done within two or three years of actual construction for those species inhabiting stable and/or climax communities. Plant species that utilize disturbed communities, e.g., Michaux sumac (*Rhus michauxii*) and Cooley's meadowrue (*Thalictrum cooleyi*), should be done within two years of actual

construction if vegetation disturbing activities, e.g., regular mowing or timber harvesting, occur at the project site.

The NCDOT should carefully consider potential impacts to the West Indian manatee (*Trichechus manatus*) of bridge replacement projects in coastal counties. Several NRTRs, e.g., B-4235 (Pitt County), state that manatees require at least five feet of water. Manatees are able to use shallow channels that may not seem suited for such a large mammal. O'Shea and Ludlow (1992) wrote that the primary habitat requirements for the species are access to vascular aquatic plants, freshwater source, and proximity to channel 1-2 meters deep (3.3 -6.6 feet). Therefore, the NCDOT should only consider reaching a "no effect" determination for the manatee when water depths at the project site do not rise above one meter. Manatees may become entangled in erosion control and siltation fences placed in shallow water. Measures to prevent these devices from harming manatees are addressed in our 1996 guidelines to NCDOT (USFWS 1996). The biological conclusion of the NCDOT on impacts to manatees cannot be based on negative visual surveys of the project area. These mobile animals may not inhabit a given area for extended periods, and manatees may move into a given project site where the species has never been reported previously. The best procedure for ensuring the safety of these endangered mammals is to follow the Service's precautions if the area is suitable manatee habitat.

Surveys for mussels should extend 100 meters (328 feet) upstream and 300 meters (984 feet) downstream from the project site. Environmental documentation that includes survey methodologies, results, and NCDOT's recommendations based on those results, should be provided to this office for review and comment.

If surveys for a Federally protected species should determine that a given project would adversely affect the species, a biological assessment (BA) may be prepared to fulfill the section 7(a)(2) requirement and in determining whether formal consultation with the Service is necessary. Please notify this office with the results of the surveys for the listed species that may occur in the project area. Please include survey methodologies and an analysis of the effects of the action, including consideration of direct, indirect, and cumulative effects.

Project Specific Comments

In addition to the general comments applicable to all bridge replacement project, we offer the following project-specific comments:

B-3611, Bridge No. 77 on NC 99 over Pantego Creek, Beaufort County - The NRTR states (p. 16) that habitat for the manatee exists in the project area, but that no manatees were seen during natural resources investigations. The report concludes that the project would have "no effect" on the manatee. The Service does not concur with this determination. Manatees are seasonal transients in North Carolina from (primarily June through October). As noted, potential impacts on this species cannot be based on limited field inspections. The Service recommends that future project documentation include

commitments to follow procedures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina" that the Service provided the NCDOT in 1996. A copy is provided with this letter.

Intertidal zones and marsh edges preferred by Federally threatened sensitive jointvetch (*Aeschynomene virginica*) are present in the project area, but the species was not observed during natural resources investigation. The NRTR provided a biological conclusion of "no effect." The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the species.

The NRTR states that "marginal habitat exists for rough-leaved loosestrife [*Lysimachia asperulaefolia*] in the form of shallow organic soils adjacent to a forest community" in the project area. While the NRTR states that no plants were seen, the Service requires greater details of survey methodology before we can concur with the determination that the project will have no effect on rough-leaved loosestrife.

B-4024, Bridge No. 136 on SR 1626 over Pantego Creek, Beaufort County - The NRTR states (p. 3) that the average depth of Pantego Creek is 4.5 feet, but concludes (p. 14) that the necessary water depth for the manatee is not present. The Service disagrees and recommends that project plans should incorporates measures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina" that the Service provided the NCDOT in 1996. Suitable habitat for sensitive jointvetch exists in the project area (p. 17), but the NRTR concludes that the project would have "no effect" on the species based, in part, on the fact that no plant were "found in the project area." The Service cannot concur with this determination. The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the sensitive jointvetch.

B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County - The NRTR states (p. 4) that water depths range from two to six feet, and concludes (p. 21) that "vagrant manatees visiting the lower Lumber river system would not be expected within the project area." The Service does concur with the biological conclusion of "no effect" on the manatee and requests that the project utilize the standard precautions for general construction in areas which may be used by manatees. The NRTR states that the biological conclusions for the bald eagle (*Haliaeetus leucocephalus*) and Federally endangered wood stork (*Mycteria americana*) are "unresolved." Wood storks may undertake post-breeding season dispersals from June through early autumn in search of food in swamps, marshes, and mudflats. The NCDOT should seek to determine whether the project area is used, if even on a temporary basis, by these species. If wood storks do feed in the project area during a limited portion of the year, the Service would recommend that this project be scheduled outside this particular period.

B-4086, Bridge No. 10 on SR 1111 over Brices Creek, Craven County - With an average depth of three feet, Brices Creek is not likely to used by manatees. The Service cannot concur with the determination that the project would have "no effect" on the sensitive jointvetch based the lack of observation during site survey in 2001 and an absence of historical occurrence in the project area. The NRTR notes that suitable habitat for this species is present in the project area. The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the sensitive jointvetch..

B-4154, Bridge No. 108 on SR 1340 over Old State Canal, Hyde County - The NRTR notes that habitat for the sensitive jointvetch is present in the project area, but concludes that the project will have no impacts on the species, based in part, on a failure to find the species during surveys. The Service will require additional surveys closer to the time of actual construction and greater details of survey methodology, including time of year and the intensity of the survey, before we can concur that the project will have no effect on the sensitive jointvetch..

B-4219, Bridge No. 65 on SR 1304 over an unnamed tributary to the Neuse River, Pamlico County - The tributary to be crossed has an average depth of approximately four feet and the NRTR notes (p. 15) that "marginal" habitat for the manatee exists in the project area. The Service does not concur with the biological conclusion of "no effect" for the manatee and recommends that future project documentation include commitments to follow procedures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina."

B- 4221 , Bridge No. 4 on SR 1344 over South Prong Bay River, Pamlico County - The NRTR (p. 3) notes that the average depth of the water to be bridged is approximately 3.5 feet and later concludes (p. 15) that the waterway is not deep enough or contain sufficient vegetation to provide habitat for the manatee. The Service cannot concur with the stated conclusion that "no impact to the West Indian manatee will result from project construction." We recommend that future project documentation include commitments to follow procedures given in "Precautions for General Construction in Areas Which May Be Used by the West Indian Manatee in North Carolina."

B- 4223, Bridge No. 21 on NC 210 over the Northeast Cape Fear River, Pender County - The NRTR notes (p. 20) that manatees could occur in the project area and states that impacts to the species are "unresolved." The NRTR also recommends that a "follow-up survey" be conducted. A one time survey will not determine the presence of this species at a particular construction site. The species moves through North Carolina coastal waters on a seasonal basis. If there is any chance that the species could occur at a construction site, the Service's guidelines (USFWS 1996) should be incorporated into project plans.

B-4234, Bridge No. 98 on SR 1407 over Conetoe Creek, Pitt County - As noted in the NRTR, surveys should be conducted for the Tar River spinymussel (*Elliptio steinstansana*). The area surveyed should extend from 100 meters (328 feet) upstream to 300 meters (984 feet) downstream.

B-4235, Bridge No. 118 on SR 1538 over Grindel Creek, Pitt County - Survey for the Tar River spinymussel will be required from 100 meters (328 feet) upstream to 300 meters (984 feet) downstream.

B-4272, Bridge No. 191 on SR 1845 over Great Coharie Creek, Sampson County - The NRTR concludes that the project would have "no effect" on pondberry (*Lindera melissifolia*) due to a lack of habitat in the project area. The two habitats mentioned are shallow ponds with sandy substrate and Carolina bays. This species is associated with wetland habitats such as bottomland and hardwoods in the interior areas, and the margins of sinks, ponds and other depressions in the more coastal sites. The plants generally grow in shaded areas but may also be found in full sun. Since the project area includes 0.5 acre of coastal plain bottomland hardwood forest, the Service requests that this area be survey for pondberry.

The Service appreciates the opportunity to comment on these project. Please continue to advise us of the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding these comments, please contact Howard Hall at 919-856-4520, ext. 27.

Sincerely,

John E. Ellis

for Dr. Garland B. Pardue
Ecological Services Super-visor

Attachment

Literature cited

O'Shea, T. J. and M. E. Ludlow. 1992. Florida manatee. pp. 190-200. In S. R. Humphrey (ed.). Rare and Endangered Biota of Florida, Volume I. Mammals. University of Florida Press. Gainesville. 392 pp.

U. S. Fish and Wildlife Service. 1996. Communication to the North Carolina Department of Transportation. USFWS, Raleigh Field Office. Raleigh, NC. 4 pp.

cc:
Ted Bisterfeld, U. S. Environmental Protection Agency, Atlanta, GA
Ron Sechler, NMFS, Beaufort, NC
Michael Bell. U. S. Army Corps of Engineers, Washington Regulatory Field Office, Washington, NC
Eric Alsmeyer, U. S. Army Corps of Engineers, Raleigh Regulatory Field Office, Raleigh NC
David Timpy, U. S. Army Corps of Engineers, Wilmington Regulatory Field Office, Wilmington NC
John Hennessy, NC Division of Water Quality, Raleigh, NC
David Cox, NC Wildlife Resources Commission, Northside, NC

May 9, 2002

Regulatory Division

Action ID No. 200101169, 200101170, 200101171, 200101172, 200101174, 200101175, and 200200726.

Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Dear Mr. Gilmore:

Reference your letters February 18, 2002, March 1, 2002, March 18, 2002, and April 24, 2002 regarding our scoping comments on the following proposed bridge replacement projects:

1. TIP Project No. B-4268, Bridge No. 150 on SR 1006 over Little Coharie Creek, Sampson County, Action ID 200101169.
2. TIP Project No. B-4272, Bridge No. 191 on SR 1845 over Great Coharie Creek, Sampson County, Action ID 200101170.
3. TIP Project No. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County, Action ID 200101171.
4. TIP Project No. B-4223, Bridge No. 21 on NC 210 over NE Cape Fear River, Pender County, Action ID 200101172.
5. TIP Project No. B-4214, Bridge No. 24 on US 17 over New River, Onslow County, Action ID 200101174.
6. TIP Project No. B- 4215, Bridge No. 19 on NC 210 over Stones Creek, Onslow County, Action ID 200101175.
7. TIP Project No. B-1382, Action ID 200200726, no information provided.

Based on the information provided for each project in the referenced letter (except TIP Project No. B-1382) and jurisdictional delineations conducted on October 9, 2001, it appears that each proposed bridge replacement project may impact jurisdictional wetlands. Department of the Army (DA) permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated or fill material in waters of the United States or any adjacent wetlands in conjunction with these projects, including disposal of construction debris. Specific permit requirements will depend on design of the projects, extent of fill work within the waters of the United States,

including wetlands, construction methods, and other factors.

Although these projects may qualify as a Categorical Exclusion, to qualify for nationwide permit authorization under Nationwide Permit #23, the project planning report should contain sufficient information to document that the proposed activity does not have more than a minimal individual or cumulative impact on the aquatic environment. All activities, including temporary construction, access, and dewatering activities, should be included in the project planning report. Our experience has shown that replacing bridges with culverts often results in sufficient adverse impacts to consider the work as having more than minimal impacts on the aquatic environment. Accordingly, the following items need to be addressed in the project planning report:

a. The report should contain the amount of permanent and temporary impacts to waters and wetlands as well as a description of the type of habitat that will be affected by the proposed project.

b. Off-site detours are always preferable to on-site (temporary) detours in wetlands. If an on-site detour is the recommended action, justification should be provided that demonstrates that alternatives with lower wetland impacts are not practicable. On-site detours, unless constructed on a spanning structure or on a previous detour that was used in a past construction activity, can cause permanent wetland impacts due to sediment consolidation resulting from the on-site detour itself and associated heavy equipment. Substantial sediment consolidation in wetland systems may in turn cause fragmentation of the wetland and impair the ecological and hydrologic functions of the wetland. Thus, on-site detours constructed in wetlands can result in more than minimal wetland impacts. These types of wetland impacts will be considered as permanent wetland impacts. Please note that an onsite detour constructed on a spanning structure can potentially avoid permanent wetland impacts and should be considered whenever an on-site detour is the recommended action. For projects where a spanning structure is not feasible, the NCDOT should investigate the existence of previous onsite detours at the site that were used in previous construction activities. These areas should be utilized for onsite detours whenever possible to minimize wetland impacts.

For proposed projects and associated on-site detours that cause minimal losses of wetlands, an approved wetland restoration and monitoring plan will be required prior to issuance of a DA nationwide or Regional general permit. For proposed projects and associated on-site detours that cause significant wetland losses, an individual DA permit and a compensatory mitigation proposal for the unavoidable wetland impacts may be required.

In view of our concerns related to onsite detours constructed in wetlands, a cursory determination was made on the potential for sediment consolidation due to an onsite

detour at each of the proposed project sites. Based on these inspections, potential for sediment consolidation in wetlands exists at several of the proposed projects. Therefore, it is recommended that geotechnical evaluations be conducted at each project site to estimate the magnitude of sediment consolidation that can occur due to an on-site detour and the amount of undercutting that may be necessary. The results of this evaluation should be provided in the project planning report. Based on our field inspections, we strongly recommend that geotechnical evaluations be conducted at each of referenced proposed project sites. The following projects are considered as "red " projects as described in your letter of February 18, 2002.

1. TIP Project No. B-4268, Bridge No. 150 on SR 1006 over Little Coharie Creek, Sampson County, Action ID 200101169.
2. TIP Project No. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County, Action ID 200101171.

c. Project commitments should include the removal of all temporary fills from waters and wetlands and "time-of-year" restrictions on in-stream work if recommended by the NC Wildlife Resources Commission. In addition, if undercutting is necessary for temporary detours, the undercut material should be stockpiled on an upland site and later used to restore the site.

d. All restored areas should be planted with endemic vegetation including trees, if appropriate. For projects proposing a temporary onsite detour in wetlands, the entire detour area, including any previous detour from past construction activities, should be removed in its entirety.

e. The report should provide an estimate of the linear feet of new impacts to streams resulting from construction of the project.

f. If a bridge is proposed to be replaced with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts on the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish. The work must also not alter the stream hydraulics and create flooding of adjacent properties or result in unstable stream banks. In addition, the report should address the impacts that the culvert would have on recreational navigation.

g. The report should discuss and recommend bridge demolition methods and shall include the impacts of bridge demolition and debris removal in addition to the impacts of constructing the bridge. The report should also incorporate the bridge demolition policy recommendations pursuant to the NCDOT policy entitled "Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999.

h. Lengthening existing bridges can often benefit the ecological and hydrological functions of the associated wetlands and streams. Most bridge approaches are connected to earthen causeways that were built over wetlands and streams. Replacing these causeways with longer bridges would allow previously impacted wetlands to be restored. In an effort to encourage this type of work, mitigation credit for wetland restoration activities can be provided to offset the added costs of lengthening an existing bridge. Of the referenced project sites, TIP Project No. 4031 connects to a 170 foot long causeway through coastal wetlands. It is recommended that this causeway be replaced with a bridge and associated wetland areas be restored.

i. Based on the information provided and the recent field investigations of the referenced project sites, the apparent level of wetland impacts and scope of the following projects warrant coordination pursuant to the integrated NEPA/Section 404-merger agreement:

1. TIP Project No. B-4268, Bridge No. 150 on SR 1006 over Little Coharie Creek, Sampson County, Action ID 200101169.
2. TIP Project No. B-4031, Bridge No. 72 on NC 179 over Jinnys Branch, Brunswick County, Action ID 200101171.

j. You have requested that the referenced projects be given a designation of "Red", "Green" or "Yellow" as explained in your letters. Projects designated as "Red" by our office are specified above. The remaining projects will be considered "yellow" projects. We believe that the "green" designation is misleading and should not be used.

Should you have any questions please call Mr. David L. Timpy at the Wilmington Field Office at 910-251-4634.

Sincerely,

E. David Franklin
NCDOT Team Leader ger

Mr. Ron Sechler
National Marine Fisheries Service
Pivers Island

Beaufort, North Carolina 28516

Mr. John Dorney
NCDENR-DWQ
Wetlands Section
1621 Mail Service Center
Raleigh, NC 27699-1621

Mr. Doug Huggett
North Carolina Division of
Coastal Management
1638 Mail Service Center
Raleigh, North Carolina 27699-1638

Mr. David Cox
Highway Coordinator
North Carolina Wildlife Resources Commission
1141 I-85 Service Road
Creedmoor, North Carolina 27522

Mr. Howard Hall
United States Fish & Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Allen Pope, PE
North Carolina Department of Transportation
Division 3
124 Division Drive
Wilmington, North Carolina 28401

Ms. Kathy Matthews
Wetlands Regulatory Section
USEPA/EAB
980 College Station Road
Athens, GA 30605

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary
Jeffrey J. Crow, Deputy Secretary

Division of Historical Resources
David J. Olson, Director

December 20, 2002

MEMORANDUM

TO: Greg Thorpe, Manager
Project Development and Environmental Analysis Branch
NCDOT Division of Highways

FROM: David Brook DLB for David Brook

SUBJECT: Replacement of Bridge No. 19 over Stone Creek on NC 210, B-4215
Onslow County, ER02-8582

Thank you for your letter of October 24, 2002, concerning the above project.

We have conducted a search of our maps and files and located the following structure of historical or architectural portance within the general area of this project:

Bridge No. 19

We recommend that a Department of Transportation architectural historian identify and evaluate any structures over fifty years of age within the project area, and report the findings to us.

There are no known archaeological sites within the proposed project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for conclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

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.

DB:doc
cc: Mary Pope Furr
Matt Wilkerson

North Carolina Department of Cultural Resources
State Historic Preservation Office
David L. S. Brook, Administrator

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

Division of Historical Resources
David J. Olson, Director

May 2, 2002

MEMORANDUM

TO: William D. Gilmore, Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook Rse for David Brook

SUBJECT: Replace Bridge 19 on NC 19 over Stone Creek, B-4215, Onslow County, ER 02-8582

Thank you for your memorandum of September 25, 2001, concerning the above project.

Because the Department of Transportation is in the process of surveying and evaluating the National Register eligibility of all of its concrete bridges, we are unable to comment on the National Register eligibility of the subject bridge. Please contact Mary Pope Furr, in the Architectural History Section, to determine if further study of the bridge is needed.

There are no known archaeological sites within the project area. Based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for conclusion in the National Register of Historic Places will be affected by the project. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

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.

DB:kgc

cc: Mary Pope Furr, NCDOT

Federal Aid # BRSTP-0210(3) *TIP* # B-4215 *County*: Onslow

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No. 19 on NC 19 over Stone Creek

On 10/01/2002, representatives of the

- [x] North Carolina Department of Transportation (NCDOT)
- [x] Federal Highway Administration (FHWA)
- [x] North Carolina State Historic Preservation Office (HPO)
- [ ] Other

Reviewed the subject project at

- [ ] Scoping meeting
- [x] Historic architectural resources photograph review session/consultation
- [ ] Other

All parties present agreed

- [ ] There are no properties over fifty years old within the project's area of potential effects.
- [x] There are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- [x] There are properties over fifty years old within the project's Area of Potential Effects (APE), but based on the historical information available and the photographs of each property, the property identified as Bridge #19 is considered not eligible for the National Register and no further evaluation of it is necessary.
- [x] There are no National Register-listed or Study Listed properties within the project's area of potential effects.
- [x] All properties greater than 50 years of age located in the APE have been considered at this consultation, and based upon the above concurrence, all compliance for historic architecture with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.
- [x] There are no historic properties affected by this project. (*Attach any notes or documents as needed*)

Signed:

Mary Pope Furr — 10·01·2002
Representative, NCDOT — Date

[signature] — 10/1/02
FHWA, for the Division Administrator, or other Federal Agency — Date

[signature] — 10-01-2002
Representative, HPO — Date

David Brook BJS — 10/1/02
State Historic Preservation Officer — Date

If a survey report is prepared, a final copy of this form and the attached list will be included.

Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E. Director
Division of Water Quality

September 6, 2002

Memorandum

To: Mike Penney, NCDOT, Project Development & Environmental Analysis

From: John Hennessy

Subject: Scoping comments on the proposed bridge replacement of Bridge Number 19 on NC 210 over Stones Creek in Onslow County, TIP B-4215.

Reference your correspondence dated May 10, 2002 in which you requested comments for TIP project B-4215. Preliminary analysis of the project reveals the potential for impacts to an unnamed tributary to Stones Creek (DWQ Index No. 19-30-3, SA, HQW) in the White Oak River Basin and potential associated wetlands. Further investigations at a higher resolution should be undertaken to verify the presence of other streams and/or jurisdictional wetlands in the area. In the event that any jurisdictional areas are identified, the Division of Water Quality (DWQ) requests that NCDOT consider the following environmental issues for the proposed project:

A. DWQ would prefer the new bridge design to minimize the number of bridge deck drains that discharge directly into surface waters. Please consider a stormwater collection that drains all stormwater to a stormwater treatment device. If such a design is not practical, then a design that minimizes direct discharge to surface waters through collection of some of the stormwater and discharging into a stormwater treatment device is preferred.

B. If the old bridge is removed, no discharge of bridge material into surface waters is preferred. Strict adherence the Corps of Engineers guidelines for bridge demolition will be a condition of the 401 Water Quality Certification.

C. The number of bridge bents placed in surface waters should be minimized.

D. Use of jetting to install bridge bents is not preferred. Use of jetting for installation will need to be authorized in the 401 Water Quality Certification.

E. The post-construction removal of any temporary bridge structures will need to return the project site to its preconstruction contours and elevations. The revegetation of the impacted areas with appropriate native species may also be necessary.

F. The NCDOT will need to adhere to all appropriate in-water work moratoriums (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission, the US Fish and Wildlife Service, and National Marine Fisheries Service.

G. Any onsite detour will need to be constructed with a temporary bridge that spans all wetlands and surface waters. No fill into the adjacent surface waters or wetlands is preferred for the referenced project. Issuance of the 401 Water Quality Certification will likely be contingent on that condition being met.

H. The NCDOT shall strictly adhere to sediment and erosion control Best Management Practices as described for High Quality Waters entitled "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project.

I. The project may require a State Stormwater permit issued by the NC Division of Water Quality. Please contact the appropriate regional office to ascertain its potential applicability.

J. New stormwater draining from the proposed project cannot be discharged directly into SA waters. Rather, an infiltration basin designed according to the NC Division of Water Quality stormwater requirements may be required.

K. The document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping.

L. There should be a discussion on mitigation plans for unavoidable impacts. If mitigation is required, it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. While the NCDWQ realizes that this may not always be practical, it should be noted that for projects requiring mitigation, appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

M. Review of the project reveals that no hazardous spill catch basins will likely be required for this project.

N. Wetland and stream impacts should be avoided (including sediment and erosion control structures/measures) to the maximum extent practical. If this is not possible, alternatives that minimize wetland impacts should be chosen. Mitigation for unavoidable impacts will be required by DWQ for impacts to wetlands in excess of one acre and/or to streams in excess of 150 linear feet.

O. Borrow/waste areas should not be located in wetlands. It is likely that compensatory mitigation will be required if wetlands are impacted by waste or borrow.

P. If foundation test borings are necessary; it should be noted in the document. Geotechnical work is approved under General 401 Certification Number 3027/Nationwide Permit No. 6 for Survey Activities.

Q. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506(b)(6)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation becomes required, the mitigation plan should be designed to replace appropriate lost functions and values. In accordance with the NCDWQ Wetlands Rules {15A NCAC 2H.0506 (h)(3)}, the Wetland Restoration Program may be available for use as stream mitigation.

R. Sediment and erosion control measures should not be placed in wetlands.

S. While the use of National Wetland Inventory (NWI) maps, soil surveys, and other landscape scale analysis techniques are useful office tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

Thank you for requesting our input at this time. The DOT is reminded that issuance of a 401 Water Quality Certification requires that appropriate measures be instituted to ensure that water quality standards are met and designated uses are not degraded or lost. If you have any questions or require additional information, please contact John Hennessy at (919) 733-5694.

cc: US Army Corps of Engineers Wilmington Field Office
Howard Hall, USFWS
David Cox, NCWRC
Cathy Brittingham, NC Division of Coastal Management
Personal Files
File Copy

C:\ncdot\TIP B-4031\comments\B-4031 scoping comments.doc

CAMA

Subject: Bridge Replacement Projects CFY 2005
Date: Tue, 28 May 2002 13:05:27 -0400
From: Bill Arrington <Bill.Arrington@ncmail.net>
Organization: NC DENR DCM
To: "William T. Goodwin" <bgoodwin@dot.state.nc.us>
CC: Cathy Brittingham <Cathy.Brittingham@ncmail.net>

Mr. Goodwin,

I have visited each of the 14 bridge replacement sites included in your March 1, 2002 letter, located in the 20 Coastal counties under the jurisdiction of the Division of Coastal Management.

General comments regarding bridge replacement projects would include:

1. Existing access to coastal waters and land adjacent to coastal waters should be preserved. This would include trails, driveways, roads, boat ramps, clear channels, vertical clearance under bridges, parking spaces, etc.

2. The design of storm water diversion should add treatment prior to discharging. No storm water should be discharged to the waters and wetlands in coastal areas. Deck drains discharging to waters or wetlands should be eliminated from bridge replacements. Storm water collected from bridges and approaches should be disposed of by infiltration as far from the waters and wetlands as possible. The planning and design of these replacements is crucial to protecting the surrounding water quality. Bridges within one half mile of SA waters or ORW waters will need special attention dedicated to storm water collection, treatment and disposal.

3. Without specific proposals including accurate details of the proposed bridge replacement structures and associated impacts, comments included herein are general in nature and give no assurance of the ability to permit any bridge replacement proposal in these locations. Specific comments below are based on the assumption that the bridge replacements would be of the same general width, length and on the current alignment with no on site detour. Bridge replacements that vary from this would usually cause greater environmental impacts and require additional coordination with the resource agencies.

4. Any structure required to be built in wetlands or over the water to facilitate the construction of the bridge replacement or a detour around construction should be a temporary bridge.

Specific comments on the above referenced projects would include:

1. B-3611 in Beaufort County - RED LIGHT PROJECT - AEC's in the project area include CW, CS, PTW, and PTS. The potential for significant environmental impacts exists. Any project in this area will require a high level of coordination with all resource agencies. The existing bridge and causeway impacted the AEC's significantly and the potential for mitigation involving restoration and enhancement credits is great. (including the abandoned roadbed to the west of the existing road)

2. B-4024 in Beaufort County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. This project has the potential for minimal impacts.

3. B-4026 in Bertie County - DCM has no jurisdiction

4.B-4031 in Brunswick County - RED LIGHT PROJECT - AEC's in the

project area include CW, CS and PTW. Construction of the existing bridge has significantly impacted the AEC's. Restoration and enhancement mitigation potential is as great as the potential to adversely effect the AEC's.

5. B-4086 in Craven County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. Parking area as in the northwest corner should be maintained.

6. B-4150 in Hertford County - YELLOW LIGHT PROJECT - AEC's in the project area include PTW and PTS. Parking and access to the road along the creek should be preserved.

7. B-4154 in Hyde County - DCM has no jurisdiction.

8. B-4214 in Onslow County - YELLOW LIGHT PROJECT - AEC's in the project area include PTW, PTS, CW, ES, EW. Wetlands surrounding this bridge should be protected as much as possible. Tidal wetlands in the northeast quadrant and wetlands in the Coastal Shoreline Buffer have the greatest significance. There exists a moderate potential for mitigation.

9. [redacted] in Onslow County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. A moderate potential for mitigation may be possible with the lengthening of the bridge.

10. B-4219 in Pamlico County - RED LIGHT PROJECT - AEC's in project area include CW, CS, PTW, PTS and EW. The existing bridge has impacted the surrounding waters and wetlands. The inlet for this creek has closed in and only has water exchange at high tide. The bridge needs to be extended and the fill causeway removed. Great mitigation potential. Should preserve parking spaces for public access.

11. B-4221 in Pamlico County - GREEN LIGHT PROJECT - AEC's in project area include PTS and PTW. Access to farm roads in NW and SE quadrants should be preserved. A moderate potential for mitigation may exist with lengthening the bridge and removing causeway.

12. B-4223 in Pender County - YELLOW LIGHT PROJECT - AEC's in the project area include PTW and PTS. Any realignment or expansion of fill slopes should move to the south to avoid impacts to the access and business and residence on the north side of the bridge.

13. B-4227 in Perquimans County - GREEN LIGHT PROJECT - AEC's in the project area include PTW and PTS. Access adjacent to the bridge should be maintained.

14. B-4314 in Washington County- GREEN LIGHT PROJECT - AEC's in project area include PTW and PTS.

Thank you for providing DCM with the opportunity to comment on these projects in advance of their planning. Advance notification of environmental concerns should allow the design and permitting process to work more smoothly.

Thank you,

Bill

-SH B-4215

North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement & Environmental Analysis Branch

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: May 22, 2002

SUBJECT: NCDOT Bridge Replacements:
Beaufort County – Bridge No. 77, NC 99, Pantego Creek, B-3611
Beaufort County – Bridge No. 136, SR 1626, Canal, B-4024
Bertie County – Bridge No. 45, SR 1110, Choowatic Creek, B-4026
Brunswick County – Bridge No. 72, NC 179, Jinnys Branch, B-4031
Chatham County – Bridge No. 142, SR 2170, Meadow Creek, B-4065
Craven County – Bridge No. 10, SR 1111, Brices Creek, B-4086
Cumberland County – Bridge No. 85, I-95 Business, Cape Fear River, B-4091
Durham County – Bridge No. 5, SR 1616, Mountain Creek, B-4110
Edgecombe County – Bridge No. 19, SR 1135, Cokey Swamp, B-4111
Franklin County – Bridge No. 15, SR 1106, Little River, B-4113
Granville County – Bridge No. 84, SR 1141, Tar River, B-4124
Greene County – Bridge No. 46, SR 1091, Wheat Swamp Creek, B-4125
Greene/Lenoir Cos. – Bridge No. 49, SR 1434, Wheat Swamp Creek, B-4126
Greene County – Bridge No. 43, SR 1438, Rainbow Creek, B-4127
Halifax County – Bridge No. 11, SR 1001, Jacket Swamp, B-4133
Harnett County – Bridge No. 35, NC 42, Norfolk and Southern Railway, B-4137
Hertford County – Bridge No. 67, SR 1118, Ahoskie Creek, B-4150
Hyde County – Bridge No. 108, SR 1340, Old State Canal, B-4154
Jones County – Bridge No. 7, SR 1129, Big Chinquapin Branch, B-4169
Lee County – Bridge No. 4, SR 1423, Gum Fork, B-4171
Martin County – Bridge No. 5, SR 1417, Conoho Creek, B-4187
Nash County – Bridge No. 56, SR 1544, Tar River, B-4211
Onslow County – Bridge No. 24, US 17, New River, B-4214
Onslow County – Bridge No. 19, NC 210, Stones Creek, B-4215
Pamlico County – Bridge No. 65, SR 1304, UT to Neuse River, B-4219
Pamlico County – Bridge No. 4, SR 1344, South Prong Bay River, B-4221
Perquimans County – Bridge No. 69, SR 1222, Mill Creek, B-4227
Pitt County – Bridge No. 98, SR 1407, Conetoe Creek, B-4234
Pitt County – Bridge No. 118, SR 1538, Grindle Creek, B-4235
Randolph County – Bridge No. 34, SR 1304, Second Creek, B-4242

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 733-3633 ext. 281 • Fax: (919) 715-7643

Randolph County – Bridge No. 257, SR 2824, Vestal Creek, B-4245
Richmond County – Bridge No. 129, SR 1321, Big Mountain Creek, B-4247
Sampson County – Bridge No. 150, SR 1006, Little Coharie Creek, B-4268
Sampson County – Bridge No. 191, SR 1845, Great Coharie Creek, B-4272
Vance County – Bridge No. 3, SR 1107, Ruin Creek, B-4298
Wake County – Bridge No. 189, SR 2333, Little River, B-4305
Washington County – Bridge No. 29, SR 1163, Maul Creek, B-4314
Wilson County – Bridge No. 52, SR 1131, Turkey Creek, B-4327
Wilson County – Bridge No. 3, SR 1634, Great Swamp, B- 4328

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with 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 steam 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, NCDOT biologist Mr. Tim Savidge 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.

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 and downstream ends 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(s) 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, 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. If the area reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be utilized as mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. Beaufort County – Bridge No. 77, NC 99, Pantego Creek, B-3611
YELLOW LIGHT. Biologists indicate that a bridge is preferred. There is potential for wetland impacts at this location due to the width of stream and site elevation. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Strea Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15.

2. Beaufort County – Bridge No. 136, SR 1626, Canal, B-4024
GREEN LIGHT. No concerns indicated by biologists. Standard conditions should be appropriate.

3. Beaufort County – Bridge No. 136, SR 1626, Canal, B-4024
GREEN LIGHT. No concerns indicated by biologists. Standard conditions should be appropriate.

4. Bertie County – Bridge No. 45, SR 1110, Choowatic Creek, B-4026
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15.

5. Brunswick County – Bridge No. 72, NC 179, Jinnys Branch, B-4031
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. There is also the potential for impacts to high quality coastal wetlands at this location. NCDOT should employ all measures necessary to avoid impacts to these resources.

6. Chatham County – Bridge No. 142, SR 2170, Meadow Creek, B-4065
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to the Cape Fear Shiner, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Standard recommendations apply.

7. Craven County – Bridge No. 10, SR 1111, Brices Creek, B-4086
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard recommendations apply.

8. Cumberland County – Bridge No. 85, I-95 Business, Cape Fear River, B-4091
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Other standard recommendations apply.

9. Durham County – Bridge No. 5, SR 1616, Mountain Creek, B-4110
YELLOW LIGHT. Due to the DWQ water quality classification, we recommend High Quality Sedimentation and Erosion Control Measures be used. Other standard recommendations apply.

10. Edgecombe County – Bridge No. 19, SR 1135, Cokey Swamp, B-4111
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Standard recommendations apply.

11. Franklin County – Bridge No. 15, SR 1106, Little River, B-4113
RED LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

12. Granville County – Bridge No. 84, SR 1141, Tar River, B-4124
RED LIGHT. The Tar River supports a good fishery for sunfish, therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

13. Greene County – Bridge No. 46, SR 1091, Wheat Swamp Creek, B-4125
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Standard recommendations apply.

14. Greene/Lenoir Cos. – Bridge No. 49, SR 1434, Wheat Swamp Creek, B-4126
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Standard recommendations apply.

15. Greene County – Bridge No. 43, SR 1438, Rainbow Creek, B-4127
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Standard recommendations apply.

16. Halifax County – Bridge No. 11, SR 1001, Jacket Swamp, B-4133
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Standard recommendations apply.

17. Harnett County – Bridge No. 35, NC 42, Norfolk and Southern Railway, B-4137
GREEN LIGHT. No comment.

18. Hertford County – Bridge No. 67, SR 1118, Ahoskie Creek, B-4150
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Other standard comments apply.

19. Hyde County – Bridge No. 108, SR 1340, Old State Canal, B-4154
GREEN LIGHT. Standard comments apply.

20. Jones County – Bridge No. 7, SR 1129, Big Chinquapin Branch, B-4169
YELLOW LIGHT. Big Chinquapin Branch supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard recommendations apply.

21. Lee County – Bridge No. 4, SR 1423, Gum Fork, B-4171
GREEN LIGHT. Standard comments apply.

22. Martin County – Bridge No. 5, SR 1417, Conoho Creek, B-4187
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

23. Nash County – Bridge No. 56, SR 1544, Tar River, B-4211

YELLOW LIGHT. The Tar River supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard recommendations apply.

24. Onslow County – Bridge No. 24, US 17, New River, B-4214
YELLOW LIGHT. The New River is designated as a Primary Nursery Area on the downstream side of the existing US 17 bridge. Due to the potential for adult and larval stages of anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to September 30. Other standard recommendations apply.

25. Onslow County – Bridge No. 19, NC 210, Stones Creek, B-4215
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

26. Pamlico County – Bridge No. 65, SR 1304, UT to Neuse River, B-4219
YELLOW LIGHT. There is the potential for impacts to high quality coastal wetlands at this location. NCDOT should employ all measures necessary to avoid impacts to these resources. Other standard comments apply.

27. Pamlico County – Bridge No. 4, SR 1344, South Prong Bay River, B-4221
YELLOW LIGHT. There is the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

28. Pender County – Bridge No. 21, NC 210, NE Cape Fear River, B-4223
RED LIGHT. There are records of the federally listed Shortnose sturgeon in the NE Cape Fear in the project area. Due to the potential for anadromous fish and Shortnose sturgeon at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 1 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

29. Perquimans County – Bridge No. 69, SR 1222, UT to Mill Creek, B-4227
YELLOW LIGHT. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes a moratorium on work within jurisdictional waters from February 15 to June 15. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

30. Pitt County – Bridge No. 98, SR 1407, Conetoe Creek, B-4234
GREEN LIGHT. Standard comments apply.

31. Pitt County – Bridge No. 118, SR 1538, Grindle Creek, B-4235

YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

32. Randolph County – Bridge No. 34, SR 1304, Second Creek, B-4242
GREEN LIGHT. Standard comments apply.

33. Randolph County – Bridge No. 257, SR 2824, Vestal Creek, B-4245
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard comments apply.

34. Richmond County – Bridge No. 129, SR 1321, Big Mountain Creek, B-4247
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard comments apply.

35. Sampson County – Bridge No. 150, SR 1006, Little Coharie Creek, B-4268
YELLOW LIGHT. Little Coharie Creek supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

36. Sampson County – Bridge No. 191, SR 1845, Great Coharie Creek, B-4272
YELLOW LIGHT. Great Coharie Creek supports a good fishery for sunfish; therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. Biologists indicate that a bridge is preferred. There is also the potential for impacts to high quality wetlands at this site. NCDOT should avoid or minimize impacts to these wetlands. Other standard comments apply.

37. Vance County – Bridge No. 3, SR 1107, Ruin Creek, B-4298
RED LIGHT. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

38. Wake County – Bridge No. 189, SR 2333, Little River, B-4305
RED LIGHT. The Little River supports a good fishery for sunfish, therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

39. Washington County – Bridge No. 29, SR 1163, Maul Creek, B-4314
GREEN LIGHT. Standard comments apply.

40. Wilson County – Bridge No. 52, SR 1131, Turkey Creek, B-4327
RED LIGHT. Turkey Creek supports a good fishery for sunfish, therefore, we recommend a moratorium on work within jurisdictional waters from April 1 to June 15. There are records of state and federally listed mussels in the project vicinity. Therefore, due to the potential for impacts to listed species we request that NCDOT perform a mussel survey prior to the construction of this bridge. An on-site meeting should be held with NCWRC and USFWS biologists, prior to the '404' permit application, to discuss bridge design and construction. We request NCDOT incorporate High Quality Sedimentation and Erosion Control Measures into the design of this project. Other standard recommendations apply.

41. Wilson County – Bridge No. 3, SR 1634, Great Swamp, B- 4328
YELLOW LIGHT. If aquatic surveys indicate the potential for impacts to listed mussels, NCDOT should contact USFWS and NCWRC biologists for an on-site meeting to discuss special measures to reduce potential adverse effects. Other standard recommendations apply.

NCDOT should routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. Restoring previously disturbed floodplain benches should narrow and deepen streams previously widened and shallowed during initial bridge installation. 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 and reduce habitat fragmentation.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (336) 769-9453. Thank you for the opportunity to review and comment on these projects.

cc: USFWS, Raleigh

Superintendent
Ronald B. Singletary

Deputy Superintendent
Freddie S. Canady

Asst. Superintendents
Jeffrey L. Hudson
Barbara B. Newman

Onslow County Schools

P.O. Box 99, Jacksonville, North Carolina 28541-0099
Phone (910) 455-2211 FAX (910) 455-1965

Board of Education
Robert B. Gaskins, Chm.
Boyd Tisdale, V.Chm.
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Ronnie Ross
Mary Ann Sharpe

June 11, 2003

Mr. Elmo Vance
North Carolina Department of Transportation
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

REF: TIP Project Number B-3851
Project 8.1262101: Replacement of Bridge No.19 on NC 210 over Stones Creek

Dear Mr. Vance:

Thank you for your notice of a citizen's informational workshop. We have carefully evaluated the impact of traffic rerouting necessitated by the above reference project. Using our state-approved Transportation Information Management System (TIMS), our staff have determined that Alternative A (replacing the bridge in-place with an off-site detour) will add significant costs to our transportation system.

Please see the attached memorandum dated June 9, 2003 from Ms. Barbara Justice-Rooks, TIMS Coordinator. The costs of this detour route shall add approximately $10,632 per month to our system for each month the detour is in effect. During an anticipated austere budget year, this will be an unbearable burden to our system. In addition, a detour shall unnecessarily lengthen the travel times of a great number of students within our system.

I strongly urge you to consider Alternative B for rerouting traffic. This would replace the bridge in-place with an on-site detour located northeast of the existing structure. Thank you for your consideration of this request. If you have any questions, please do not hesitate to call.

Sincerely,

Jeffrey L. Hudson
Assistant Superintendent

Attachments (2)

CC: Senator Cecil S. Hargett, Jr.
Representative Jean R. Preston
Representative Keith P. Williams
Representative W. Robert Grady
Lanny Wilson, Board of Transportation Member
Louis Sewell, Board of Transportation Member
Dr. Ronald B. Singletary, Superintendent of Schools
Mr. Jeff Smith, OCS Transportation Director
Ms. Barbara Justice-Rooks, OCS TIMS Coordinator

Memorandum

To: Jeff Hudson, Assistant Superintendent

Jeff Smith, Transportation Director

From: Barbara Justice-Rooks, TIMS Coordinator

Date: 6/9/2003

Re: Bridge Replacement - Bridge #19 over Stones Creek (Hwy 210)

The options that will be presented at the public workshop are 1) a detour down Hwy 172 from Wilmington hwy, and 2) an onsite detour relatively close to the existing bridge. The latter will have little effect on school transportation. The first option will have an adverse affect on school transportation. Based on the 2002-2003 school year there were 62 regular bus trips over this bridge daily.

This included: Dixon Elementary -20 trips
Dixon middle/high -24 trips
New Bridge Middle -8 trips
Exceptional Children -16 trips

A detour down hwy 172 will amount to an increase in mileage of 354.4 miles per day at an increase in cost of $531.60 per day, $2,658.00 per week, or $10,632.00 per month.

COUNTY OF ONSLOW

November 20, 2002

Dr. Gregory J. Thorpe
Environmental Management Director
Project Development and Environmental Analysis
NC Department of Transportation
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

Thank you for your letter dated October 24 in which you request our input, by November 29, on certain construction projects pending for Onslow County. It goes without saying that both projects mentioned, B-4214 and B-4215, are needed to improve the quality of our roads.

Project B-4215, the replacement of Bridge No. 19 over Stone Creek on NC 210, is desperately needed. This highway is well traveled daily and the residents are aware of the need for this improvement. It appears this work would produce no obvious adverse impact to the flow of traffic in this area. On the contrary, the replacement of this bridge can only serve to improve travel on Hwy NC 210.

On the other hand, replacing the Hwy 17 Bridge over the New River, one of our highest priorities, will not be accomplished quite so easily. I realize the hardships this will place on our travelers, as the Hwy 17 Bridge provides the primary river crossing between North and South Onslow County. The only apparent course would seem to be to redirect traffic during this replacement, and would involve detouring vehicles to the Old Bridge Street area of downtown Jacksonville.

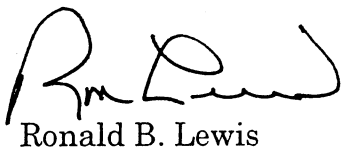
This rerouting would funnel four lanes of 45 mile per hour traffic from Hwy 17 into a two-lane street that has a speed limit of 20 miles per hour, and has a high volume of pedestrian traffic in the area of the courthouses. There have been occasions where an accident on Hwy 17 resulted in the rerouting of traffic to Old Bridge Street for just a short time. My office is on Old Bridge Street and I have viewed first-hand the congestion this creates. It is untenable to think this narrow street could withstand such use on a daily basis.

There does seem to be an alternative to take. The north-bound lane could be closed during replacement and the south-bound lane diverted to two-way traffic. The reverse would be done upon completion of the first phase of the replacement. This type of traffic pattern was accomplished successfully during the replacement of the bridges crossing the White Oak River on Hwy 24 at Swansboro.

The replacement of these bridges is of vital importance and Onslow County fully supports the projects, and urges you to give informed thought to rerouting traffic in the Hwy 17 Bridge area.

I appreciate the opportunity to comment on the impact these projects will have, and trust that you will take the interest of our residents into consideration as you plan for the commencement of these projects.

Sincerely,



Ronald B. Lewis
County Manager

mmr

C: Onslow County Board of Commissioners
Bill Price, Planning Director

Department of Emergency Services
Division of Emergency Medical Services
Thomas E. Thompson, Division Head
Steven M. Conrad, Deputy Division Head
Judith A. Costa, Captain
Beth R. Himes, Captain
Deborah A. Jones, Captain
Roderick R. Williams, II, Captain

COUNTY OF ONSLOW

January 31, 2002

Davis Moore
NC Department of Transportation
Project Development and Environmental Analysis
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Moore,

There are several concerns that our Emergency Medical Service and Fire Service have addressed concerning renovation / restoration / re-construction of bridges in Onslow County. We will try to address all our concerns in such a manner that can be applied to all future bridge construction projects. You or your staff will be able to address these concerns on a perpetual basis concerning Emergency Response considerations for all future bridge construction in Onslow County. Our major concerns are as follow:

1. Highway 210 bridge in Sneads Ferry – B-4215

The bridge will affect four (4) Fire Departments, (1) Rescue Squad, and (2) EMS Stations that cover approximately 100 square miles of Onslow County. In some cases fire, rescue, and EMS units may have to divert nearly fourteen miles around the construction site. Time is critical when a life-threatening emergency arises. It is during these times that road access becomes a major life safety consideration.

a. Will the highway be completely impassible at any given time?
b. What are the expected traffic delays?
c. When known access has been discontinued for more than a reasonable amount of time, will the Department of Transportation notify Emergency 911 Dispatchers of the situation?
d. Construction on highway 210 could involve disruption of emergency access to three schools. Two at highway 17, from the Sneads Ferry side, and another closer to highway 172, which could be affected from the highway 17 direction.
e. Will the bridge construction require disruption of the water system. Water mains travel either side of highway 210. Water pressure is important to providing fire protection at schools, local business', and residential property.

f. We are already experiencing some delays with bridges under construction in two locations; Piney Green road and the bridge leading from Swansboro; into Carteret County on Highway 24 East. Arrangements have been made to contact the person in charge at Swansboro bridge, (Gary Butters 252-241-1945) to pass along Information relating to traffic control guards, concerning approach of emergency vehicles.

g. Another area of concern with construction of the bridge on Highway 210 involves the school located near the 172 end, at four corners in Sneads Ferry. This school serves as a citizen shelter during hurricane season and construction could cause some unique problems during that time. Relocating a hurricane shelter can have a number of repercussions since shelters must meet specific guidelines, are selected by multi-agency consideration, and are documented as shelters at the State Emergency Management level.

2. New River Bridge on Highway 17S – Downtown Jacksonville - B-4214

   a. If, as you suggest in your letter dated August 7, 2001, the road was closed to traffic...the situation could become life threatening due to the extreme traffic congestion and lack of safe zones available, that would allow traffic to yield emergency vehicles.
   b. In addition, it is questionable if the narrow city streets of downtown Jacksonville, which encompass several traffic lights and sharp turns, could handle a re-route of four lanes of traffic; reduced to one.
   c. Commercial traffic could increase the potential danger of a tanker truck accident with product release in the heart of city / county government.

3. In closing, we are a county organization and have addressed these concerns from a County Emergency Response perspective. We can and have addressed the Medical Response concerns, both City and County. We feel that a similar opportunity should be afforded to the Onslow County Sheriff's Department, Jacksonville Police and Fire Departments. County Fire Department jurisdictions are all located outside the City of Jacksonville.

Thank you for this opportunity. Our Fire and Medical Chief's and Supervisors consider it very important for us to be aware of any situation that could delay or deny a timely response to our citizens during any fire or medical emergency. If you have any further questions, feel free to call this office, the Fire Marshal's Office (910-347-4270), or the Director of Emergency Services, at the same number.

Thomas Thompson
Emergency Medical Service

Donald R. Lanier
County Fire Marshal

1180 Commons Dr. North ◆ Jacksonville, NC 28546 ◆ (910) 346-6760 ◆ FAX (910) 455-6767 ◆ email: ocemed@co.onslow.nc.us

248 Wilmington Hwy
Jacksonville, NC

B-4215

Onslow County Schools Transportation

July 10, 2001

Davis Moore
NC Department of Transportation

Dear Mr. Moore:

In response to your request, there are approximately 42 bus crossings over bridge No. 19 over Stone Creek, daily. This is likely to increase by 2005. In this area, any detour in effect for an extended amount of time, will result in a significant increase in transportation cost, for both mileage and driver salary, above our projected costs. Please advise us as soon as possible of the length of time the bridge will be closed and possible dates. An ideal situation for school transportation would be during summer break. Thank you for your consideration.

Sincerely,

Barbara Justice Rooks

Barbara Justice-Rooks
T.I.M.S. Coordinator

WA
Wet

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Bridge No. 4215 - Stones Creek	Date: 8/27/01
Applicant/Owner: NCDOT	County: Onslow
Investigator: ESI	State: NC
Do Normal Circumstances exist on the site? (Yes) No	Community ID: Hardwood
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: WA-3
Is the area a potential Problem Area? Yes (No)	Plot ID: Wet
(If needed, explain on reverse	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Carpinus caroliniana	T	FAC	9.		
2.			10.		
3. Acer rubrum	S	FAC	11.		
4. Carpinus caroliniana	S	FAC	12.		
5.			13.		
6. Arundinaria gigantea	H	FACW	14.		
7. Boehmeria cylindrica	H	FACW+	15.		
8. Anisaema triphyllum	H	FACW-	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 6/6 = 100%

Remarks:
Wetland in bottomland hardwood floodplain

HYDROLOGY

__Recorded Data (Describe in Remarks):
- __Stream, Lake or Tide Gauge
- __Aerial Photographs
- __Other
- X No Recorded Data Available

Field Observations:
- Depth of Surface Water: 0 (in.)
- Depth to Free Water in Pit: 7/8 (in.)
- Depth to Saturated Soil: 7 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- __Inundated
- X Saturated in Upper 12 Inches
- __Water Marks
- __Drift Lines
- __Sediment Deposits
- __Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- __Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- __Local Soil Survey Data
- __FAC-Neutral Test
- __Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Muckalee loam

Drainage Class: Poorly

Taxonomy (Subgroup): Typic Fluvaquents

Field Observations Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6		10YR 2/1	—	—	Sandy loam
6-18+		2.5Y 3/1	10YR 4/6	common, distinct	Loamy Sand

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Hydric soils present

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)

Wetland Hydrology Present? (Yes) No

Hydric Soils Present? (Yes) No

Is this Sampling Point Within a Wetland? (Circle) (Yes) No

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

WA
Up

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Bridge No. 4215 - Stones Creek	Date: 8/27/01
Applicant/Owner: NCDOT	County: Onslow
Investigator: ESI	State: NC
Do Normal Circumstances exist on the site? (Yes) No	Community ID: Hardwood
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: WA-3
Is the area a potential Problem Area? Yes (No)	Plot ID: Upland
(If needed, explain on reverse	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Carpinus caroliniana	T	FAC	9. Toxicodendron radicans	V	FAC
2.			10.		
3. Quercus laurifolia	S	FACW	11.		
4. Aesculus pavia	S	FAC	12.		
5. Carya spp.	S	-	13.		
6.			14.		
7. Arundinaria gigantea	H	FACW	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 5/5 = 100%

Remarks:
Edge of bottomland hardwood

HYDROLOGY

___Recorded Data (Describe in Remarks):
- ___Stream, Lake or Tide Gauge
- ___Aerial Photographs
- ___Other

X No Recorded Data Available

Field Observations:
- Depth of Surface Water: 0 (in.)
- Depth to Free Water in Pit: >18 (in.)
- Depth to Saturated Soil: >18 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___Inundated
- ___Saturated in Upper 12 Inches
- ___Water Marks
- ___Drift Lines
- ___Sediment Deposits
- ___Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___Oxidized Root Channels in Upper 12 Inches
- ___Water-Stained Leaves
- ___Local Soil Survey Data
- ___FAC-Neutral Test
- ___Other (Explain in Remarks)

Remarks:
No indicators present

SOILS

Map Unit Name (Series and Phase): Muckalee Loam

Drainage Class: Poorly

Taxonomy (Subgroup): Typic Fluvaquents

Field Observations Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3		10YR 6/2	—	—	Sand
3-6		10YR 4/2	—	—	Sand
6-16		10YR 5/4	10YR 4/2	few, faint	Sand
16-18+		10YR 4/2	10YR 4/2	few, faint	Loamy Sand

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Non-hydric soils present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No (Circle)	(Circle)
Wetland Hydrology Present?	Yes	(No)	
Hydric Soils Present?	Yes	(No)	Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

HA

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: B-4215
Applicant/Owner: NCDOT
Investigator: ESI

Date: 8/27/01
County: Onslow
State: NC

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse

Community ID: Hardwoods
Transect ID: HA II
Plot ID: upland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Liquidambar styraciflua	T	FAC+
2. Quercus michauxii	T	FACW-
3. Fagus grandifolia	T	FACU
4. Ilex opaca	S	FAC-
5. Vitis rotundifolia	H	FAC
6.		
7.		
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 60%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake or Tide Gauge
___ Aerial Photographs
✓ Other
___ No Recorded Data Available

Field Observations:
Depth of Surface Water: — (in.)
Depth to Free Water in Pit: — (in.)
Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: No hydrology indicators.

SOILS

Map Unit Name (Series and Phase): Mapped as Mukalae loam

Drainage Class: Poorly

Taxonomy (Subgroup): Typic Fluvaquents

Field Observations
Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-14		10YR 2/1			sandy loam
14+		5BG 5/1			clay

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

SOILS

Map Unit Name (Series and Phase): Mapped as Mauvyn loamy sand

Drainage Class: well drained

Taxonomy (Subgroup): Typic Hapludults

Field Observations
Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10		2.5Y 5/3			loamy fine sand
10+		2.5Y 5/3	2.5Y 6/8	few/distinct	loamy fine sand

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

Is this Sampling Point Within a Wetland? (Circle) Yes (No)

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: B-4215
Applicant/Owner: NCDOT
Investigator: ESI

Date: 8-27-01
County: Onslow
State: NC

Do Normal Circumstances exist on the site? (Yes) No
Is the site significantly disturbed (Atypical Situation)? Yes (No)
Is the area a potential Problem Area? Yes (No)
(If needed, explain on reverse

Community ID: Hardwoods
Transect ID: HA11
Plot ID: wetland

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. Nyssa biflora	T	OBL
2. Acer rubrum	T	FAC
3. Quercus laurifolia	T	FACW
4. Plantanus occidentalis	T	FACW-
5. Carpinus caroliniana	T	FAC
6. Ulmus americana	T	FACW
7. Arisaema triphyllum	H	FACW-
8.		

Dominant Plant Species	Stratum	Indicator
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100%

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: — (in.)
Depth to Free Water in Pit: 8 (in.)
Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
- ___ Inundated
- ✓ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: Saturated @ surface.

WB
WC Wet
WD

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Bridge No. 4215 - Stones Creek	Date: 8/27/01
Applicant/Owner: NCDOT	County: Onslow
Investigator: ESI	State: NC
Do Normal Circumstances exist on the site? (Yes) No	Community ID: Hardwood
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: WB-3
Is the area a potential Problem Area? Yes (No)	Plot ID: Wet
(If needed, explain on reverse	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Carpinus caroliniana	T	FAC	9.		
2.			10.		
3. Carpinus caroliniana	S	FAC	11.		
4. Acer rubrum	S	FAC	12.		
5.			13.		
6. Athyrium asplenioides	H	FAC	14.		
7. Woodwardia aerolata	H	OBL	15.		
8. Arisaema triphyllum	H	FACW-	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 6/6 = 100%

Remarks:
Bottomland hardwoods

HYDROLOGY

___Recorded Data (Describe in Remarks):
___Stream, Lake or Tide Gauge
___Aerial Photographs
___Other
X No Recorded Data Available

Field Observations:
Depth of Surface Water: 0 (in.)
Depth to Free Water in Pit: 17 (in.)
Depth to Saturated Soil: 6 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___Inundated
X Saturated in Upper 12 Inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___Oxidized Root Channels in Upper 12 Inches
X Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name (Series and Phase): Muckalee loam

Drainage Class: Poorly

Taxonomy (Subgroup): Typic Fluvaquents

Field Observations
Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 3/1	—	—	Sandy loam
4-12		10YR 4/1	—	—	Sandy Clayloam
12-18+		10YR 3/1	—	—	Sandy loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

Hydric soils present

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? (Yes) No
Hydric Soils Present? (Yes) No

(Circle)
Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

WB
WC Upland
WD

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Bridge No. 4215 - Stones Creek	Date: 8/27/01
Applicant/Owner: NCDOT	County: Onslow
Investigator: ESI	State: NC
Do Normal Circumstances exist on the site? (Yes) No	Community ID: Hardwood
Is the site significantly disturbed (Atypical Situation)? Yes (No)	Transect ID: WB-3
Is the area a potential Problem Area? Yes (No)	Plot ID: Upland
(If needed, explain on reverse	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Liquidambar styraciflua	T	FACt	9. Vitis rotundifolia	V	FAC
2.			10. Smilax rotundifolia	V	FAC
3. Carpinus caroliniana	S	FAC	11.		
4. Carya sp.	S	—	12.		
5.			13.		
6. Athyrium asplenioides	H	FAC	14.		
7. Arisaema triphyllum	H	FACW-	15.		
8. Viola sp	H	—	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 6/6 = 100%

Remarks:

HYDROLOGY

___Recorded Data (Describe in Remarks):
___Stream, Lake or Tide Gauge
___Aerial Photographs
___Other
X No Recorded Data Available

Field Observations:
Depth of Surface Water: 0 (in.)
Depth to Free Water in Pit: 7/8 (in.)
Depth to Saturated Soil: 7/8 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___Inundated
___Saturated in Upper 12 Inches
___Water Marks
___Drift Lines
___Sediment Deposits
___Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___Oxidized Root Channels in Upper 12 Inches
___Water-Stained Leaves
___Local Soil Survey Data
___FAC-Neutral Test
___Other (Explain in Remarks)

Remarks:
No indicators present

SOILS

Map Unit Name (Series and Phase): Muckalee loam

Drainage Class: Poorly

Taxonomy (Subgroup): Typic Fluvaquents

Field Observations
Confirm Mapped Type: Yes (No)

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16+		10YR 4/2	—	—	Fine Sandy loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No (Circle)
Wetland Hydrology Present? Yes (No)
Hydric Soils Present? Yes (No)

(Circle)
Is this Sampling Point Within a Wetland? Yes (No)

Remarks:

Approved by HQUSACE 2/92

HJL
8/93

U.S. ARMY CORPS OF ENGINEERS
Wilmington District

Action ID: 200101175 **County:** Onslow

Notification of Jurisdictional Determination

Property Owner:
Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Authorized Agent:
Jeff Harbour, PWS
Environmental Services, INC
524 New Hope Road
Raleigh, North Carolina 27610

Size and Location of Property (waterbody, Highway name/number, town, etc.): TIP Project No. B-4215, existing bridge on NC 210 over Stones Creek, Onslow County, North Carolina.

Basis for Determination: Onsite field inspection of selected wetland sites.

Indicate Which of the Following apply:

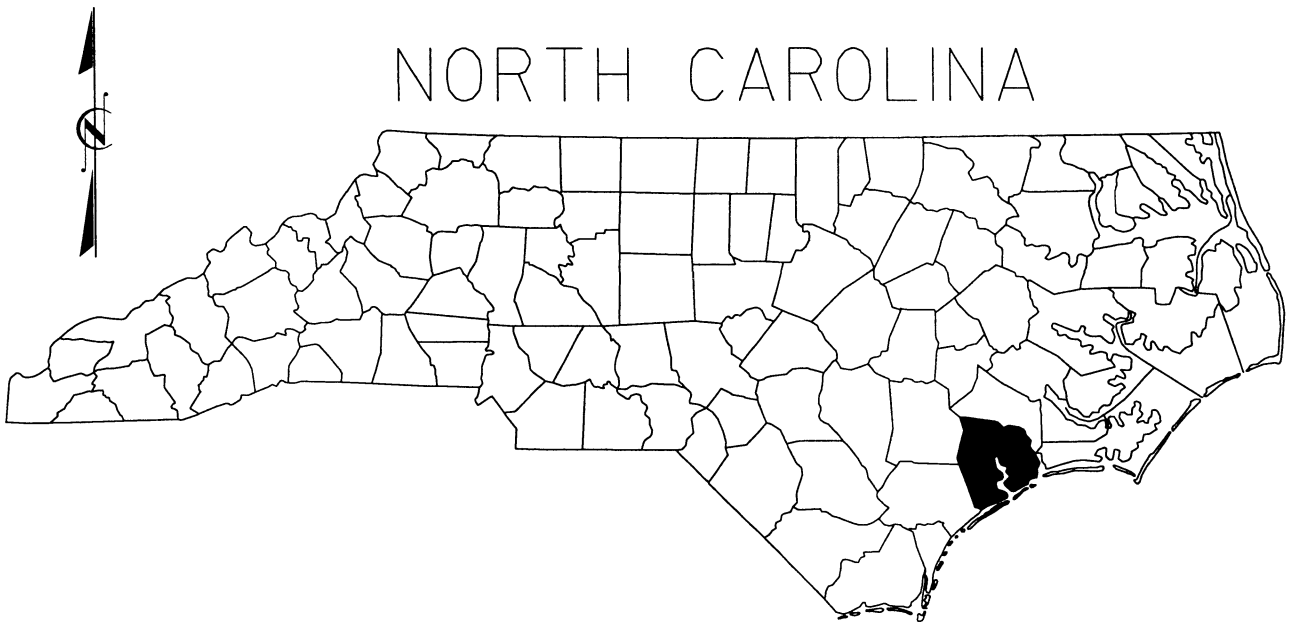
- ☐ There are wetlands on the above described property which we strongly suggest should be delineated and surveyed. The surveyed wetland lines must be verified by our staff before the Corps will make a final jurisdictional determination on your property.
- ☑ On **October 10, 2001**, the undersigned inspected the Section 404 jurisdictional line as determined by the NCDOT and/or its representatives for the subject NCDOT project. A select number of wetland sites were inspected for the proposed project and all were found to accurately reflect the limits of Corps jurisdiction. The Corps believes that this jurisdictional delineation can be relied on for planning purposes and impact assessment.
- ☐ The wetlands on your lot have been delineated and the limits of the Corps jurisdiction have been explained to you. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ There are no wetlands present on the above described property which are subject to the permit requirements of section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ The project is located in one of the 20 Coastal Counties. You should contact the nearest State Office of Coastal Management to determine their requirements.

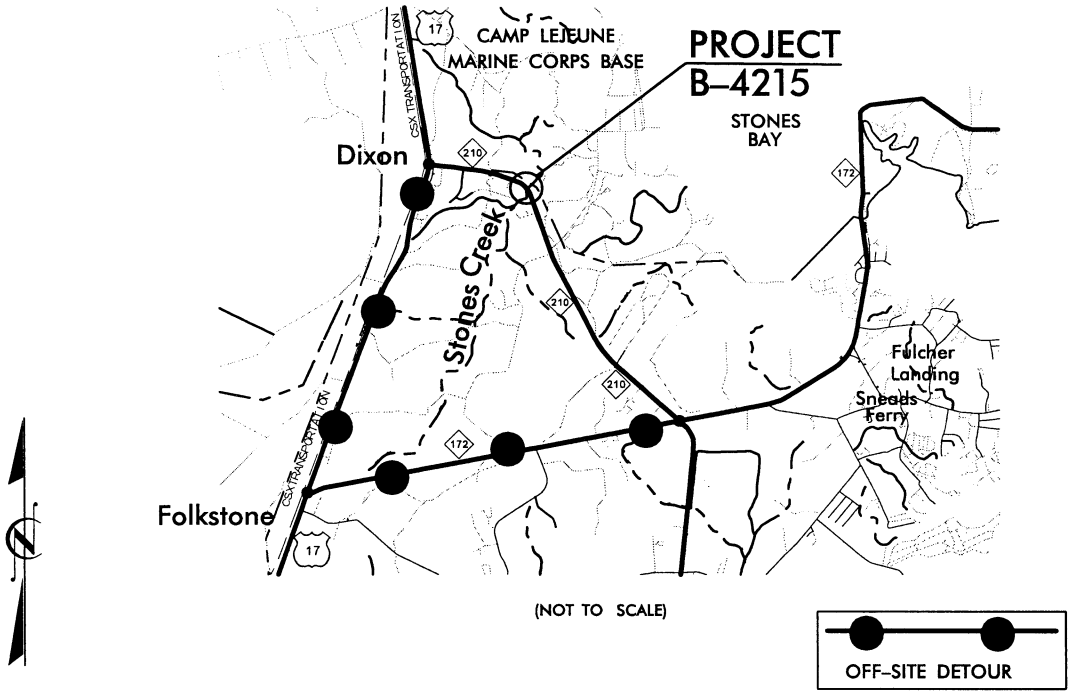
Placement of dredged or fill material in wetlands on this property without a Department of the Army permit is in most cases a violation of Section 301 of the Clean Water Act (33 USC 1311). A permit is not required for work on the property restricted entirely to existing high ground. If you have any questions regarding the Corps of Engineers regulatory program, please contact Mr. Dave Timpy at 910-251-4634.

Project Manager Signature _____

Date January 2, 2002 **Expiration Date** January 2, 2007

SURVEY PLAT OR FIELD SKETCH OF DESCRIBED PROPERTY AND THE WETLAND DELINEATION FORM MUST BE ATTACHED TO THIS FORM.





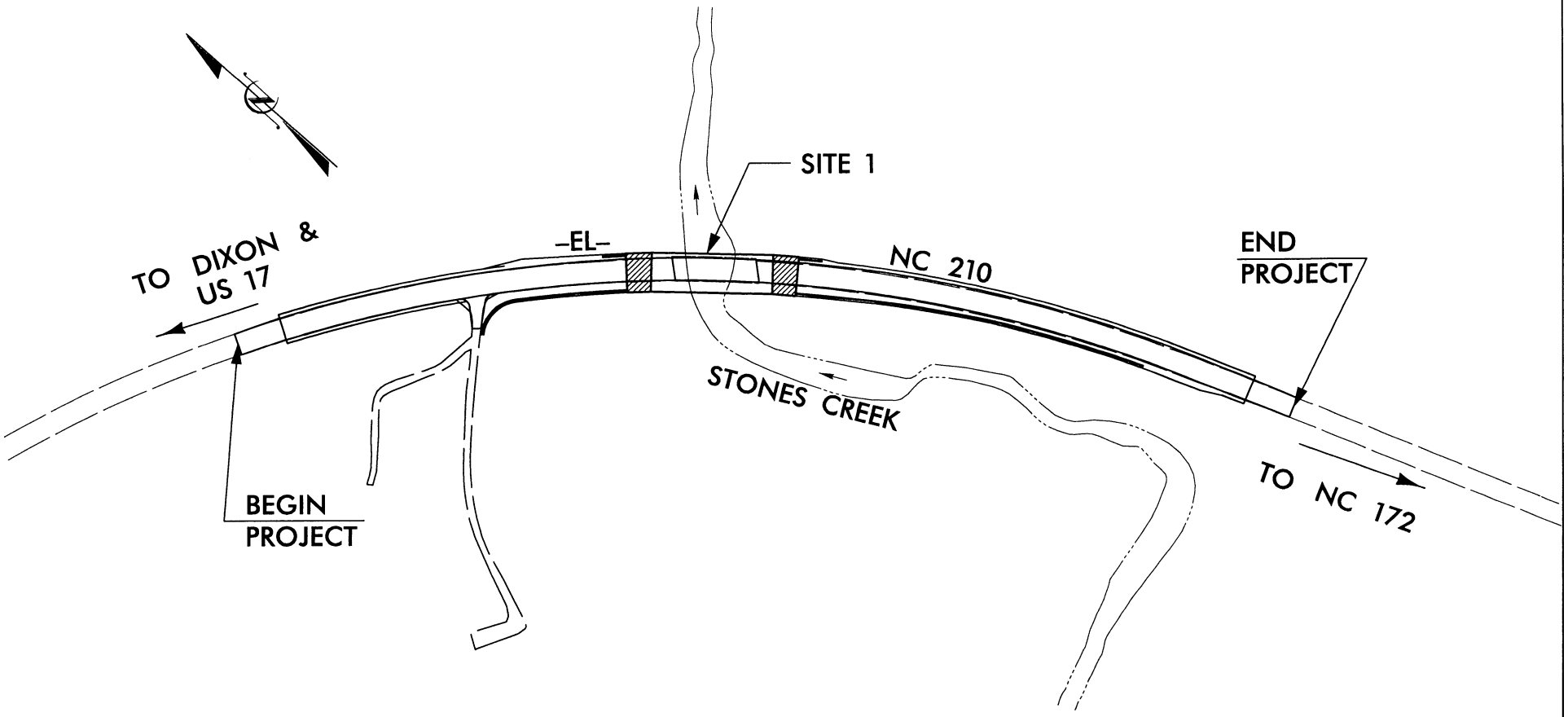
VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
ONLSOW COUNTY
PROJECT: 33561.1.1 (B-4215)
BRIDGE NO. 19 OVER
STONES CREEK
AND APPROACHES ON NC 210

PERMIT DRAWING

SHEET 1 **OF** 15 **1/7/05**



SITE MAP

NOT TO SCALE

NCDOT

DIVISION OF HIGHWAYS
ONLSOW COUNTY
PROJECT: 33561.1.1 (B-4215)
BRIDGE NO. 19 OVER
STONES CREEK
AND APPROACHES ON NC 210

PERMIT DRAWING

SHEET 2 OF 15 1/7/05

TOPO MAP

SCALE: 1" : 2000'

NCDOT

DIVISION OF HIGHWAYS
ONLSOW COUNTY
PROJECT: 33561.1.1 (B-4215)
BRIDGE NO. 19 OVER
STONES CREEK
AND APPROACHES ON NC 210

PERMIT DRAWING

SHEET 3 **OF** 15

1/7/05

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
1	United States Marine Corps Military Reservation	PSC Box 20004 Camp Lejeune, NC 28542-0004
2	Edward J. Collins	312 NC Highway 210 Holly Ridge, NC 28445
3	George V. Yopp	1120 Old Folkstone Road Sneads Ferry, NC 28460

NCDOT

DIVISION OF HIGHWAYS

ONLSOW COUNTY

PROJECT: 33561.1.1 (B-4215)

BRIDGE NO. 19 OVER

STONES CREEK

AND APPROACHES ON NC 210

PERMIT DRAWING

SHEET 4 OF 15 1/7/05

LEGEND

WLB WETLAND BOUNDARY

WETLAND

F F DENOTES FILL IN WETLAND

S S DENOTES FILL IN SURFACE WATER

P P DENOTES FILL IN SURFACE WATER (POND)

T T DENOTES TEMPORARY FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB TOP OF BANK

WE EDGE OF WATER

C PROP. LIMIT OF CUT

F PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG NATURAL GROUND

PL PROPERTY LINE

TDE TEMP. DRAINAGE EASEMENT

PDE PERMANENT DRAINAGE EASEMENT

EAB EXIST. ENDANGERED ANIMAL BOUNDARY

EPB EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

DENOTES AREA TO BE EXCAVATED

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTNG STRUCTURES)

12"-48" PIPES

54" PIPES & ABOVE

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

DENOTES IMPACTS TO BUFFER ZONE 1

DENOTES IMPACTS TO BUFFER ZONE 2

NCDOT

DIVISION OF HIGHWAYS

ONLSOW COUNTY

PROJECT: 33561.1.1 (B-4215)

BRIDGE NO. 19 OVER STONES CREEK AND APPROACHES ON NC 210

PERMIT DRAWING

SHEET 5 **OF** 15 **1/7/05**

WETLANDS IMPACT PERMIT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	20+22.75 -EL-	2 @ 65' - 33" CONC. BOX GIRGER	0.003	0	0	0	0	0	0	0	0
TOTALS:			0.003	0	0	0	0	0	0	0	0

Pier impacts are 0.003 ac

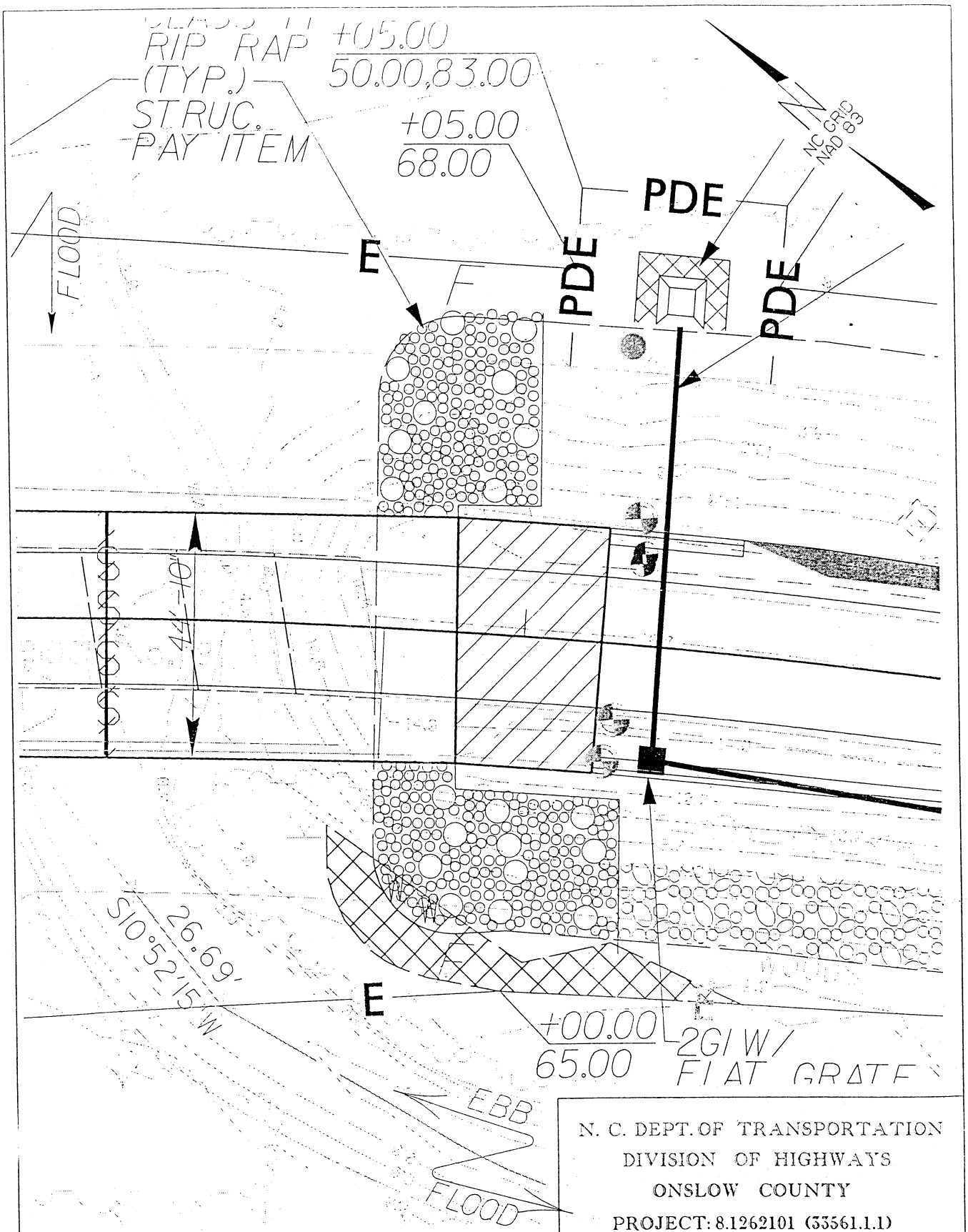
"Hand Clearing in Wetlands" impacts are 0.043 acres (1,861 Ft²).

Form Revised 3/22/01

NCDOT

DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT 33561.1.1 (B-4215)
BRIDGE NO. 19 OVER
STONES CREEK
AND APPROACHES ON NC 210
PERMIT DRAWING

SHEET 6 OF 15 3/29/2005



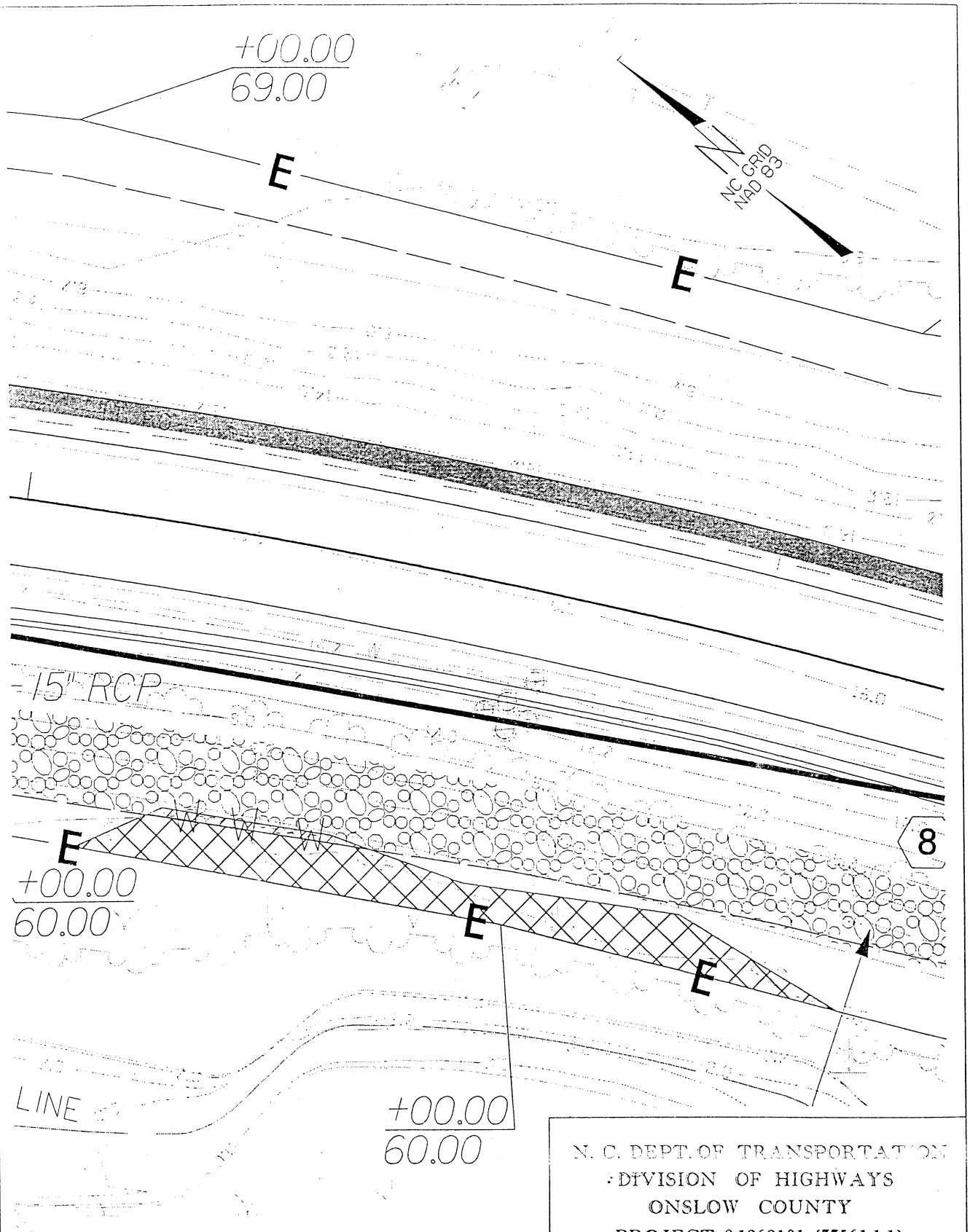
BLOW UP OF ROADWAY FILL AREA

50 0

25 50

SCALE: 1"= 50' HORIZ.

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT: 8.1262101 (33561.1.1)
B-4215
REPLACE BRIDGE 19 OVER
STONES CREEK ON NC 210
PERMIT DRAWING
SHEET 7 OF 15



BLOW UP OF ROADWAY FILL AREA

50 0 25 50

SCALE: 1"= 50' HORIZ.

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT: 8.1262101 (33561.1.1)
B-4215
REPLACE BRIDGE 19 OVER
STONES CREEK ON NC 210
PERMIT DRAWING
SHEET 8 OF 15

PROJECT REFERENCE NO. B–4215 | SHEET NO. 4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

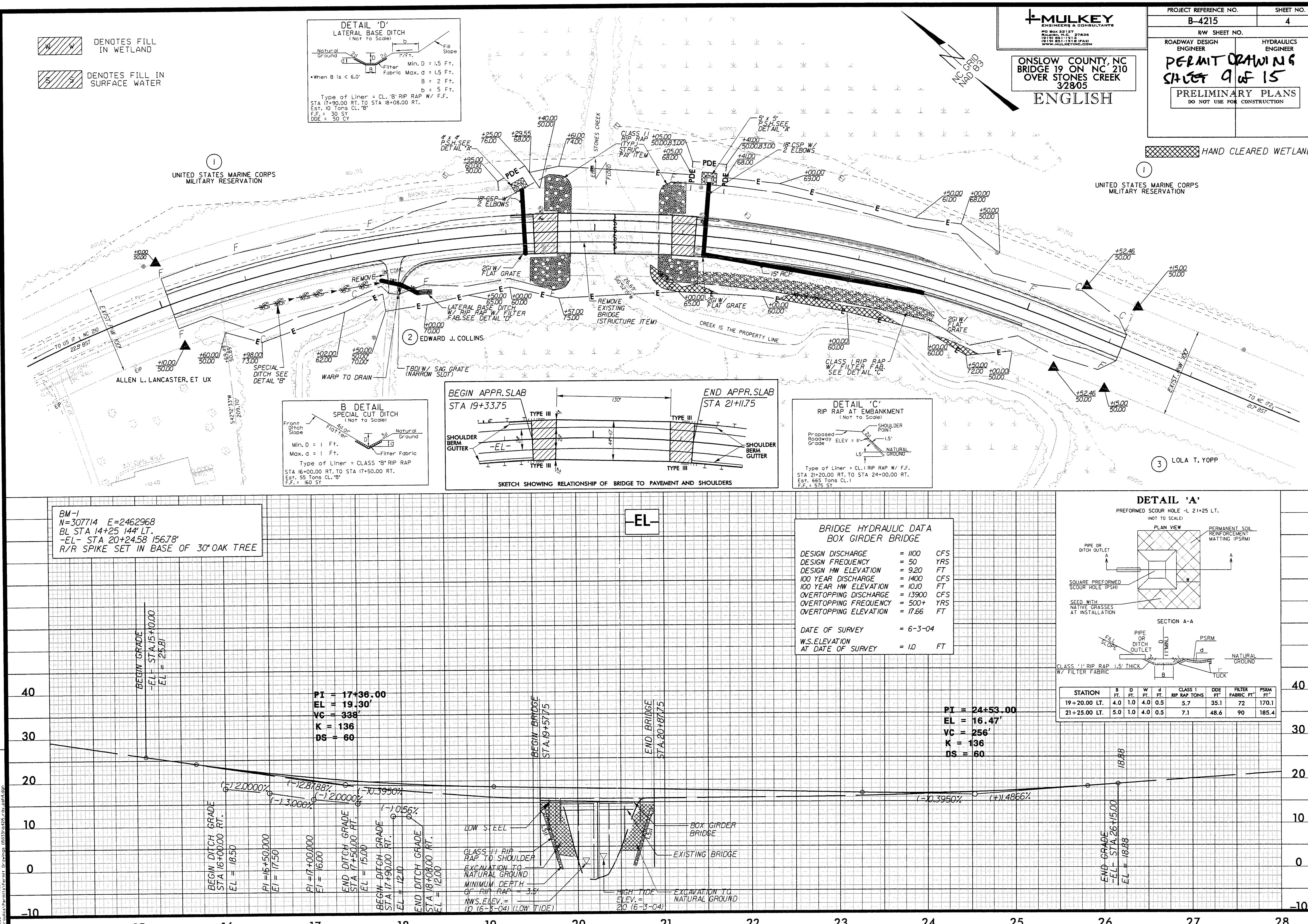
PERMIT DRAWING SHEET 9 of 15

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MULKEY ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

ONSLOW COUNTY, NC
BRIDGE 19 ON NC 210
OVER STONES CREEK
3/28/05

ENGLISH

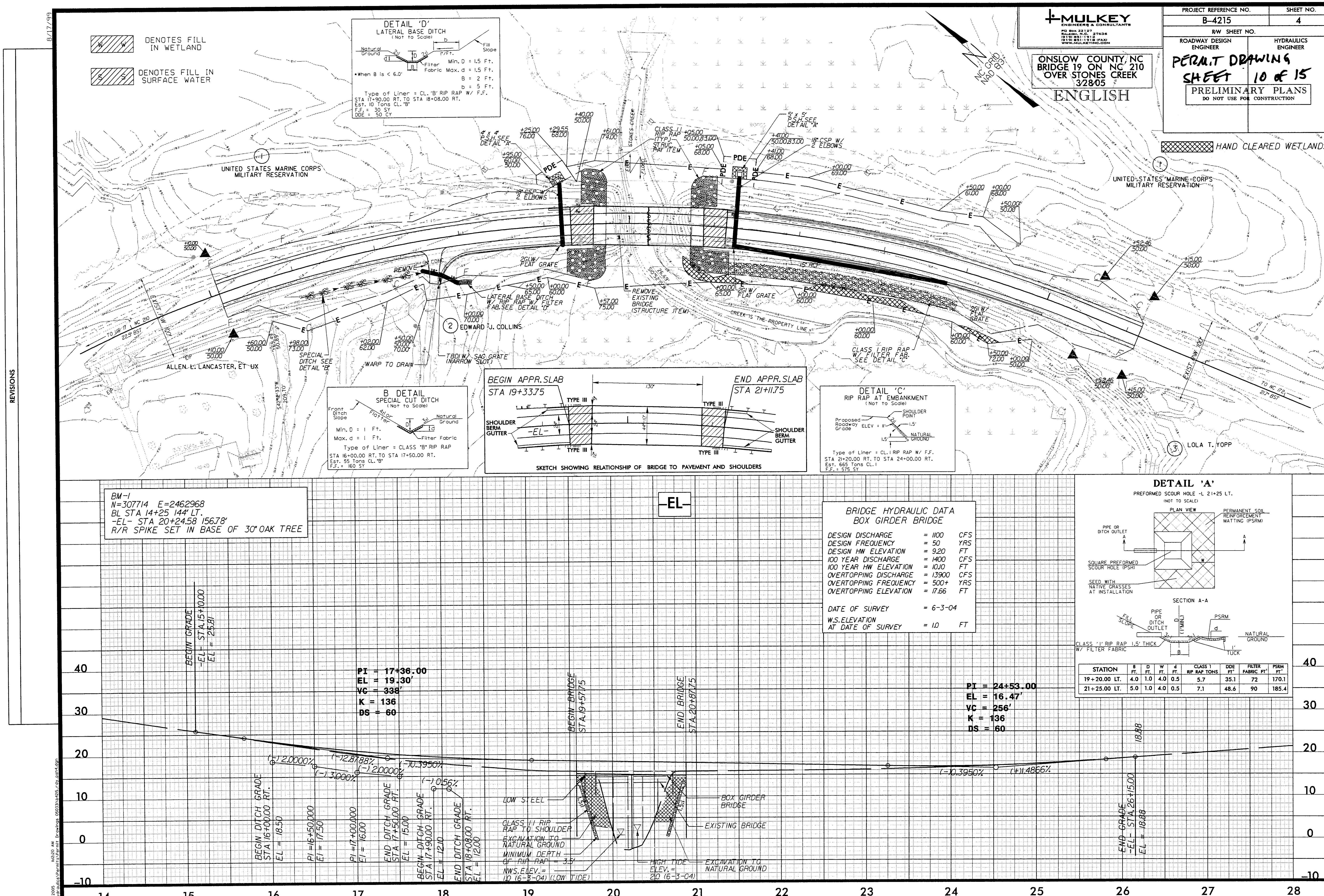


BRIDGE HYDRAULIC DATA
BOX GIRDER BRIDGE

DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 9.20	FT
100 YEAR DISCHARGE	= 1400	CFS
100 YEAR HW ELEVATION	= 10.10	FT
OVERTOPPING DISCHARGE	= 13900	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 17.66	FT
DATE OF SURVEY	= 6-3-04	
W.S. ELEVATION AT DATE OF SURVEY	= 1.0	FT

DETAIL 'A'

STATION	B FT.	D FT.	W FT.	d FT.	CLASS 1 RIP RAP TONS	DDE FT³	FILTER FABRIC FT²	PSRM FT²
19+20.00 LT.	4.0	1.0	4.0	0.5	5.7	35.1	72	170.1
21+25.00 LT.	5.0	1.0	4.0	0.5	7.1	48.6	90	185.4



PROJECT REFERENCE NO. B-4215
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PERMIT DRAWING SHEET 10 of 15
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
MULKEY ENGINEERS & CONSULTANTS
ONSLOW COUNTY, NC
BRIDGE 19 ON NC 210
OVER STONES CREEK
3/28/05
ENGLISH
NC GRID NAD 83
8/17/99
DENOTES FILL IN WETLAND
DENOTES FILL IN SURFACE WATER
HAND CLEARED WETLANDS
DETAIL 'D'
LATERAL BASE DITCH
(Not to Scale)
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 2 Ft.
b = 5 Ft.
*When B is < 6.0'
Type of Liner = CL. 'B' RIP RAP W/ F.F.
STA 17+90.00 RT. TO STA 18+08.00 RT.
Est. 10 Tons CL. 'B'
F.F. = 30 SY
DDE = 50 CY
UNITED STATES MARINE CORPS MILITARY RESERVATION
EDWARD J. COLLINS
ALLEN L. LANCASTER, ET UX
LOLA T. YOPP
REMOVE EXISTING BRIDGE (STRUCTURE ITEM)
CREEK IS THE PROPERTY LINE
STONES CREEK
LATERAL BASE DITCH W/ RIP RAP W/ FILTER FAB. SEE DETAIL 'D'
SPECIAL DITCH SEE DETAIL 'B'
WARP TO DRAIN
TBDI W/ SAG GRATE (NARROW SLOT)
2GI W/ FLAT GRATE
CLASS I RIP RAP W/ FILTER FAB. SEE DETAIL 'C'
B DETAIL
SPECIAL CUT DITCH
(Not to Scale)
Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = CLASS 'B' RIP RAP
STA 16+00.00 RT. TO STA 17+50.00 RT.
Est. 55 Tons CL. 'B'
F.F. = 160 SY
BEGIN APPR. SLAB STA 19+33.75
END APPR. SLAB STA 21+11.75
SKETCH SHOWING RELATIONSHIP OF BRIDGE TO PAVEMENT AND SHOULDERS
DETAIL 'C'
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner = CL. I RIP RAP W/ F.F.
STA 21+20.00 RT. TO STA 24+00.00 RT.
Est. 665 Tons CL. I
F.F. = 575 SY
BM-1
N=307714 E=2462968
BL STA 14+25 144' LT.
-EL- STA 20+24.58 156.78'
R/R SPIKE SET IN BASE OF 30" OAK TREE
-EL-
PI = 17+36.00
EL = 19.30'
VC = 338'
K = 136
DS = 60
PI = 24+53.00
EL = 16.47'
VC = 256'
K = 136
DS = 60
BEGIN GRADE -EL- STA 15+10.00 EL = 25.81
BEGIN BRIDGE STA 19+57.75
END BRIDGE STA 20+87.75
END GRADE -EL- STA 26+15.00 EL = 18.88
LOW STEEL
BOX GIRDER BRIDGE
EXISTING BRIDGE
CLASS II RIP RAP TO SHOULDER
EXCAVATION TO NATURAL GROUND
MINIMUM DEPTH OF RIP RAP = 3.5'
NWS ELEV. = 1.0 (6-3-04) (LOW TIDE)
HIGH TIDE ELEV. = 2.0 (6-3-04)
DETAIL 'A'
PREFORMED SCOUR HOLE -L 21+25 LT.
(NOT TO SCALE)
REVISIONS

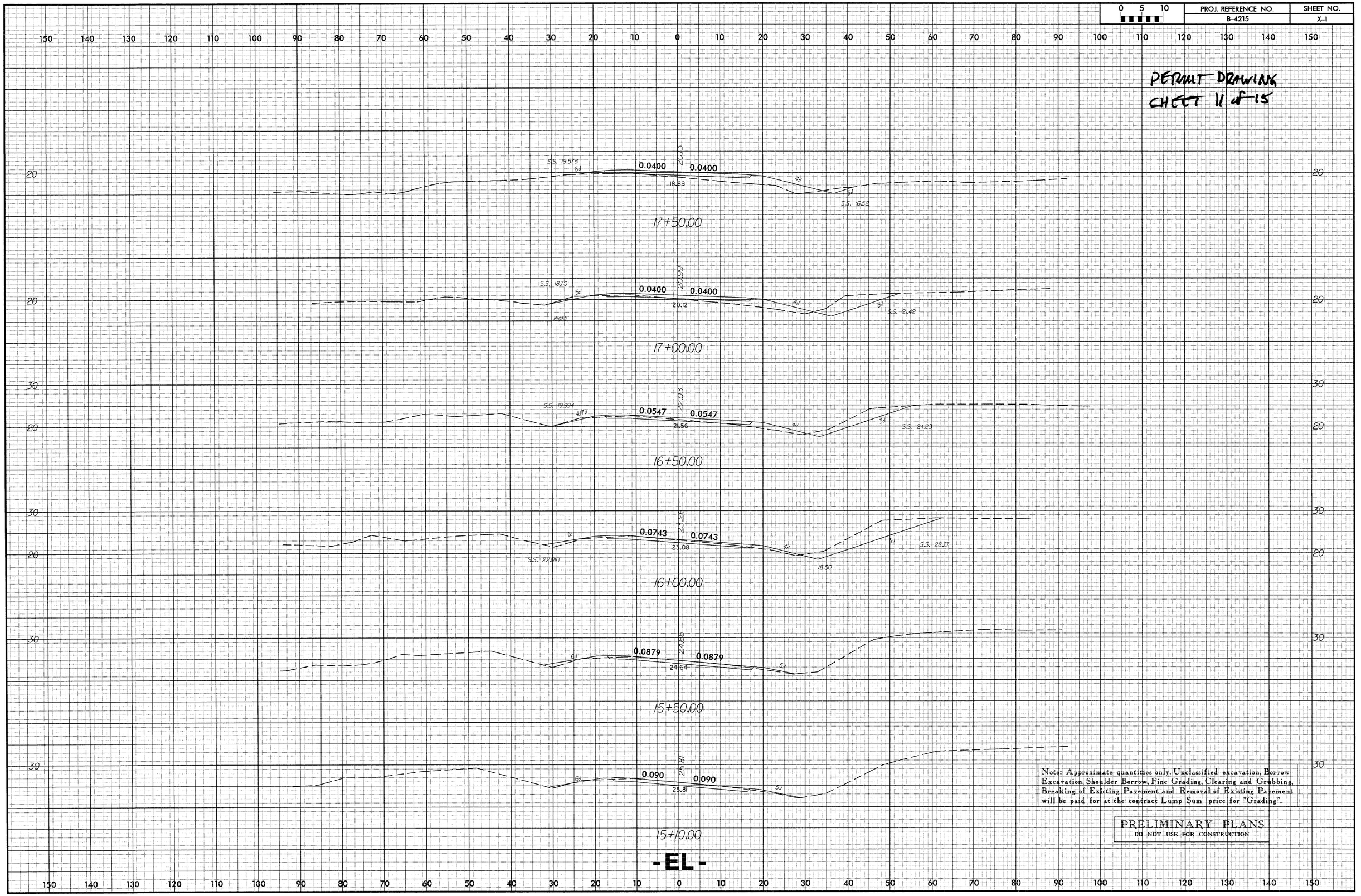
BRIDGE HYDRAULIC DATA
BOX GIRDER BRIDGE

DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 9.20	FT
100 YEAR DISCHARGE	= 1400	CFS
100 YEAR HW ELEVATION	= 10.10	FT
OVERTOPPING DISCHARGE	= 13900	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 17.66	FT
DATE OF SURVEY	= 6-3-04	
W.S. ELEVATION AT DATE OF SURVEY	= 1.0	FT

STATION	B FT.	D FT.	W FT.	d FT.	CLASS 1 RIP RAP TONS	DDE FT³	FILTER FABRIC FT²	PSRM FT²
19+20.00 LT.	4.0	1.0	4.0	0.5	5.7	35.1	72	170.1
21+25.00 LT.	5.0	1.0	4.0	0.5	7.1	48.6	90	185.4

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4215	X-1

PERMIT DRAWING
SHEET 11 of 15



Note: Approximate quantities only. Unclassified excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement and Removal of Existing Pavement will be paid for at the contract Lump Sum price for "Grading".

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4215	X-2

PERMIT DRAWING
SHEET 12 OF 15

8.26
0.0400 0.0400
L88
20+00.00

BEGIN BRIDGE STA 19+57.75

8.46
0.0400 0.0400
16.03
3:1 3:1
S.S. 1.165
S.S. 3.953
19+50.00

15.66
0.0400 0.0400
16.34
3:1 3:1
S.S. 9.357
S.S. 5.20
19+00.00

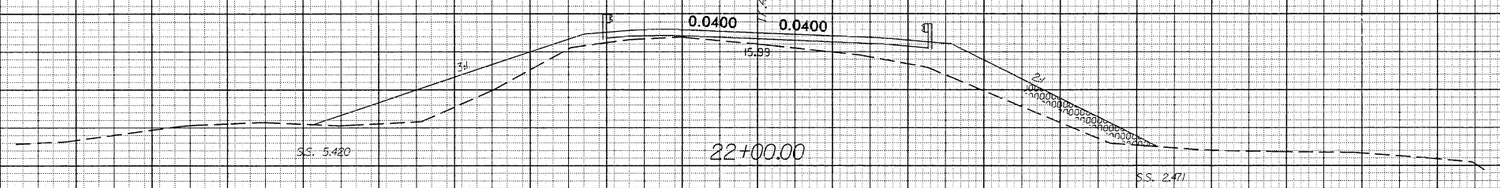
15.96
0.0400 0.0400
17.09
6:1 4:1
S.S. 15.087
S.S. 10.504
18+50.00

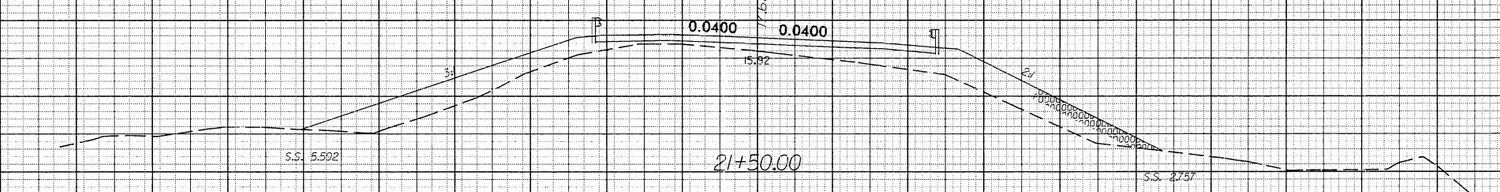
9.76
0.0400 0.0400
17.92
6:1 4:1
S.S. 17.017
12.044
18+00.00

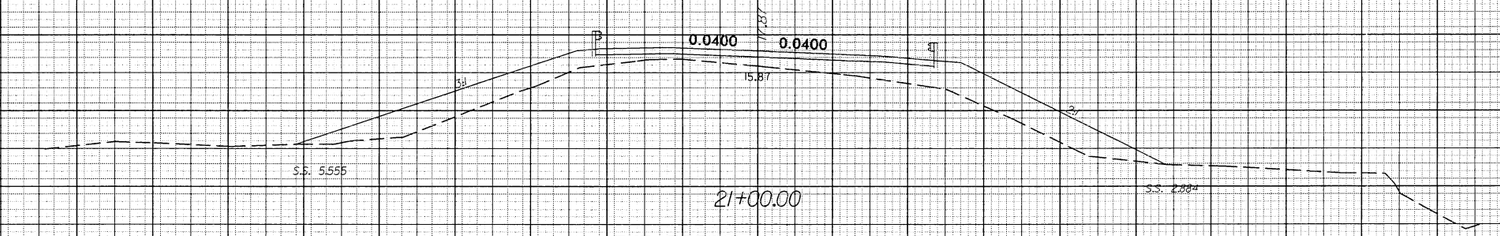
-EL-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4215	X-3

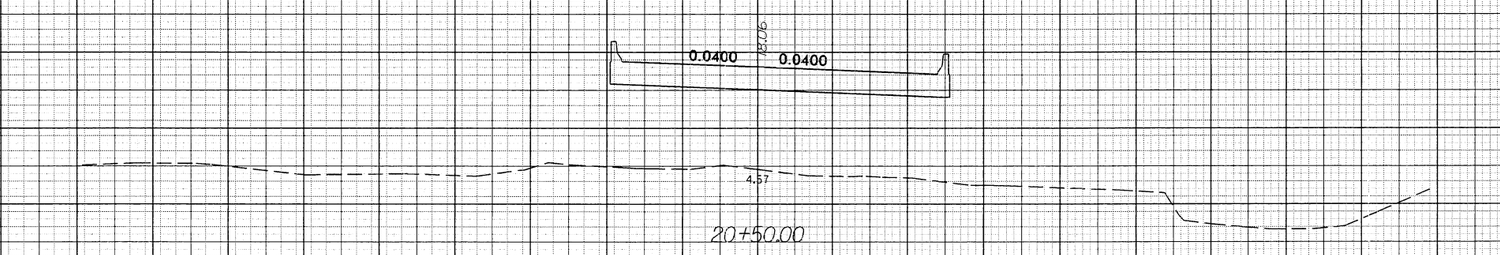
PERMIT DRAWINGS
SHEET 13 of 15







END BRIDGE STA 20+87.75



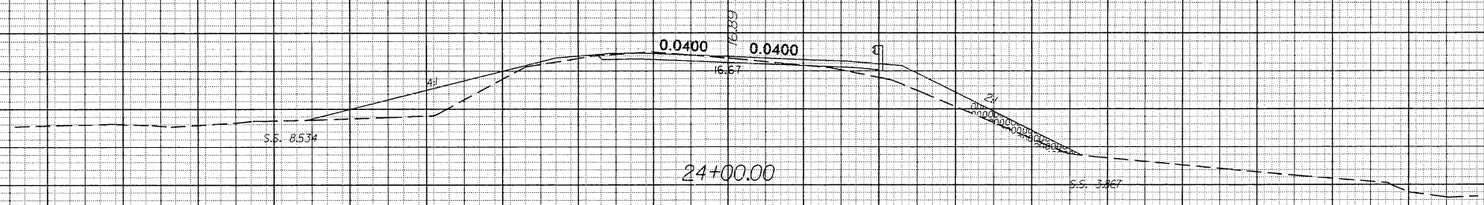
-EL-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4215	X-4

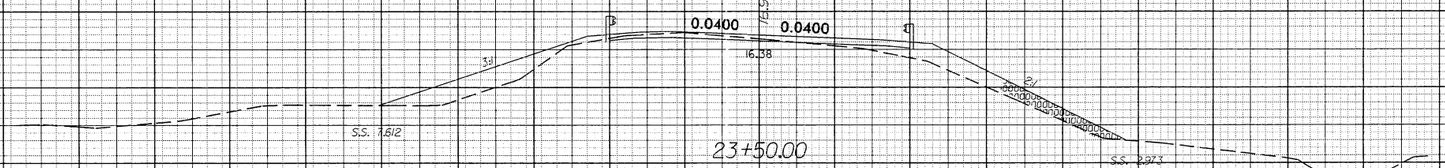
PERMIT DRAWING
SHEET 14 & 15

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

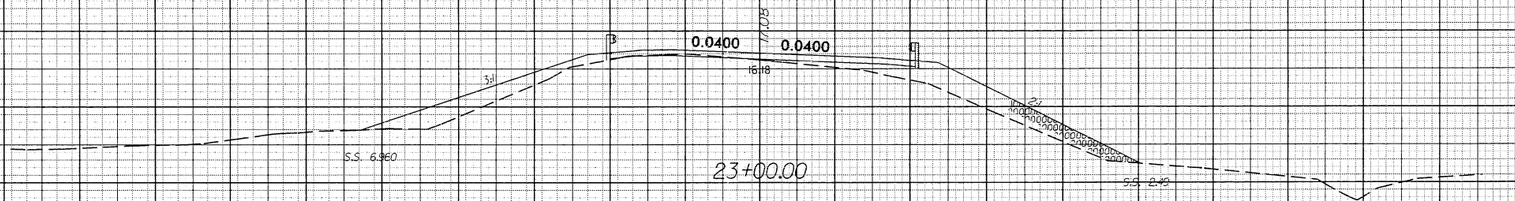
20
10



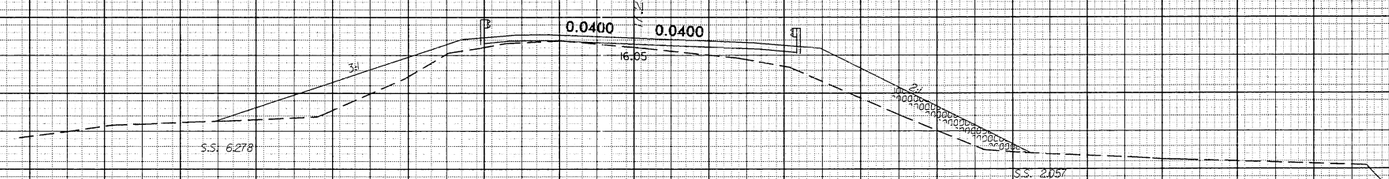
24+00.00



23+50.00



23+00.00

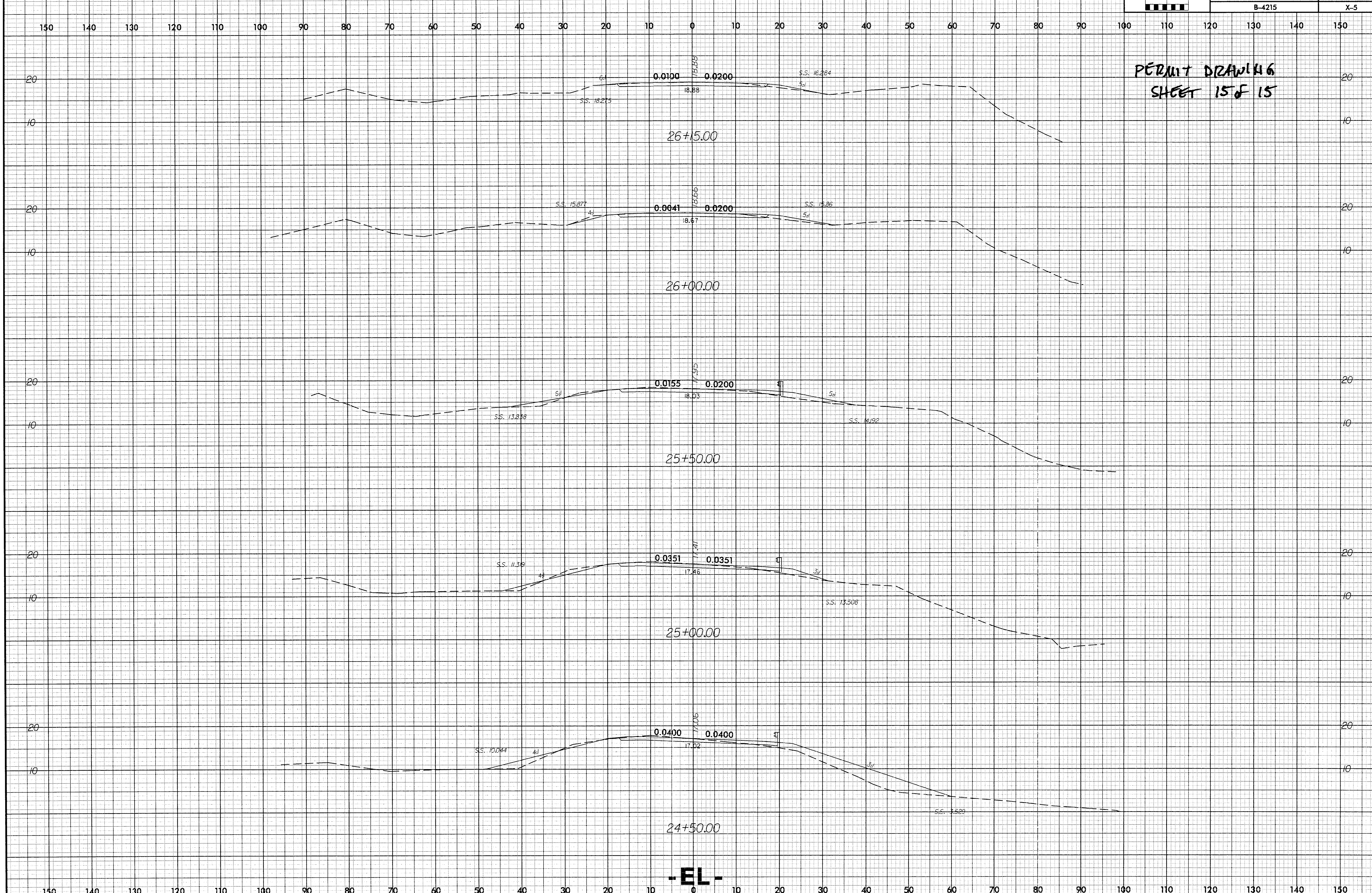


22+50.00

-EL-

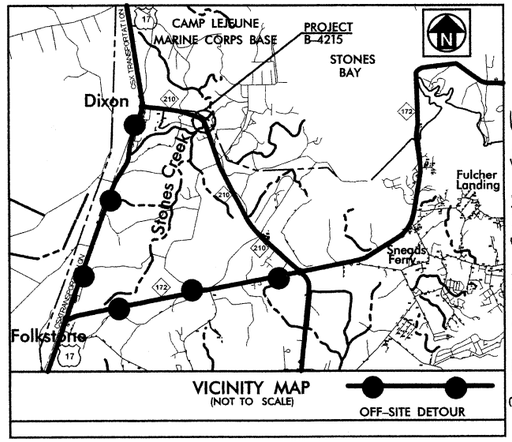
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PROJ. REFERENCE NO.	SHEET NO.
B-4215	X-5



CONTRACT: TIP PROJECT: B-4215

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

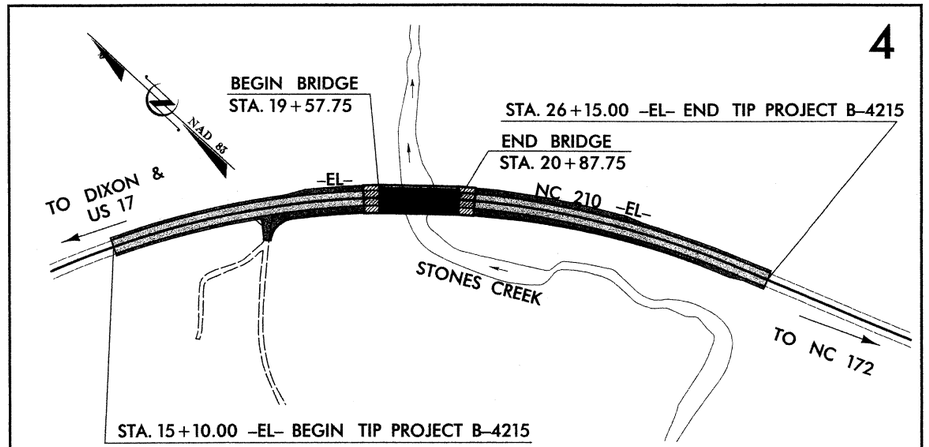
ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4215	1	
WBS NO.	F. A. PROJ. NO.	DESCRIPTION	
33561.1.1	BRSTP-0210(3)	P.E.	
33561.2.1	BRSTP-0210(3)	R /W,UTL	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

LOCATION: BRIDGE NO. 19 OVER STONES CREEK AND APPROACHES ON NC 210

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE



MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

CLEARING ON THIS PROJECT SHOULD BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALE

PLANS: 25′ 0 50′

PROFILE (HORIZONTAL): 25′ 0 50′

PROFILE (VERTICAL): 5′ 0 10′

DESIGN DATA

ADT 2006 = 9400
ADT 2026 = 17,300
DHV = 10%
D = 60%
* T = 7%
** V = 55 mph

Func Class = Maj Coll – Rural
* (Duals = 4% + TTST = 3%)
** Design Exception – Sight Distance

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4215 = 0.184 MILE

LENGTH STRUCTURE TIP PROJECT B-4215 = 0.025 MILE

TOTAL LENGTH TIP PROJECT B-4215 = 0.209 MILE

Prepared In the Office of:
Mulkey Engineers & Consultants
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 18, 2005

LETTING DATE: FEBRUARY 21, 2006

PAM WILLIAMS, MULKEY E & C, PROJECT MANAGER

JONATHAN SCARCE, PE, MULKEY E & C, HYDRAULICS ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, P.E., ROADWAY DESIGN – PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: PE

ROADWAY DESIGN

SIGNATURE: PE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PE
STATE HIGHWAY ENGINEER – DESIGN

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED FOR
DIVISION ADMINISTRATOR DATE

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7/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4215	1B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement
Curb
Prop. Slope Stakes Cut — C
Prop. Slope Stakes Fill — F
Prop. Woven Wire Fence
Prop. Chain Link Fence
Prop. Barbed Wire Fence
Prop. Wheelchair Ramp — WCR
Curb Cut for Future Wheelchair Ramp — CCFR
Exist. Guardrail
Prop. Guardrail
Exist. Cable Guiderail
Prop. Cable Guiderail
Equality Symbol
Pavement Removal

RIGHT OF WAY

Baseline Control Point
Existing Right of Way Marker
Exist. Right of Way Line w/Marker
Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
Exist. Control of Access Line — CA
Prop. Control of Access Line — CA
Exist. Easement Line — E
Prop. Temp. Construction Easement Line — E
Prop. Temp. Drainage Easement Line — TDE
Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

Stream or Body of Water
Flow Arrow
Disappearing Stream
Spring
Swamp Marsh
Shoreline
Falls, Rapids
Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

MAJOR
Bridge, Tunnel, or Box Culvert — CONC
Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR
Head & End Wall — CONC HW
Pipe Culvert
Footbridge
Drainage Boxes — CB
Paved Ditch Gutter

UTILITIES

Exist. Pole
Exist. Power Pole
Prop. Power Pole
Exist. Telephone Pole
Prop. Telephone Pole
Exist. Joint Use Pole
Prop. Joint Use Pole
Telephone Pedestal — T
Cable TV Pedestal — C
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole — P
Telephone Booth
Water Manhole — W
Light Pole
H-Frame Pole
Power Line Tower
Pole with Base
Gas Valve
Gas Meter
Telephone Manhole — T
Power Transformer
Sanitary Sewer Manhole
Storm Sewer Manhole — S
Tank; Water, Gas, Oil
Water Tank With Legs
Traffic Signal Junction Box — S
Fiber Optic Splice Box — F
Television or Radio Tower
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS TS

Recorded Water Line — W W
Designated Water Line (S.U.E.*) — W W
Sanitary Sewer — SS SS
Recorded Sanitary Sewer Force Main — FSS FSS
Designated Sanitary Sewer Force Main(S.U.E.*) — FSS FSS
Recorded Gas Line — G G
Designated Gas Line (S.U.E.*) — G G
Storm Sewer — S S
Recorded Power Line — P P
Designated Power Line (S.U.E.*) — P P
Recorded Telephone Cable — T T
Designated Telephone Cable (S.U.E.*) — T T
Recorded U/G Telephone Conduit — TC TC
Designated U/G Telephone Conduit (S.U.E.*) — TC TC
Unknown Utility (S.U.E.*) — ?UTL ?UTL
Recorded Television Cable — TV TV
Designated Television Cable (S.U.E.*) — TV TV
Recorded Fiber Optics Cable — FO FO
Designated Fiber Optics Cable (S.U.E.*) — FO FO
Exist. Water Meter
U/G Test Hole (S.U.E.*)
Abandoned According to U/G Record — ATTUR
End of Information — E.O.I.

BOUNDARIES & PROPERTIES

State Line
County Line
Township Line
City Line
Reservation Line
Property Line
Property Line Symbol — PL
Exist. Iron Pin — EIP
Property Corner
Property Monument — ECM
Property Number — 123
Parcel Number — 6
Fence Line — WW & ISBW
Existing Wetland Boundaries — WLB
Proposed Wetland Boundaries — WLB
Existing Endangered Animal Boundaries — EAB
Existing Endangered Plant Boundaries — EPB

BUILDINGS & OTHER CULTURE

Buildings
Foundations
Area Outline
Gate
Gas Pump Vent or U/G Tank Cap
Church
School
Park
Cemetery
Dam
Sign — S
Well — W
Small Mine
Swimming Pool

TOPOGRAPHY

Loose Surface
Hard Surface
Change in Road Surface
Curb
Right of Way Symbol — R/W
Guard Post — GP
Paved Walk
Bridge
Box Culvert or Tunnel
Ferry
Culvert
Footbridge
Trail, Footpath
Light House

VEGETATION

Single Tree
Single Shrub
Hedge
Woods Line
Orchard
Vineyard — VINEYARD

RAILROADS

Standard Gauge — CSX TRANSPORTATION
RR Signal Milepost — MILEPOST 35
Switch — SWITCH

revised 11/09/00

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6/2/9

PROJECT REFERENCE NO.	SHEET NO.
B-4215	1C
Location and Surveys	

SURVEY CONTROL SHEET B-4215

DATUM DESCRIPTION

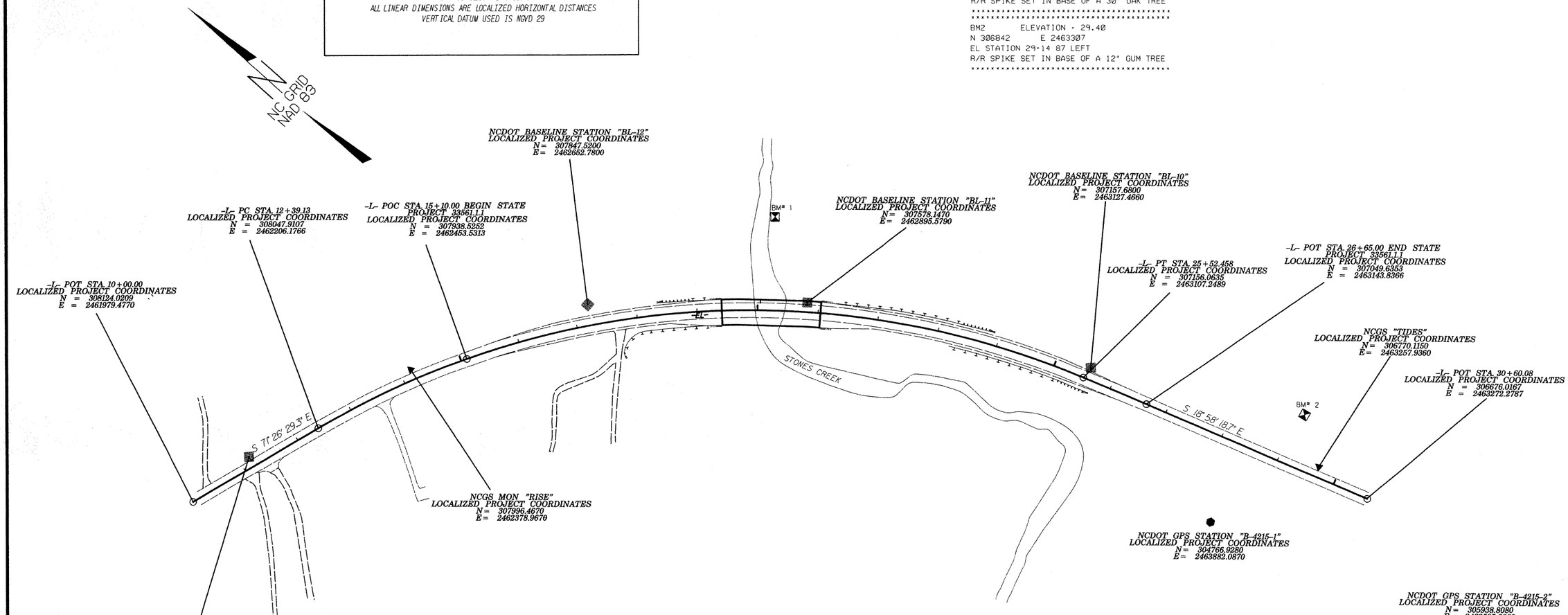
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "ATTACK" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 308571.027(ft) EASTING: 2460596.838(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99996500 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "ATTACK" TO -L- STATION 10+00 IS S 72 ° 05' 02.50" E 1453.10' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

CONTROL DATA

-BL-	POINT	DESC.	NORTH	EAST	ELEVATION	EL STATION	OFFSET
14		-BL-14	308103.1170	2462095.7890	36.16	11+16.92	17.20 LT
13		NCGS RISE	307996.4670	2462378.9670	29.38	14+17.66	17.09 LT
12		-BL-12	307847.5200	2462652.7800	18.85	17+23.98	34.38 LT
11		-BL-11	307578.1470	2462895.5790	16.52	20+80.89	15.26 LT
10		-BL-10	307157.6800	2463127.4660	17.93	25+57.50	19.64 LT
9		NCGS TIDES	306770.1150	2463257.9360	22.73	29+66.43	17.03 LT

BENCHMARK DATA

```
**************************************
BM1       ELEVATION = 5.30
N 307714      E 2462968
EL STATION 20+25 157 LEFT
R/R SPIKE SET IN BASE OF A 30" OAK TREE
**************************************
**************************************
BM2       ELEVATION = 29.40
N 306842      E 2463307
EL STATION 29+14 87 LEFT
R/R SPIKE SET IN BASE OF A 12" GUM TREE
**************************************
```



NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT

FILE NAME: B4215_LS_CONTROL_041210.DGN

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTS NAD 83/95

NOTE: DRAWING NOT TO SCALE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

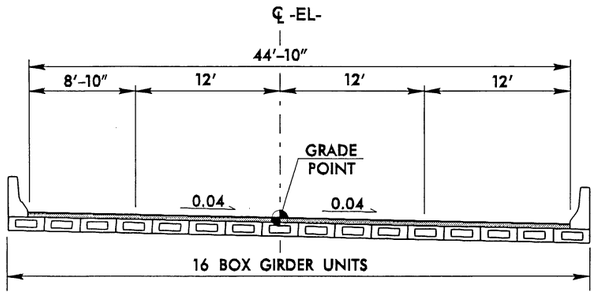
PROJECT REFERENCE NO.	SHEET NO.
B-4215	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING (SEE WEDGING DETAIL)

NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.

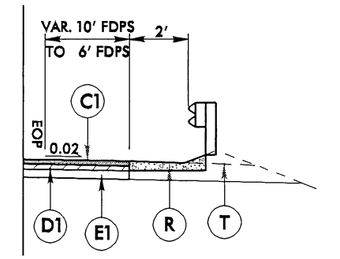


PROPOSED PRECAST BOX GIRDER BRIDGE
SEE STRUCTURE PLANS

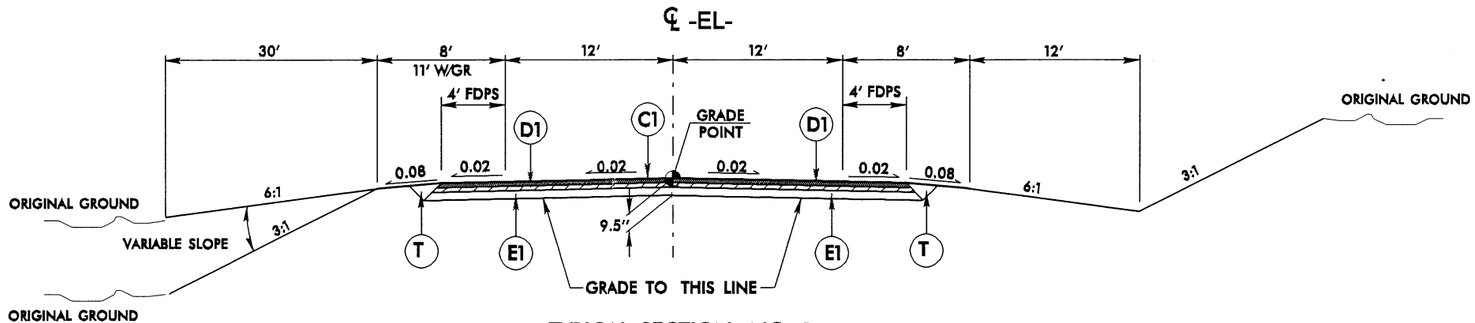
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
AT THE FOLLOWING LOCATION:

-EL- STA 19+57.75 (BEGIN BRIDGE) TO STA 20+87.75 (END BRIDGE)



USE IN CONJUCTION WITH TYPICAL SECTION NO. 1
-EL- STA 18+10.37 TO STA 19+31.21 RT. (APPROACH SLAB)
-EL- STA 21+14.29 (APPROACH SLAB) TO STA 25+00 RT.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
AT THE FOLLOWING LOCATION:

-EL- STA 15+10.00 TO STA 19+57.75 (BEGIN BRIDGE)
-EL- STA 20+87.75 (END BRIDGE) TO STA 26+15.00

6/4/99

COMPUTED BY: DWM	DATE: 12/21/04
CHECKED BY:	DATE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

PROJECT REFERENCE NO.	SHEET NO.
B-4215	3-A

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12"	15"	18"	24"	30"	36"	42"	48"	BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109
17+51 -EL-	RT	1								24													
17+72 -EL-	RT	2																					
17+73 -EL-	RT	3								20													
19+20 -EL-	LT	4															72						
19+21 -EL-	RT	5																					
21+24 -EL-	LT	6																80					
21+25 -EL-	RT	7																					
21+25 -EL-	RT	7	8						252														
TOTAL									252	44							72	80					

STATION	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	M.D.I. TYPE "A" STD. 840.17 OR 840.26	M.D.I. TYPE "B" STD. 840.18 OR 840.27	M.D.I. TYPE "D" STD. 840.19 OR 840.28	M.D.I. FRAME WITH GRATE STD. 840.22	M.D.I. FRAME WITH TWO GRATES STD. 840.22	M.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	M.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
17+51 -EL-																											28	
17+72 -EL-						1											1			1								
17+73 -EL-																												
19+20 -EL-																												
19+21 -EL-						1											1		1									
21+24 -EL-																												
21+25 -EL-						1											1		1									
21+25 -EL-						1											1		1									
TOTAL						4											3		3	1							28	

* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
M.D.I.	MEDIAN DROP INLET
M.D.I. (N.S.)	MEDIAN DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	SHOP CURVED	DOUBLE FACED	WARRANT POINT APPROACH END	TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	TRAILING END	W APPROACH END	TRAILING END	ANCHORS GRAU 350	TYPE III	AT1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	REMARKS
-EL-	18+09.80	19+47.30	LT	137.50				19+47.30	6'	11'		50'		1.0'	1	1					
-EL-	17+70.00	19+43.70	RT	137.50	50.00			19+43.70	12'	15'						1	1				BREAK FOR DRIVE
-EL-	20+98.78	23+98.78	LT	300.00				20+98.78	6'	11'	50'		1.0'		1	1					
-EL-	21+01.05	25+76.05	RT	475.00			21+01.05	24+50.00	12'	15'	50'		1.0'		1	1					
		SUBTOTAL		1050.00																	
		LESS ANCHOR DEDUCTIONS																			
		GRAU-350 3 @ 50' =		– 150.00																	
		TYPE III 4 @ 18.75' =		-75.00											3	4	1				
		TOTAL		825.00	50.00																
		(5 ADDITIONAL GUARDRAIL POSTS)																			

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
-EL- 15+10 TO 19+57.75 (BEGIN BRIDGE)	410		1725	1315	
-EL- 20+87.75(END BRIDGE) TO 26+15	230		3429	3019	
PROJECT TOTAL	640		4974	4334	
LOSS TO CLEARING & GURBBING					
WASTE TO REPLACE BORROW					
TOTAL	640		4974	4334	
SAY	670			4560	

EST. UNDERCUT = 200 CY

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COMPUTED BY: DWM DATE: 12-21-04
CHECKED BY: _____ DATE: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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PROJECT REFERENCE NO.	SHEET NO.
B-4215	3B

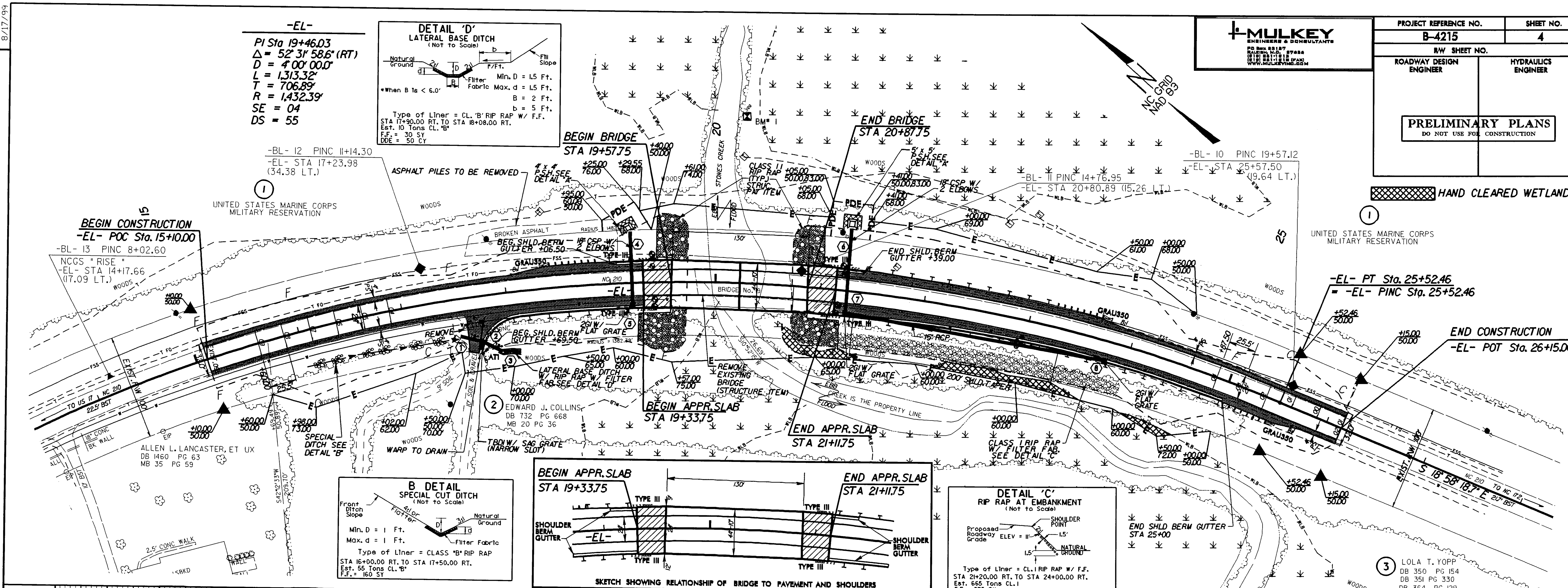
PARCEL INDEX SHEET

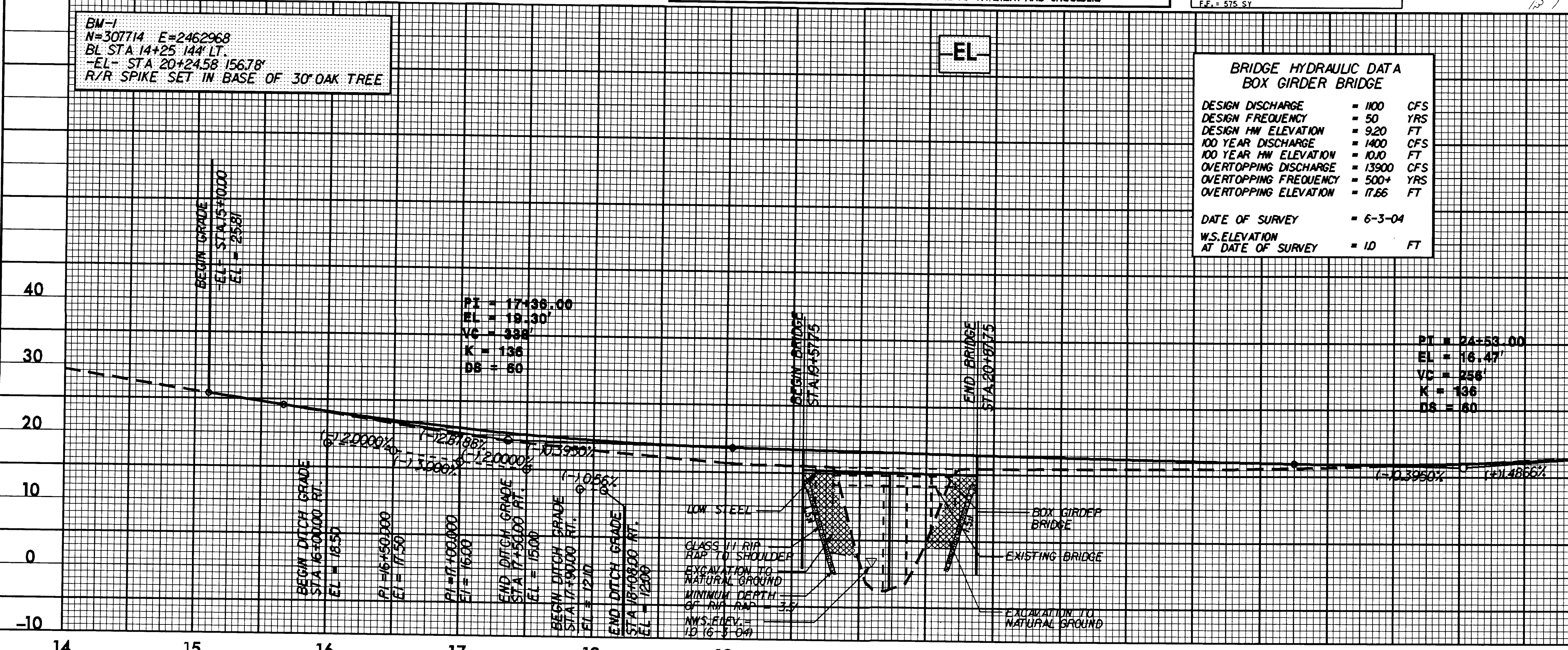
PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAME
1	4	UNITED STATES MARINE CORPS MILITARY RESERVATION
2	4	EDWARD J. COLLINS
3	4	GEORGE V. YOPP

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAME

PROJECT REFERENCE NO.	SHEET NO.
B-4215	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

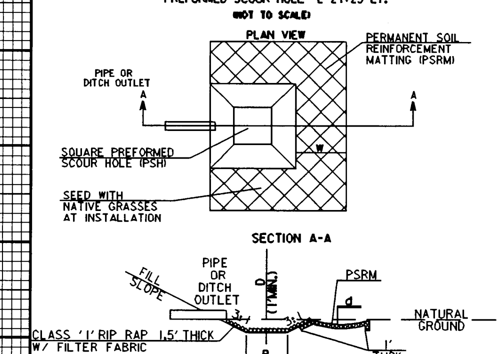




BRIDGE HYDRAULIC DATA
BOX GIRDER BRIDGE

DESIGN DISCHARGE	= 1100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 9.20	FT
100 YEAR DISCHARGE	= 1400	CFS
100 YEAR HW ELEVATION	= 10.10	FT
OVERTOPPING DISCHARGE	= 13900	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 17.66	FT
DATE OF SURVEY	= 6-3-04	
W.S. ELEVATION AT DATE OF SURVEY	= 1.0	FT

DETAIL 'A'
PREFORMED SCOUR HOLE -L 21+25 LT.
(NOT TO SCALE)

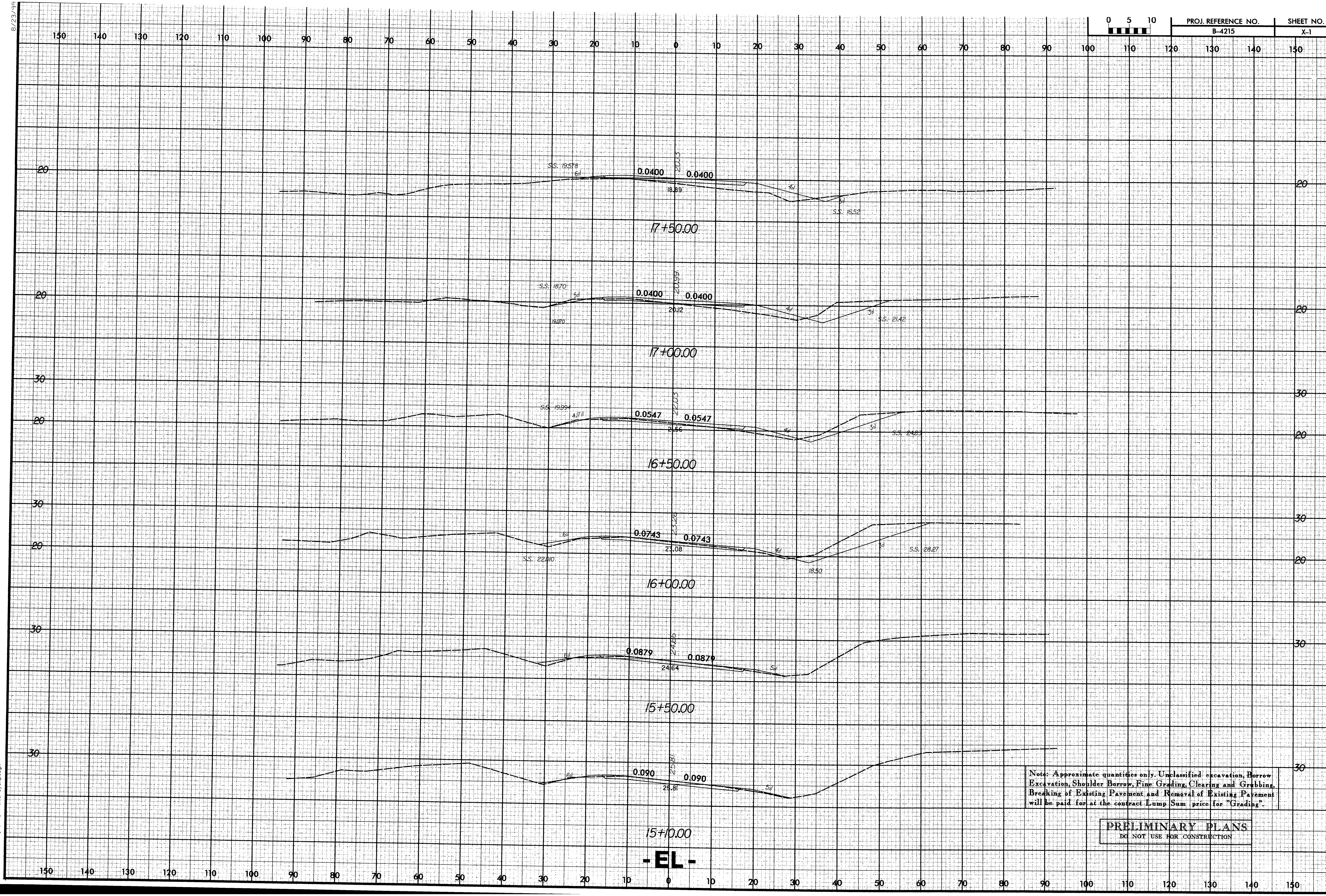


STATION	B FT.	D FT.	W FT.	d FT.	CLASS 1 RIP RAP TONS	DDE FT³	FILTER FABRIC FT²	PSRM FT²
19+20.00 LT.	4.0	1.0	4.0	0.5	5.7	35.1	72	170.1
21+25.00 LT.	5.0	1.0	4.0	0.5	7.1	48.6	90	185.4

REVISIONS

8/17/99

PROJ. REFERENCE NO.	SHEET NO.
B-4215	X-1



Note: Approximate quantities only. Unclassified excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement and Removal of Existing Pavement will be paid for at the contract Lump Sum price for "Grading".

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/23/99

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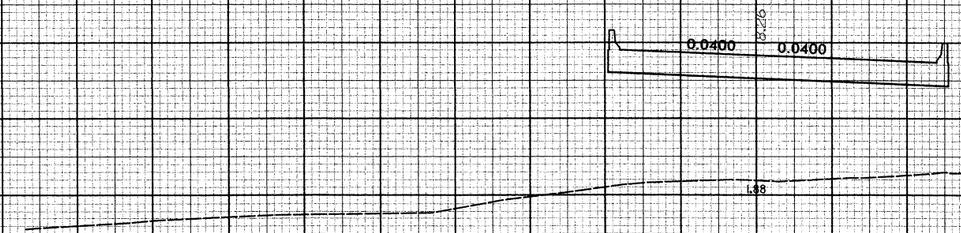
PROJ. REFERENCE NO.	SHEET NO.
B-4215	X-2

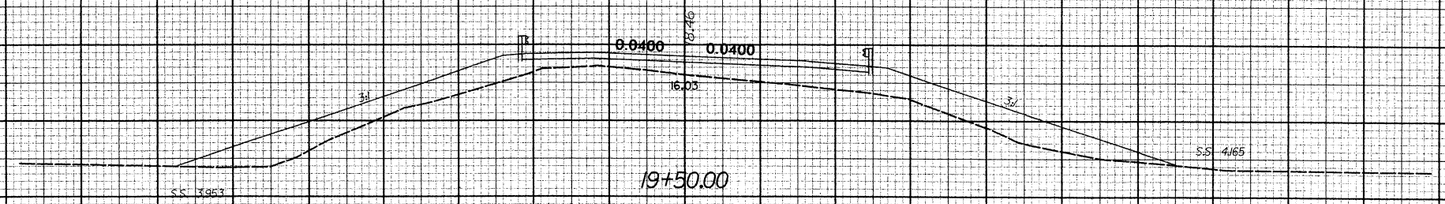
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

20
10

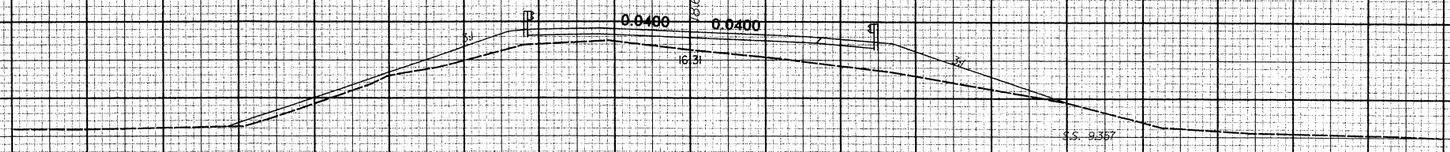


20+00.00

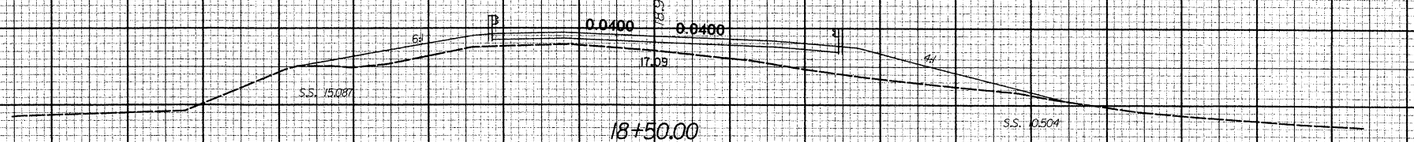
BEGIN BRIDGE STA 19+57.75



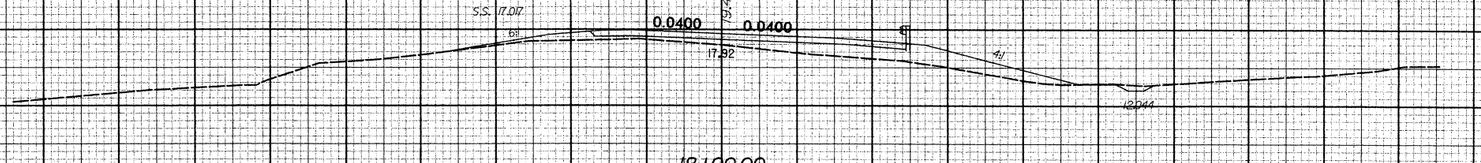
19+50.00



19+00.00



18+50.00



18+00.00

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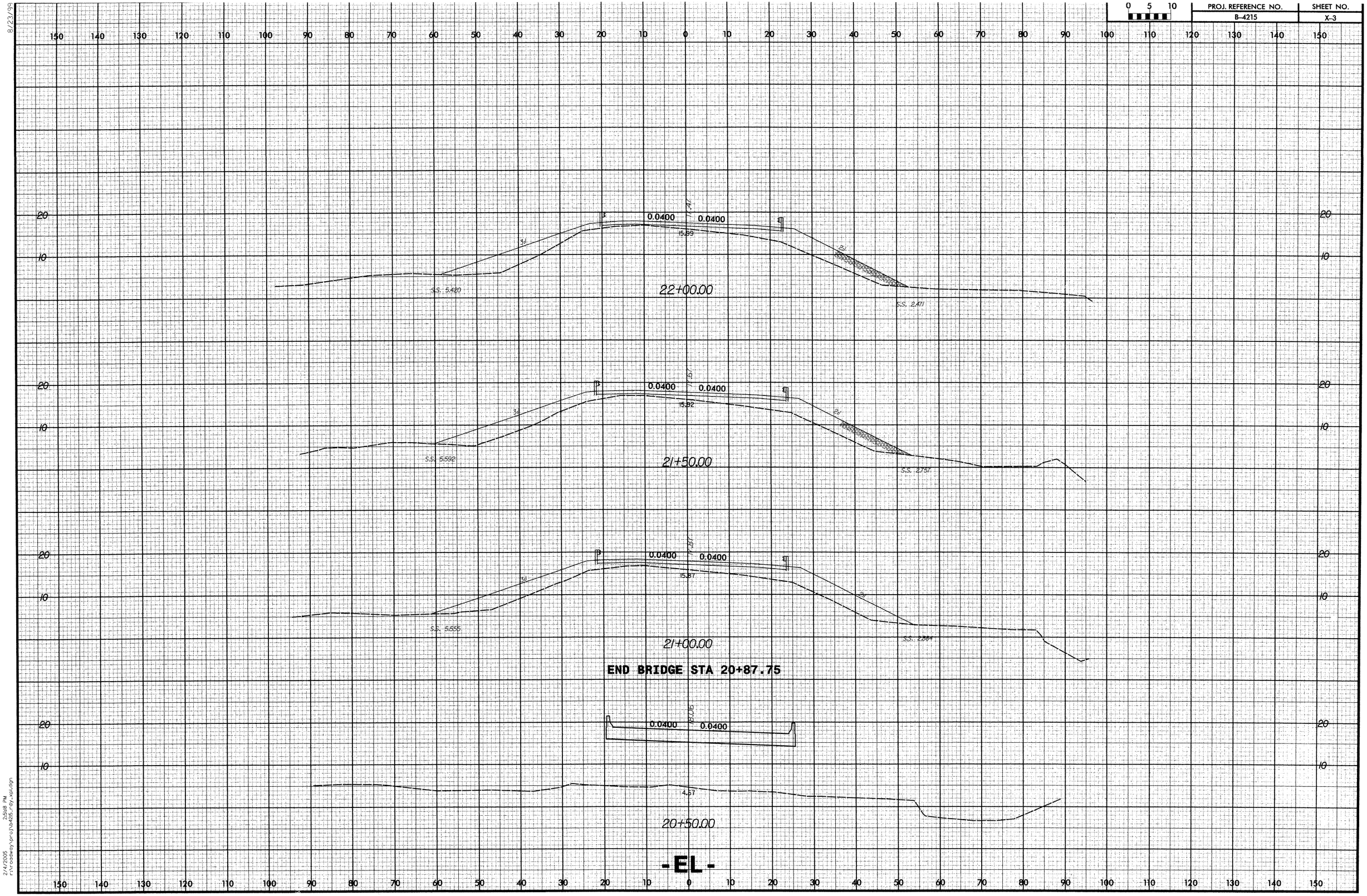
PROJ. REFERENCE NO.	SHEET NO.
B-4215	X-3



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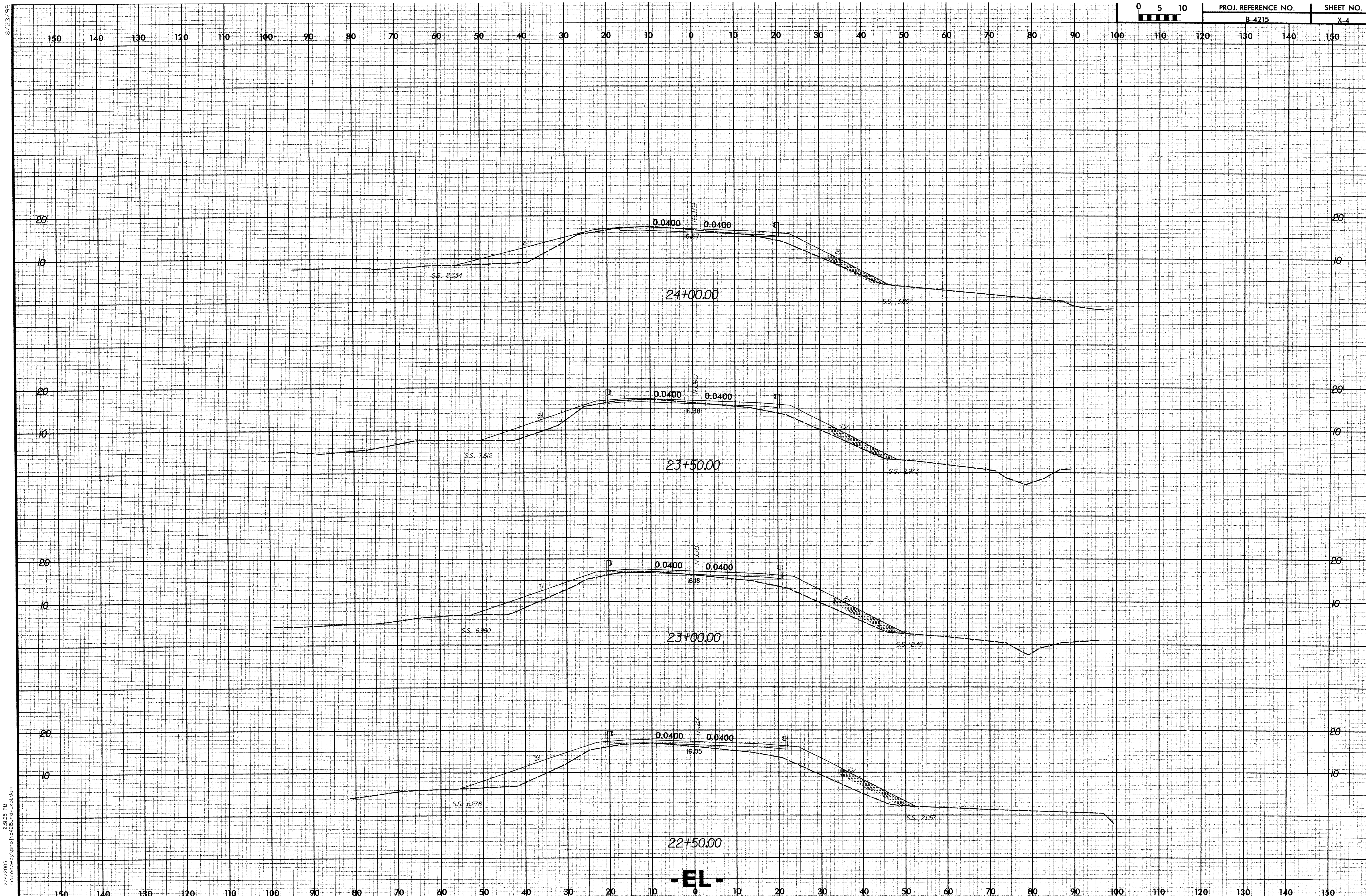

PROJ. REFERENCE NO.
B-4215
SHEET NO.
X-4
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16.67
S.S. 8.534
S.S. 3.867
24+00.00
0.0400
0.0400
16.90
16.38
S.S. 7.612
S.S. 2.973
23+50.00
0.0400
0.0400
17.08
16.18
S.S. 6.960
S.S. 2.49
23+00.00
0.0400
0.0400
17.27
16.05
S.S. 6.278
S.S. 2.057
22+50.00
-EL-
2/4/2005
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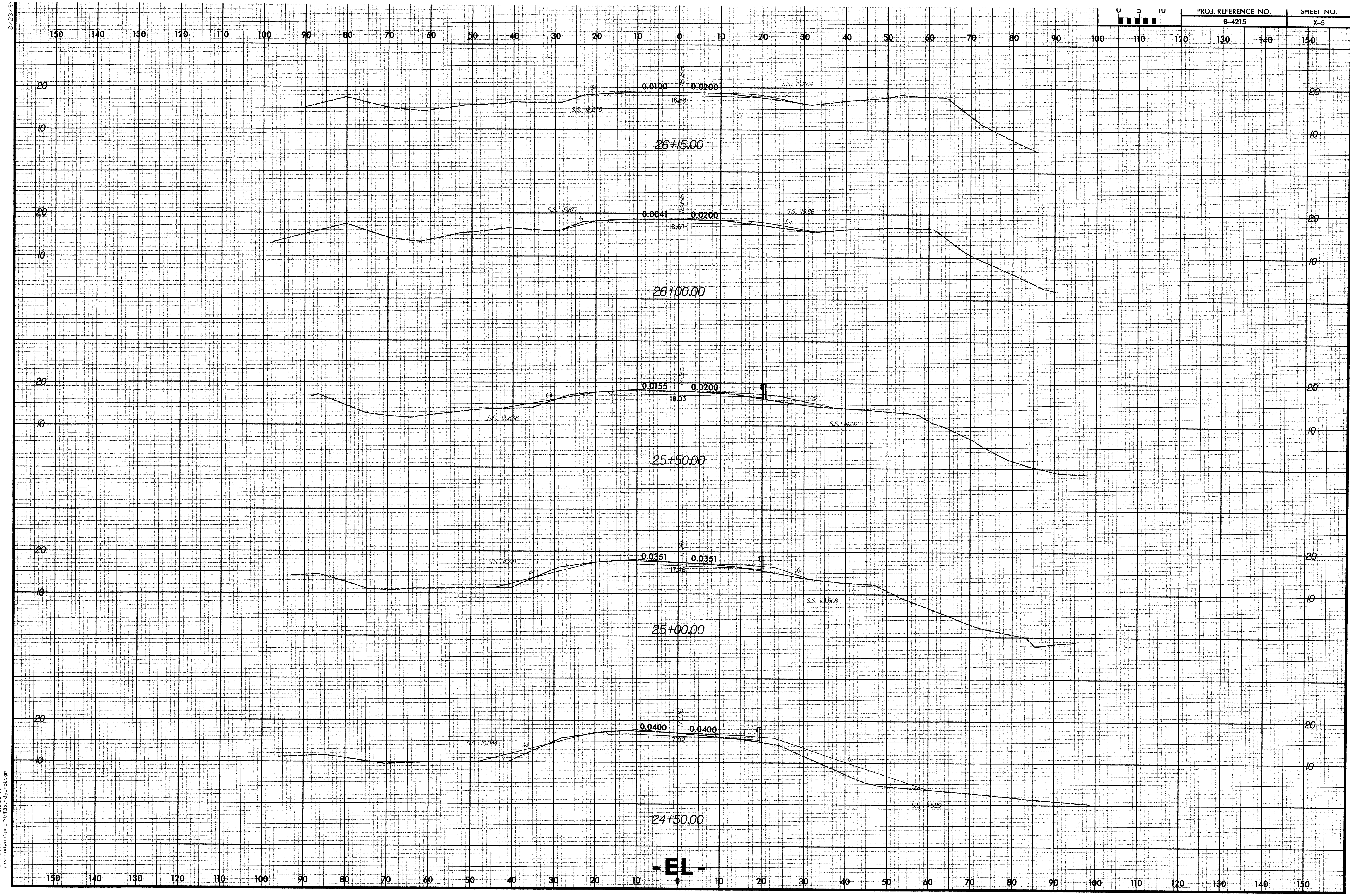
PROJ. REFERENCE NO.	SHEET NO.
B-4215	X-5



8/23/99

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T — TEMPORARY IMPACT TO CREEK BANK

⊠ — PIERS BY PILE DRIVING

W W — DENOTES FILL IN WETLAND

S S — DENOTES FILL IN SURFACE WATER

HC HC HC — DENOTES HANDED CLEARED

NTS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

IMPACTED AREAS
(THESE AREAS ARE NOT ALREADY
IMPACTED BY CUT OR FILL
FOR BRIDGE AND/OR ROAD CONSTRUCTION)
GALVANIZED PIERS AT EDGE OF STONES CREEK.
AREA TEMPORARILY IMPACTED BY PILE DRIVING
EQUIPMENT NEAR EDGE OF CREEK
AREA #1 475.1 SQ. FT.
AREA #2 751.0 SQ. FT.
TOTAL 1226.9 SQ. FT.
PERMANENT SURFACE WATER IMPACTS
(4) W8X35 I BEAM PIERS BEING DRIVEN INTO
GROUND IN CREEK (2 I BEAMS PER LOCATION)
4 X 0.68' X 0.67' = 1.82 SQ. FT.

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
ONSLOW COUNTY
PROJECT: 8.1262101 (33561.1.1)
B-4215
REPLACE BRIDGE 19 OVER
STONES CREEK ON NC 210
UTILITIES DRAWING
SHEET 1 OF 1