STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 25, 2005

US Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Ave.
Asheville, NC 28801-5006

ATTENTION: Mr. Steve Lund
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 12, 23, & 33 Permit Applications** for the proposed replacement of Bridge No. 193 over an unnamed tributary of the North Pacolet River on SR 1508, Polk County, Federal Aid Project No. BRZ-1508(3), State Project No. 8.2980901, WBS 33583.1.1, TIP B-4240, Division 14.

Please find enclosed one copy of the project planning report, PCN, permit drawings, and half-sized plan sheets for the above referenced project. Bridge No. 193 will be replaced east of the existing bridge with a two barrel box culvert 65 feet in length. The new approach roadway will have two 10-foot travel lanes with 5-foot shoulders. The new culvert will have a design speed of 20 mph.

No jurisdictional wetlands will be impacted by the construction of the culvert. There are proposed permanent and temporary surface water impacts as a result of the installation of the culvert. Proposed existing channel impacts consist of 143 feet of permanent impacts and 20 feet of temporary impacts. Proposed fill in surface waters include 0.043 acre of permanent impacts and 0.007 acre of temporary impacts.

During construction, traffic will be maintained by an off-site detour utilizing the following roads: Beech Street, West Livingston Street, Cleveland Road, US 176, NC 108 and SR 1508 (Scriven Road).

Water Resources

The North Pacolet River and its tributary is located in sub-basin 03-08-06 of the Broad River Basin which is located within the United States Geological Survey Hydrologic Unit 03050105 of the South Atlantic/Gulf Region. The DWQ best usage classification for the North Pacolet River and its tributary (Index No. 9-55-1-(10)) is C. *Class* C water resources are defined as suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Wastewater discharge and stormwater management requirements apply to these waters.

Neither High Quality Waters (HQW), Water Supplies (WS-I or WS-II), nor Outstanding Resource Waters (ORW) occur within 1.0 mi. of the project area.

Design Standards for Sensitive Watersheds was inadvertently added as a commitment for this project. There is no environmental concern warranting these standards for this project, and this commitment, in consultation with NCDOT's Roadside Environmental Unit, has been removed.

Utility Impacts

NCDOT proposes to relocate 152.5 feet of a 12 inch diameter sewer pipe to the new alignment. The pipe will be placed into an open cut in the stream within the project limits. Therefore, no permanent impacts are proposed for this project.

Bridge Demolition

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all potential contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in the NCDOT document *Pre-Construction Guidelines 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.

Bridge No. 193 is composed of a timber deck with an asphalt wearing surface on steel girders, stringers, and a continuous steel floor beam system. The substructure consists of timber posts and sills. The existing structure is 81 feet long with a 19.1-foot clear roadway width. The crown of the bridge is 18 feet above the streambed. Due to the structural components of the bridge, no temporary fill will be dropped into surface waters.

Temporary Dewatering

There will be 0.007 acre of proposed temporary fill in the unnamed tributary to the North Pacolet River due to the construction of impervious dikes in small sections on each side of Bridge No. 193. Impervious dikes are necessary as special wing structures designed to keep fill and rip-rap materials out of the stream channel during construction. Class I rip-rap will be used as slope protection along the stream bank on the east end of Bridge No. 193.

The materials used as temporary fill in the construction of the impervious dikes will be removed. The temporary fill areas will be graded back to their original contours. Elevations and contours in the vicinity of the proposed impervious dikes are available from the field survey notes.

It is assumed that the contractor will begin construction of the temporary impervious dikes shortly after the date of availability for this project. The Let Date is March 21, 2006 with a review date of January 31, 2006.

Avoidance & Minimization

A culvert is proposed for this project due to this stream not being classified as a trout stream, there being Class C waters, and a culvert is sufficient for the small drainage area. Additionally, the project is located at a T-intersection, and therefore, ease of construction and safety were key issues. Traffic will be maintained using an off-site detour. Best management practices (BMP's) will be utilized to minimize water quality impacts. In compliance with 15A NCAC 02B.0104(m) we have incorporated the use of BMP's in the design of the project.

Mitigation

Compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the Ecosystem Enhancement Program (EEP). The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The proposed unavoidable impacts to 143 feet of existing stream channel will be offset by compensatory mitigation provided by the EEP. Please see attached EEP acceptance letter.

Federally Protected Species

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to co-exist with human activities. Federal law (under the provisions of the Endangered Species Act (ESA) of 1973, as amended) requires that any action likely to adversely affect a species classified as federally protected be subject to review by the United States Fish and Wildlife Service (USFWS). Other species may receive additional protection under separate state laws. Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE) and Proposed Threatened (PT) are protected under provisions of ESA §§7 and 9, as amended.

As of January 29, 2003, the U. S. Fish and Wildlife Service lists three federally protected species for Polk County. Table 1 lists those species.

Table 1. Federally Protected Species for Polk County

Common Name	Scientific Name	Status	Biological Conclusion
White Irisette	*Sisyrinchium dichotomum*	E	No Effect
Dwarf-flowered heartleaf	*Hexastylis naniflora*	T	No Effect
Small whorled pogonia	*Isotria medeoloides*	T	No Effect

Note for Status:

- *Threatened (T) denotes a taxon "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."*
- *Endangered (E) denotes a taxon "in danger of extinction throughout all or a significant portion of its range."*

Regulatory Approvals

Section 404 Permit: It is anticipated that the temporary dewatering of tributary to North Pacolet River be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing the temporary dewatering of the unnamed tributary to the North Pacolet River. We are also requesting the issuance of a Section 404 Nationwide Permit 12 (Utility Line Activities) authorizing the open cut in the Tributary to the North Pacolet River for the water line. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR § 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

We anticipate that comments from the North Carolina Wildlife Resources Commission (NCWRC) will be requested prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

Section 401 Permit: We anticipate 401 General Certification numbers 3374, 3403 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their records.

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/planning/pe/naturalunit/Permit.html.

If you have any questions or need additional information, please contact Mr. Chris Underwood at (919) 715-1451.

Sincerely,

Gregory J. Thorpe, Ph.D., Environmental Management Director
Project Development and Environmental Analysis Branch

cc: W/attachment
Mr. John Hennessy, NCDWQ (2 Copies)
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. J. B. Setzer, P.E., Division 14 Engineer
Mr. Mark Davis, DEO, Division 14

W/o attachment
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Franklin, USACE, Wilmington
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT, Program Management
Mr. Derrick Weaver, P.E., PDEA

Office Use Only: Form Version March 05

USACE Action ID No. _____ **DWQ No.** _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:
   - ☒ Section 404 Permit
   - ☐ Section 10 Permit
   - ☒ 401 Water Quality Certification
   - ☐ Riparian or Watershed Buffer Rules
   - ☐ Isolated Wetland Permit from DWQ
   - ☐ Express 401 Water Quality Certification

2. Nationwide, Regional or General Permit Number(s) Requested: NW 12, 23, & 33

3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒

4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☐

5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☒

II. Applicant Information

1. Owner/Applicant Information
   Name: Gregory J. Thorpe, Ph.D., Environmental Management Director
   Mailing Address: 1598 Mail Service Center
   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address:

2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
   Name:
   Company Affiliation:
   Mailing Address:
   Telephone Number: Fax Number:
   E-mail Address:

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Replacement of Bridge No. 193 over the N. Pacolet River trib. on SR 1508

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4240

3. Property Identification Number (Tax PIN): N/A

4. Location
   County: Polk Nearest Town: Tryon
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.):

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 35.2193 °N 82.2346 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: North Pacolet River

8. River Basin: Broad
   (Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at http://h2o.enr.state.nc.us/admin/maps/.)

9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: Residential development.

10. Describe the overall project in detail, including the type of equipment to be used: The bridge removal involves the removal of the asphalt wearimg surface prior to demolition

without dropping components into the water. The guardrails, timber deck, and all steel components will also be removed without dropping any of the components into the water. The replacement structure will consist of a 65-foot x 30-foot long 2-barrel box culvert. The equipment needed is standard paving equipment including pavers and rollers, and grading equipment including backhoes and graders.

11. Explain the purpose of the proposed work: To replace Bridge No. 193 because it is structurally deficient and functionally obsolete. This will result in in safer traffic operations.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.
No future permits are anticipated for the replacement of Bridge No. 193.

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: There will be 0.01 acre of temporary impacts to the surface water due to a temporary dewaterung associated with this project. There will be 143 feet of proposed, permanent channel impacts and 0.04 acre of fill.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
N/A					
Total Wetland Impact (acres)					

3. List the total acreage (estimated) of all existing wetlands on the property: N/A

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
Bridge No. 193	Ut to N. Pacolet R	Culvert insrallation	P	15 ft.	143	0.04
Bridge No. 193	Ut to N. Pacolet R	Temporary fill	p	15 ft.		0.01
Bridge No. 193	Ut to N. Pacolet R	Temp. excavation	p	15 ft.	20	
Total Stream Impact (by length and acreage)					163	0.05

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Test piles	Trent River	Pile removal	Third order stream	
Total Open Water Impact (acres)				

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	0.05
Wetland Impact (acres):	
Open Water Impact (acres):	
Total Impact to Waters of the U.S. (acres)	0.05
Total Stream Impact (linear feet):	163

7. Isolated Waters
   Do any isolated waters exist on the property? ☐ Yes ☒ No
   Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.
   N/A

8. Pond Creation
   If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.
   Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
   Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A
   Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A
   Current land use in the vicinity of the pond: N/A
   Size of watershed draining to pond:_____ Expected pond surface area:_____

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. The proposed culvert will be constructed due to safety and construction restraints.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to

freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at http://h2o.enr.state.nc.us/ncwetlands/strmgide.html.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   EEP will provide mitigation for the proposed permanent impacts associated with this project.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

   Amount of stream mitigation requested (linear feet): 143
   Amount of buffer mitigation requested (square feet): N/A
   Amount of Riparian wetland mitigation requested (acres): N/A
   Amount of Non-riparian wetland mitigation requested (acres): N/A
   Amount of Coastal wetland mitigation requested (acres): N/A

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐

2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)? Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation. Yes ☒ No ☐

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify_____)? Yes ☐ No ☒

2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3 (2 for Catawba)	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. Impervious area will increase minimally.

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.
No wastewater will be generated from the implementation of this project.

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?
Yes ☐ No ☒

Is this an after-the-fact permit application? Yes ☐ No ☒

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:
No. This project will replace a structurally deficient bridge.

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

Applicant/Agent's Signature **Date** 8/25/05

(Agent's signature is valid only if an authorization letter from the applicant is provided.)

Ecosystem Enhancement PROGRAM

July 19, 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-4240, Bridge 193 over an unnamed tributary of the North Pacolet River on SR 1508, Polk County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the stream mitigation for the subject project. Based on the information supplied by you in a letter dated May 13, 2005, the impacts are located in CU 03050105 of the Broad River Basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Stream Impacts: 143 feet

The subject project is <u>not</u> 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. The EEP is only committed to provide the mitigation needs for projects listed on Exhibit 2 during the first two years of the program; however Amendment 1 details how non-Exhibit 2 projects may be swapped for an appropriate project included on the Exhibit 2 list. Specifically, Amendment 1 states that:

> "Exhibit 2 may be modified if requested jointly by NCDENR and NCDOT, and approved in writing by the USACE. In no event may the total projected impacts of projects per cataloging unit on Exhibit 2 exceed the total projected impacts of projects per cataloging unit on Exhibit 2 as it existed at the time of the original execution of the MOA, July, 2003."

In this case, the NCDOT has not proposed to swap this project for an appropriate project included on the Exhibit 2 list. However, EEP currently has surplus stream

mitigation with sufficient assets to cover this year's projected mitigation requirements plus the mitigation for the above referenced project. Therefore, the EEP agrees to accept this project and will provide compensatory stream mitigation up to a 2:1 ratio in Cataloging Unit 03050105 of the Broad River Basin.

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: Ms. Angie Pennock, USACE-Asheville
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4240

Ecosystem Enhancement PROGRAM

July 19, 2005

Ms. Angie Pennock
U. S. Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, North Carolina 28801-5006

Dear Ms. Pennock:

Subject: EEP Mitigation Acceptance Letter:

B-4240, Replace Bridge 193 over an unnamed tributary of the North Pacolet River on SR 1508; Broad River Basin (Cataloging Unit 03050105); Southern Piedmont (SP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide compensatory stream mitigation for the 143 feet of unavoidable stream impacts associated with the above referenced project.

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. The EEP is only committed to provide the mitigation needs for projects listed on Exhibit 2 during the first two years of the program; however Amendment 1 details how non-Exhibit 2 projects may be swapped for an appropriate project included on the Exhibit 2 list. Specifically, Amendment 1 states that:

> "Exhibit 2 may be modified if requested jointly by NCDENR and NCDOT, and approved in writing by the USACE. In no event may the total projected impacts of projects per cataloging unit on Exhibit 2 exceed the total projected impacts of projects per cataloging unit on Exhibit 2 as it existed at the time of the original execution of the MOA, July, 2003."

In this case, the NCDOT has not proposed to swap this project for an appropriate project included on the Exhibit 2 list. However, EEP currently has surplus stream mitigation with sufficient assets to cover this years projected mitigation requirements plus the mitigation for the above referenced project. Therefore, the EEP intends to provide compensatory stream mitigation up to a 2:1 ratio in Cataloging Unit 03050105 of

the Broad River Basin. Mitigation sites currently containing surplus mitigation assets consists of, but not inclusive of, the Cleghorn Creek Mitigation Site.

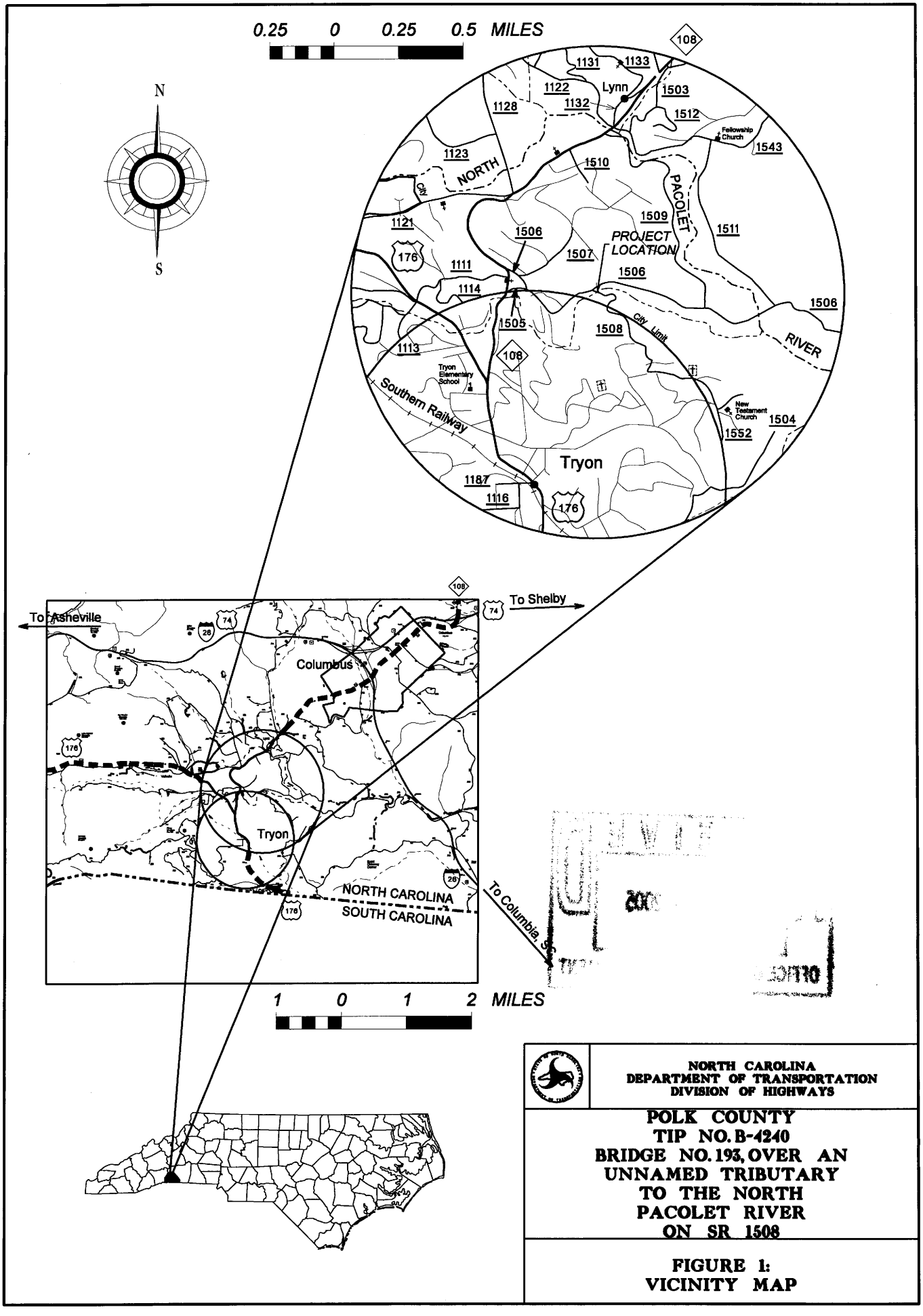
If you have any questions or need additional information, please contact Ms. Beth Harmon at (919) 715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

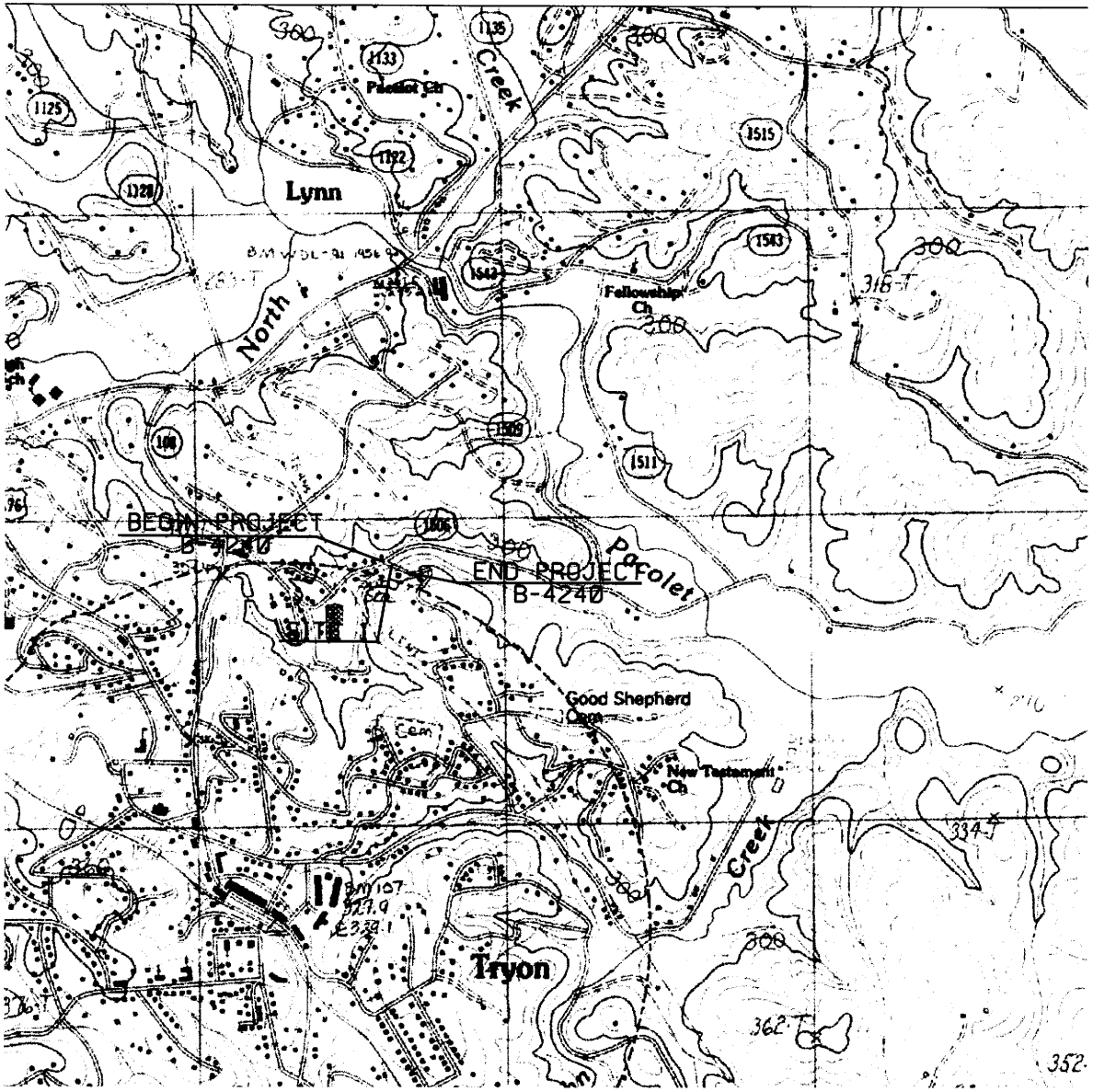
cc: Mr. Phil Harris, Office of Natural Environment, NCDOT
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: B-4240



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

POLK COUNTY
TIP NO. B-4240
BRIDGE NO. 193, OVER AN UNNAMED TRIBUTARY TO THE NORTH PACOLET RIVER ON SR 1508

FIGURE 1:
VICINITY MAP



NOT TO SCALE

N

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
POLK COUNTY

PROJECT NO. 33583.1.1 (B-4240)

BRIDGE NO. 193, OVER
AN UNNAMED TRIBUTARY
TO THE NORTH PACOLET RIVER
ON SR 1508

SHEET 2 OF 4 **02/02/2004**

PROPERTY OWNERS

PARCEL NO.	NAMES	ADDRESSES
1	N/F FEDRICH INDUSTRIES, INC.	
2	N/F CAROLINA YARN PROCESSORS, INC.	
3	N/F CYNTHIA L HAMILTON	
4	N/F FEDRICH INDUSTRIES, INC.	
5	N/F SHELVA W. PHILLIPS	

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
POLK COUNTY

PROJECT NO. 33583.11 (B-4240)

BRIDGE 193 OVER AN UNNAMED TRIBUTARY TO THE NORTH PACOLET RIVER ON SR 1508

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
	L 10+40	2 @ 8'x7' RCBC						0.043	0.007	143	20	
TOTALS:								0.04	0.01	143	20	0

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

POLK COUNTY
PROJECT 33583.1.1 B4240

SHEET 4 of 4 5/4/2005

ATN Revised 3/31/05

SITE 1 -L- STA. 10 + 40

PROJECT REFERENCE NO.	SHEET NO.
B-4240	4
R/W SHEET NO.	

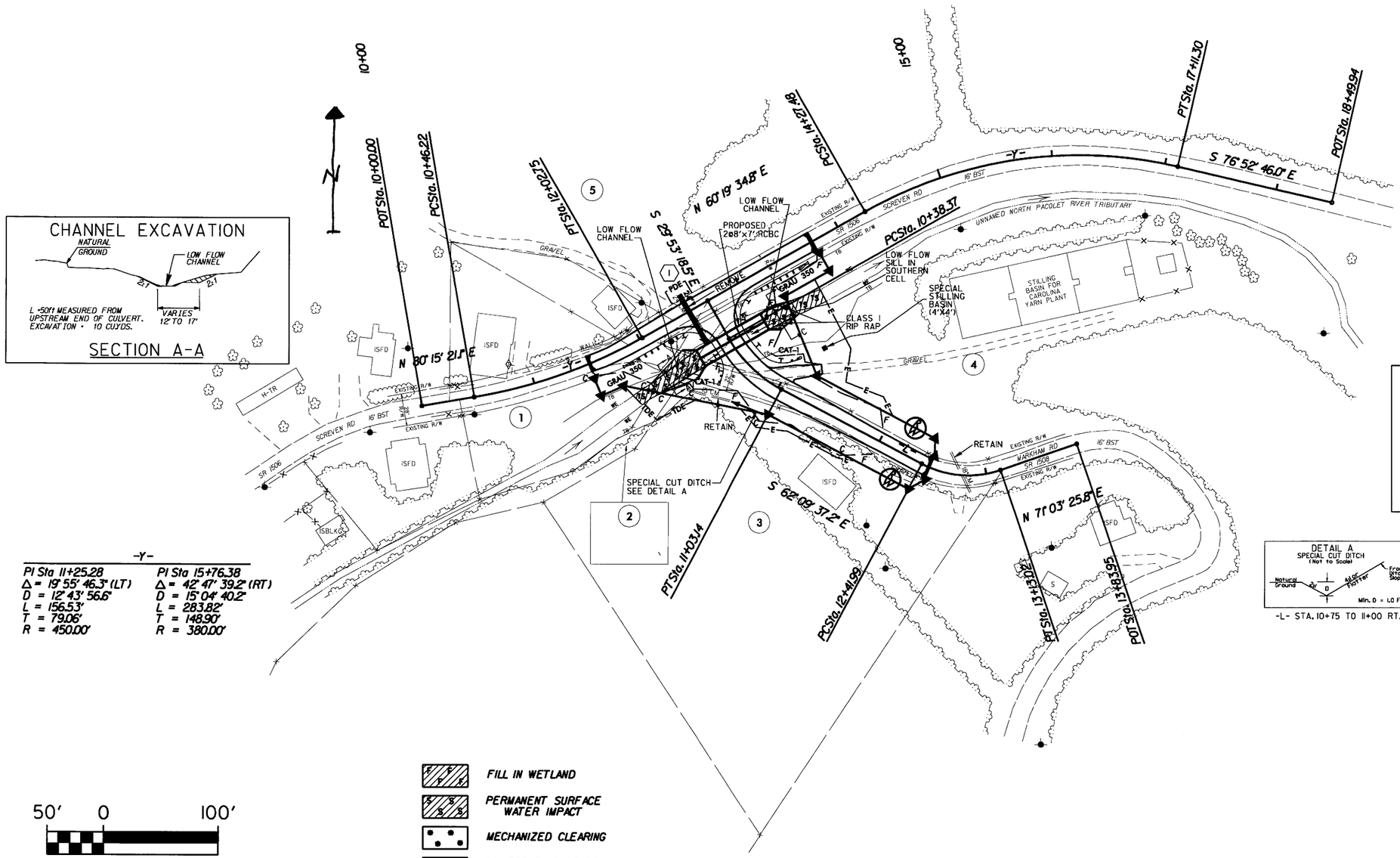
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MA Engineering CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

ENGLISH

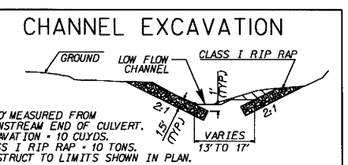


CHANNEL EXCAVATION

L =50'± MEASURED FROM UPSTREAM END OF CULVERT.
EXCAVATION = 10 CUYDS.

SECTION A-A

CHANNEL EXCAVATION



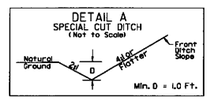
L =30' MEASURED FROM DOWNSTREAM END OF CULVERT.
EXCAVATION = 10 CUYDS.
CLASS I RIP RAP = 10 TONS.
CONSTRUCT TO LIMITS SHOWN IN PLAN.

SECTION C-C

-Y-

PI Sta 11+25.28	PI Sta 15+76.38
Δ = 19° 55' 46.3" (LT)	Δ = 42° 47' 39.2" (RT)
D = 12° 43' 56.6"	D = 15° 04' 40.2"
L = 156.53'	L = 283.82'
T = 79.06'	T = 148.90'
R = 450.00'	R = 380.00'

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



-L- STA. 10+75 TO 11+00 RT.

-L-

PI Sta 10+71.64	PI Sta 12+79.62
Δ = 32° 16' 18.7" (LT)	Δ = 46° 46' 57.0" (LT)
D = 49° 49' 20.7"	D = 65° 51' 26.0"
L = 64.77'	L = 71.04'
T = 33.27'	T = 37.63'
R = 115.00'	R = 87.00'
RO = 60'	
SE = 0.04 ft/ft	
D.S. = 20 mph	

50' 0 100'

SCALE: 1" : 100'

FILL IN WETLAND

PERMANENT SURFACE WATER IMPACT

MECHANIZED CLEARING

TEMPORARY SURFACE WATER IMPACT

SITE 1 -L- STA. 10 + 40

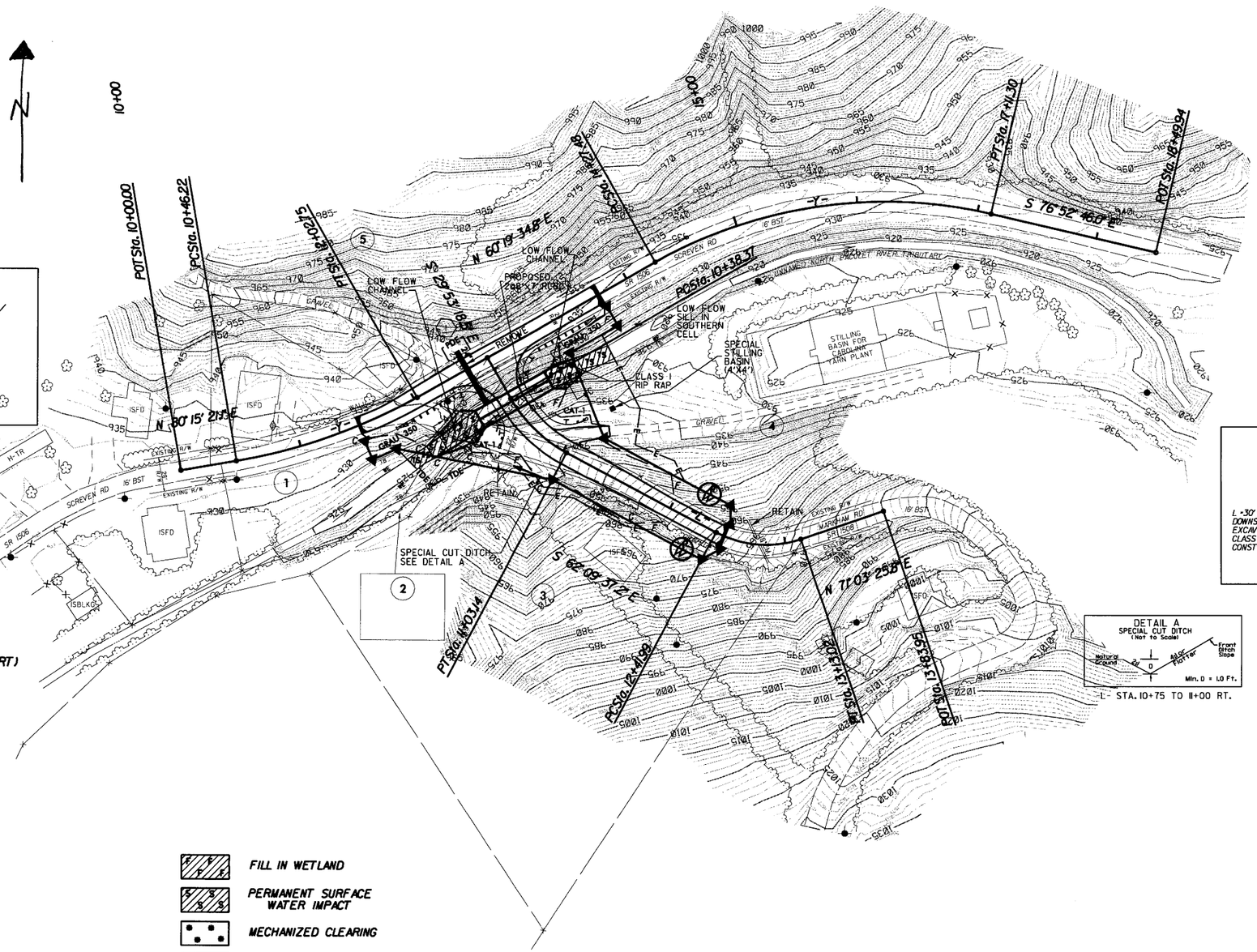
PROJECT REFERENCE NO.	SHEET NO.
B-4240	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

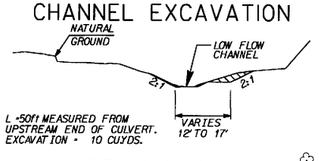
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MA Engineering CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

ENGLISH



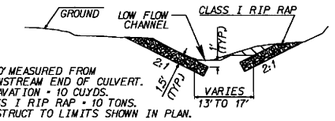
CHANNEL EXCAVATION



L -50'1 MEASURED FROM UPSTREAM END OF CULVERT.
EXCAVATION = 10 CUYDS.

SECTION A-A

CHANNEL EXCAVATION



L -30' MEASURED FROM DOWNSTREAM END OF CULVERT.
EXCAVATION = 10 CUYDS.
CLASS I RIP RAP = 10 TONS.
CONSTRUCT TO LIMITS SHOWN IN PLAN.

SECTION C-C

-Y-

PI Sta 11+25.28	PI Sta 15+76.38
Δ = 19° 55' 46.3" (LT)	Δ = 42° 47' 39.2" (RT)
D = 12° 43' 56.6"	D = 15° 04' 40.2"
L = 156.53'	L = 283.82'
T = 79.06'	T = 148.90'
R = 450.00'	R = 380.00'

-L-

PI Sta 10+71.64	PI Sta 12+79.62
Δ = 32° 16' 18.7" (LT)	Δ = 46° 46' 57.0" (LT)
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L = 64.77'	L = 71.04'
T = 33.27'	T = 37.63'
R = 115.00'	R = 87.00'
RO = 60'	
SE = 0.04 ft/ft	
D.S. = 20 mph	

DETAIL A
SPECIAL CUT DITCH
(NOT to Scale)

L- STA. 10+75 TO 11+00 RT.

50' 0 100'

SCALE: 1" : 100'

FILL IN WETLAND

PERMANENT SURFACE WATER IMPACT

MECHANIZED CLEARING

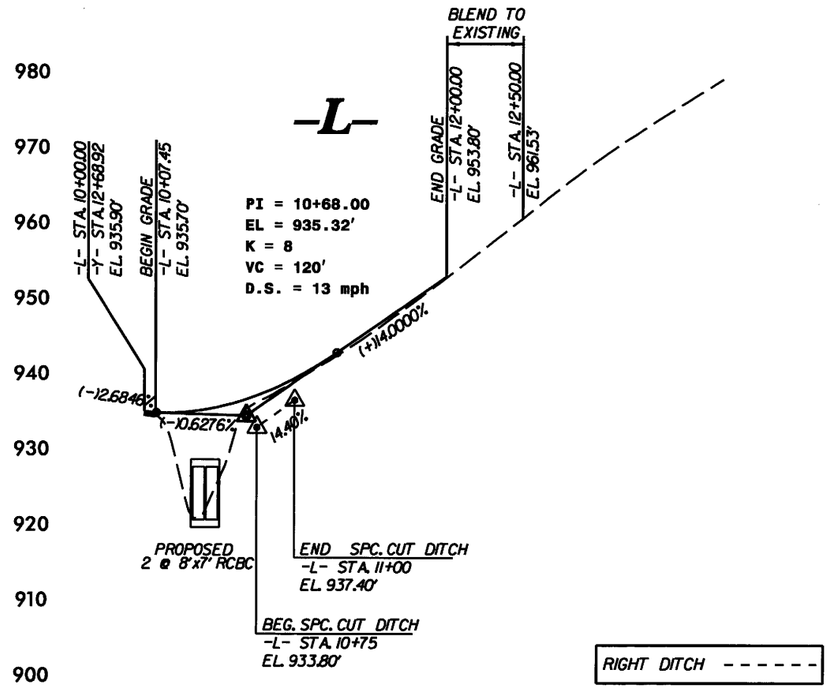
TEMPORARY SURFACE WATER IMPACT

SITE 1 -L- STA. 10 + 40

B-4240

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MA Engineering
CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221



10' 0 20'

SCALE: 1" : 20'
VERTICAL SCALE

50' 0 100'

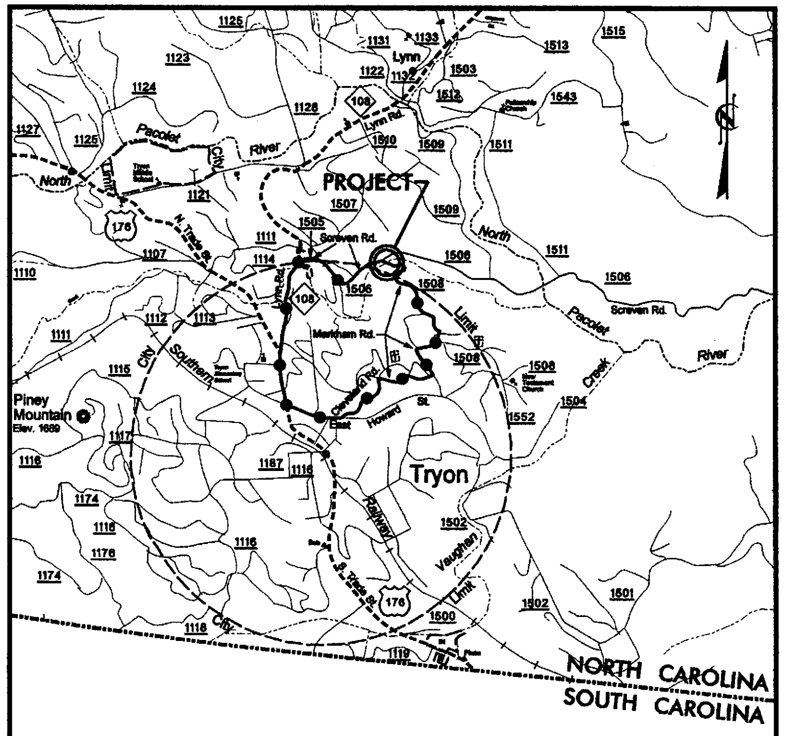
SCALE: 1" : 100'
HORIZONTAL SCALE

ENGLISH

TIP PROJECT: B-4240

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP — DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

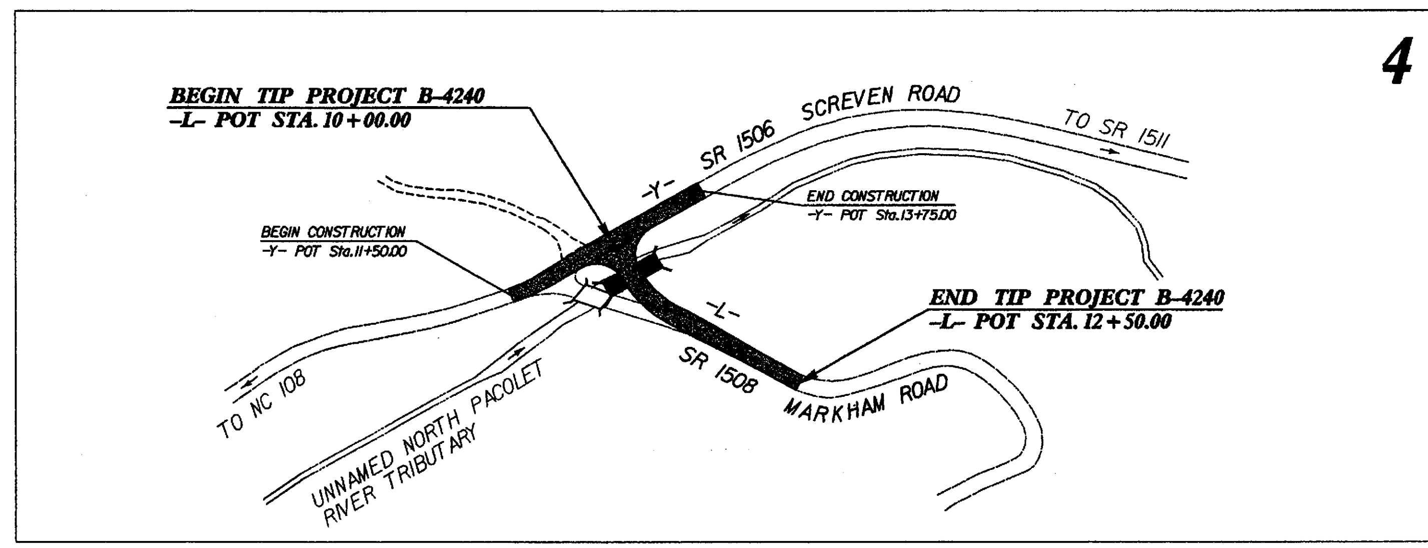
POLK COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4240	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33583.1.1	BRZ-1508 (3)	PE	
33583.2.1	BRZ-1508 (3)	R/W, UTILITIES	

LOCATION: BRIDGE #193 OVER UNNAMED NORTH PACOLET RIVER TRIBUTARY ON SR 1508 (MARKHAM ROAD) AND APPROACHES

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, AND CULVERT

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NAD 83

NCDOT CONTACT:
TERESA BRUTON, P.E.
DESIGN SERVICES UNIT - ENGINEERING COORDINATION

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2005 = 525
ADT 2025 = 700
DHV = 10 %
D = 60 %
T = 3 % *
V = 20 MPH
* (TTST 1% + DUAL 2%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4240	=	0.047 mi
TOTAL LENGTH TIP PROJECT B-4240	=	0.047 mi

Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610
By:
MA ENGINEERING CONSULTANTS, INC.
598 E. CHATHAM STREET, SUITE 137
CARY, NORTH CAROLINA 27511
(919) 297-0220

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 23, 2005

LETTING DATE:

R.W. PORTER JR., P.E.
PROJECT ENGINEER

D.M. WAINWRIGHT, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

09/08/99
03/17/2005

PROJECT REFERENCE NO.	SHEET NO.
B-4240	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — IP
- Property Corner
- Property Monument — CM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Guage — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

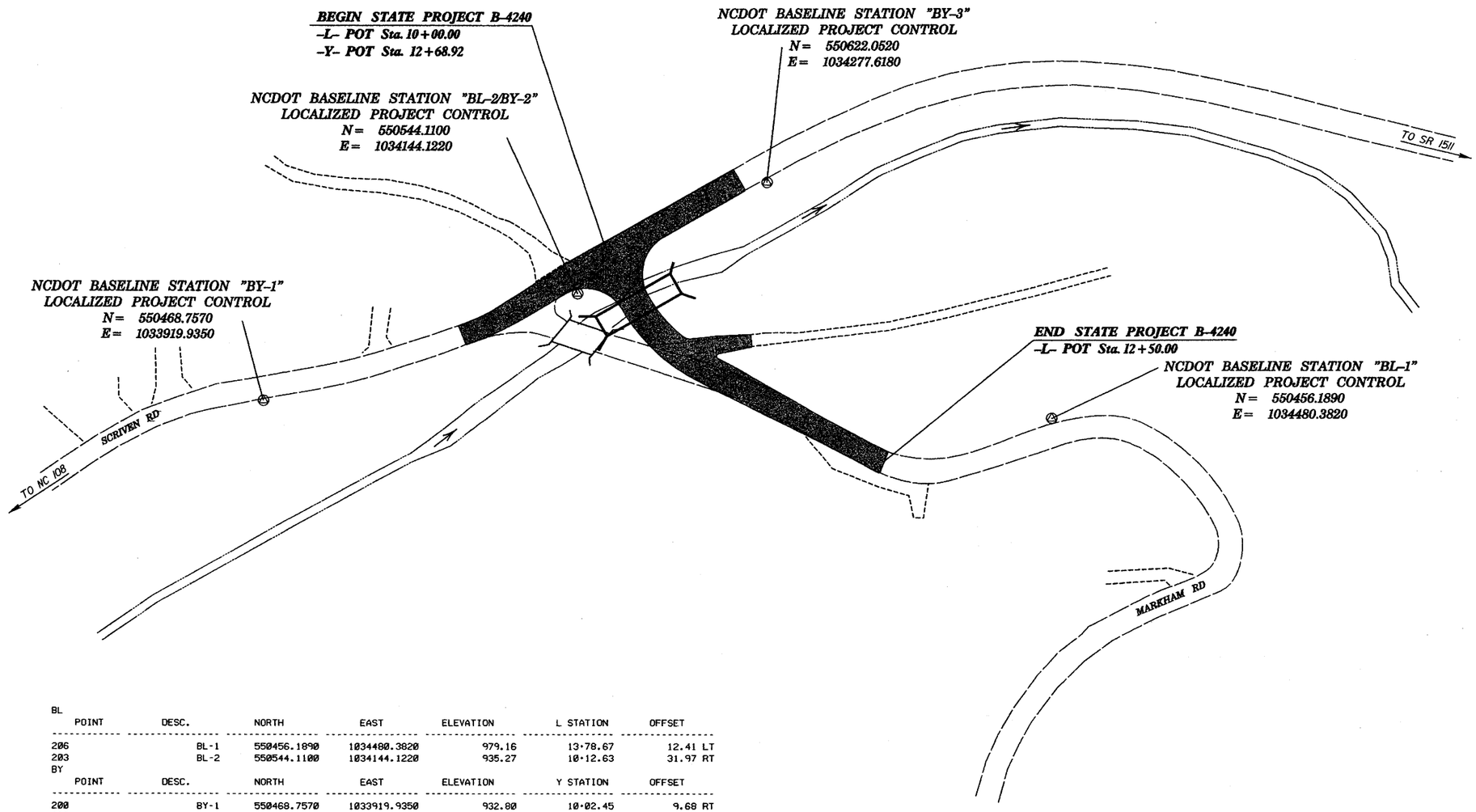
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — PUTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

11/10/2004
P:\DGN\06559\045\B4240\Roadway\Proj\b4240_rdy_symb.dgn
dlt121

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4240	1-C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET B-4240



NC GRID
NAD 83

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
206	BL-1	550456.1890	1034480.3820	979.16	13+78.67	12.41 LT
203	BL-2	550544.1100	1034144.1220	935.27	10+12.63	31.97 RT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
200	BY-1	550468.7570	1033919.9350	932.80	10+02.45	9.68 RT
202	BY-2	550544.1100	1034144.1220	935.27	12+37.00	12.75 RT
204	BY-3	550622.0520	1034277.6180	933.21	13+91.57	11.11 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B4240-101" WITH STATE PLANE GRID COORDINATES OF NORTHING: 550580.481 (ft) EASTING: 1032438.653 (ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987275
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B4240-101 TO -L- STATION 10+00.00 IS
S 89° 41' 06.06" E 1726.92 FEET
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

BM1 ELEVATION = 933.04'
N 550470 E 1033961
Y STATION 10+44 15' RIGHT
60D NAIL IN POWER POLE

BM2 ELEVATION = 933.37
N 550471 E 1034130
L STATION 10+56 82' RIGHT
60D NAIL IN SWEET 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: B4240_ls_control_0411??

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 NGS ONLINE POSITIONING USER SERVICE (OPUS)

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4240	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

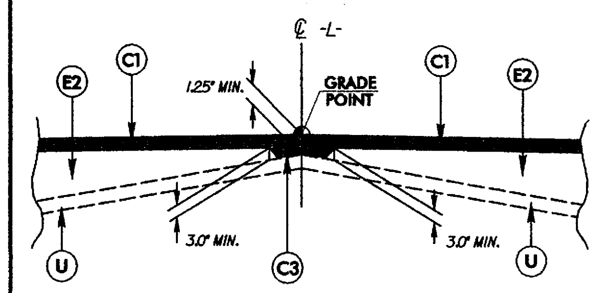
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MA Engineering
CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

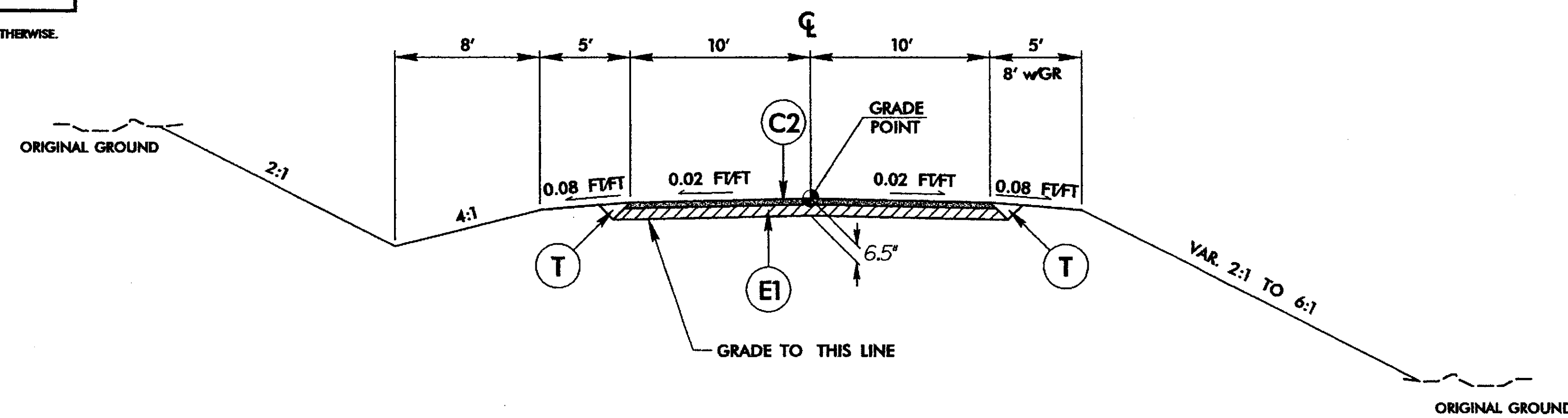
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 140 Lbs PER SQUARE YARD.
C2	PROP. APPROX. 2.50" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 140 Lbs PER SQUARE YARD IN EACH OF TWO LAYERS.
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 112 Lbs PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.25" OR GREATER THAN 1.5" IN DEPTH.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 Lbs PER SQUARE YARD.
E2	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 Lbs PER SQUARE YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3.0" OR GREATER THAN 5.5" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL THIS SHEET)

PAVEMENT EDGE SLOPES AND TRENCH SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



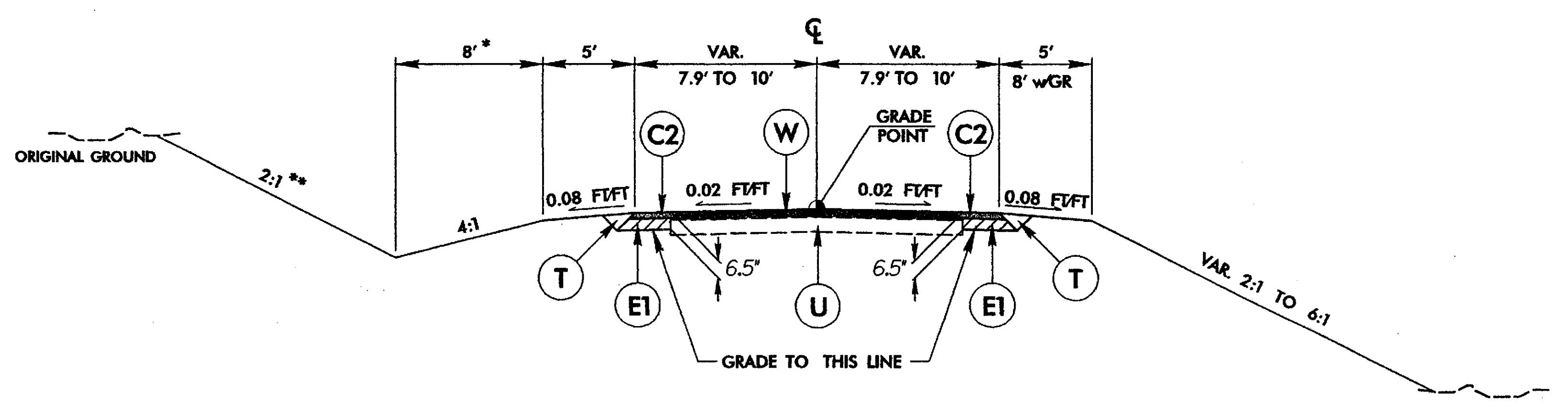
DETAIL SHOWING METHOD OF WEDGING



TYPICAL SECTION NO. 1

FROM -L- STA. 10+07.45 TO STA. 10+80+/-

RESURFACE WITH (C1) :
FROM -Y- STA. 11+50.00 TO STA. 13+75.00



NOTES
* USE 4' FROM -L- STA. 11+25.00 RT. TO 11+75.00 RT.
** USE 1:1 FROM -L- STA. 11+25.00 RT. TO 11+75.00 RT.

TYPICAL SECTION NO. 2

FROM -L- STA. 10+80+/- TO STA. 12+00.00

BLEND TO EXISTING (SEE CROSS SECTIONS):
FROM -L- STA. 12+00.00 TO STA. 12+50.00

6/21/00

COMPUTED BY: DMW DATE: 09-11-03
CHECKED BY: RWP DATE: 09-12-03

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4240	3

MA Engineering
CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+15%	BORROW	WASTE
-L- 10+07.45 TO 12+00.00	79		767	688	
TOTAL	79		767	688	
EST. LOSS DUE TO CLEARING & GRUBBING	-25			25	
PROJECT TOTAL	54		767	713	
ESTIMATE 5% TO REPLACE TOPSOIL ON BORROW PIT				35	
GRAND TOTAL (CUBIC YARDS)	54		767	748	
SAY (CUBIC YARDS)	100		800	800	

SELECT GRANULAR MATERIAL = 200 CY (CONTINGENCY PER GEOTECHNICAL REPORT - DESIGN RECOMMENDATIONS' LETTER DATED 2/18/2004)
ESTIMATED UNDERCUT = 300 CY (CONTINGENCY PER CFI QUESTIONS FROM DIVISION)

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".

SUMMARY OF PAVEMENT REMOVAL

IN SQUARE YARDS

LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE BREAK-UP
-L- 10+07.45 TO 10+10.86	72			
-L- 10+66.51 TO 10+81.05	83.10			
GRAND TOTAL	155.1			
SAY	160			

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

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO.		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)								BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHRWISE)													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.		QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')	LIN. *FT.		C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE				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	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
SIZE		FROM	TO					12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"		30"		36"		42"		48"					R.C.P.	C.S.P.	PER EACH (0' THRU 5.0')	A	B		E	F	G																								
THICKNESS OR GAUGE																.064	.064	.064	.064		.079		.079		.109		.109								5.0' THRU 10.0'	10.0' AND ABOVE																												
-Y- 12+50					933.40	924.22					52.0'																																																				42	

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	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS XI MOD		GRAU 350	M-350	III	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L- & -Y-	-Y- 11+79.77	-L- 10+59.28	RT	12.5'	55.6'				8.0'	9.5'							1			1										
-L- & -Y-	-L- 10+98.71	-Y- 13+58.97	RT	25'	66.4'				8.0'	10.0'							1			1										
	SUBTOTAL			149.5'										TOTAL			2			2										
	LESS ANCHORS	GRAU-350	2 X 50.0'	- 100.0'																										
		CAT-1	2 X 6.0'	- 12.0'																										
	TOTAL			37.5'	125.0'		ADDITIONAL GUARDRAIL POSTS: 5 EA																							

11/15/2004
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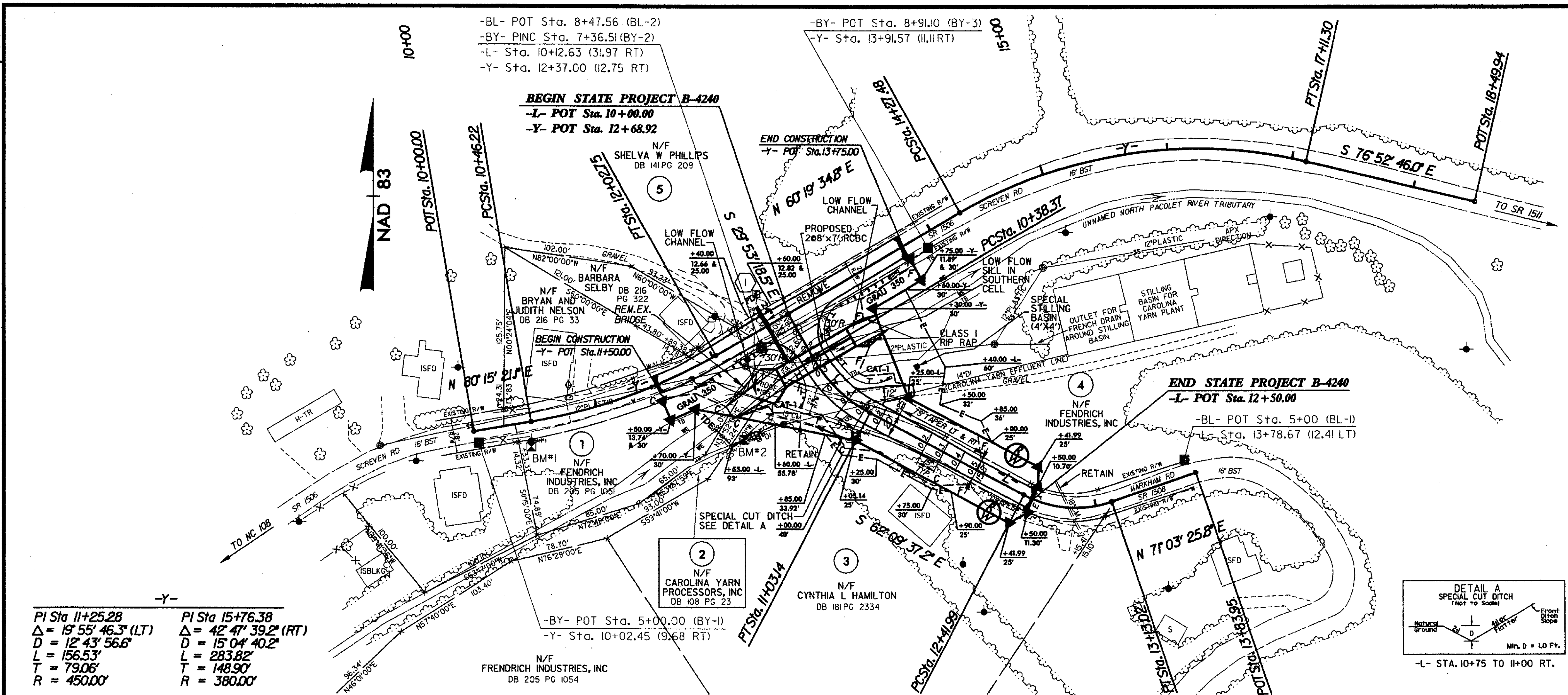
PROJECT REFERENCE NO.	SHEET NO.
B-4240	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MA Engineering CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221



-BL- POT Sta. 8+47.56 (BL-2)
-BY- PINC Sta. 7+36.51 (BY-2)
-L- Sta. 10+12.63 (31.97 RT)
-Y- Sta. 12+37.00 (12.75 RT)
-BY- POT Sta. 8+91.10 (BY-3)
-Y- Sta. 13+91.57 (11.11 RT)
BEGIN STATE PROJECT B-4240
-L- POT Sta. 10+00.00
-Y- POT Sta. 12+68.92
END CONSTRUCTION
-Y- POT Sta. 13+75.00
NAD 83
N/F SHELVA W PHILLIPS DB 141 PG 209
LOW FLOW CHANNEL
PROPOSED 2@8'x7' RCBC
N/F BARBARA SELBY DB 216 PG 322
N/F BRYAN AND JUDITH NELSON DB 216 PG 33
BEGIN CONSTRUCTION
-Y- POT Sta. 11+50.00
SCREVEN RD
SR 1506
TO NC 108
TO SR 1511
UNNAMED NORTH PACOLET RIVER TRIBUTARY
LOW FLOW SILL IN SOUTHERN CELL
SPECIAL STILLING BASIN (4'X4')
OUTLET FOR FRENCH DRAIN AROUND STILLING BASIN
STILLING BASIN FOR CAROLINA YARN PLANT
CLASS I RIP RAP
N/F FENDRICH INDUSTRIES, INC DB 205 PG 1051
N/F CAROLINA YARN PROCESSORS, INC DB 108 PG 23
N/F CYNTHIA L HAMILTON DB 181 PG 2334
N/F FENDRICH INDUSTRIES, INC
N/F FENDRICH INDUSTRIES, INC DB 205 PG 1054
SPECIAL CUT DITCH SEE DETAIL A
END STATE PROJECT B-4240
-L- POT Sta. 12+50.00
-BL- POT Sta. 5+00 (BL-1)
-L- Sta. 13+78.67 (12.41 LT)
-BY- POT Sta. 5+00.00 (BY-1)
-Y- Sta. 10+02.45 (9.68 RT)
MARKHAM RD
S 76°52' 46.0" E
N 60°19' 34.8" E
N 80°15' 21.1" E
S 62°09' 37.2" E
N 71°03' 25.8" E
PCSta. 10+38.37
PT Sta. 11+03.14
PCSta. 12+41.99
PT Sta. 13+15.02
POT Sta. 13+83.95
PT Sta. 17+11.30
POT Sta. 18+49.94
PCSta. 14+27.48
POT Sta. 10+00.00
PCSta. 10+46.22
PTSta. 12+02.75
BM#1
BM#2
RETAIN
ISFD

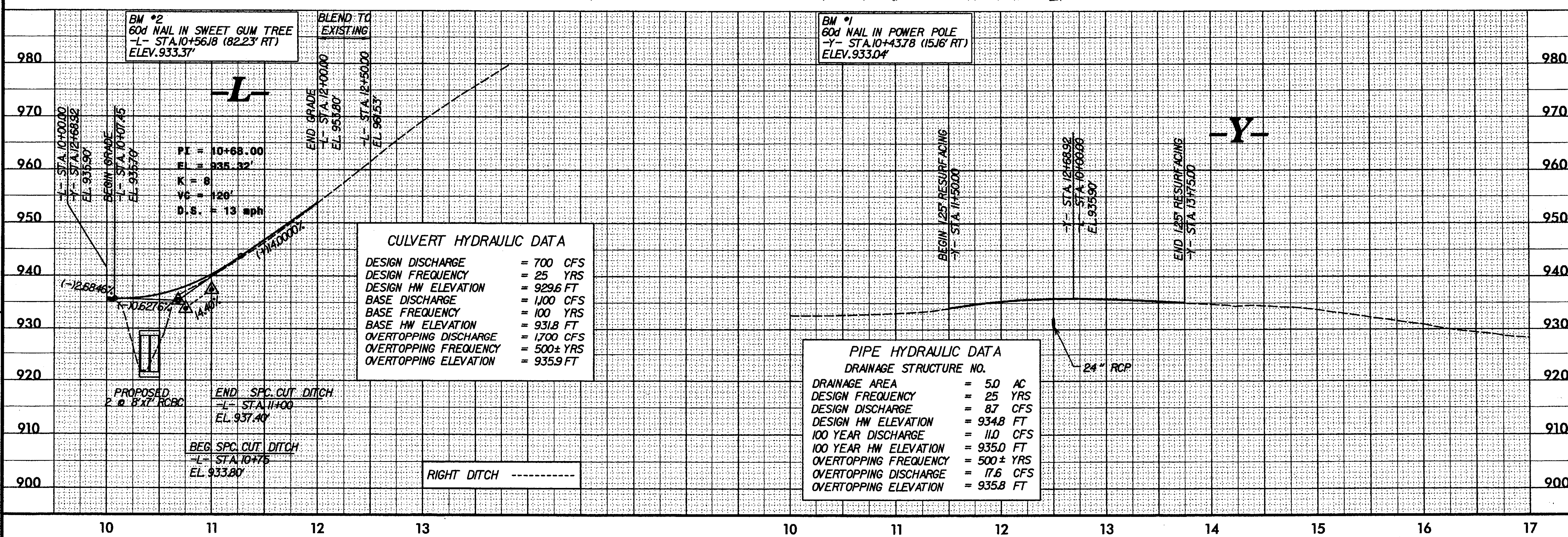
-Y-

PI Sta 11+25.28	PI Sta 15+76.38
Δ = 19° 55' 46.3" (LT)	Δ = 42° 47' 39.2" (RT)
D = 12° 43' 56.6"	D = 15° 04' 40.2"
L = 156.53'	L = 283.82'
T = 79.06'	T = 148.90'
R = 450.00'	R = 380.00'

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground; 2:1; D; Front Ditch Slope; Min. D = 1.0 Ft.
-L- STA. 10+75 TO 11+00 RT.

-L-

PI Sta 10+71.64	PI Sta 12+79.62
Δ = 32° 16' 18.7" (LT)	Δ = 46° 46' 57.0" (LT)
D = 49° 49' 20.7"	D = 65° 51' 26.0"
L = 64.77'	L = 71.04'
T = 33.27'	T = 37.63'
R = 115.00'	R = 87.00'
RO = 60'	
SE = 0.04 ft/ft	
D.S. = 20 mph	



BM #2
60d NAIL IN SWEET GUM TREE
-L- STA. 10+56.18 (82.23' RT)
ELEV. 933.37'
BLEND TO EXISTING
BM #1
60d NAIL IN POWER POLE
-Y- STA. 10+43.78 (15.16' RT)
ELEV. 933.04'
-L-
-Y-
PI = 10+68.00
EL = 935.32'
K = 6
VC = 120'
D.S. = 13 mph
(-)12.6846%
(+)14.0000%
END GRADE -L- STA. 12+00.00 EL. 953.80'
-L- STA. 12+50.00 EL. 961.53'
BEGIN GRADE -L- STA. 10+07.45 EL. 935.70'
BEGIN 1.25" RESURFACING -Y- STA. 11+50.00
END 1.25" RESURFACING -Y- STA. 13+75.00
-Y- STA. 12+68.92 -L- STA. 10+00.00 EL. 935.90'
PROPOSED 2 @ 8'x7' RCBC
END SPC. CUT DITCH -L- STA. 11+00 EL. 937.40'
BEG. SPC. CUT DITCH -L- STA. 10+75 EL. 933.80'
RIGHT DITCH
24" RCP
980 970 960 950 940 930 920 910 900
10 11 12 13 10 11 12 13 14 15 16 17

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 700 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 929.6 FT
BASE DISCHARGE	= 1,100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 931.8 FT
OVERTOPPING DISCHARGE	= 1,700 CFS
OVERTOPPING FREQUENCY	= 500± YRS
OVERTOPPING ELEVATION	= 935.9 FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

DRAINAGE AREA	= 5.0 AC
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 8.7 CFS
DESIGN HW ELEVATION	= 934.8 FT
100 YEAR DISCHARGE	= 11.0 CFS
100 YEAR HW ELEVATION	= 935.0 FT
OVERTOPPING FREQUENCY	= 500± YRS
OVERTOPPING DISCHARGE	= 17.6 CFS
OVERTOPPING ELEVATION	= 935.8 FT

REVISIONS

8/17/99

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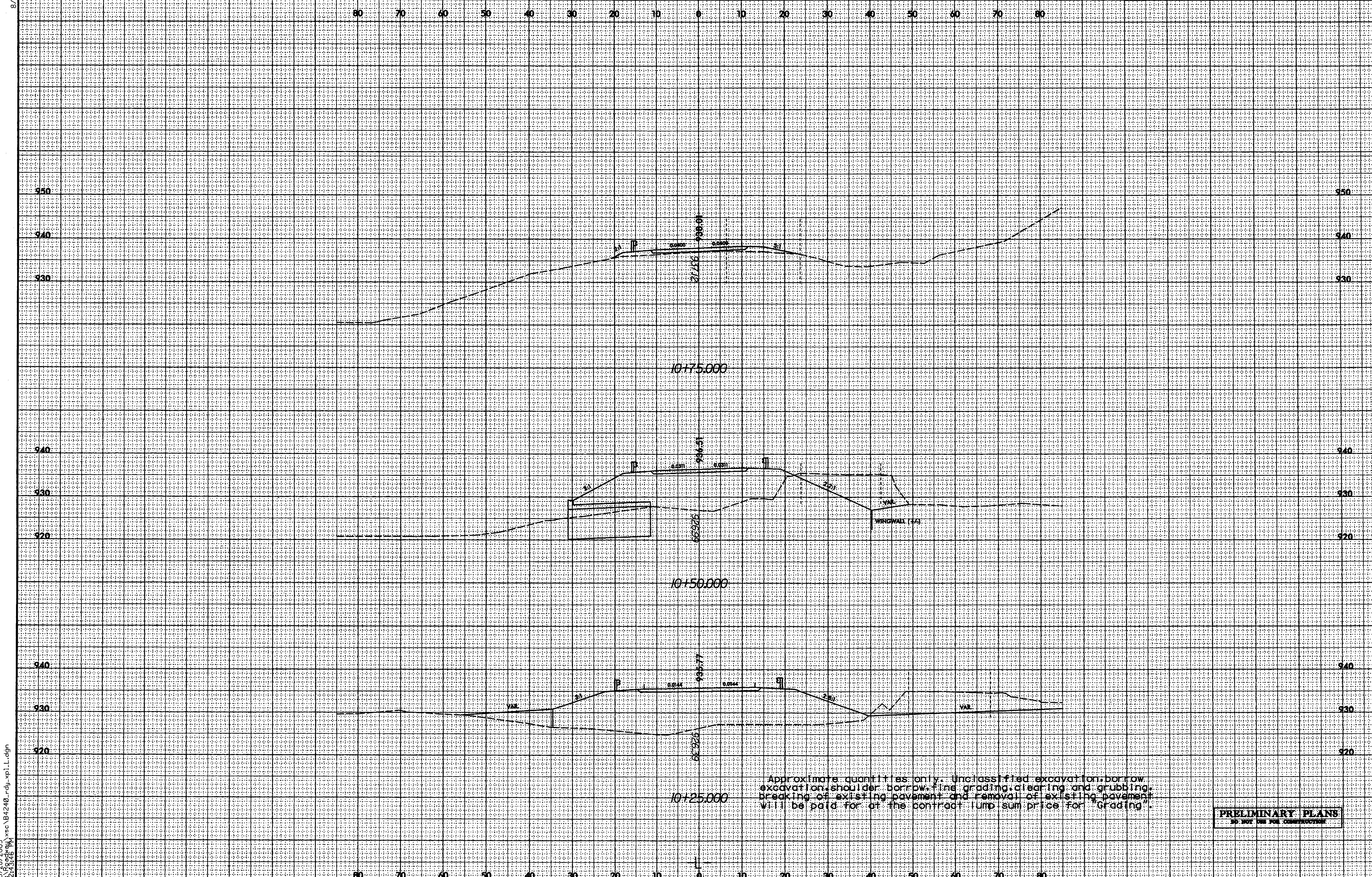
B-4240	X-2

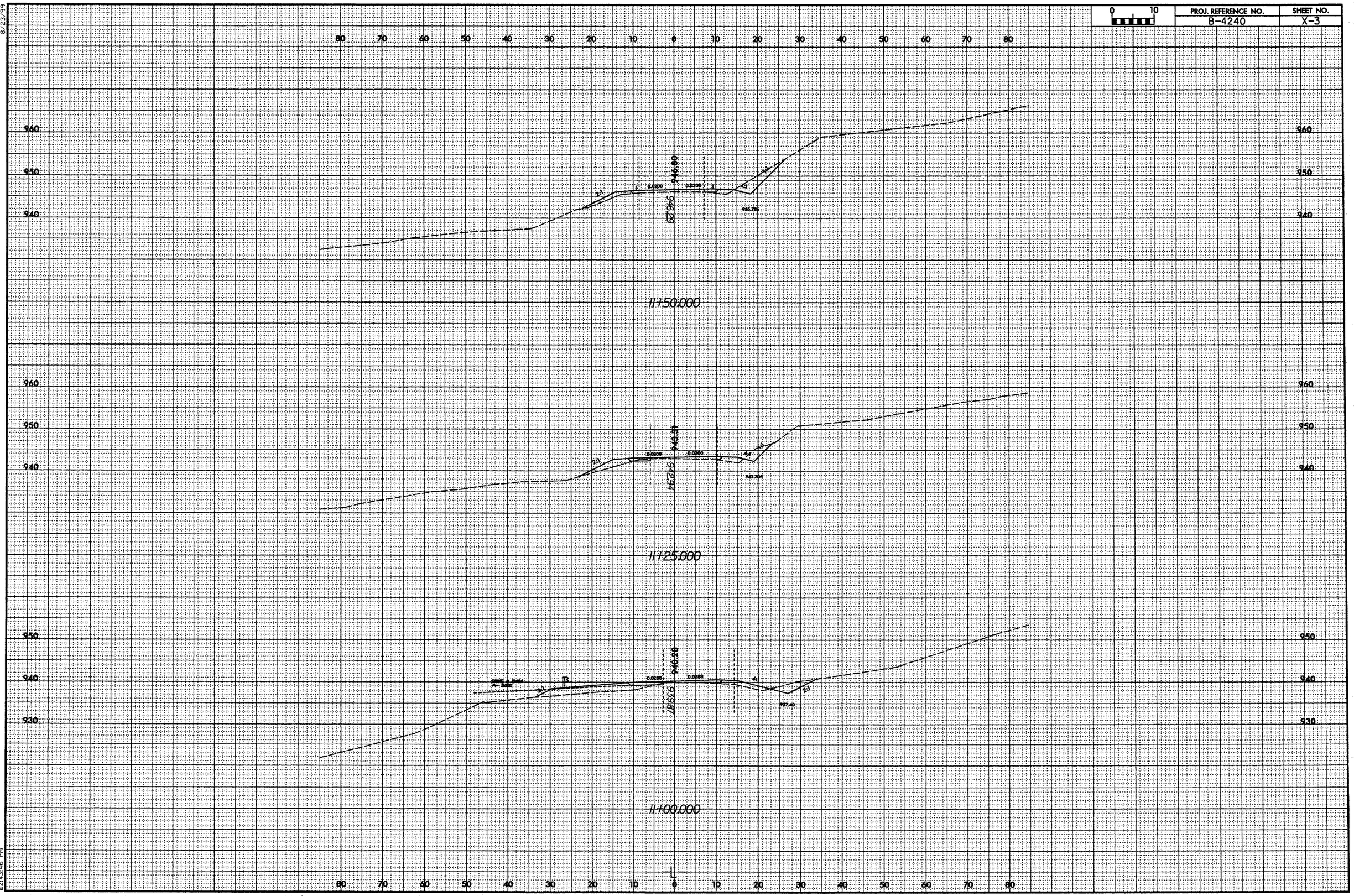


Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the contract lump sum price for "Grading".

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/23/99

0 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4240	X-3



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PROJ. REFERENCE NO.	SHEET NO.
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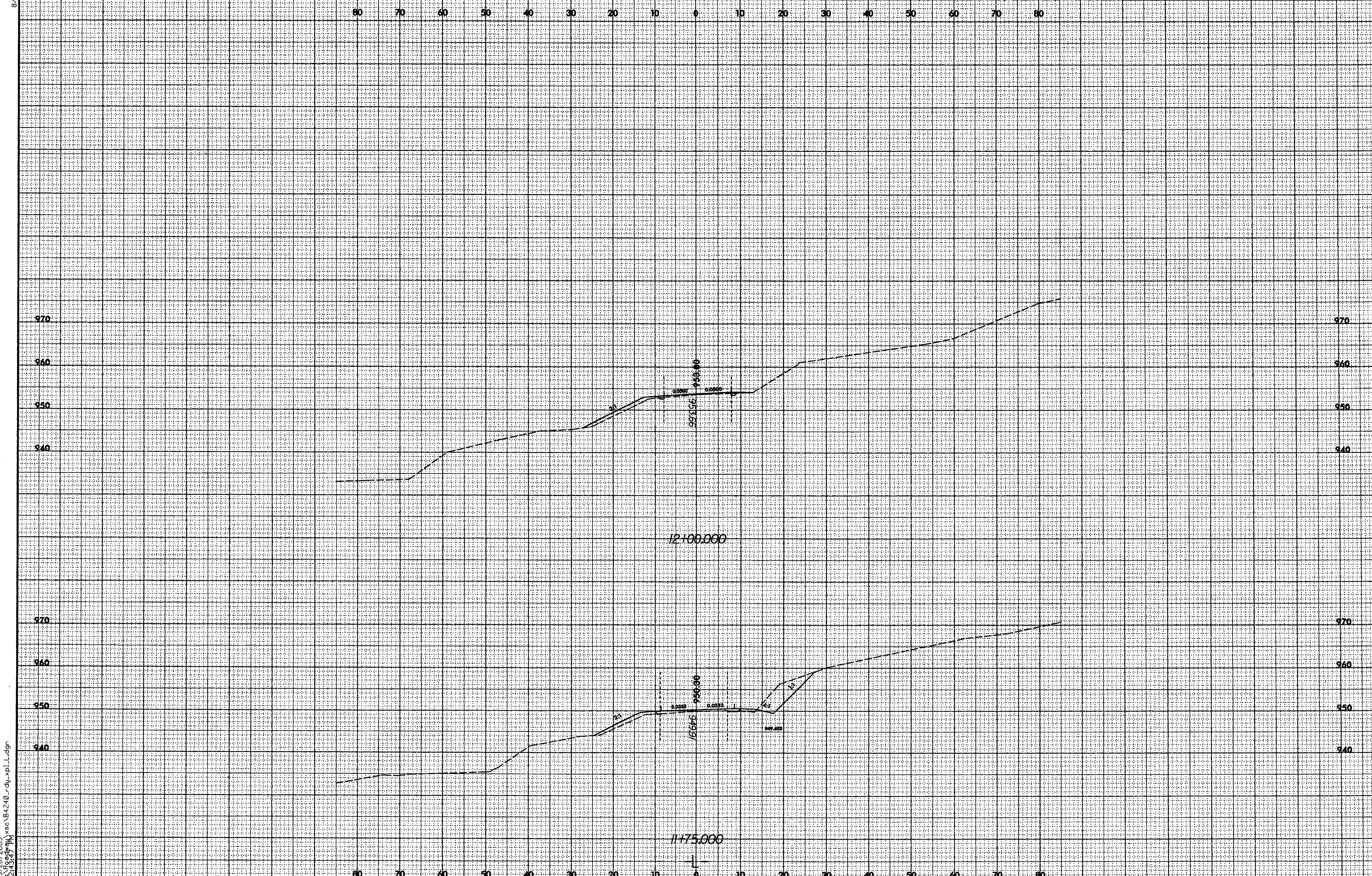

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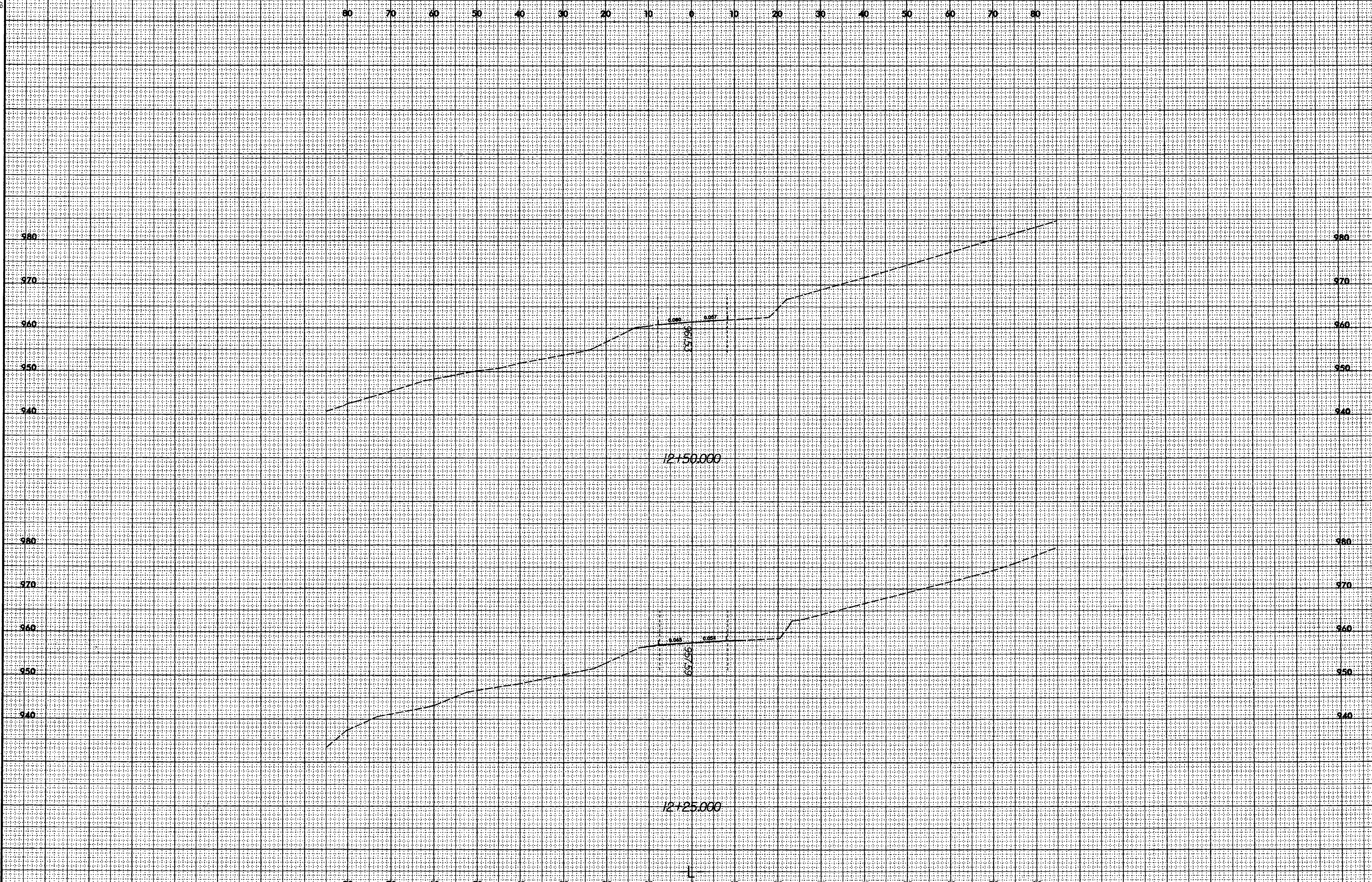

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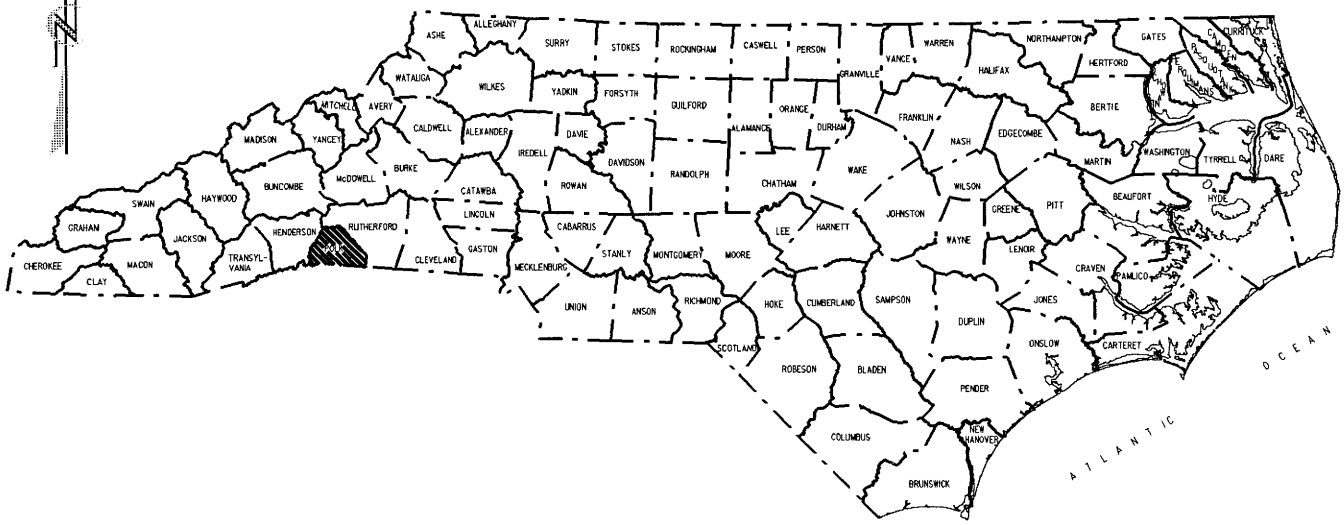
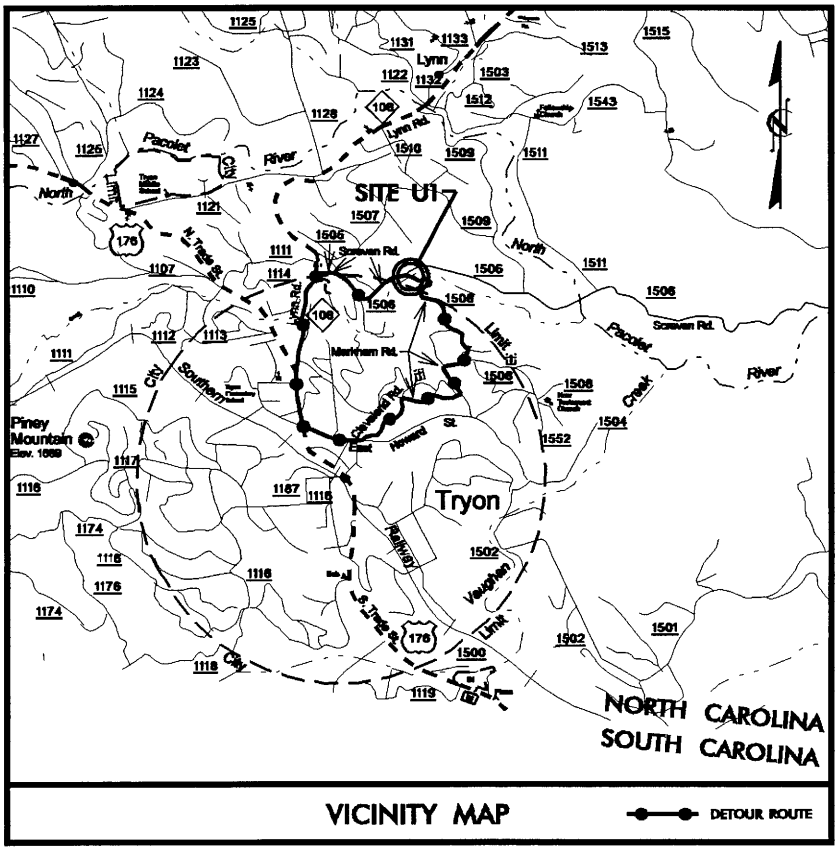
NORTH CAROLINA



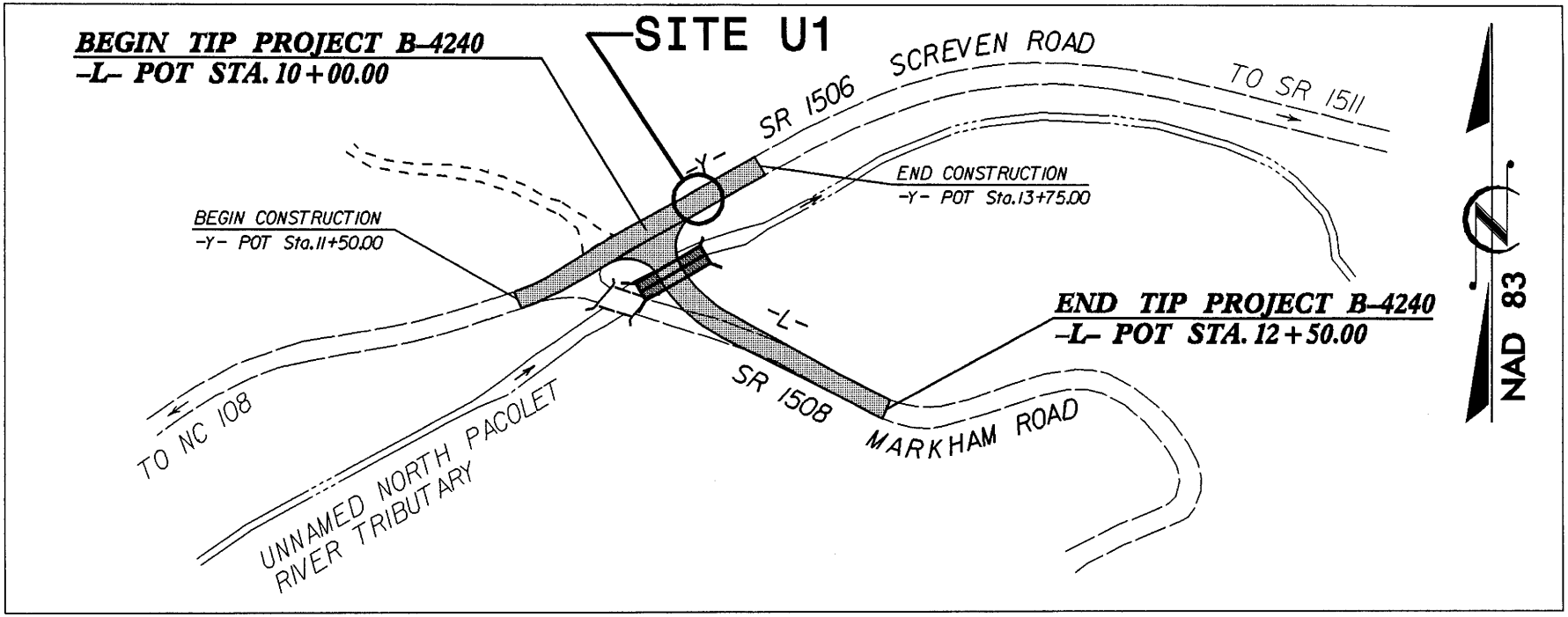


VICINITY MAP — DETOUR ROUTE

PROJECT VICINITY MAPS
POLK COUNTY
TOWN OF TRYON, N.C.

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
POLK COUNTY
PROJECT TIP B-4240
BRIDGE 193 OVER A BRANCH ON SR 1508

SHEET 1 OF 4



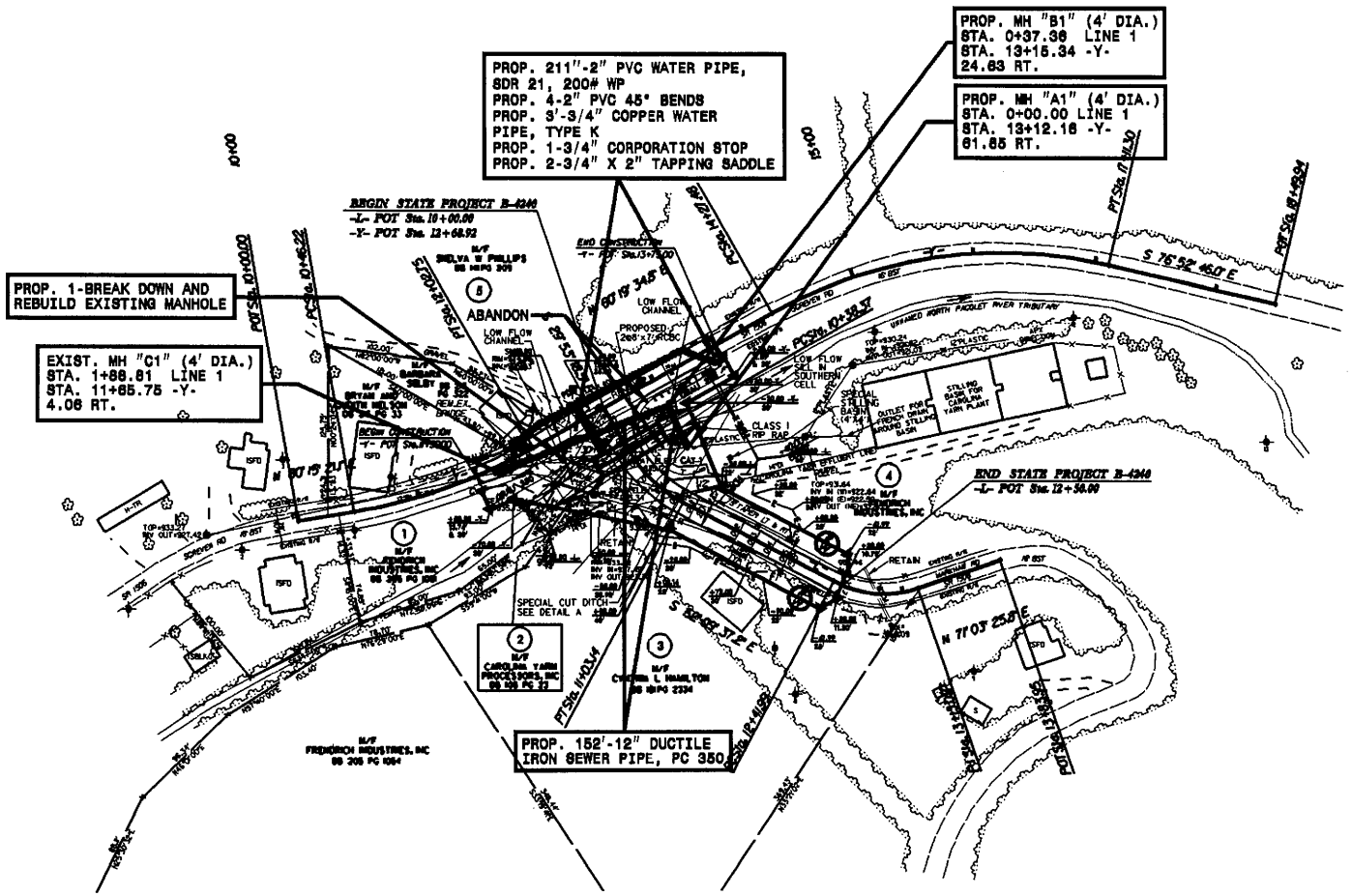
SITE MAP

(NOT TO SCALE)

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
POLK COUNTY

BRIDGE 193 OVER A BRANCH ON SR 1508

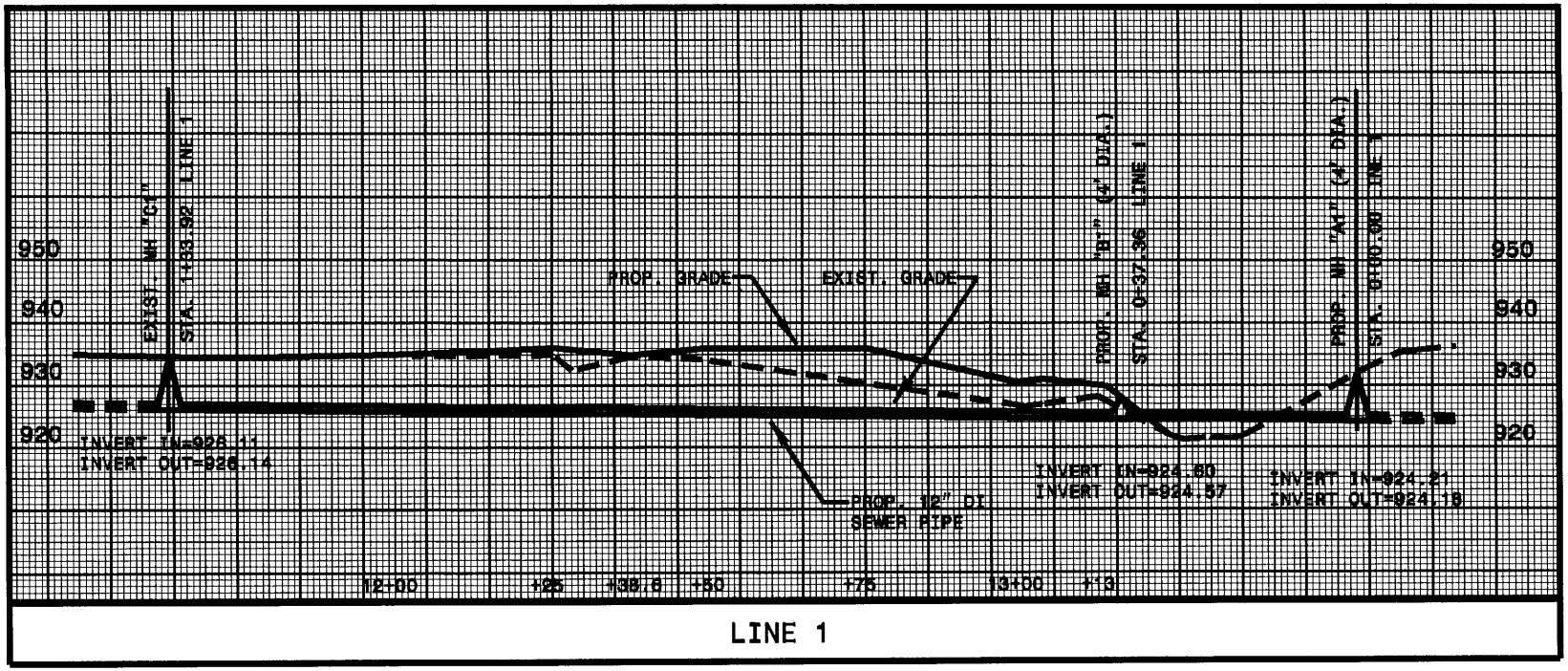
SHEET 2 OF 4



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
POLK COUNTY

BRIDGE 193 OVER A BRANCH ON SR 1508

SHEET 3 OF 4



LINE 1

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
POLK COUNTY

BRIDGE 193 OVER A BRANCH ON SR 1508

SHEET 4 OF 4

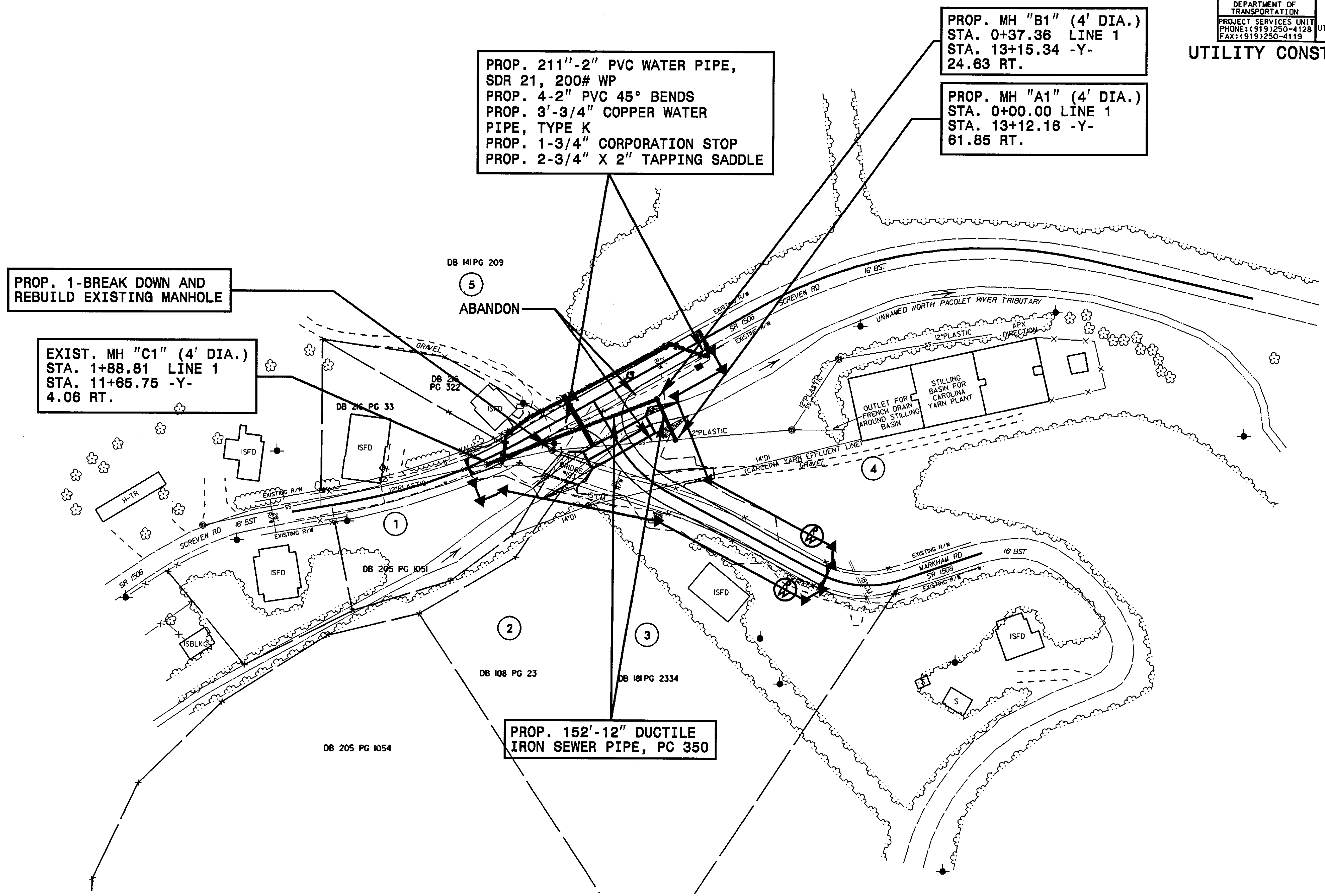
PROJECT REFERENCE NO.	SHEET NO.
B-4240	UC-1

DESIGNED BY: CSG
DRAWN BY: CSG
CHECKED BY: RBW
APPROVED BY: RBW
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

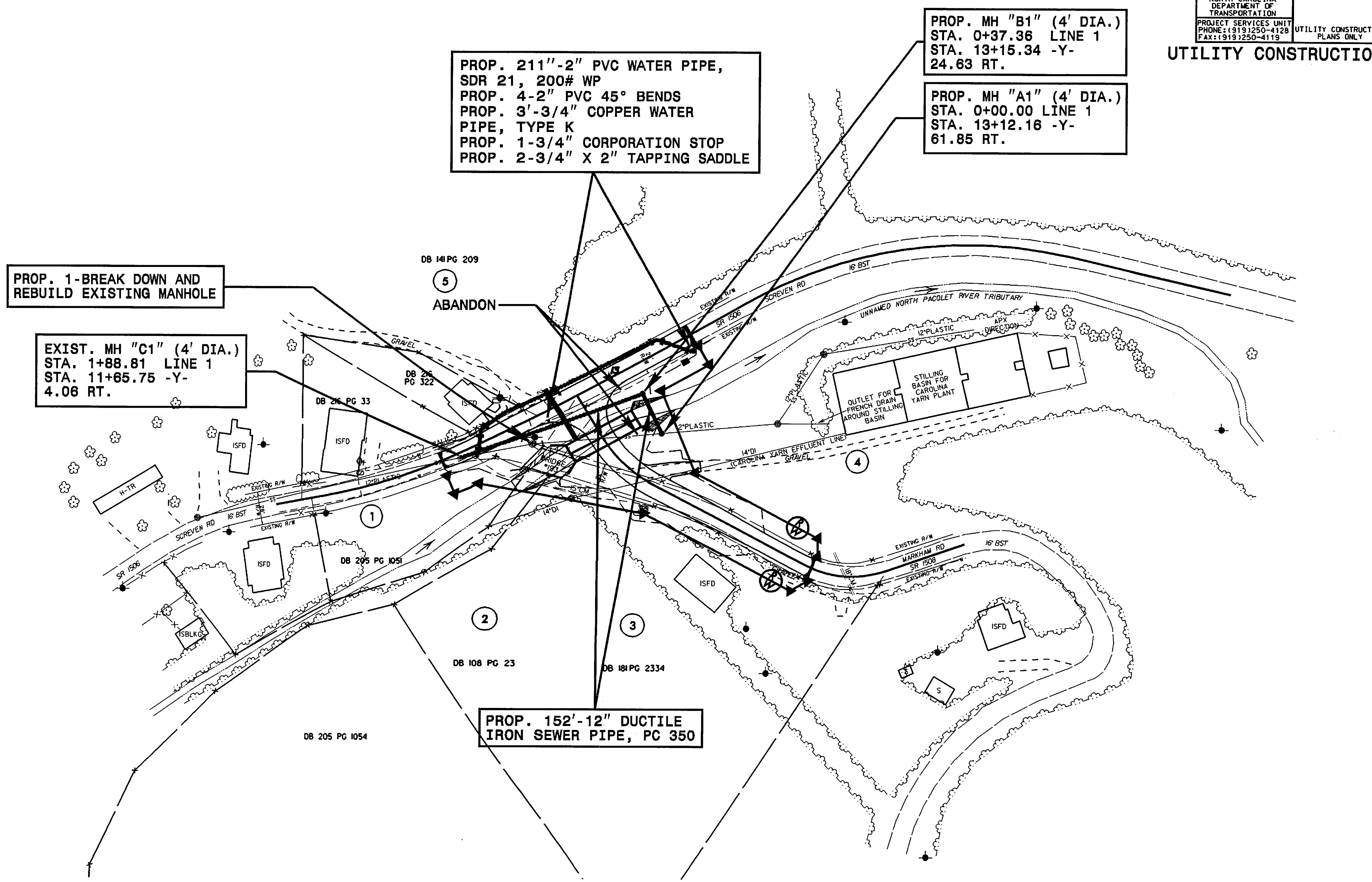


PROP. MH "B1" (4' DIA.)
STA. 0+37.36 LINE 1
STA. 13+15.34 -Y-
24.63 RT.
PROP. MH "A1" (4' DIA.)
STA. 0+00.00 LINE 1
STA. 13+12.16 -Y-
61.85 RT.
PROP. 211'-2" PVC WATER PIPE,
SDR 21, 200# WP
PROP. 4-2" PVC 45° BENDS
PROP. 3'-3/4" COPPER WATER
PIPE, TYPE K
PROP. 1-3/4" CORPORATION STOP
PROP. 2-3/4" X 2" TAPPING SADDLE
PROP. 1-BREAK DOWN AND
REBUILD EXISTING MANHOLE
EXIST. MH "C1" (4' DIA.)
STA. 1+88.81 LINE 1
STA. 11+65.75 -Y-
4.06 RT.
DB 141 PG 209
5
ABANDON
DB 216 PG 322
DB 216 PG 33
ISFD
H-TR
SCREVEN RD
SR 1506
16' BST
EXISTING R/W
12"PLASTIC
UNNAMED NORTH PACOLET RIVER TRIBUTARY
APX DIRECTION
OUTLET FOR FRENCH DRAIN AROUND STILLING BASIN
STILLING BASIN FOR CAROLINA YARN PLANT
2"PLASTIC
14"DI
(CAROLINA YARN EFFLUENT LINE)
GRAVEL
4
1
DB 205 PG 1051
MARKHAM RD
SR 1508
ISBLKG
2
3
DB 108 PG 23
DB 181 PG 2334
DB 205 PG 1054
PROP. 152'-12" DUCTILE
IRON SEWER PIPE, PC 350

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4240	UC-1
DESIGNED BY: CSG	
DRAWN BY: CSG	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



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DB 216 PG 322
DB 216 PG 33
ISFD
H-TR
SCREVEN RD
SR 1506
16' BST
1
DB 205 PG 1051
ISBLKG
2
3
DB 108 PG 23
DB 181 PG 2334
DB 205 PG 1054
PROP. 152'-12" DUCTILE IRON SEWER PIPE, PC 350
UNNAMED NORTH PACOLET RIVER TRIBUTARY
OUTLET FOR FRENCH DRAIN AROUND STILLING BASIN
STILLING BASIN FOR CAROLINA YARN PLANT
14"DI (CAROLINA YARN EFFLUENT LINE)
2"PLASTIC
12"PLASTIC
4
MARKHAM RD
SR 1508
EXISTING R/W

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5/14/99

Polk County

Bridge No. 193 on SR 1508 (Markham Road)

over Unnamed North Pacolet River Tributary

Federal-Aid Project No. BRZ-1508 (3)

State Project No. 8.2980901

T.I.P. Project No. B-4240

CATEGORICAL EXCLUSION

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

APPROVED:

1/21/04
DATE

For **Gregory J. Thorpe, PhD.**
Environmental Management Director
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation

1/21/04
DATE

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

Polk County

Bridge No. 193 on SR 1508 (Markham Road)

over Unnamed North Pacolet River Tributary

Federal-Aid Project No. BRZ-1508 (3)

State Project No. 8.2980901

T.I.P. Project No. B-4240

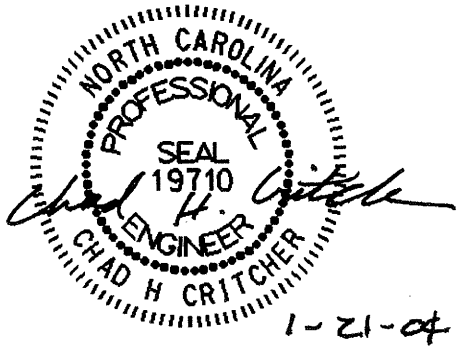
CATEGORICAL EXCLUSION

January 2004

Document Prepared By:
MA Engineering Consultants, Inc.
598 East Chatham Street, Suite 137
Cary, NC 27511

Gail F. Kogut, PE
Project Manager

Chad H. Critcher, PE
Senior Associate



1-21-04

For the North Carolina Department of Transportation:

Derrick Weaver, PE
Project Manager
Project Development & Environmental Analysis Branch

Polk County

Bridge No. 193 on SR 1508 (Markham Road)

over Unnamed North Pacolet River Tributary

Federal-Aid Project No. BRZ-1508 (3)

State Project No. 8.2980901

T.I.P. Project No. B-4240

PROJECT COMMITMENTS

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, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Polk County
Bridge No. 193 on SR 1508 (Markham Road)
over Unnamed North Pacolet River Tributary
Federal-Aid Project No. BRZ-1508 (3)
State Project No. 8.2980901
T.I.P. Project No. B-4240

INTRODUCTION: The replacement of Bridge No. 193 is included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

The NCDOT Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 44.5 out of a possible 100 for a new structure. The bridge is considered functionally obsolete. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

Bridge No. 193 is located on SR 1508 (Markham Road) in Polk County over an unnamed branch of Pacolet River (Figure 2A). SR 1508 is classified as Rural Local in the Statewide Functional Classification System. Land use is mixed residential. The project location is within the Town of Tryon's zoning limits but outside of the town limits.

Bridge No. 193 was constructed in 1960. The existing structure is a one-lane, single span bridge with an overall length of 30'-6" (9.3 m) and a clear roadway width of 17'-2" (5.2 m). The bridge consists of a timber deck on I-beams supported on timber caps with timber posts and sills. Bridge No. 193 currently has posted weight limits of 15 tons (13.6 metric tons) for single vehicle (SV) and 19 tons (17.2 metric tons) for truck-tractor semi trailer (TTST).

The creek bed to roadway crown point height is 11' (3.4 m) and the normal depth of this unnamed branch of the Pacolet River is 1' (0.3 m).

The approach roadway for Bridge No. 193 is an unmarked paved 16' (4.9 m) wide road (Figure 2B). The bridge is located immediately south of the intersection with SR 1506 (Screven Road).

Aerial power lines cross the northwest end of the bridge. An underground natural gas line runs along SR 1506 (Screven Road). A water line is located on the north shoulder of SR 1508 (Markham Road). A fire hydrant is located near the southeast bridge approach.

The 2002 estimated average daily traffic (ADT) volume is approximately 500 vehicles per day (vpd). The projected ADT is expected to increase to 700 vpd by the design year 2025. The percentages of truck traffic are 2% Duals and 1% TTST. The posted speed limit on this bridge is 20 MPH.

No accidents were reported in the vicinity of the bridge during the period from January 1, 1998 to December 31, 2000.

No school buses use Bridge No. 193.

Polk County Emergency Services indicate that acceptable detours exist for Bridge No. 193 with no interruption of emergency services.

III. ALTERNATIVES

A. Project Description

The approach roadway will consist of two 10-foot (3.0-meter) travel lanes with 5-foot (1.5-meter) shoulders (Figure 3). The design speed will be 20 mph to match existing conditions.

Based on field reconnaissance of the site and a preliminary hydraulic analysis, the existing structure can be replaced with a two-barrel 8-foot by 7-foot (2.4-meter by 2.1-meter) reinforced concrete box culvert or a comparable structure. The existing roadway elevation would be maintained. The length and opening size of the proposed culvert may increase or decrease as necessary to accommodate peak flows as determined from a more detailed hydraulic analysis to be performed during the final design phase of the project.

B. Build Alternatives

Two alternatives were considered as shown in Figures 4A and 4B.

Alternative 1
This alternative proposes to construct the culvert at the existing location with an off-site detour. See Figure 5. The skew angle of the culvert would be approximately 55°. Refer to Figure 4A. The total length of culvert and approach work is 200 ft. (61.0m).

Alternative 2 (Preferred)
This alternative proposes to construct the structure at downstream side. SR 1508 would be closed within the project limits during construction of the culvert and the roadway work. Refer to Figure 5. Traffic would be detoured via Beech Street, West Livingston Street, Cleveland Road, US 176, NC 108, and SR 1505 (Scriven Road). The skew angle of the culvert would be 90°. Refer to Figure 4B. The total length of culvert and approach work is 192.2 ft. (58.6m). According to local residents, it is very difficult to perform the turn from SR 1508 to SR 1506

eastbound due to the intersection skew. Alternative 2 would improve this condition.

C. Alternatives Eliminated from Further Study

The "do-nothing" alternative will eventually necessitate removal of the bridge effectively removing this section of SR 1508 from traffic service.

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

D. Preferred Alternative

Alternative 2, realigning the roadway to northeast and replacing the existing bridge with a culvert, is the preferred alternative. Alternative 2 was selected because it improves the alignment of the intersection, is more hydraulically efficient, has a smaller impact to the stream, and allows the traffic to be maintained on the existing bridge during construction.

IV. ESTIMATED COSTS

The estimated costs, based on current 2002 prices, are shown in Table 1.

Table 1: Estimated Costs

	Alternative 1	Alternative 2 **(Preferred)**
Structure Removal (existing)	4,725	4,725
Structure (proposed)	75,000	65,000
Roadway Approaches	59,818	58,965
Miscellaneous and Mobilization	38,876	36,992
Engineering and Contingencies	21,581	34,318
ROW/Const. Easements/Utilities	67,000	67,000
TOTAL	$267,000	$267,000

The total estimated cost of the project, as shown in the 2004-2010 Transportation Improvement Program, is $250,000 for construction.

V. NATURAL RESOURCES

A Natural Resources Technical Report was prepared by ARCADIS G&M of North Carolina, Inc. and is available at the North Carolina Department of Transportation (NCDOT) office.

Natural resources within the project study area were evaluated to provide: 1) an assessment of existing vegetation; 2) an evaluation of probable impacts resulting from construction; and 3) a preliminary determination of permit needs.

A. Methodology

Field investigations along the project study area were conducted by qualified biologists during the months of August 2001 and April 2002. Pedestrian surveys were undertaken to determine natural resource conditions and to document natural communities, wildlife, and the presence of protected species or their habitats.

Published information regarding the project area and region was derived from a number of resources including: United States Geological Survey (USGS) 7.5-minute topographical quadrangle map (Landrum, North Carolina), United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) map, NCDOT aerial photomosaics of the project area (1"=100'), and Natural Resources Conservation Service (NRCS) soil survey maps of Polk County. Water resources information was obtained from publications of the North Carolina Division of Water Quality (NCDWQ). Information concerning the occurrence of federal and state protected species within the project area and vicinity was gathered from the USFWS list of protected species (March, 2001) and the North Carolina Natural Heritage Program (NCNHP) database of rare species and unique habitats (July, 2001).

Information concerning the occurrence of federal protected species was updated by the USFWS on February 25, 2003. Supplemental field investigations consisting of pedestrian surveys were conducted in May 2003.

B. Physiography and Soils

Polk County is situated in the Inner Piedmont near the border with the Mountain physiographic province of North Carolina. The geography of the county consists of piedmont and mountain uplands, mountain coves and hillslopes, along with floodplains and stream terraces. Elevations in the project area range from approximately 945.0 ft (288.0 m) above Mean Sea Level (MSL) to 984.0 ft (300.0 m) above MSL as depicted on the Landrum, North Carolina, USGS topographic quadrangle map.

The geologic features underlying the project area are associated with the Inner Piedmont Belt. This region typically contains a mix of metamorphic rocks interspersed with small masses of granitic rocks. The base formation is made up of biotite gneiss and schist interlaid with calc-silicate rock, sillimanite mica-schist, mica-schist, and amphibolite. Rock formations are inequigranular, with locally abundant potassic feldspar and garnet (N.C. Division of Land Resources, 1985).

One soil association is present in the project area, the Pacolet-Madison-Rion association. Based on information obtained from NRCS soil survey (1998), the Pacolet-Madison-Rion association is comprised of strongly sloping to steep, very deep, well-drained soils that have a predominately clayey or loamy subsoil. It consists of about 33 percent Pacolet soils, 25 percent Madison soils, 18 percent Rion soils, and 24 percent minor soils. These soils are found primarily along ridges and hill slopes. The minor soils in the association

include Grover, Cecil, Hiawassee, Dogue, Chewacla, and Ashlar. Grover soils are found along ridges and hill slopes while Cecil and Hiawassee soils are found on broad, gently sloping ridges. Dogue soils are found on gently sloping stream terraces near drainageways, while Chewacla soils are found on level floodplains. Ashlar soils are typically found in Piedmont uplands on stony hill slopes. Table 2 identifies each soil mapping unit and its general characteristics found within the project area.

Table 2: Soil Mapping Units Within the Project Study Area for B-4240, Polk County, North Carolina

Symbol	Soil Unit Name	Slope	General Characteristics
GrE	Grover loam	25-45%	Very deep, well-drained soils found on Piedmont uplands. Develops from high-grade metamorphic rocks with high mica content.
RtE	Rion-Cliffside complex, very stony	25-45%	Moderately to very deep, well-drained soils found on very stony hill slopes in Piedmont uplands.

C. Water Resources

C.1. Water Impacted

The project study area is situated in NCDWQ Subbasin 03-08-06 and USGS Hydrologic Unit 03050105. The unnamed tributary of the North Pacolet River accounts for the surface waters in the project area. The North Pacolet River, NCDWQ Stream Index # 9-55-1-(10), is the closest named water, (The unnamed tributary may be known as Little Creek, Stream Index No. 9-55-1-11.5). Refer to Figure 6.

C.2. Water Resources Characteristics

The North Pacolet River and its tributary in the project vicinity are classified as "C" waters. Class "C" denotes waters suitable for all general uses including aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. The tributary is approximately 3.0 to 5.0 ft (0.9 to 1.5 m) wide and 0.5 to 2.0 ft (0.1 to 0.6 m) deep in the project area. Banks appear to be channelized and are covered in kudzu (*Pueraria montana)*. The streambed consists of boulders, cobble, gravel, and sand. The water was cloudy to muddy with a moderate to heavy sediment load and a moderate to fast flow.

No High Quality Waters (HQW), Water Supplies (WS-I or WS-II), or Outstanding Resource Waters (ORW) occur within the project vicinity.

The Ambient Monitoring System (AMS) is a network of stream, lake, and estuarine water quality monitoring stations strategically located for the collection of physical and chemical water quality data. The type of water quality data or parameters collected is determined by the waterbodies' classification and corresponding water quality standards. The AMS determines the "use support" status of waterbodies, meaning how well a waterbody supports its designated uses. The waters in the project area are currently rated as *Support-Threatened* (ST). Waters designated "ST" fully support their intended uses but may not in the future unless pollution prevention measures are incorporated.

Excess sandy sediment and elevated nutrient levels are the primary problem parameters linked with this rating.

There were no benthic macroinvertebrate sampling areas near the project study area. However, there were two benthic macroinvertebrate samples taken in 1995 in the project region along North Pacolet River. Site B-1, located approximately two miles upstream at SR 1179, received a Good bioclassification. Site B-3, located approximately 3 miles downstream at SR 1501, received a Good-Fair bioclassification. The study suggested water quality had declined between these two locations as EPT macroinvertebrate richness and biotic index values were significantly lower at Site B-3.

Point source dischargers located throughout North Carolina are regulated through the National Pollutant Discharge Elimination System (NPDES) program. Dischargers are required by law to register for a permit. According to NCDWQ (1997), there are seven permitted NPDES dischargers in Subbasin 03-08-06. The Tryon Waste Water Treatment Plant ($\leq$1.5 Million Gallons per Day), located approximately one mile downstream of the project location, is the only major discharger in the subbasin.

C.3. Anticipated Impacts to Water Resources

The proposed project is expected to impact both soils and topography. The topography is variable with moderate to abrupt changes in elevation. The proposed construction of a new bridge or associated road improvements will require the removal of soils and the placement of fill material.

The primary sources of water quality degradation in urban areas are stormwater runoff and construction. Construction of a new bridge and approaches may disturb the stream banks and expose the soil surface. This may cause water quality degradation from runoff and sedimentation. Also, increased impervious areas can introduce other elements of degradation to water resources. These elements include hydrocarbons, toxic substances, debris, and other pollutants. Anticipated impacts to water resources include: additional substrate destabilization, bank erosion, increased turbidity, altered flow rates, and possible temperature fluctuations within the stream channel caused by the removal of streamside vegetation.

Precautions should be taken to minimize impacts to water resources in the project vicinity. Aquatic organisms are very sensitive to discharges and inputs resulting from construction. Appropriate measures must be taken to avoid spillage and control runoff. Potential impacts associated with construction of the proposed project include the following: increased sedimentation, soil compaction, and loss of shading due to vegetation removal. Measures to minimize these potential impacts include the formulation of an erosion and sedimentation control plan, provision for waste material and storage, stormwater management measures, and appropriate road-maintenance measures. NCDOT's Best Management Practices for Protection of Surface Waters (BMPs–PSW) and Sedimentation Control guidelines should be strictly enforced during the construction stages of the project.

The North Pacolet River and tributaries at the project site do not have a DWQ classification of "C-Tr", but Polk County is known to have Mountain Trout Waters (MTWs). Therefore, NCDOT, will coordinate with NCDWQ and strictly adhere to North Carolina regulation entitled, "*Design Standards in Sensitive Watersheds*" (15A NCAC 04B .0024) throughout design and construction of the project.

C.4. Impacts Related to Bridge Demolition and Removal

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all 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"*.

The existing structure consists of a timber deck on I-beams supported on reinforced concrete abutments. The interior bent consists of a timber cap beam on timber posts with concrete sill. The timber will be removed without dropping components into Waters of the United States.

The Unnamed Tributary is not designated as "C-Tr" waters. Because of this designation, the NCWRC does not require any moratorium on in-stream and adjacent buffer area activities.

D. Biotic Resources

This section describes the existing vegetation and associated wildlife that occur within the project area. The project area is composed of different vegetative communities based on topography, soils, hydrology, and disturbance. These systems are interrelated and in many aspects interdependent. Potential impacts affecting these communities are also discussed. Scientific nomenclature and common name (when applicable) are provided for each plant and animal species listed. Subsequent references to the same organism include only the common name.

D.1. Plant Communities

Three highly disturbed plant communities in the project study area: Canada Hemlock Forest, kudzu shrubland, and maintained/disturbed. These communities are described in greater detail below and presented in Figure 6.

Canada Hemlock Forest

The project area includes a relatively steep slope along its southern boundary which is vegetated with a highly disturbed Canada hemlock (*Tsuga canadensis*) woodland. The canopy is dominated by the nominal species. Other canopy trees include tulip poplar (*Liriodendron tulipifera*), sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), beech (*Fagus grandifolia*), and red, white, scarlet and rock chestnut oaks (*Quercus rubra, Q. alba, Q. coccinea*, and *Q. montana*). The shrub and vine species include poison ivy (*Toxicodendron radicans*), great rhododendron (*Rhododendron maximum*), mountain laurel (*Kalmia latifolia*), kudzu (*Pueraria montana*), and Virginia creeper (*Parthenocissus*

quinquefolia). The herb layer is greatly reduced due to a dense layer of English ivy (*Hedra helix*).

Kudzu Shrubland
The banks of the stream and adjoining slopes, especially in the eastern portion of the study area, are covered with a blanket of kudzu. This shrubland includes only a few other weedy species such as black willow (*Salix nigra*), jewel weed (*Impatiens capensis*), ragweed (*Ambrosia artemisiifolia*), and privet (*Ligustrum sinense*).

Maintained/Disturbed
Two areas of maintained grass lawn are centrally located in the study area. These lawns are kept in an early successional state by frequent mowing. The plant species include a variety of grasses (Poaceae) and lawn weeds such as henbit (*Lamium amplexicaule*), plantain (*Plantago* spp.), violets (*Viola* spp.), and dandelion (*Taraxacum officinale*).

D.2. Wildlife Communities

Terrestrial wildlife in the area is limited due to the highly modified state of the surrounding lands. These areas are likely to support domestic predators and introduced species that reduce habitat suitability for many native species. No direct wildlife sightings were made during field reconnaissance. The species listed are those likely to inhabit urban areas, fallow fields, and moderate woodland buffers.

Reptiles in the area are likely limited to a few small, secretive species such as the eastern garter snake (*Thamnophis sirtalis sirtalis*), northern brown snake (*Storeria dekayi*), ground skink (*Scincella lateralis*), broadhead skink (*Eumeces fasciatus*), and the midland water snake (*Nerodia sipedon pleuralis*). Amphibians are likely to be represented by only a few species such as Fowler's toad (*Bufo woodhousei*), and arboreal species such as the gray tree frog (*Hyla chrysoscelis*).

The predominant birds will be those adapted to open and disturbed habitats. They include the introduced house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), northern cardinal (*Cardinalis cardinalis*), robin (*Turdus migratorius*), white-throated sparrow (*Zonotrichia albicollis*), Carolina wren (*Thryothorus ludovicianus*), mourning dove (*Zenaida macroura*), and northern mockingbird (*Mimus polygottos*). Other less abundant bird species found in urban habitats include predatory species such as red-tailed hawk (*Buteo jamaicensis*), sharp-shinned hawk (*Accipiter striatus*), and eastern screech owl (*Otus asio*).

Mammals in the project vicinity, like the reptiles and birds noted above, are likely to be those adapted to open and disturbed habitats. Typical mammals in urban areas and fallow fields included eastern harvest mouse (*Reithrodontomys humilis*), gray squirrel (*Sciurus carolinensis*), Norway rat (*Rattus norvegicus*), and cotton rat (*Sigmodon hispidus*). Others, such as eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), red fox (*Vulpes vulpes*), and white-tailed deer (*Odocoileus virginianus*), frequent open fields bordered by woody vegetation.

D.3. Aquatic Communities

The quality of aquatic habitat in the stream at this location is expected to be moderate to poor due to urban-related impacts associated with the town of Tryon and the amount of sediment deposition. High, vertical banks prevented direct observation of fish species. The most-likely fish to be in the project area are redbreast sunfish (*Lepomis auritus*), bluegill (*L. marcochirus*), mosquitofish (*Gambusia holbrooki*), creek chub (*Semotilus atromaculatus*), and eastern silvery minnow (*Hybognathus regius*).

Casual benthic macroinvertebrate sampling, by identifying species on overturned rocks, was not conducted in the project area.

D.4. Biotic Resource Impacts

The project study area consists of approximately 0.45 acres (0.18 hectares) of hemlock-dominated forest, 0.55 acres (0.22 hectares) of kudzu shrubland, and 0.25 acres (0.10 hectares) of maintained/disturbed community. The preferred alternative has the potential to encroach into these natural vegetative communities. Based on a preliminary analysis the total acreage that may be affected within each natural vegetative community is 0.08, 0.18, and 0.03 acres (0.03, 0.07, and 0.01 hectare) of hemlock-dominated forest, kudzu shrubland and maintained/disturbed respectively.

Loss of wildlife is an unavoidable aspect of development. Temporary fluctuations in population of animal species which utilize these communities are anticipated during the course of construction. Slow-moving, burrowing, and/or subterranean organisms will be directly impacted by construction activities, while mobile organisms will be displaced to adjacent communities.

Aquatic organisms are acutely sensitive to changes in their environment and environmental impacts from construction activities may result in long term or irreversible effects. Impacts usually associated with in-stream construction include increased channelization and scouring of the streambed. In-stream construction alters the substrate and impacts adjacent streamside vegetation. Such disturbances within the substrate lead to increased siltation, which can clog the gills and/or feeding mechanisms of benthic organisms, fish, and amphibian species. Siltation may also cover benthic macroinvertebrates with excessive amounts of sediment that inhibit their ability to obtain oxygen. These organisms are slow to recover and usually do not, once the stream has been severely impacted.

The removal of streamside vegetation and placement of fill material during construction enhances erosion and possible sedimentation. Quick revegetation of these areas helps to reduce the impacts by supporting the underlying soils. Erosion and sedimentation may carry soils, toxic compounds, trash, and other materials into the aquatic communities at the construction site. As a result, bars may form at and downstream of the site. Increased light penetration from the removal of streamside vegetation may increase water temperatures. Warmer water contains less oxygen, thus reducing aquatic life that depends on high oxygen concentrations.

Due to potential water-quality impacts, the NCWRC requests a moratorium on in-stream

construction. The moratorium applies if the following species are supported by the stream: brown and brook trout (October 15 to March 31), rainbow trout (January 1 to April 15), brown, brook and rainbow trout (October 15 to April 15), and small mouth bass and red breasted sunfish (May 12 to June 30). Mr. Scott Loftis, NCWRC District 9 Biologist, has determined that no moratoriums are needed at this location.

E. Special Topic

E.1. Waters of the United States

Section 404 of the Clean Water Act requires regulation of discharges into "Waters of the United States." The U.S. Environmental Protection Agency (USEPA) is the principal administrative agency of the Clean Water Act; however, the U.S. Army Corps of Engineers (USACE) has the responsibility for implementation, permitting, and enforcement of the provisions of the Act. The USACE regulatory program is defined in 33 CFR 320-330.

Water bodies, including lakes, rivers, and streams, are subject to jurisdictional consideration under the Section 404 program. Wetlands are also identified as "Waters of the United States." Wetlands, defined in 33 CFR 328.3, are those areas that are inundated or saturated by surface water or 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. Any action that proposes to place fill into these areas falls under the jurisdiction of the USACE under Section 404 of the Clean Water Act (33 U.S.C. 1344).

Surface Waters

The NCDWQ defines a perennial stream as a clearly defined channel that contains water for the majority of the year. These channels usually have some or all of the following characteristics: distinctive streambed and bank, aquatic life, and groundwater flow or discharge. The tributary to the North Pacolet River is the only perennial stream identified in the project area. Detailed stream characteristics, including specific water-quality designations, are presented in Section C: Water Resources.

Jurisdictional Wetlands

There are no jurisdictional wetlands associated with the project study area.

E.2. Impacts to Waters of the United States

Temporary and permanent impacts to surface waters are estimated based on the amount of jurisdictional surface water contained within the project study area. Estimated surface water impacts are approximately 0.02 acres (0.01 hectares) along 115 linear feet (35 linear meters) of stream channel. Some temporary impacts to the North Pacolet River's tributary may be anticipated for bridge abutments and channel stabilization. Any bridge demolition activities will strictly follow NCDOT's "*Best Management Practices for Bridge Demolition and Removal*" (BMPs-BDR). As per the BMPs-BDR, all methods of demolition shall be considered and implemented where practical, other than dropping the bridge in the water. Information regarding the existing bridge structure and the

potential amount of fill from demolition activities is not available at this time and will be supplied by NCDOT in the CE document for the project.

There are no jurisdictional wetlands in the project area; thus, there are no impacts to jurisdictional wetlands associated with this bridge replacement.

E.3. Permits

Impacts to "Waters of the United States" come under the jurisdiction of the USACE. Permits will be required for highway encroachment into wetland communities. The Nationwide Permit No. 23 (Approved Categorical Exclusions) should cover the impacts to jurisdictional streams in the project area. Nationwide Permit No. 33 (Temporary Construction, Access, and Dewatering) may be needed for temporary construction access if that is not addressed in the NEPA document. Final permitting decisions are left to the discretionary authority of the USACE.

A Section 401 General Water Quality Certification is also required for any activity which may result in a discharge into "Waters of the United States" or for which an issuance of a federal permit or license is issued. Certifications are administered through the NCDWQ.

Final determination of permit applicability lies with the USACE. NCDOT will coordinate with the USACE after the completion of final design to obtain the necessary permits.

Polk County is listed by the North Carolina Wildlife Resources Commission (NCWRC) as a county with Mountain Trout Waters (MTWs). No discharge activities will be authorized by Nationwide Permits within MTW counties without a letter of approval from the NCWRC and written concurrence from the Wilmington District Engineer.

E.4. Evaluation

The USACE has adopted, through the Council on Environmental Quality (CEQ), a mitigation policy which embraces the concepts of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of "Waters of the United States," specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoidance of impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization, and compensatory mitigation) must be considered in sequential order.

Avoidance

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to "Waters of the United States." According to a 1990 Memorandum of Agreement (MOA) between the USEPA and the USACE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes. No jurisdictional

wetlands will be impacted; however, some unavoidable impacts to surface waters may result from project construction.

Minimization

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to "Waters of the United States." Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of median widths, right-of-way widths, fill slopes, and/or road shoulder widths. The following methods are suggested to minimize adverse impacts to "Waters of the United States:"

1. Strictly enforce Best Management Practices (BMPs) to control sedimentation during project construction;
2. Clearing and grubbing activity should be minimized;
3. Decrease or eliminate discharges into the North Pacolet River's tributary;
4. Reestablishment of vegetation on exposed areas with judicious pesticide and herbicide management;
5. Minimization of "in-stream" activity; and
6. Use responsible litter control practices.

Compensatory Mitigation

Compensatory mitigation is not normally considered until anticipated impacts to "Waters of the United States" have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation and enhancement of Waters of the United States, specifically wetlands. Such action should be undertaken in areas adjacent to or contiguous to the discharge site.

Nationwide Permits usually do not require mitigation according to the MOA between the USEPA and the USACE. However, prior to the use of any nationwide permit within any of the 25 designated counties of North Carolina that contain trout waters, notification must be given to the Wilmington USACE District Engineer along with a written statement of compliance with all of the conditions of the applicable nationwide permit. This notification will include comments and recommendations from NCWRC. A plan to provide compensatory mitigation for all unavoidable adverse impacts to the mountain trout waters must be included in the information sent to the NCWRC.

F. Rare and Protected Species

Some populations of fauna and flora have been, or are, in the process of decline due to either natural forces or their inability to coexist with humans. Federal law, under the provisions of Section 7 of the Endangered Species Act (ESA) of 1973, as amended, requires that any action likely to adversely affect a species classified as federally-protected be subject to review by the USFWS. Other species may receive additional protection under separate laws. As of March 2001, the USFWS identified one

endangered (E) species, one threatened (T) species, and ten species of concern (FSC) as potentially occurring in Polk County. The USFWS revised this list during February 2003 and identified one endangered (E) species, two threatened (T) species, and six species of concern (FSC) as potentially occurring in Polk County.

F.1. Federally Protected Species

Dwarf-flowered Heartleaf (*Hexastylis naniflora*)
Federal Status: THREATENED
State Status: THREATENED

Dwarf-flowered heartleaf is an evergreen herb, endemic to the upper Piedmont of southern North Carolina and northern South Carolina. The plant consists of dark green, heart-shaped, coriaceous leaves that arise from a short rhizome, creating an herb that has a rosette appearance. This species has the smallest flower of any North American *Hexastylis* species. The flowers bloom in the early spring and are less than 0.5 inches long, flask shaped (urceolate to campanulate), dark purple to brown with some green, and usually found buried under leaf-litter. Plants are found on acidic sandy soils on bluffs and ravines and is usually associated with mountain laurel (*Kalmia latifolia*) thickets in hardwood forests. The soils preferred by this species include Pacolet, Madison gravelly sandy loam, and Musella fine sandy loam.

Biological Conclusion: *No Effect*
Acidic soils on bluffs and ravines are available in the project area, but neither Pacolet, Madison, nor Musella soils are mapped in the vicinity. According to the NCNHP, there are no known populations of dwarf-flowered heartleaf within a one mile (1.6 km) radius of the project study area. A plant-by-plant survey was performed in April of 2002 which is within the optimal survey window for this species. No specimens of dwarf flowered heartleaf were observed. No impacts to this species from project construction are anticipated.

White Irisette (*Sisyrinchium dichotomum*)
Federal Status: ENDANGERED
State Statue: ENDANGERED

White irisette is a small (10 to 20 centimeters) perennial herb. It has bluish to pale green basal leaves that form one-third to one-half the height of the plant. Tiny white flowers appear from late May through July in clusters of four to six at the end of winged stems that grows in a dichotomously-branching pattern. This plant is found in dry to mesic open woodlands, edges and clearings over mafic rock, usually amphibolite. It is endemic to a small area in the upper Piedmont of North and South Carolina.

Biological Conclusion: *No Effect*
The soils in the project area are highly acid and not the basic, mafic-originated soils this species prefers. The forest in the area is very shrubby and dense with a closed canopy. Suitable habitat is not available in the project area. According to the NCNHP, there area no known populations of white irisette within a one mile (1.6 km) radius of the project study area. No impacts to this species from project construction are anticipated.

Small-whorled Pogonia (*Isotria medeoloides*)
Federal Status: ENDANGERED
State Status: ENDANGERED

The small-whorled pogonia was known historically from Maine to Georgia, with the exception of Delaware along the eastern seaboard and in Michigan, Illinois, and Missouri. In North Carolina the small-whorled pogonia is found in the Nantahala National Forest, Macon County and near Flat Rock, Henderson County.

The small-whorled pogonia is a perennial orchid with long pubescent roots and a hollow stem 4 to 10 inches (10 to 25 centimeters) tall. Stems terminate in a whorl of five or six light green, elliptical leaves that are somewhat pointed. Leaves measure approximately 3 by 2 inches (8 by 4 centimeters). One or two light green flowers are produced at the end of the stem from mid-May to mid-June. Flowers have short sepals that are 1 inch (3 centimeters) long.

Biological Conclusion: *No Effect*
The small-whorled pogonia grows in "second growth deciduous" or deciduous-coniferous forests, with an open canopy, open shrub layer, and sparse herb layer. This species prefers acidic soils. Flowering is inhibited in areas where there is relatively high shrub coverage or high sapling density. The forest in the project study area is very shrubby and dense with a closed canopy, a condition not favorable to small-whorled pogonia colonization. No impacts to this species from project construction are anticipated.

F.2. Federal Species of Concern

There are six federal species of concern listed by the USFWS for Polk County. These species are not protected under the provisions of Section 7 of the Endangered Species Act. Federal species of concern area defined as species under consideration for listing for which there is insufficient information to support listing as threatened or endangered (formerly C2 candidate species). The status of these species may be upgraded at any time, thus they are included here for consideration. The NCNHP lists of February 2003 included these species and identified an additional seven species receiving protection under state laws. Protections afforded to species listed under state law are not applicable to this project. Table 3 lists the federal species of concern, their state status, and the existence of suitable habitat within the project area. A review of NCNHP maps depicting known populations of these federal species of concern found no populations within a one mile (1.6 km) radius of the project study area.

Table 3: Federal Species of Concern known from Polk County, North Carolina.

Scientific Name	Common Name	Federal Status	State Status	Habitat requirements	Available Habitat
Vertebrates					
Dendroica cerulea	Cerulean warbler	FSC	SR	Mature hardwood forest	Yes

Table 3: Federal Species of Concern known from Polk County, North Carolina.

Scientific Name	Common Name	Federal Status	State Status	Habitat requirements	Available Habitat
Neotoma floridana haematoreia	Southern Appalachian woodrat	FSC	SC	Rocky places in deciduous or mixed forest	Yes
Invertebrates					
Speyeria diana	Diana fritillary butterfly	FSC	SR	Rich woods and adjacent openings; Host plants – *Viola* spp.	Yes
Pyrgus wyandot	Wyandot (=grizzled) skipper	FSC*	SR	Openings and edges in wooded hilltops; host plants -- Rosaceae, such as wild strawberry (*Fragaria*)	No
Vascular Plants					
Orbexilum macrophyllum	Bigleaf scurfpea	FSC*	E	Low mountain forests or outcrops?	Yes
Juglans cinerea	Butternut	FSC	--	Cove forests and rich woods	Yes
Chelone cuthbertii	Cuthbert's turtlehead	FSC*	SR-L	Bogs	No
Senecio millefolium	Divided-leaf ragwort	FSC	T	Granitic domes and other rock outcrops	No
Hexastylis rhombiformis	French Broad heartleaf	FSC	C	Cove forests	Yes
Marshallia grandiflora	Large-flowered Barbara's buttons	FSC*	SR-T	Bogs, dry basic soils	No
Monotropsis odorata	Sweet pinesap	FSC*	SR-T	Dry forests and bluffs	No

Notes: FSC - Federal Species of Concern; E - Endangered; T - Threatened; SC - Special Concern; C - Candidate; P - Proposed; SR - Significantly Rare; SR-L - Significantly Rare-Limited * - Historic record - the species was last observed in the county more than 50 years ago.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

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

B. Historic Architecture

In a memorandum dated January 29, 2002 the State Historic Preservation Officer (SHPO) conducted a search of their files and stated that they were aware of no structures of historical importance located within the planning area. Therefore, no further compliance with Section 106 is required. A copy of the SHPO memorandum is included in the Appendix.

C. Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated January 29, 2002, stated, "We have conducted a review of the proposed undertaking and are aware of no historic resources which would be affected by the project. Therefore, we have no comment on the undertaking as proposed." A copy of this 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 significant 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 significant 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 relocatees are expected with implementation of the proposed alternative.

The studied route does not contain any bicycle accommodations nor is it a designated bicycle route; therefore no bicycle accommodations have been included as part of this project.

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.

This Categorical Exclusion has proceeded in accordance with the Executive Order 12898 requirement that each federal agency, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the

environment so as to identify and avoid "disproportionately high and adverse" effects on minority and low-income populations. The proposed project will not directly impact minority or low-income residences, segment existing minority communities, or separate residential areas from nearby services such as schools.

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

No geodetic markers will be impacted during construction of this project.

There are no gaging stations on the unnamed North Pacolet tributary.

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). There are no prime or important farmlands in the immediate vicinity of the proposed bridge.

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.

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

If vegetation at the construction site is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520.

No additional through travel lanes are planned for this project, therefore traffic volumes will not increase or decrease because of this project. There are no receptors located in the immediate project area. Noise levels could increase during construction but will be temporary. Temporary noise level increases may be mitigated by applying time restrictions to construction activities.

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. The project's impact on noise and air quality will not be substantial.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no hazardous waste sites in the project area.

A field investigation and examination of records reveal that no underground storage tanks exist in the project study area.

Polk County is a participant in the National Flood Insurance Regular Program. This site on an unnamed North Pacolet River Tributary is not included in a detailed FEMA flood study. Attached is a copy of the Flood Insurance Rate Map, on which are shown the approximate limits of the 100-year flood plain in the vicinity of the project (Figure 7).

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. For this bridge replacement study, all of the alternatives will provide for the maintenance of traffic on-site during construction of the replacement structure. There are no anticipated relocates and minimal impacts to surrounding properties. Therefore, no formal public involvement program was initiated.

IX. AGENCY COMMENTS

Agency comments are summarized below. Letters from the commenting agencies are included in the Appendix.

1. Polk County School Transportation Director

   Comment: *"This bridge is not used for school bus travel."*

   Response: So noted.

2. Polk County Emergency Medical Service

   Comment: *"closing of road at bridge site should not create an unworkable situation. Rerouting is possible and should not cause any delays."*

   Response: Traffic will be maintained on the existing bridge during construction.

3. Division Engineer

   Comment: *"Even though the potential off site detour involves several streets, it will not likely confuse the local drivers... If traffic needs to be maintained on this project the new structure will have to be constructed in phases."*

   Response: Traffic will be maintained on the existing bridge during construction.

X. REFERENCES

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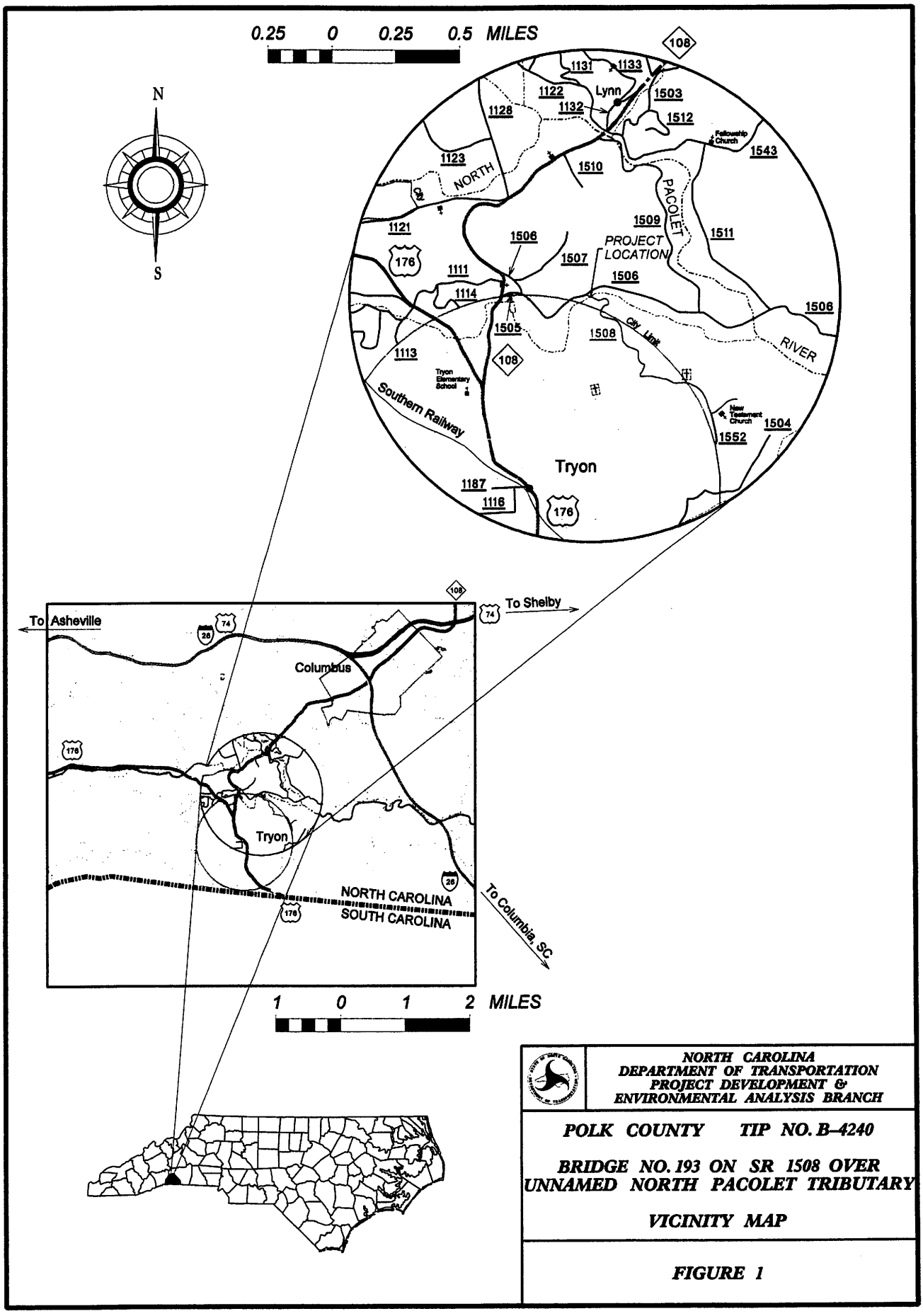
FIGURES



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

POLK COUNTY TIP NO. B-4240

BRIDGE NO. 193 ON SR 1508 OVER UNNAMED NORTH PACOLET TRIBUTARY

VICINITY MAP

FIGURE 1

DOWNSTREAM VIEW FROM BRIDGE

VIEW OF UP-STREAM SIDE OF BRIDGE

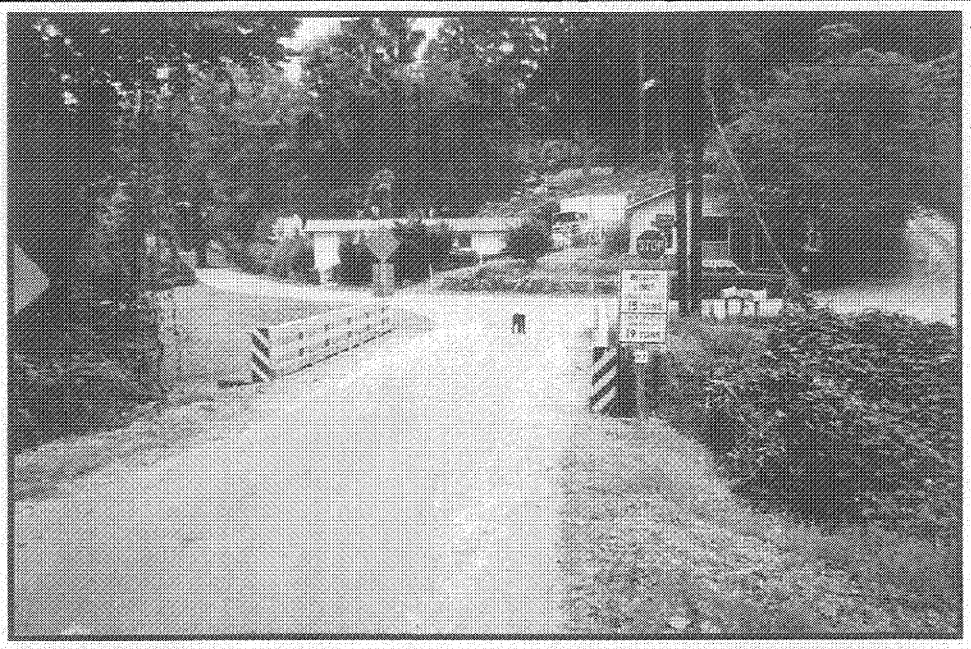
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS

POLK COUNTY TIP NO. B-4240

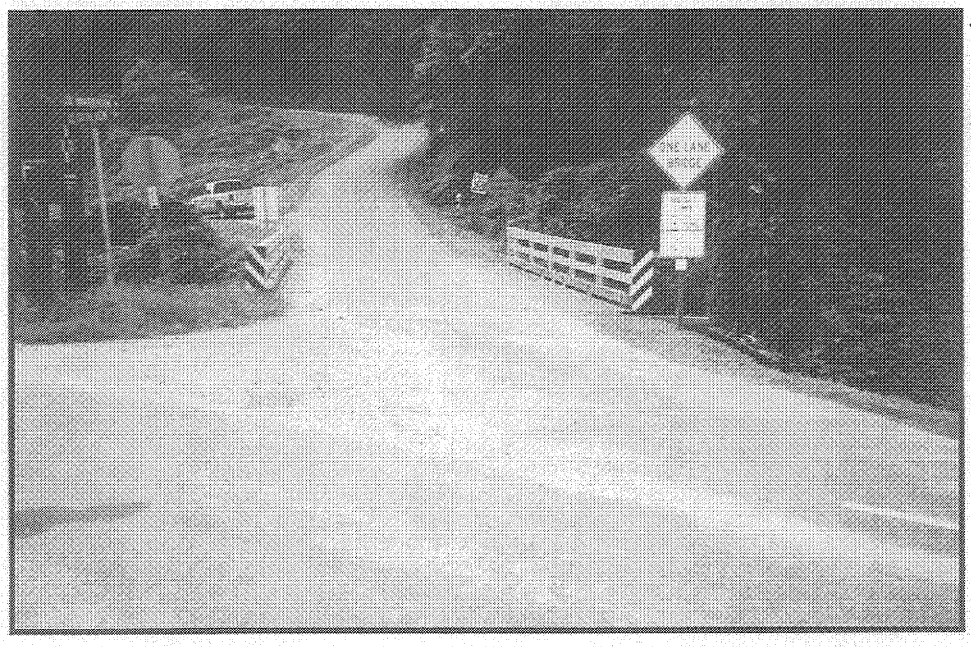
REPLACEMENT BRIDGE NO. 193 OVER NORTH PACOLET TRIBUTARY ON SR 1508

PHOTOGRAPHS

Figure 2A



VIEW OF WESTERN APPROACH



VIEW OF EASTERN APPROACH

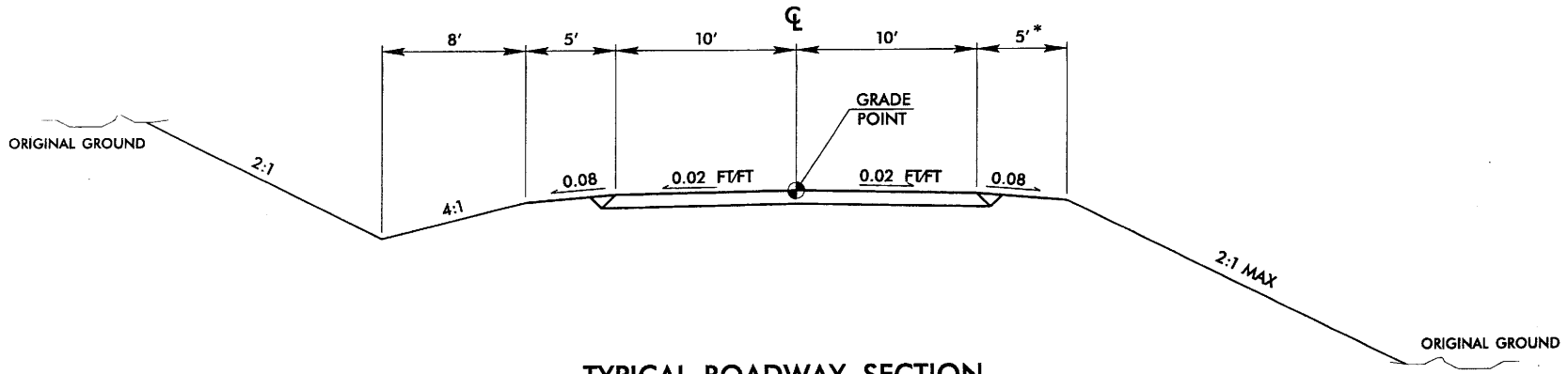
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS

POLK COUNTY TIP NO. B-4240

REPLACEMENT BRIDGE NO. 193 OVER
NORTH PACOLET TRIBUTARY ON SR 1508

PHOTOGRAPHS

Figure 2B



TYPICAL ROADWAY SECTION

(PROPOSED)

*ADD 3' FOR GUARDRAIL

TRAFFIC DATA

ADT 2002 = 500
ADT 2025 = 700
DUAL 2%
TTST 1%
FUNCTIONAL CLASSIFICATION: RURAL LOCAL
LOS = A

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

POLK COUNTY TIP NO. B-4240

BRIDGE NO. 193 ON SR 1508 OVER UNNAMED NORTH PACOLET TRIBUTARY

TYPICAL SECTION

FIGURE 3

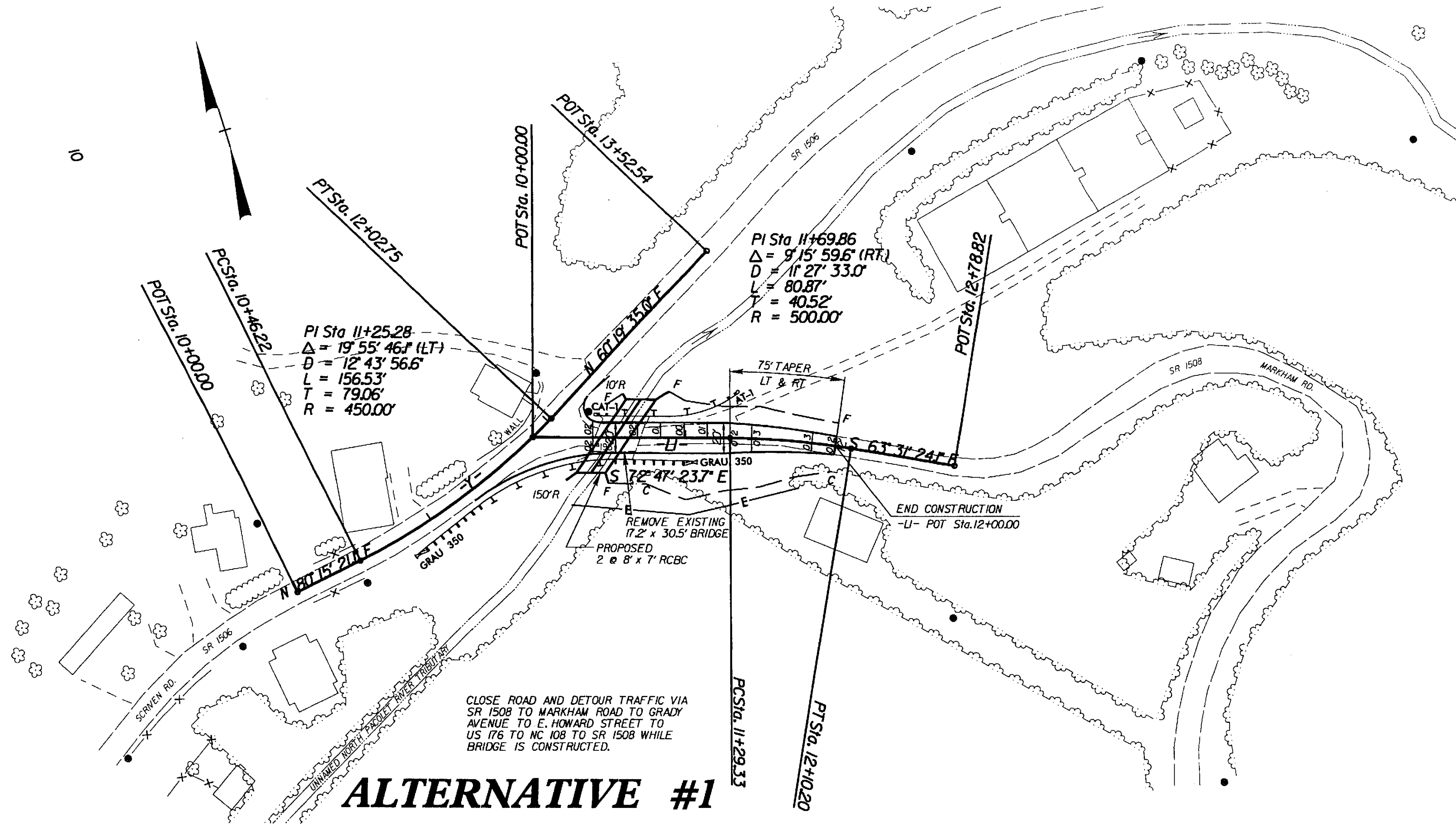
PROJECT REFERENCE NO.	SHEET NO.
B-4240	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

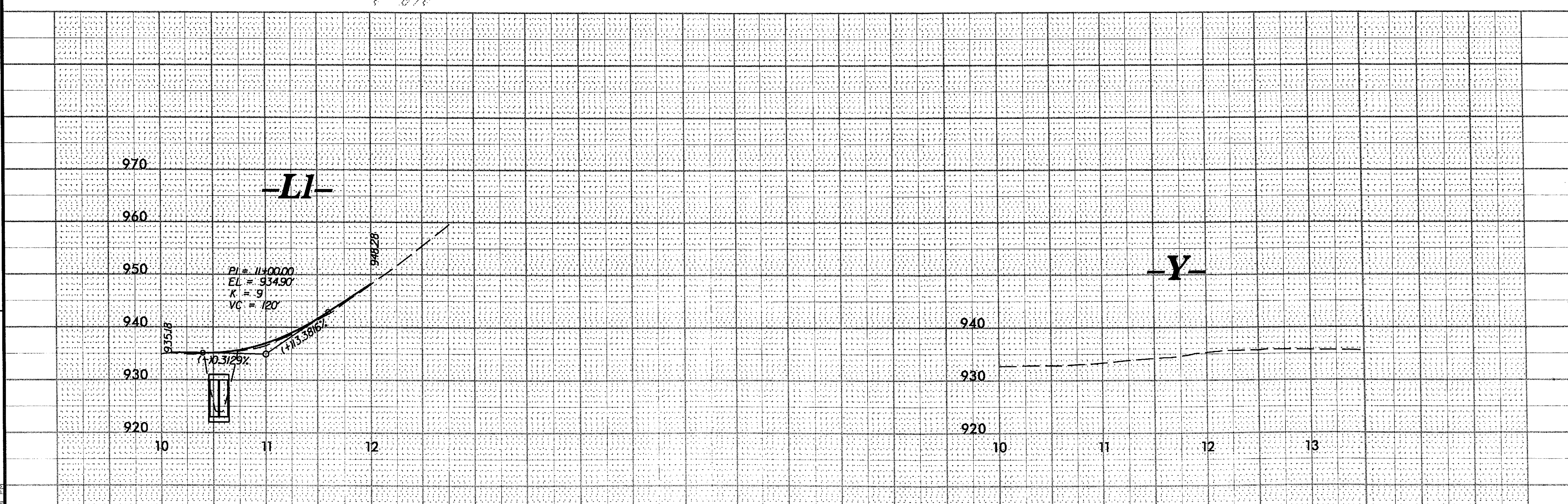
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MA Engineering
CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

FIGURE 4A
SCALE: 1" = 100'



ALTERNATIVE #1



REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4240	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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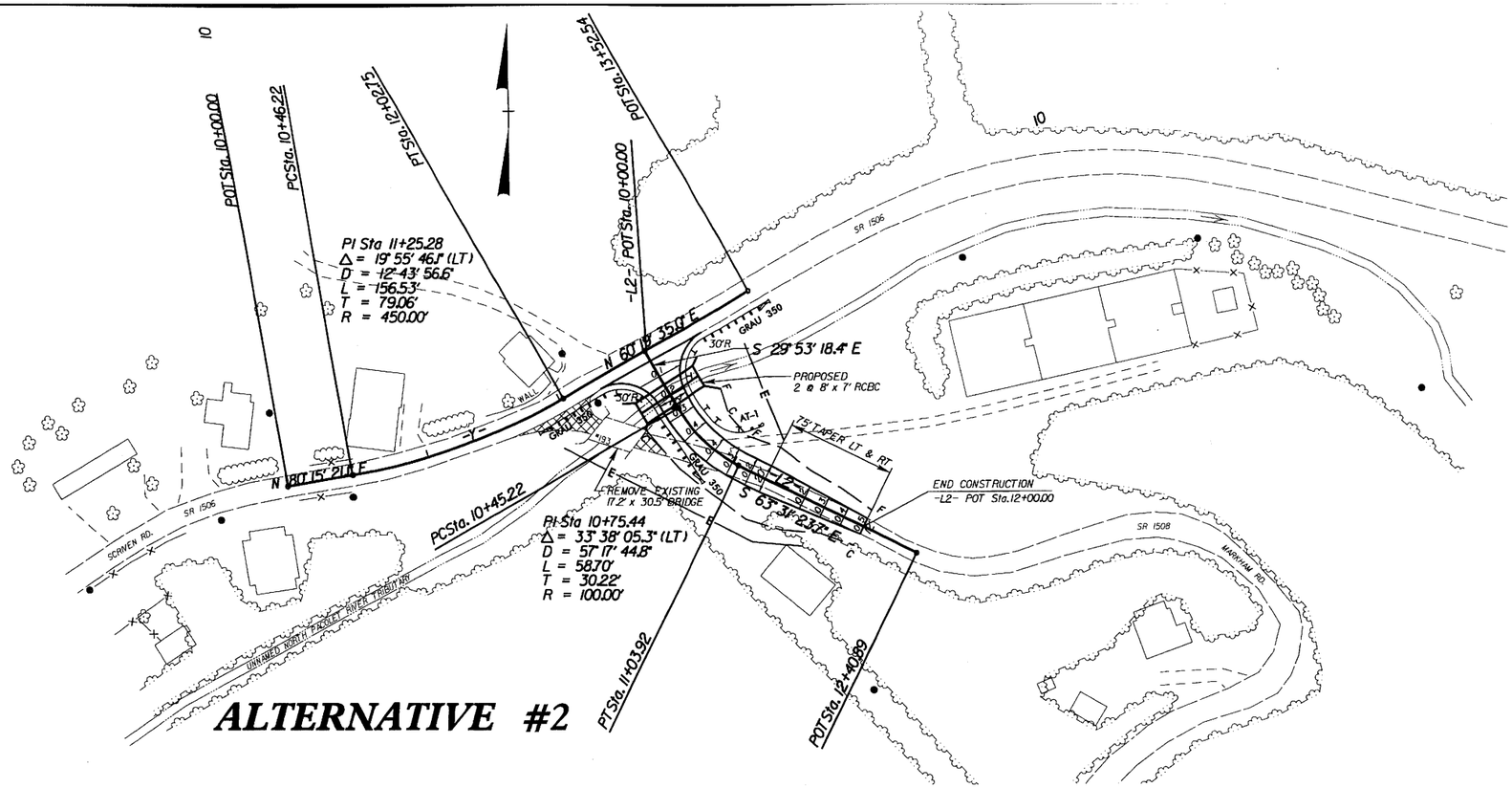
MA Engineering
CONSULTANTS, INC.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

FIGURE 4B
SCALE: 1" = 100'

REVISIONS

6/17/99



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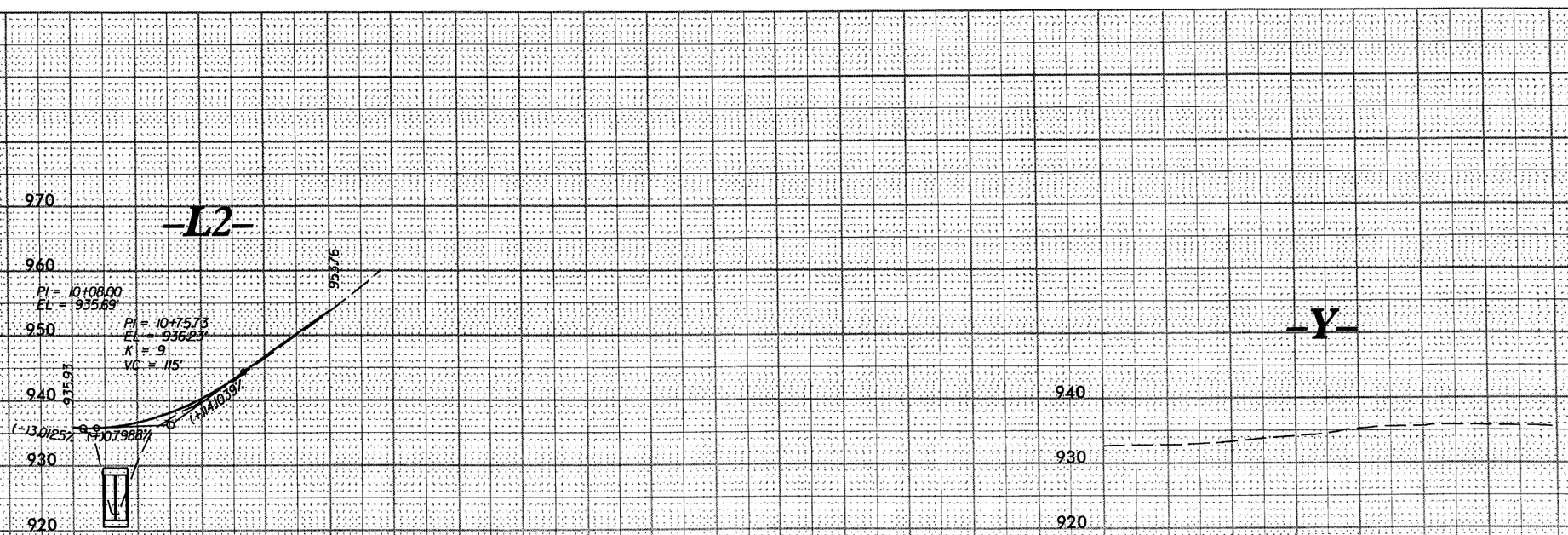

02/16/2006
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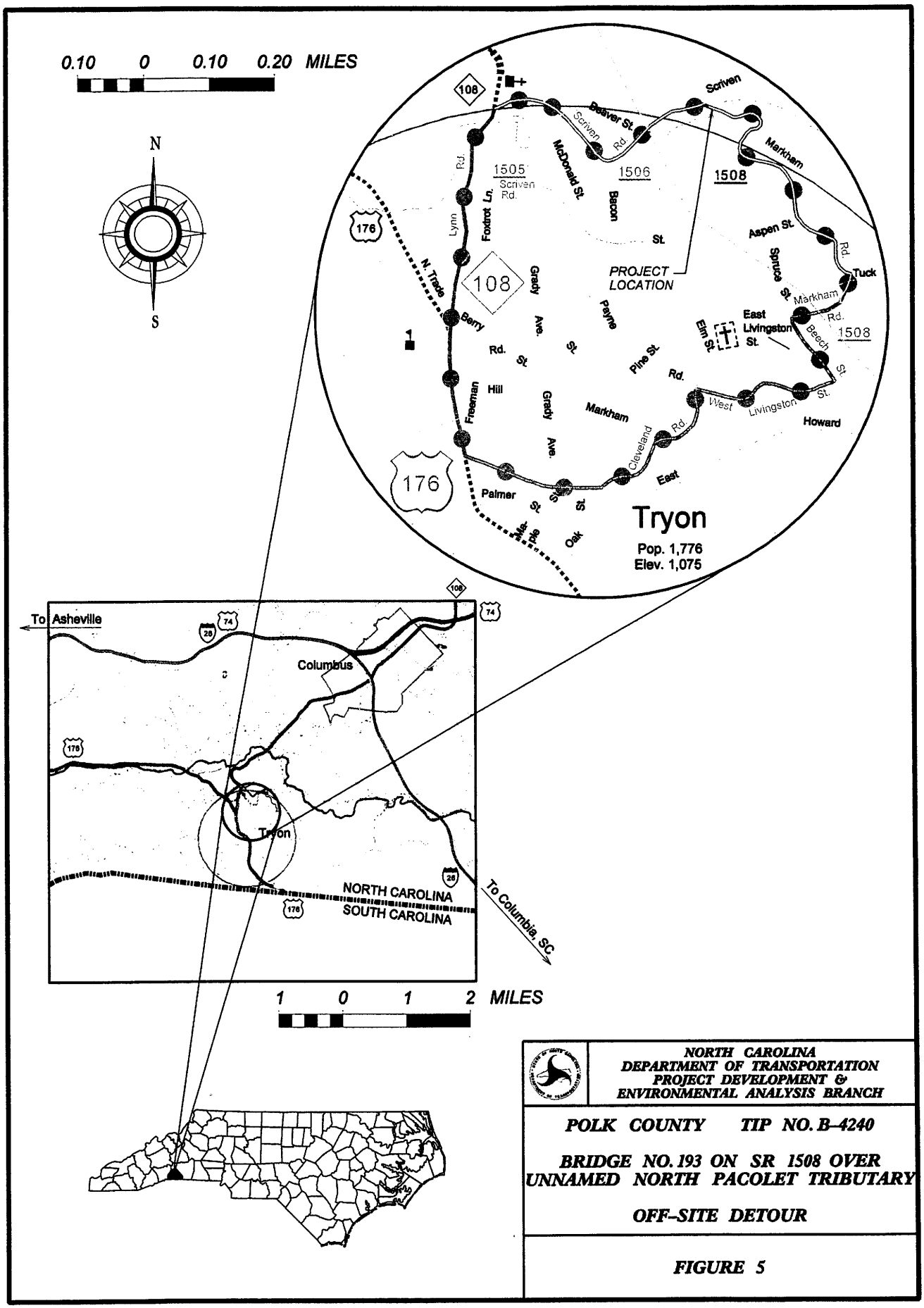


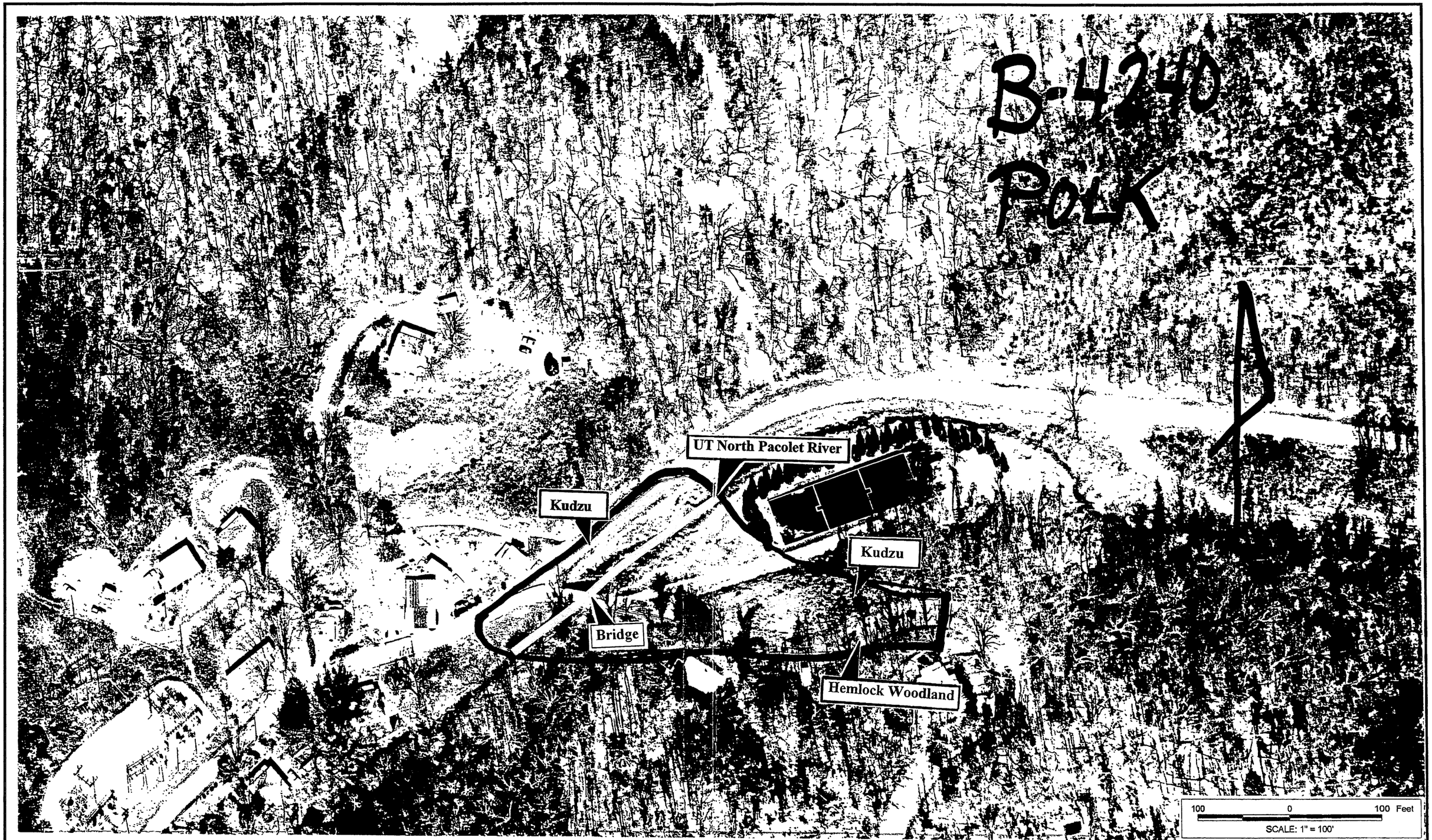
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH

POLK COUNTY TIP NO. B-4240

BRIDGE NO. 193 ON SR 1508 OVER UNNAMED NORTH PACOLET TRIBUTARY

OFF-SITE DETOUR

FIGURE 5



ARCADIS G&M of North Carolina, Inc.
2301 Rexwoods Drive
Post Office Box 31388, Raleigh, NC 27622-1388
Tel: 919/782-5511 Fax: 919/782-5905

Prepared For:

N

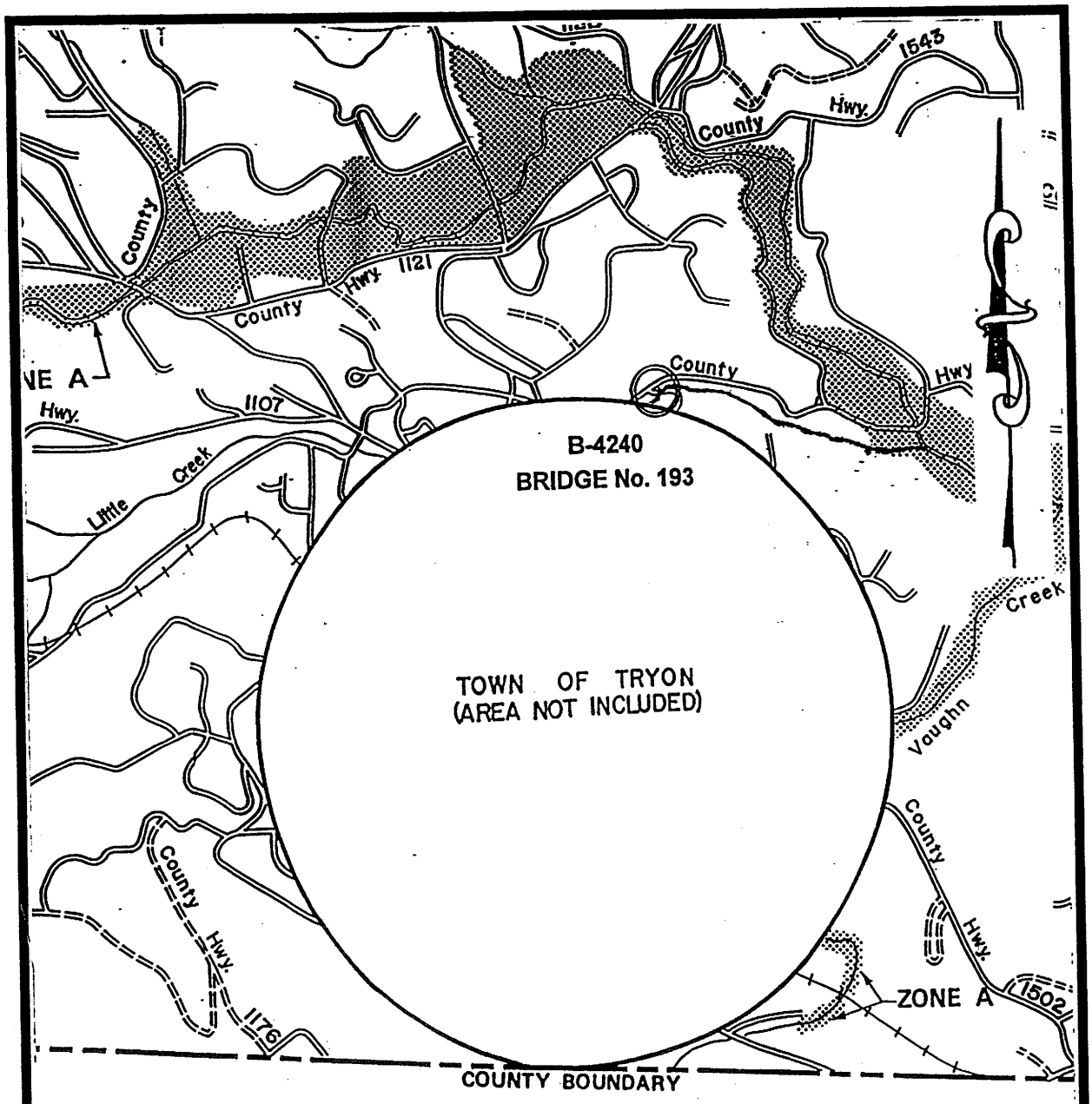
NATURAL COMMUNITIES & SURFACE WATERS

T.I.P. No. B-4240: REPLACEMENT OF BRIDGE #193 ON SR 1508 OVER UNNAMED TRIBUTARY TO NORTH PACOLET RIVER

POLK COUNTY, NORTH CAROLINA

Figure No.

6



APPROXIMATE SCALE IN FEET:

2000 0 2000

FEMA 100-YEAR FLOOD MAP

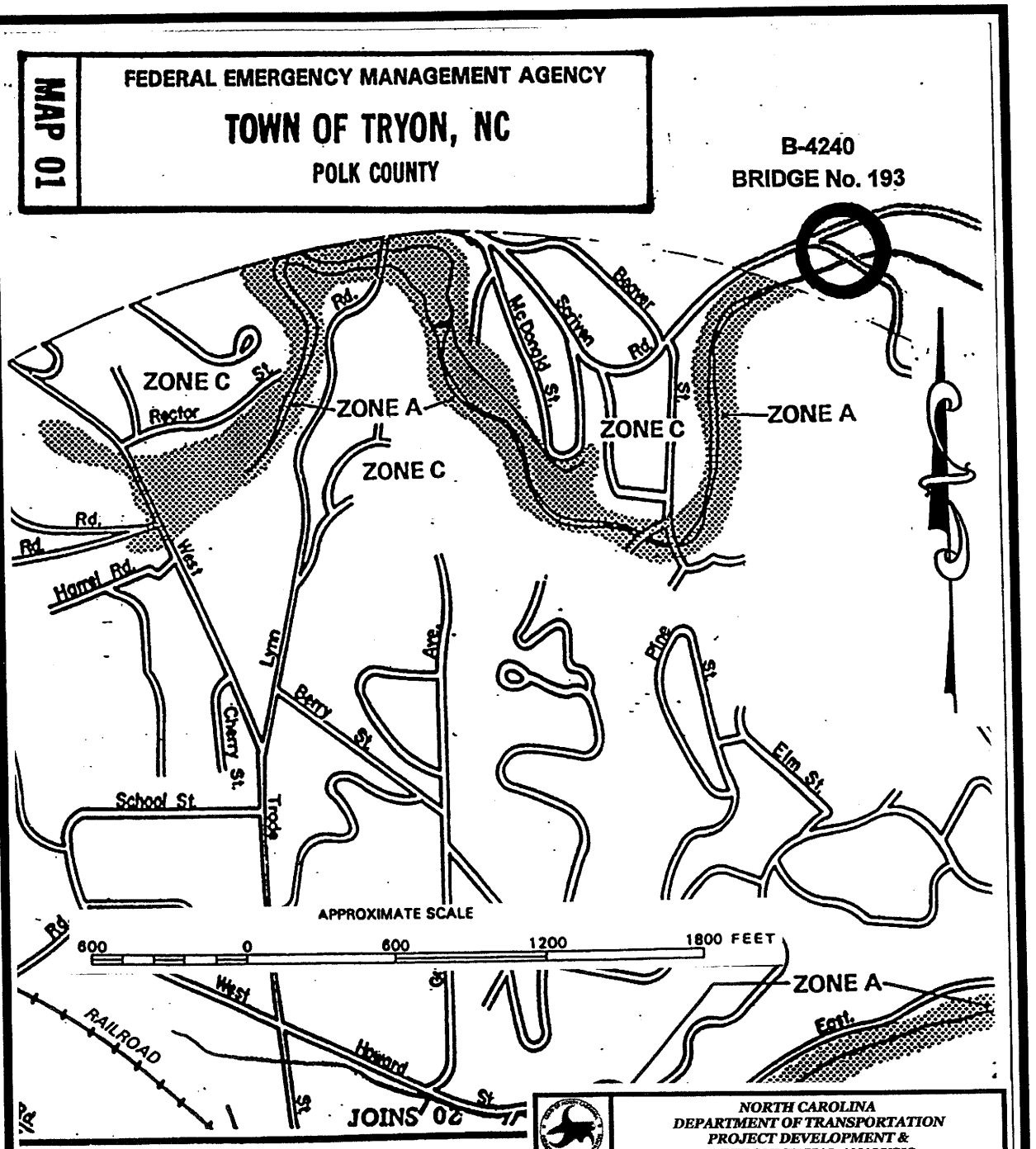
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS

POLK COUNTY TIP NO. B-4240

REPLACEMENT BRIDGE NO. 193 OVER NORTH PACOLET TRIBUTARY ON SR 1508

FEMA 100-YEAR FLOOD MAP

Figure 7A



FEMA 100-YEAR FLOOD MAP

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS

POLK COUNTY TIP NO. B-4240

REPLACEMENT BRIDGE NO. 193 OVER NORTH PACOLET TRIBUTARY ON SR 1508

FEMA 100-YEAR FLOOD MAP

Figure 7B

APPENDIX

US Fish and Wildlife Service

160 Zillicoa Street
Asheville, NC 28801
Phone 828-258-3939 Ext 237, Fax 828-258-5330

MEMO FOR: William T. Goodwin, P.E. **DATE:** June 27, 2002

FROM: Marella Buncick

SUBJECT: Review of NCDOT 2005 Bridge Program

I have completed initial review of the approximately 70 proposed bridge replacements for NCDOT Divisions 9-14 for the year 2005. I would like to commend NCDOT for obtaining the natural resource information up front and allowing the agencies to review the proposals and provide comments so early in the process. It was a large volume of work for everyone involved but I feel that the input will be much more meaningful at this early planning stage.

Attached is a spreadsheet with specific comments for each project reviewed. All of the projects have been assigned a Green, Yellow, or Red ranking depending on the resources affected and the need for future consultation. As you will note, the majority of the projects received a Yellow ranking. This is due in large part to the fact that there are unresolved issues related to listed species. Many of these projects likely will become Green projects after further field review. However, obligations under Section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) actions are subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

I also have general comments regarding the process and reports. My general comments follow.

Report Content and Organization

1. The reports would be more easily handled if they were not spiral or otherwise bound.
2. Maps need to be much better. Without a significant landmark-- highway, larger town, other feature – it sometimes took a long time to figure out the location of the project within a county.
3. The reports were organized somewhat similarly, but more consistency would aid in the review process. Perhaps a table that has the significant features ---stream width, depth, DWQ class, etc.--also would help.

4. For listed species, it often was difficult to tell whether field surveys had been conducted or whether the information was limited to a database search.
5. In the future, I would appreciate having the Rosgen stream classification included as part of the information.

Listed Species Surveys

Projects currently ranked as Yellow will need to be reviewed in the future after the stated issues are resolved. For those reports with unresolved issues related to listed species, I would recommend that NCDOT wait until closer to implementation time to conduct final surveys. In general, after three to five years we need updated information regarding the project and listed species. Additionally, when aquatic species are involved (particularly mussels) several surveys may be required to adequately determine presence or absence.

The three projects receiving a Red ranking will need to be followed very closely to determine future consultation requirements. These include B-4287 (actually 2 bridge replacements), B-4286, and B-4282. These projects were ranked as Red because of the significance of the number of listed resources potentially affected and the river (either main stem or tributary) involved.

I would encourage NCDOT to require consultants to at least assess habitat for the bog turtle. While the bog turtle technically does not require Section 7 consultation, it is a species of concern and NCDOT is actively managing mitigation sites or parts of sites for this species. Additionally, the Wildlife Resources Commission considers this animal rare in NC and participates actively in surveys and conservation efforts on its behalf.

Bridge Design and Construction Practices

I am assuming that FWS comments/recommendations in the past regarding bridge design, demolition, and construction practices will be folded into each of these projects. Since NCDOT is also working on a BMP manual that covers these practices, I think it would be redundant to state them again. However, if any questions arise, please let me know. I would like to emphasize that we prefer off-site detours wherever possible, to minimize effects to resources.

Each of these projects has been assigned a log number. Please refer to these numbers in future requests regarding the subject projects. Thank you again for the opportunity to provide these comments. If you have questions, please let me know.

PDE	TIP	County	Rank	Reason for Rank	FWS Log Number
SH	B-2988	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-391
MD	B-4011	Ashe	Y	FWS requests resurvey for spiraea, assessment for bog turtle and green floater, review bridge plans	4-2-02-405
MD	B-4012	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle	4-2-02-404
MD	B-4013	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-403
MD	B-4015	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-402
MD	B-4016	Ashe	Y	FWS requests resurvey for spiraea and habitat assessment for bog turtle, review bridge design	4-2-02-401
SH	B-4032	Buncombe	G	FWS requests review of bridge design	4-2-02-387
SH	B-4036	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-02-395
SH	B-4037	Buncombe	Y	unresolved for mussels, FWS requests review of bridge design	4-2-02-396
DW	B-4038	Burke	Y	unresolved for listed species, be careful of downstream effects	4-2-02-379
DW	B-4039	Burke	Y	unresolved for heartleaf	4-2-02-380
RY	B-4040	Burke	Y	FWS requests resurvey for heartleaf	4-2-02-381
DW	B-4041	Burke	Y	FWS requests resurvey for heartleaf	4-2-02-382
RY	B-4043	Burke	Y	FWS requests mussel survey, requests bridge to bridge and review of bridge design	4-2-02-383
RY	B-4044	Burke	Y	FWS requests resurvey for heartleaf and pogonia, bridge to bridge	4-2-02-384
RY	B-4045	Burke	Y	FWS requests resurvey for heartleaf, new occurrence w/in 1 mile	4-2-02-385
RY	B-4046	Burke	Y	unresolved for pogonia, FWS requests resurvey for heartleaf, request bridge for high quality stream	4-2-02-408
RY	B-4047	Burke	Y	unresolved for heartleaf	4-2-02-386
MD	B-4052	Caldwell	Y	unresolved for heartleaf, be careful of the USGS gaging station at this location	4-2-02-407
JJ	B-4059	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-409
DW	B-4060	Cawtaba	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-410
RY	B-4067	Cherokee	Y	unresolved for listed species, close coordination w/USFS, high quality stream	4-2-02-394
DW	B-4070	Cherokee	Y	all listed species unresolved, FWS requests special consideration here for sicklefin redhorse	4-2-02-371
JJ	B-4076	Cleveland	Y	Need survey for heartleaf--habitat assessment inadequate	4-2-02-413
SH	B-4103	Davidson	Y	FWS requests mussel survey, requests bridge to bridge because of stream quality	4-2-02-370
JJ	B-4116	Gaston	Y	Need resurvey for heartleaf	4-2-02-416
DW	B-4123	Graham	Y	unresolved for listed species, Indiana Bat, close coordination w/USFS, high quality stream	4-2-02-393
SH	B-4144	Haywood	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-392
DP	B-4155	Iredell	G	FWS requests survey for bog turtle	4-2-02-412
DP	B-4158	Iredell	G	FWS requests survey for bog turtle, contractor suggested survey for heartleaf, FWS requests bridge	4-2-02-411
DW	B-4161	Jackson	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-388
JJ	B-4177	Lincoln	Y	Need resurvey for heartleaf	4-2-02-414
DW	B-4178	Lincoln	Y	Need resurvey for heartleaf	4-2-02-415
DW	B-4179	Macon	Y	unresolved for listed species, FWS requests review of bridge design	4-2-02-389
RY	B-4180	Macon	Y	unresolved for listed species, FWS requests bridge to bridge, consideration for green salamander	4-2-02-390
RY	B-4183	Madison	These 2 bridge replacements are part of R-2518 and 2519 merger process, review by merger team		

PDE	TIP	County	Rank	Reason for Rank	FWS Log Number
DW	B-4192	McDowell	Y	Need to assess pogonia	4-2-02-418
JJ	B-4194	McDowell	Y	Need to assess pogonia	4-2-02-419
JJ	B-4195	McDowell	Y	Need to assess pogonia	4-2-02-420
JJ	B-4196	McDowell	Y	Need to assess pogonia	4-2-02-421
DW	B-4197	McDowell	Y	Need to assess pogonia, FWS requests mussel surveys, bridge to bridge for high quality stream	4-2-02-422
JJ	B-4198	McDowell	Y	Need to assess pogonia	4-2-02-423
DW	B-4199	McDowell	Y	Need to assess pogonia	4-2-02-424
DW	B-4202	Mitchell	Y	Unresolved for Elktoe, FWS requests bridge to bridge, NO SURVEY NEEDED FOR INDIANA BAT	4-2-02-417
DW	B-4239	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-369
DW	B-4240	Polk	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-361
SH	B-4255	Rowan	G	may need resurvey for Schweinitz's sunflower	4-2-02-375
SH	B-4258	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02-362
RY	B-4259	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another heartleaf survey	4-2-02-363
RY	B-4260	Rutherford	Y	unresolved for small-whorled pogonia	4-2-02-364
SH	B-4261	Rutherford	Y	unresolved for small-whorled pogonia and heartleaf	4-2-02-365
RY	B-4264	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02-368
RY	B-4265	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf and irisette	4-2-02-366
RY	B-4266	Rutherford	Y	unresolved for small-whorled pogonia, FWS requests another survey for heartleaf	4-2-02-367
	note for Rutherford Co projects--No survey is required for Indiana bat because the record is a winter record.				
SH	B-4282	Stokes	R	unresolved for cardamine and James spiny mussel, FWS concerned about bridge design	4-2-02-376
DP	B-4284	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater, bridge to bridge	4-2-02-426
DP	B-4285	Surry	Y	unresolved for pogonia, FWS requests assessment for bog turtle and brook floater	4-2-02-425
RY	B-4286	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02-378
DW	B-4287	Swain	R	unresolved for listed species, esp. Indiana bat, FWS concerned with bridge design	4-2-02-377
RY	B-4288	Transylvania	Y	unresolved for listed species, FWS requests survey for bunched arrowhead	4-2-02-374
SH	B-4290	Transylvania	Y	unresolved for listed species	4-2-02-373
SH	B-4291	Transylvania	Y	need mussel surveys	4-2-02-372
MD	B-4316	Watauga	Y	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02-398
JJ	B-4317	Watauga	G	FWS requests bridge to bridge for high quality stream	4-2-02-399
MD	B-4318	Watauga	G	FWS requests bridge to bridge for high quality stream, FWS requests survey for green floater	4-2-02-400
MD	B-4322	Wilkes	G	FWS requests bridge to bridge for high quality stream, assessment for bog turtle	4-2-02-406
DW	B-4330	Yancey	Y	unresolved for elktoe, FWS requests resurvey for Spiraea, be careful of downstream effects	4-2-02-397

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
151 PATTON AVENUE
ROOM 208
ASHEVILLE, NORTH CAROLINA 28801-5006

REPLY TO
ATTENTION OF:

Regulatory Division
Asheville Regulatory Field Office

May 20, 2002

Mr. William T. Goodwin, Jr., PE
Bridge Replacement Planning Unit
Project Development & Environmental Analysis Branch
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Subject: Review of Natural Systems Technical Reports for bridge replacement projects scheduled for construction in CFY 2005; **Distribution Group 1**

Dear Mr. Goodwin:

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-4070, Bridge No. 112 on SR 1347 over Hanging Dog Creek, Cherokee County.
2. TIP Project No. B-4239, Bridge No. 2 on SR 1102 over North Pacolet River, Polk County.
3. TIP Project No. B-4240, Bridge No. 193 on SR 1508 over unnamed tributary of North Pacolet River, Polk County.
4. TIP Project No. B-4286, Bridge No. 3 on US 19/74 over Nantahala River, Swain County.
5. TIP Project No. B-4287, Bridge Nos. 99 and 100 on SR 1100 over Nantahala River, Swain County.
6. TIP Project No. B- 4288, Bridge No. 85 on SR 1107 over East Fork French Broad River, Transylvania County.
7. TIP Project No. B-4290, Bridge No. 52 on SR 1379 over North Fork French Broad River, Transylvania County.
8. TIP Project No. B-4291, Bridge No. 193 on SR 1533 over Davidson River, Transylvania County.

Although it does not appear that any of these proposed bridge replacement projects will 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 (and wetlands, if applicable) of the United States, 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, 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 generally preferable to on-site (temporary) detours which impact waters or wetlands. If an on-site detour is the recommended action, justification should be provided that demonstrates that alternatives with lesser impacts are not practicable. Please note that an onsite detour constructed on a spanning structure can potentially avoid permanent impacts to waters or wetlands 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 impacts.

For proposed projects and associated on-site detours that cause minimal losses of waters or wetlands, an approved 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 more than minimal losses of waters or wetlands, an individual DA permit and a compensatory mitigation proposal for the unavoidable impacts may be required.

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.

d. All restored areas should be planted with endemic vegetation including trees, if

appropriate. For projects proposing a temporary onsite detour, 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.

d. 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 to 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.

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.

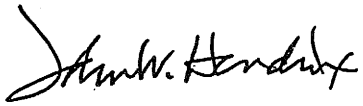
h. Lengthening existing bridges can often benefit the ecological and hydrological functions of the associated wetlands and streams. In some cases bridge approaches are connected to earthen causeways that were built over wetlands and streams. Replacing these causeways with longer bridges would allow previously impacted waters, wetlands and floodplains 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.

i. Based on the information provided and the recent field investigations of the referenced project sites, the replacement of the subject bridges, most over high quality, mountain trout waters, has the potential for significant adverse impacts to those aquatic resources. Also, the presence/status of at least one federally listed species identified in the natural systems report for each project remains unresolved, and will require further study before an effect determination can be made.

j. You have requested that the referenced projects be given a designation of "Red", "Green" or "Yellow" as explained in your letters. At this time, all the projects listed above would receive a "Yellow" designation by our office for the reasons specified in the preceding paragraph.

Should you have any questions please call Mr. John W. Hendrix in the Asheville Regulatory Field Office at 828-271-7980, ext. 7.

Sincerely,



John W. Hendrix
Project Manager

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
589 Raccoon Road, Suite 246
Waynesville, NC 28786
Phone 828 456-6341 ext. 5 FAX 828 452-7031

March 21, 2003

Michael P. Eagan
MA Engineering Consultants, Inc.
598 E. Chatham Street, Suite 137
Cary, NC 27511

SUBJECT: AD-1006 Forms for Bridge Replacements in Cherokee, Graham and Polk Counties

Because the soil survey information is incomplete in Graham and Cherokee Counties, The AD-1006 for Bridge #112 and #117 cannot be completed.

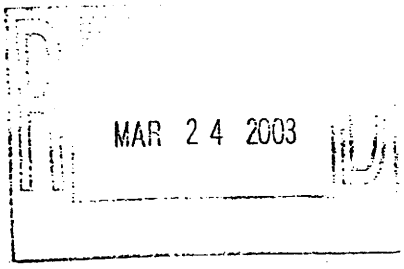
Bridge replacements #2 and #193 in Polk County do not Involve prime, unique or statewide important farmland. All forms are enclosed.

If I can be of further assistance, please feel free to call on me at 828 456-6341, extension 5.

Sincerely,

Michael L. Sherrill
Resource Soil Scientist

cc: Gerald Harbinson
John Curtis
Michael Wiggins



North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

MEMORANDUM

TO: William T. Goodwin, P.E., Unit Head
Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch, NCDOT

FROM: Owen F. Anderson, Mountain Region Coordinator
Habitat Conservation Program

DATE: May 28, 2002

SUBJECT: Scoping and Natural Resources Technical Report, Replace Bridges No. 193 on SR 1508 Over an Unnamed Tributary to the North Pacolet River, Polk County, TIP No. B-4240 ***Fish and Wildlife Project Status: GREEN***

Biologists with the North Carolina Wildlife Resources Commission familiar with the project area have reviewed the technical report for the subject project to assess the potential for adverse impacts to fish and wildlife resources. 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).

The proposed work involves the replacement of bridge number 193on SR 1508 over an unnamed tributary to the North Pacolet River. Construction impacts on fish and wildlife resources will depend on the extent of disturbance in the streambed and surrounding floodplain areas. The riparian corridor is showing signs of urbanization and much of the vegetative cover is characterized as kudzu. Although we would expect the riparian corridor to be relatively important for area wildlife, fish and wildlife habitat would be considered somewhat degraded and wildlife diversity is likely limited.

The Division of Water Quality classifies the unnamed tributary of the North Pacolet River as C. This stream is not designated as trout waters by the NCWRC. We are of the opinion that this project is not likely to result in adverse impacts to trout.

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

A survey for dwarf heartleaf (*Hexastylis naniflora*) is scheduled for the spring. The findings will need to be considered in the alternatives analysis and design of the project.

We prefer bridge designs that do not alter the natural stream morphology or impede fish passage. Efforts should be made during design to place bridge supports outside of the bankfull channel. Bridge designs should also include provisions for the deck drainage to flow through a vegetated upland buffer prior to reaching the subject surface waters. Correction of altered stream morphology at the road crossing should be considered during design. Waste rock and dirt from bridge construction and road realignments should be disposed of in upland areas that are outside of the riparian area and above the 100-year floodplain.

Streams and riparian zones provide connectivity of the landscape; and thus, are natural movement corridors for terrestrial wildlife species. Bridge designs should consider leaving sufficient corridors under the bridge to encourage movement of wildlife under the bridge rather than across the highway. The movement of animals, especially larger animals (e.g., deer and bear), under the bridge may reduce automobile crashes involving wildlife. Where feasible, increasing the riparian corridor width under the bridge is recommended.

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 native herbaceous species and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Listed below are our standard recommendations on this project. Because the Corps of Engineers (COE) recognizes the project county as a "trout water county", the NCWRC will review any nationwide or general 404 permits for the proposed projects and will likely request the following as conditions of the 404 permit.

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

2. Live concrete should not be allowed to contact the water in or entering into the stream. Water that has inadvertently come in contact with live concrete should not be discharged to surface waters but should be disposed in an upland area.

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

4. 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.

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

6. 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.

7. 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.

8. 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.

9. 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 surface waters.

10. 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.

11. 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.

12. Wastewater from drilling operations should not be discharged to surface waters but should be pumped to upland areas.

13. Discharge of materials into surface waters from demolition of the old bridge should be avoided as much as practicable. Any materials that inadvertently reach surface waters should be removed.

14. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is strictly prohibited.

We prefer that bridges over streams of this size be replaced with another spanning structure. If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used the following should be considered as these will likely be conditions of any 404 permit.

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 12 inches below the natural streambed. If multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankfull stage (similar to Lyonsfield design). This could be accomplished by constructing a low sill on the upstream end of the other cells that will divert low flows to another cell. This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

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 so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.

4. Riprap should not be placed on the streambed.

Thank you for the opportunity to review and comment during the early stages of these projects. If you have any questions regarding these comments, please contact me at (828) 452-2546.

cc: John Hendrix, NCDOT Coordinator, COE, Asheville
Marella Buncick, Biologist, USFWS Asheville
Cynthia Van Der Wiele, NCDOT Coordinator, Division of Water Quality

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality

Michael Easley, Governor
Bill Ross, Secretary
Gregory Thorpe, Director

February 20, 2002

Memorandum To: William T. Goodwin, Jr., PE, Unit Head
Bridge Replacement Planning Unit
Project Development and Environmental Analysis Branch

Through: John Dorney
NC Division of Water Quality

From: Robert Ridings
NC Division of Water Quality

Subject: Review of Natural Systems Technical Reports for bridge replacement projects scheduled for construction in CFY 2005: "Green Light" Projects: B-4259, B-4261, B-4258, B-4260, B-4255, B-4282, B-4290, B-4291, B-4070, B-4239, B-4240, B-4242, and B-4245.

In future reports, an Executive Summary Paragraph would be helpful. This should include a brief description of the work intended (i.e., replace bridge with another bridge or with a culvert), the amount of impact to wetlands and streams, and types of possible permits needed.

On all projects, use of proper sediment and erosion control will be needed. Sediment and erosion control measures should not be placed in wetlands. Sediment should be removed from any water pumped from behind a cofferdam before the water is returned to the stream.

This office would prefer bridges to be replaced with new bridges. However if the bridge must be replaced by a culvert and 150 linear feet or more of stream is impacted, a stream mitigation plan will be needed prior to the issuance of a 401 Water Quality Certification. 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

For permitting, any project that falls under the Corps of Engineers' Nationwide Permits 23 or 33 do not require written concurrence by the NC Division of Water Quality. Notification and courtesy copies of materials sent to the Corps, including mitigation plans, are required. For projects that fall under the Corps of Engineers Nationwide Permit 14 or Regional General Bridge Permit 31, the formal 401 application process will be required including appropriate fees and mitigation plans.

Special Note on project B-4261: these waters are classified as 303(d) waters. Special measures for sediment control will be needed.

Also note that projects B-4239, B-4290, B-4258, and B-4282 occur in Trout waters. Any trout-specific conditions that would be determined by the North Carolina Wildlife Resources Commission, to protect the egg and fry stages of trout from sedimentation during construction, would be required on any 401 certifications.

Any proposed culverts shall be installed in such a manner that the original stream profile is not altered (i.e. the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions are to be maintained above and below locations of culvert extensions.

Do not use any machinery in the stream channels unless absolutely necessary. Additionally, vegetation should not be removed from the stream bank unless it is absolutely necessary. NCDOT should especially avoid removing large trees and undercut banks. If large, undercut trees must be removed, then the trunks should be cut and the stumps and root systems left in place to minimize damage to stream banks.

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.

complete

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

January 29, 2002

MEMORANDUM

TO: William D. Gilmore, Manager
NCDOT, Division of Highways

FROM: David Brook for David Brook

SUBJECT: Replace Bridge 193 on SR 1508, TIP B-4240, Polk County, ER 02-8527

Thank you for your letter of September 25, 2001, regarding the above project.

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

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763. In all future communication concerning this project, please cite the above referenced tracking number.

cc: Mary Pope Furr, NCDOT
Matt Wilkerson, NCDOT

	Location	Mailing Address	Telephone/Fax
Administration	507 N. Blount St, Raleigh, NC	4617 Mail Service Center, Raleigh 27699-4617	(919) 733-4763 •733-8653
Restoration	515 N. Blount St, Raleigh , NC	4613 Mail Service Center, Raleigh 27699-4613	(919) 733-6547 •715-4801
Survey & Planning	515 N. Blount St, Raleigh, NC	4618 Mail Service Center, Raleigh 27699-4618	(919) 733-4763 •715-4801

Polk County
EMERGENCY SERVICES

November 19, 2001

Mr. Davis Moore
Department of Transportation
Project Development and Environmental Analysis

SUBJECT: Replacement of Bridge No. 2 on SR 1102/State Project No. 8.2980801 and Bridge No. 193 on SR 1508/State Project No. 8.2980901

Bridge No. 193 – closing of road at bridge site should not create an unworkable situation. Rerouting is possible and should not cause any delays. B-4240

Bridge No. 2 – closing of road at bridge site will cause several unworkable situations. Rerouting will be through a narrow tunnel that fire trucks will not be able to access, causing homes to have no fire protection. Rerouting can cause an extended respond time to the patient for Emergency Medical Services. B-4239

If you have any questions or need additional information, please contact me at (828) 894-3067.

Sincerely,

S G Halford

Sandra G. Halford
Director

P.O. Box 308 • Columbus, NC 28722 • (828) 894-3067