STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

January 27, 2005

US Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

ATTENTION: Mr. John Thomas
NCDOT Coordinator

Dear Mr. Thomas:

Subject: **Nationwide Permit 33 and Randleman Buffer Certification application,** for the replacement of Bridge No. 20 on SR 4121 (Old US 29/70A) over Deep River, Guilford County. Federal Aid Project No. BRSTP-4121(2), State Project No. 82495801, NCDOT Division 7, TIP Project No. B-3652, WBS Element 33198.1.1.

Please find enclosed a copy of the CE, PCN, permit drawings and ½ size plans for the above referenced project. The CE document states that the existing two lane bridge on SR 4121 will be replaced with a new two lane 185 foot long, single span bridge along the existing alignment. During construction, traffic will be routed onto a temporary on-site detour just south of the existing bridge. There are no wetlands in the project area. The Deep River is located in HUC 03030003 of the Cape Fear Basin and is classified by the Division of Water Quality as WS-IV*. Temporary impacts to the Deep River total 0.13 acres. Impacts to Randleman Watershed buffers totals 18,295ft^2.

Impacts to Waters of the U.S.

Impacts to the Deep River are temporary and consist of 0.13 acres of fill in the Deep River. There will be no impacts to wetlands and no permanent impacts. Impacts occur due to the construction of a rock causeway that will be placed in the Deep River. The rock causeways is necessary to remove the existing interior bridge bents

Demolition: Bridge No. 20 is composed of concrete with an asphalt-wearing surface. Therefore there is a potential for 434 yd^3 of temporary fill to result from removal of the existing bridge. NCDOT's Best Management Practices for bridge demolition and removal will be adhered for the removal of this bridge.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1500
FAX: 919-715-1501
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
2728 CAPITOL BOULEVARD
PARKER LINCOLN BUILDING, SUITE 168
RALEIGH NC 27699

Avoidance, Minimization, and Mitigation

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize wetland impacts, and to provide full compensatory mitigation of all remaining wetland impacts. Avoidance measures were taken during the planning and NEPA phases; minimization measures were incorporated as part of the project design and include:

- In order to avoid impacts to the floodplain, the new bridge structure will completely span the 100-year floodplain.
- In order to minimize impacts to the Deep River, no bents will be placed in the water.
- In order to protect the stream buffer, Pre-formed scour holes will be placed north of the road outside of the buffer.
- In order to prevent erosion to the banks of Deep River, the water from the temporary detour will flow through a riprap lined channel before it flows through pipes and discharges into the stream. Pipes will be used because the banks of the Deep River are very steep.

Due to the temporary nature of the impacts, compensatory mitigation is not proposed.

Randleman Watershed Buffer Rules

The proposed road project impacts an area protected by the Randleman Buffer Rules. The NCDOT has attached to this permit application information relevant to impacts to these buffers in the Buffer Permit Drawings. Impacts to stream buffers are comprised of 11,761 ft^2 in Zone 1 and 6,534 ft^2 in Zone 2 of allowable perpendicular impacts.

Federally Protected Species

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the Fish and Wildlife Service (FWS) lists one federally protected species for Guilford County, the bald eagle.

A biological conclusion of "No Effect" was reached for the Bald Eagle as reflected in the attached CE dated August 2001. No habitat is present in the project area for the bald eagle.

Regulatory Approvals

Section 404 Permit: It is anticipated that the construction of the causeways will 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 construction of the causeway.

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

Randleman Watershed Riparian Buffer Rules: NCDOT requests that the NC Division of Water Quality review this application and issue a written authorization for a Randleman Watershed Riparian Buffer Certification.

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

If you have any questions or need additional information, please contact Brett Feulner at (919) 715-1488.

Sincerely,

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

Cc:
w/ attachment:
Mr. John Hennessy, NC Division of Water Quality (7 copies)
Mr. Travis Wilson, NCWRC
Mr. Gary Gordan, USFWS
Mr. Greg Perfetti, P.E., Structure Design
Mr. David Chang, P.E., Hydraulics
Mr. Jerry Parker, DEO
Mr. J.M. Mills, P.E., Division 7 Engineer
Mr. Mark Staley, Roadside Environmental

w/o attachment
Mr. David Franklin, USACE, Wilmington
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, PE, Highway Design
Mr. Elmo Vance, PDEA

Office Use Only: Form Version May 2002

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

2. Nationwide, Regional or General Permit Number(s) Requested: NW 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 Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), 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: NCDOT
   Mailing Address: Project Development and Environmental Analysis
   1548 Mail Service Center
   Raleigh, NC 27966-1548

   Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794
   E-mail Address: gthorpe@dot.state.nc.us

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: B-3629: Replacement of Bridge 20 on SR 4121 over the Deep River

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3629

3. Property Identification Number (Tax PIN): _____

4. Location
   County: Guilford Nearest Town: Jamestown
   Subdivision name (include phase/lot number): _____
   Directions to site (include road numbers, landmarks, etc.): _____

5. Site coordinates, if available (UTM or Lat/Long): Pt 30001 36°19'01.82", 81°24' 17.44
   Pt 30001 36°19'01.89", 81°24' 18.52
   (Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)

6. Property size (acres): _____

7. Nearest body of water (stream/river/sound/ocean/lake): Deep River

8. River Basin: Cape Fear River
   (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: Urban and forestland.

10. Describe the overall project in detail, including the type of equipment to be used: Plans for replacing the bridge include replacing the current bridge on existing location. Equipment used will include regular equipment utilized on bridge replacement projects.

11. Explain the purpose of the proposed work: The purpose is to replace the old bridge that is functionally obsolete and structurally deficient.

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.

N/A

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. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must 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: Temporary work causeways will be constructed in the Deep River

2. Individually list wetland impacts below: 0

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***

* List each impact separately and identify temporary impacts. 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.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at http://www.fema.gov.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: 0

Total area of wetland impact proposed: 0

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
1	Temporary workpad	0.13 ac	Deep River	18 ft	Perennial

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, 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.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site:

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. 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.):_____
   _____
   Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):_____
   _____
   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.
Minimization of jurisdictional impacts was accomplished through the use of preformed scour holes, no bent in the water and spanning the flood plain
_____

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 March 9, 2000, 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 NCWRP 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.
   N/A

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at http://h2o.enr.state.nc.us/wrp/index.htm. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

   Amount of stream mitigation requested (linear feet):_____
   Amount of buffer mitigation requested (square feet):_____
   Amount of Riparian wetland mitigation requested (acres):_____
   Amount of Non-riparian wetland mitigation requested (acres):_____
   Amount of Coastal wetland mitigation requested (acres):_____

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

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 ☐

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.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify Randleman)?

Yes ☒ No ☐ If you answered "yes", provide the following information:

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	11761	3	0
2	6534	1.5	0
Total	18295		0

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

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or

Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

XI. Stormwater (required by DWQ)

Describe impervious acreage (both 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.

N/A

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.

N/A

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. Other Circumstances (Optional):

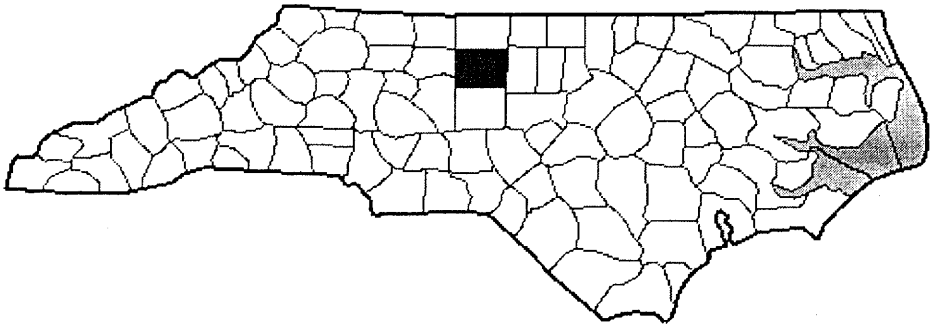
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g.,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

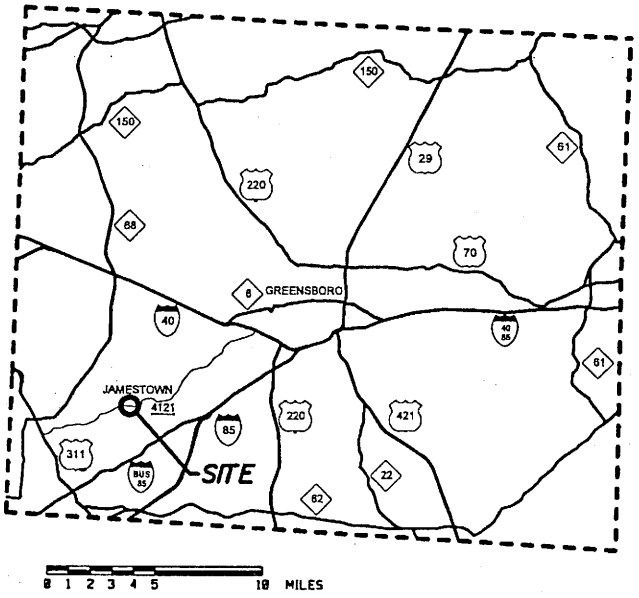
1/21/05

Applicant/Agent's Signature **Date**

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

NORTH CAROLINA



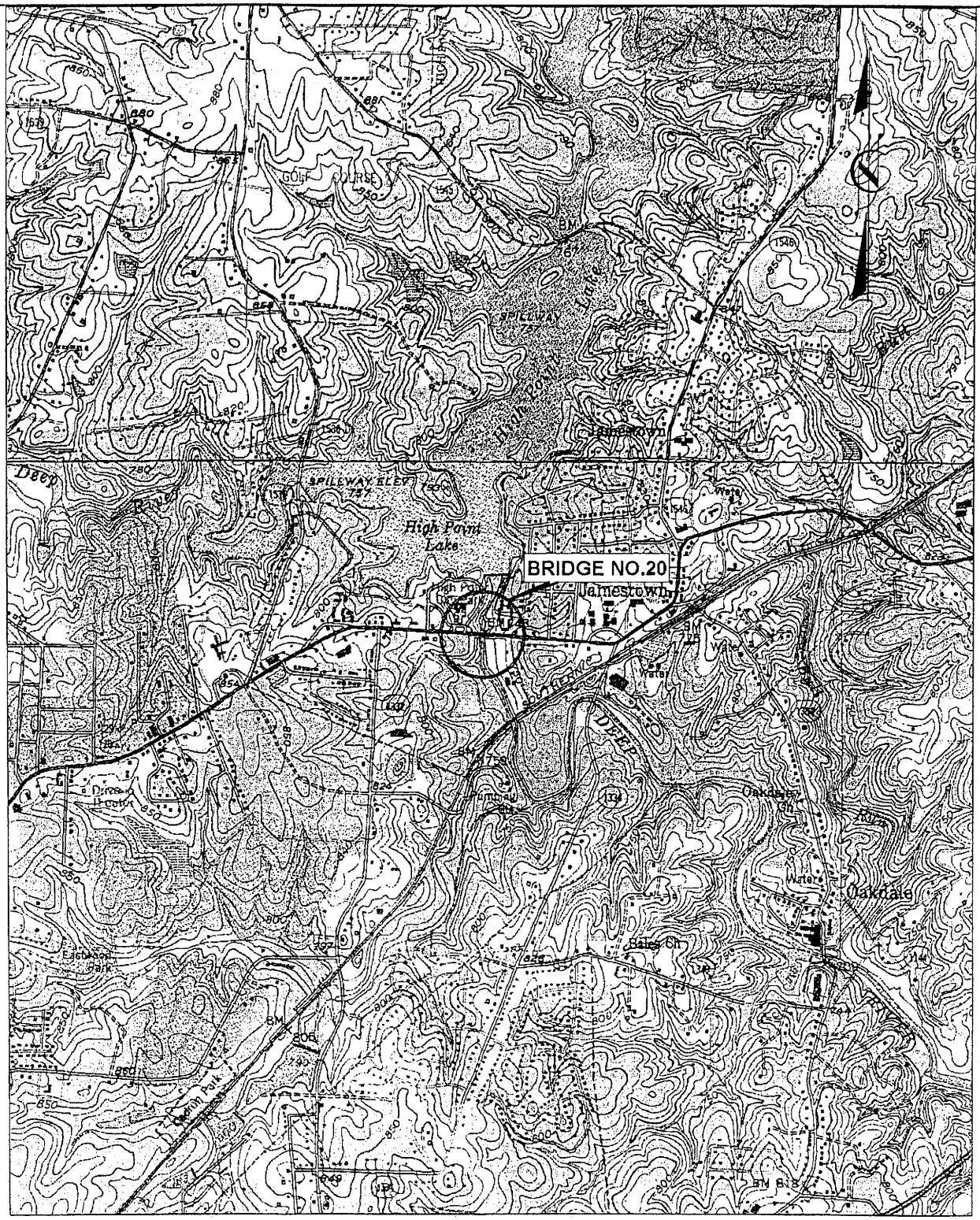


VICINITY MAP

NCDOT
DIVISION OF HIGHWAYS
PROJECT: 8.2495801 (B-3652)
GUILFORD COUNTY

REPLACE BRIDGE NO. 20
OVER DEEP RIVER ON SR 4121

SHEET 1 OF 8 JUNE 2004



0 2,000 4,000 6,000

SITE MAP

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: - B-3652

BRIDGE #20 OVER
DEEP RIVER ON SR 4121

SHEET 2 OF 8 JUNE 2004

English

PROJECT REFERENCE NO.	SHEET NO.
B-3652	3
R/W SHEET NO.	

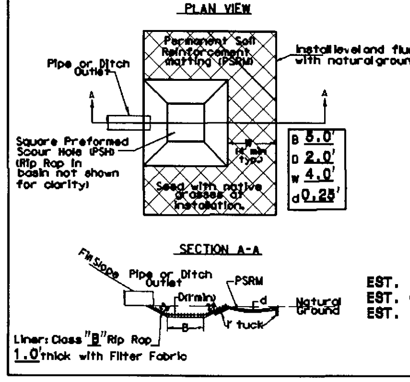
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-5850

8/17/99

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON

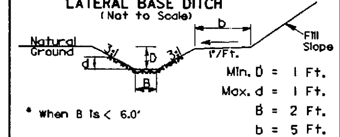


USE AT THE FOLLOWING LOCATIONS:
-L- 20+40 +/- LT
-L- 23+00 +/- LT

EST. PSRM: 34 SY
EST. CL "B" RIP RAP: 10 TONS
EST. FILTER FABRIC: 26 SY

PERMANENT SOIL REINFORCEMENT MAT (PRSM)

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



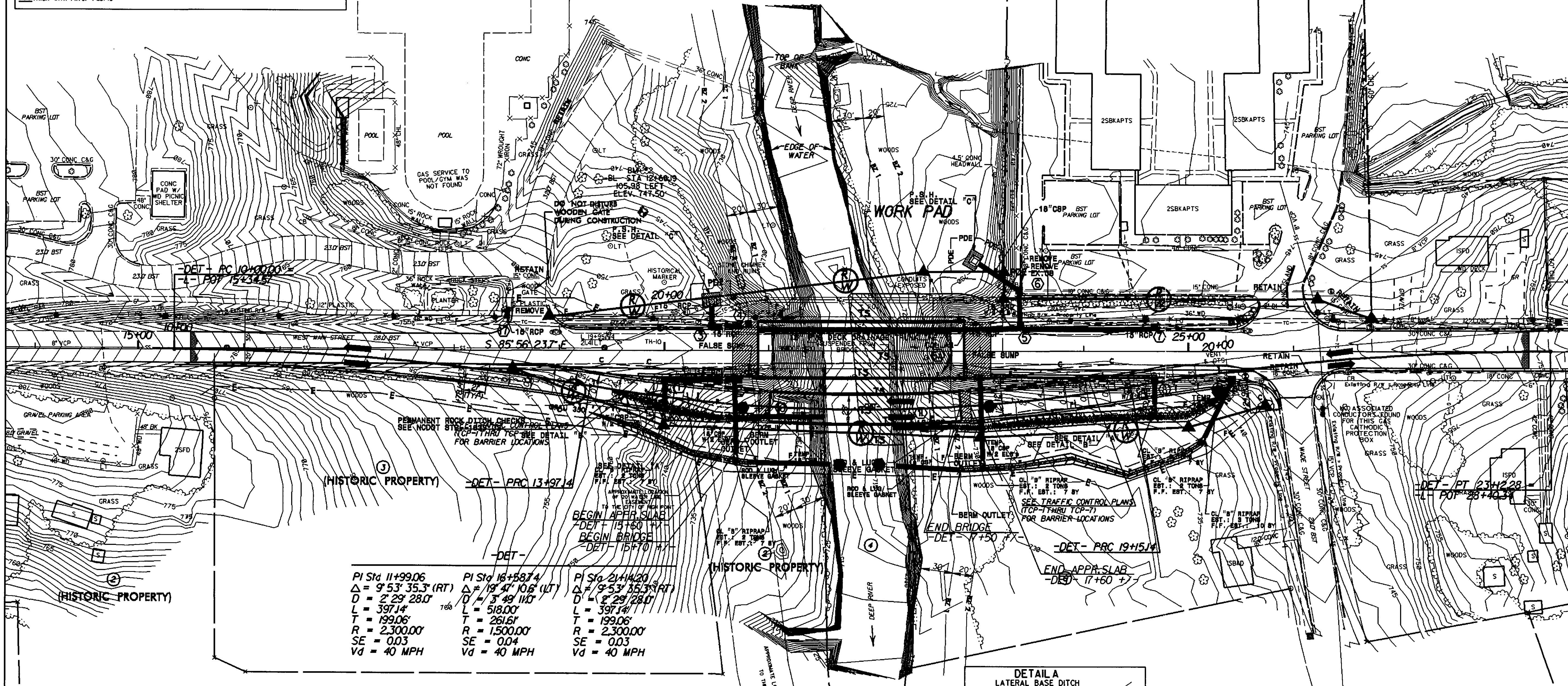
Type of Liner = PSRM

STA. 19+50+/- TO STA. 20+85+/- RT
EST. 58 CY D.D.E.
EST. 130 SY PSRM

STA. 22+80+/- TO STA. 25+30+/- RT
EST. 102 CY D.D.E.
EST. 230 SY PSRM

DRAINAGE STRUCTURE LEGEND

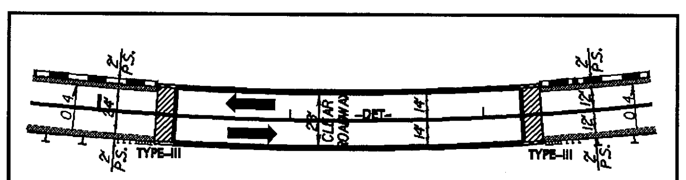
STRUC. #	DESCRIPTION
1	2GI NARROW SLOT FLAT GRATE
2	2GI NARROW SLOT FLAT GRATE
3	CB
4	CB
5	CB
6	CB
7	CB
8	2GI NARROW SLOT FLAT GRATE
9	ADJUST TBJB



PI Sta 11+99.06	PI Sta 16+58.74	PI Sta 21+14.20
Δ = 9° 53' 35.3" (RT)	Δ = 19° 47' 10.6" (LT)	Δ = 9° 53' 35.3" (RT)
D = 2° 29' 28.0"	D = 3° 49' 11.0"	D = 2° 29' 28.0"
L = 397.14'	L = 518.00'	L = 397.14'
T = 199.06'	T = 261.61'	T = 199.06'
R = 2,300.00'	R = 1,500.00'	R = 2,300.00'
SE = 0.03	SE = 0.04	SE = 0.03
Vd = 40 MPH	Vd = 40 MPH	Vd = 40 MPH

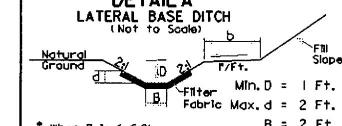
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3652-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 817687.6428(ft) EASTING: 1719317.6178(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992353
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3652-2" TO -L- STATION 15+50.00 IS
S 81° 25' 44.474" E 340.076'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29



BRIDGE/ROADWAY RELATIONSHIP SKETCH

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



Type of Liner = CL "B"

DETOUR

STA. 14+00+/- TO STA. 15+60+/- RT
EST. RIP RAP: 72 TONS +/-
EST. F.F.: 205 SY
EST. D.D.E.: 38 CY

STA. 17+50+/- TO STA. 19+75+/- RT
EST. RIP RAP: 107 TONS +/-
EST. F.F.: 285 SY
EST. D.D.E.: 67 CY

TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

50 0 25 50
SCALE: 1"= 50' HORIZ.

LEGEND
PAVED SHOULDER, CURB & SIDEWALK

SEE SHEET 5 FOR -L- PROFILE

W:\PROJECTS\Dan's\B3652\b3652_rdy_psh4.dgn
dduffield AT

8/17/99

English

PROJECT REFERENCE NO.	SHEET NO.
B-3652	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

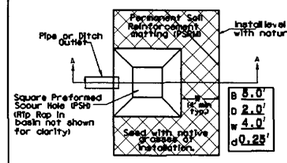
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON

USE AT THE FOLLOWING LOCATIONS:
-L- 20+40 +/- LT
-L- 23+00 +/- LT

PLAN VIEW



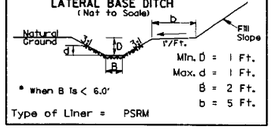
SECTION A-A

Liner: Class "B" Rip Rap
1.0' thick with Filter Fabric

EST. PSRM: 34 SY
EST. CL "B" RIP RAP: 10 TONS
EST. FILTER FABRIC: 26 SY

PERMANENT SOIL REINFORCEMENT MAT (PRSM)

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.

* When B Is < 6.0'

Type of Liner = PSRM

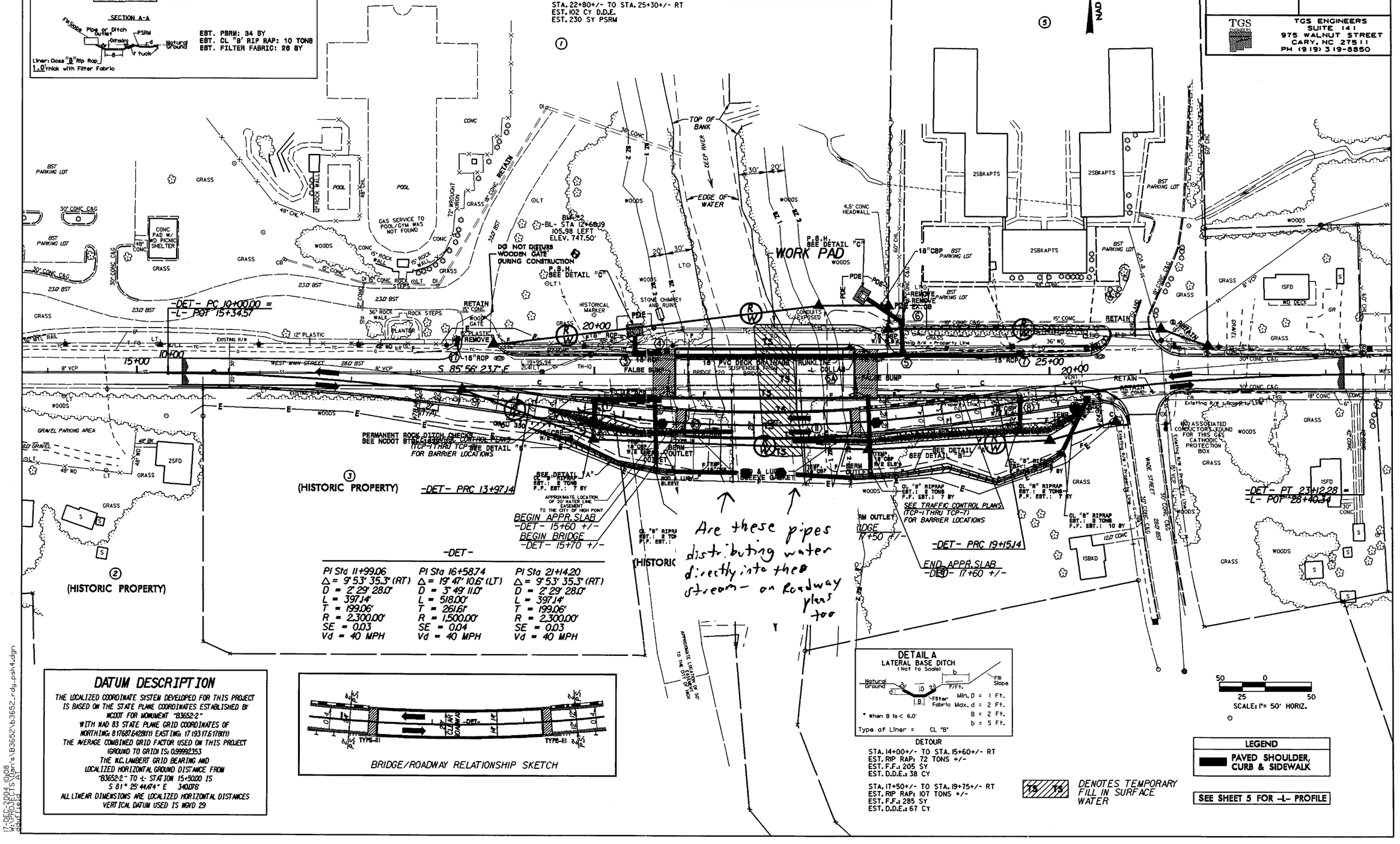
STA. 19+50+/- TO STA. 20+85+/- RT
EST. 58 CY D.D.E.
EST. 130 SY PSRM

STA. 22+80+/- TO STA. 25+30+/- RT
EST. 102 CY D.D.E.
EST. 230 SY PSRM

DRAINAGE STRUCTURE LEGEND

STRUC. #	DESCRIPTION
1	2GI NARROW SLOT FLAT GRATE
2	2GI NARROW SLOT FLAT GRATE
3	CB
4	CB
5	CB
6	CB
7	CB
8	2GI NARROW SLOT FLAT GRATE
9	ADJUST TBJB

NC GRID
NAD 83



PI Sta 11+99.06	PI Sta 16+58.74	PI Sta 21+14.20
Δ = 9° 53' 35.3" (RT)	Δ = 19° 47' 10.6" (LT)	Δ = 9° 53' 35.3" (RT)
D = 2° 29' 28.0'	D = 3° 49' 11.0'	D = 2° 29' 28.0'
L = 397.14'	L = 518.00'	L = 397.14'
T = 199.06'	T = 261.61'	T = 199.06'
R = 2,300.00'	R = 1,500.00'	R = 2,300.00'
SE = 0.03	SE = 0.04	SE = 0.03
Vd = 40 MPH	Vd = 40 MPH	Vd = 40 MPH

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3652-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 817687.6428(ft) EASTING: 1719317.6178(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992353 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3652-2" TO +L- STATION 15+50.00 IS S 81° 25' 44.474" E 340.078 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

BRIDGE/ROADWAY RELATIONSHIP SKETCH

DETAIL A
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1 Ft.
Max. d = 2 Ft.
B = 2 Ft.
b = 5 Ft.

* When B Is < 6.0'

Type of Liner = CL "B"

DETOUR

STA. 14+00+/- TO STA. 15+60+/- RT
EST. RIP RAP: 72 TONS +/-
EST. F.F.: 205 SY
EST. D.D.E.: 38 CY

STA. 17+50+/- TO STA. 19+75+/- RT
EST. RIP RAP: 107 TONS +/-
EST. F.F.: 285 SY
EST. D.D.E.: 67 CY

50 0 25 50
SCALE: 1" = 50' HORIZ.

LEGEND
PAVED SHOULDER, CURB & SIDEWALK

SEE SHEET 5 FOR -L- PROFILE

DENOTES TEMPORARY FILL IN SURFACE WATER

17-DEC-2001 10:08
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dlj

5/14/99

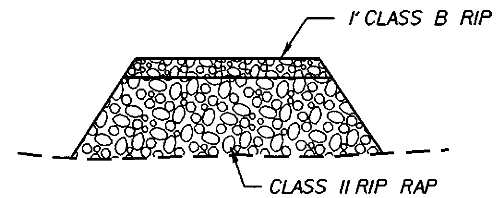
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PROJECT REFERENCE NO.	SHEET NO.
B-3652	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TEMPORARY WORKPAD
NOT TO SCALE



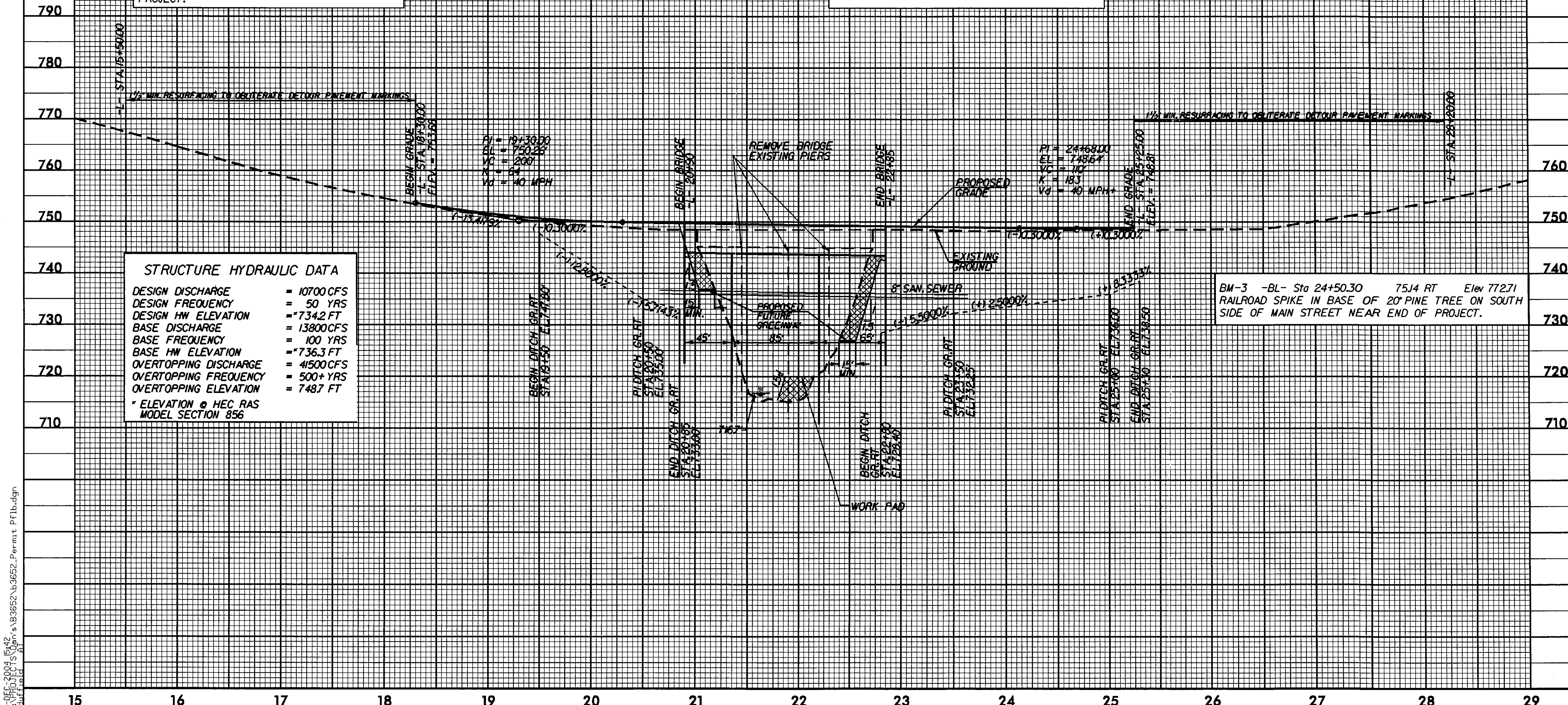
WORKPAD 1 - 810 TONS CL II RIP RAP
90 TONS CL B RIP RAP

WORKPAD 2 - 1575 TONS CL II RIP RAP
180 TONS CL B RIP RAP

BM-1 S 57°06'35.0"W FOR A DISTANCE OF 80.37 FROM MONUMENT B3652-2 Elev 788.07
PAINTED BOLT ON TOP OF FIRE HYDRANT ON SOUTH SIDE OF MAIN STREET AT WEST END OF PROJECT.

BM-2 -BL- Sta 12+68.19 105.98 LT Elev 747.50
RAILROAD SPIKE IN BASE OF 20" LOCUST TREE ON NORTH SIDE OF MAIN STREET AND ON WEST SIDE OF CREEK.

BM-3 -BL- Sta 24+50.30 75.14 RT Elev 772.71
RAILROAD SPIKE IN BASE OF 20" PINE TREE ON SOUTH SIDE OF MAIN STREET NEAR END OF PROJECT.



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 10700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= *734.2 FT
BASE DISCHARGE	= 13800 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= *736.3 FT
OVERTOPPING DISCHARGE	= 41500 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 748.7 FT

* ELEVATION @ HEC RAS MODEL SECTION 856

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5/14/99

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PROJECT REFERENCE NO.	SHEET NO.
B-3652	6

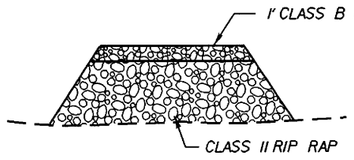
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TEMPORARY WORKPAD
NOT TO SCALE

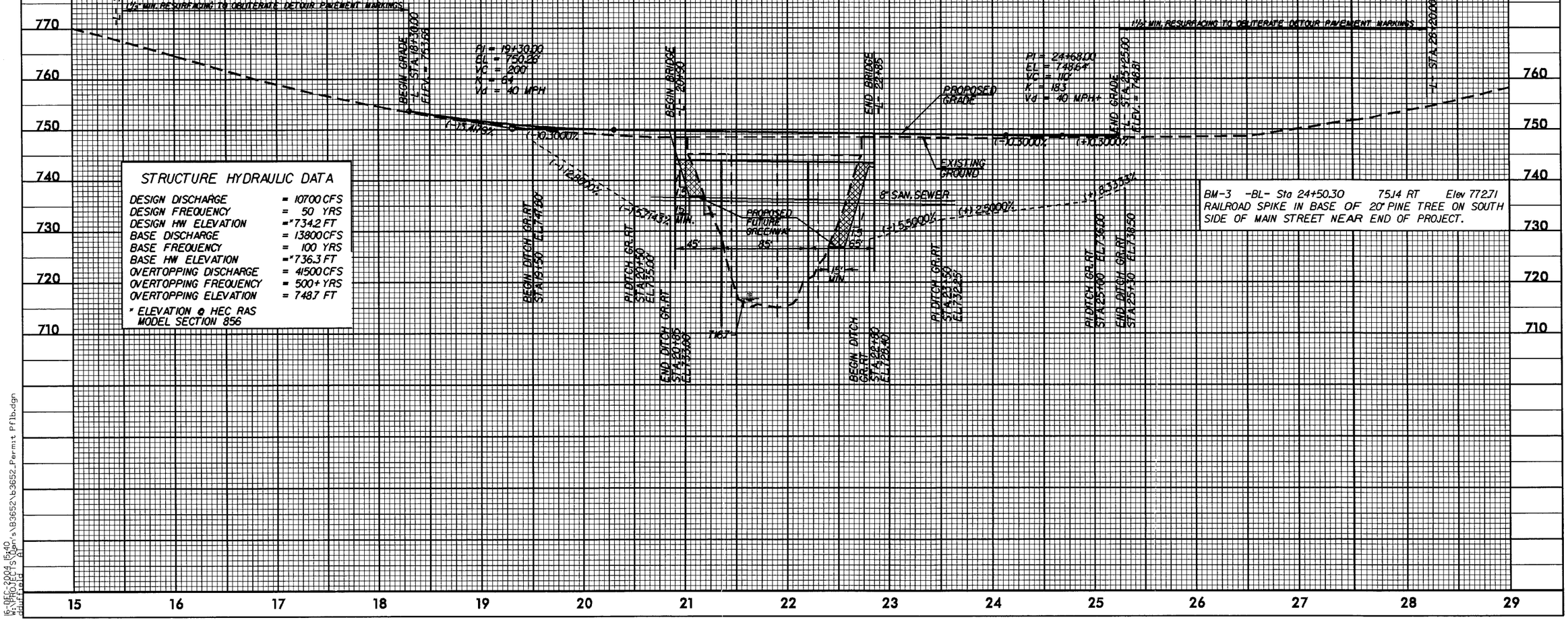


WORKPAD 1 - 810 TONS CL II RIP RAP
90 TONS CL B RIP RAP

WORKPAD 2 - 1575 TONS CL II RIP RAP
180 TONS CL B RIP RAP

BM-1 S 57°06'35.0"W FOR A DISTANCE OF 80.37 FROM MONUMENT B3652-2 Elev 788.07 PAINTED BOLT ON TOP OF FIRE HYDRANT ON SOUTH SIDE OF MAIN STREET AT WEST END OF PROJECT.

BM-2 -BL- Sta 12+68.19 105.98 LT Elev 747.50 RAILROAD SPIKE IN BASE OF 20" LOCUST TREE ON NORTH SIDE OF MAIN STREET AND ON WEST SIDE OF CREEK.



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 10700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= *734.2 FT
BASE DISCHARGE	= 13800 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= *736.3 FT
OVERTOPPING DISCHARGE	= 41500 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 748.7 FT

* ELEVATION @ HEC RAS MODEL SECTION 856

BM-3 -BL- Sta 24+50.30 75.14 RT Elev 772.71 RAILROAD SPIKE IN BASE OF 20" PINE TREE ON SOUTH SIDE OF MAIN STREET NEAR END OF PROJECT.

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IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS						BUFFER IMPACT		
Site No.	Station (From/To)	Structure Size	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Interchange Isolated Wetland (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Relocated Channel (ft)	Enclosed Channel (ft)	Zone 1 (ac)	Zone 2 (ac)	Mech Clear (ac)
1	22+10+/-	ROCK								0.13						
		WORKPAD														
	TOTALS		0	0	0	0	0	0	0	0.13	0	0	0	0	0	0

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: 8.2495801 (B-3652)
BRIDGE #20 OVER DEEP RIVER
ON SR 4121

December-04

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	CITY OF HIGHPOINT	P.O. BOX 230 HIGH POINT, NC 27261
2	THE HISTORIC JAMESTOWN SOCIETY, INC.	P.O. BOX 512 JAMESTOWN, NC 27282-0512
3	MARY ELIZABETH PERRY RAGSDALE	P.O. BOX 367 JAMESTOWN, NC 27282
4	OAKDALE COTTON MILLS	P.O. BOX 787 JAMESTOWN, NC 27282-0787
5	JAMESTOWN VILLAGE ASSOCIATES, INC.	598 BONNYNECK DR. GEORGETOWN, SC 29440
6	TUCKER ENTERPRISES, INC.	309 COMMERCE DR. CHARLESTON, WV 25306-6405

NCDOT

DIVISION OF HIGHWAYS

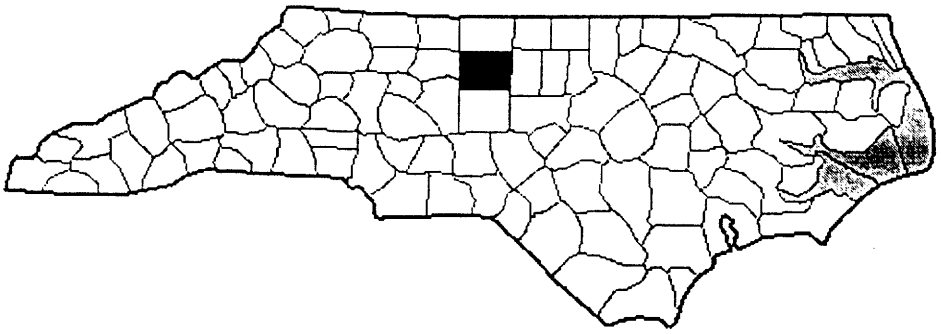
GUILFORD COUNTY

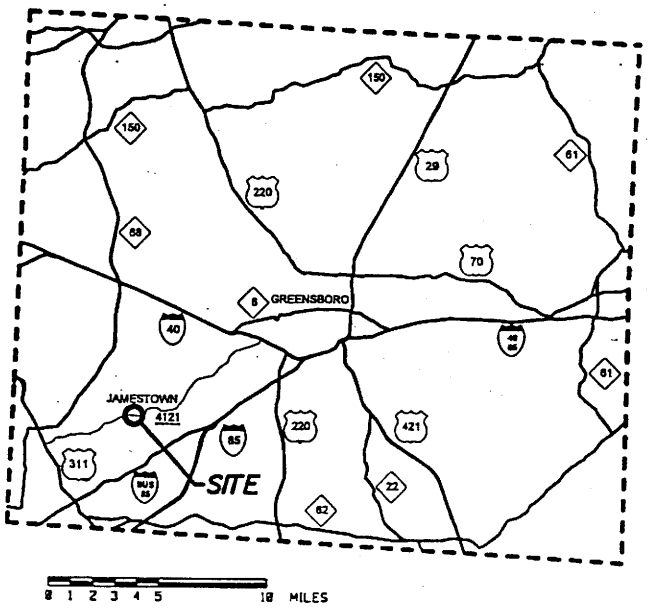
PROJECT: 8.2495801 (B-3652)

REPLACE BRIDGE NO. 20
OVER DEEP RIVER ON SR 4121

SHEET 8 OF 8 JUNE 2004

NORTH CAROLINA



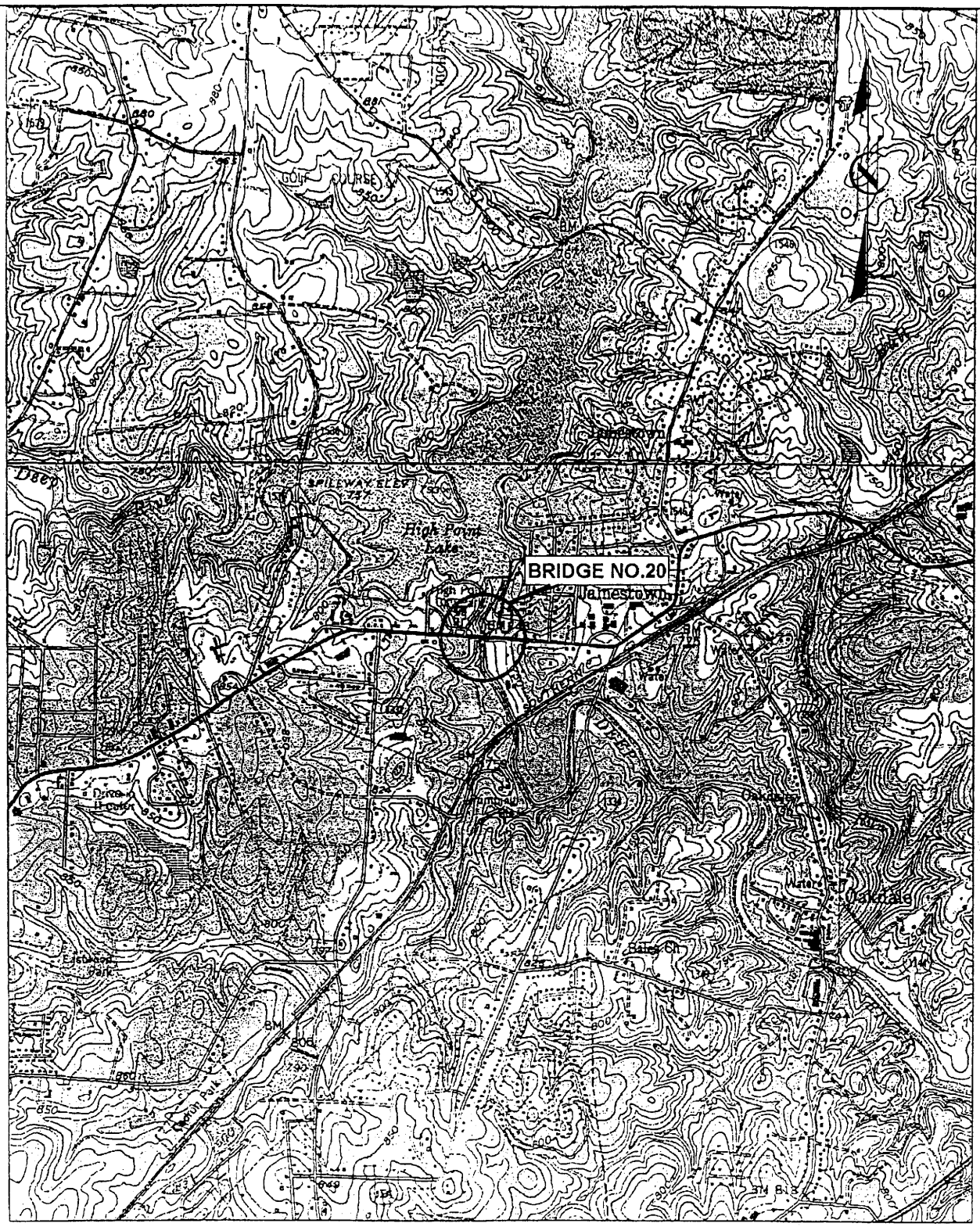


VICINITY MAP

NCDOT
DIVISION OF HIGHWAYS
PROJECT: 8.2495801 (B-3652)
GUILFORD COUNTY

REPLACE BRIDGE NO. 20
OVER DEEP RIVER ON SR 4121

SHEET 1 OF 8 JUNE 2004



0 2,000 4,000 6,000

SITE MAP

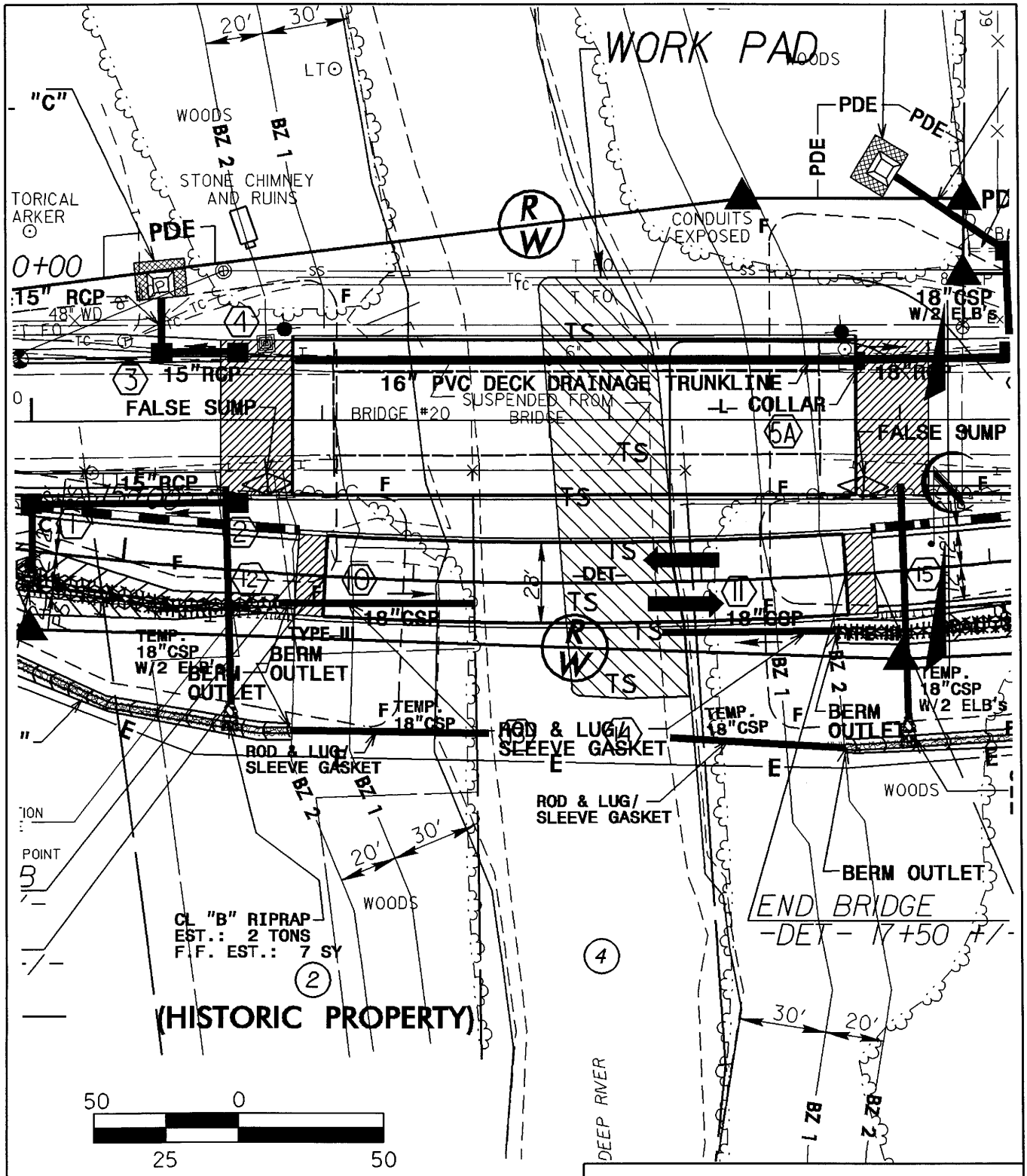
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: - B-3652

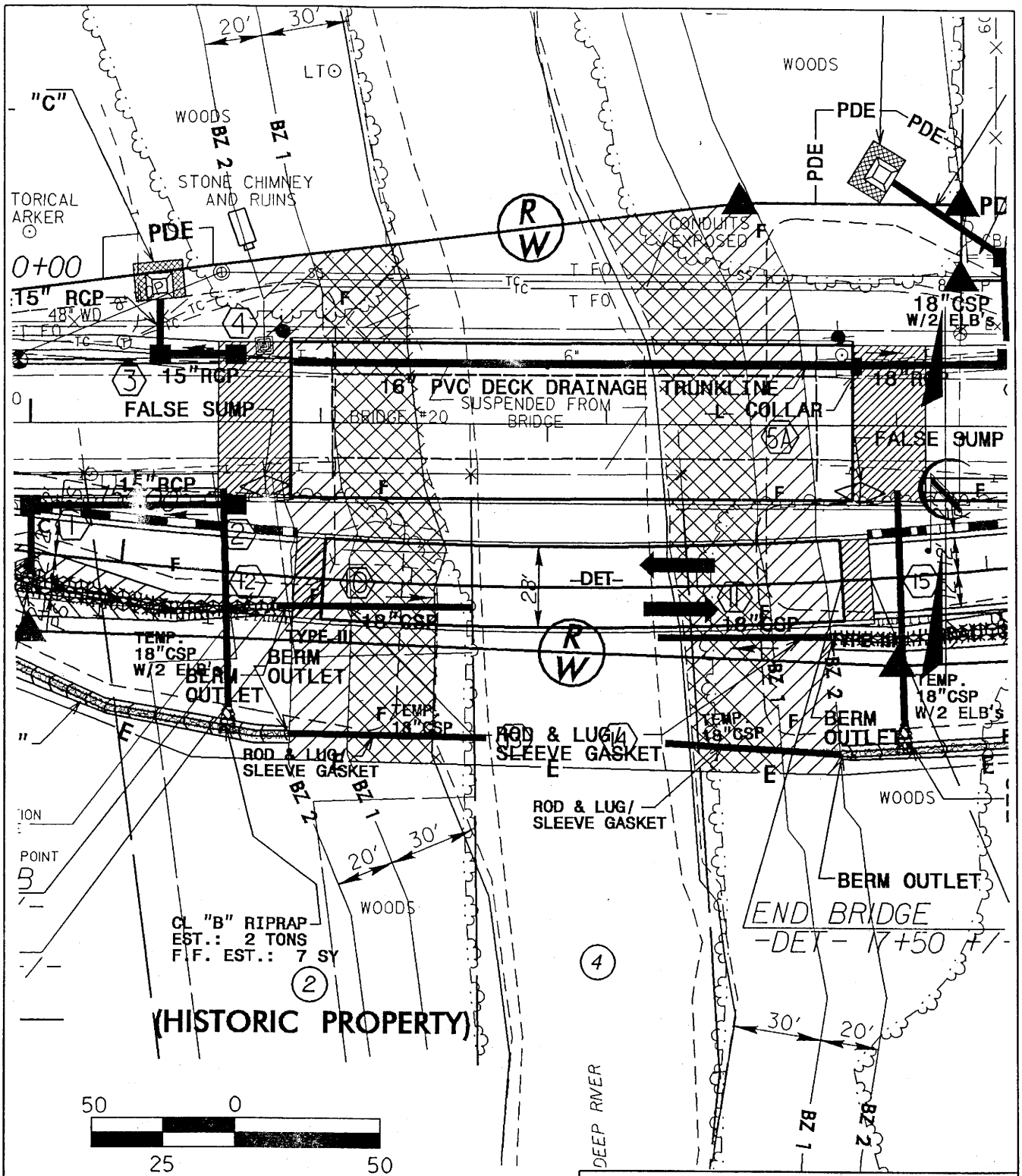
BRIDGE #20 OVER
DEEP RIVER ON SR 4121

SHEET 2 OF 8 JUNE 2004



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 8.2495801 (B-3652)
REPLACE BRIDGE 20
OVER THE DEEP RIVER
ON SR 4121 IN HIGH POINT

SHEET 3 OF 8



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 8.2495801 (B-3652)
REPLACE BRIDGE 20
OVER THE DEEP RIVER
ON SR 4121 IN HIGH POINT

SHEET 4 OF 8

PROJECT REFERENCE NO.	SHEET NO.
B-3652	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

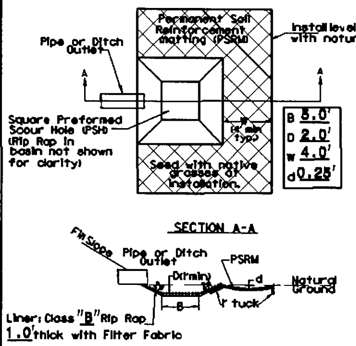
English

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON

PLAN VIEW

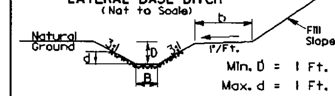


USE AT THE FOLLOWING LOCATIONS:
-L- 20+40 +/- LT
-L- 23+00 +/- LT

EST. PSRM: 34 SY
EST. CL "B" RIP RAP: 10 TONS
EST. FILTER FABRIC: 26 SY

PERMANENT SOIL REINFORCEMENT MAT (PRSM)

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
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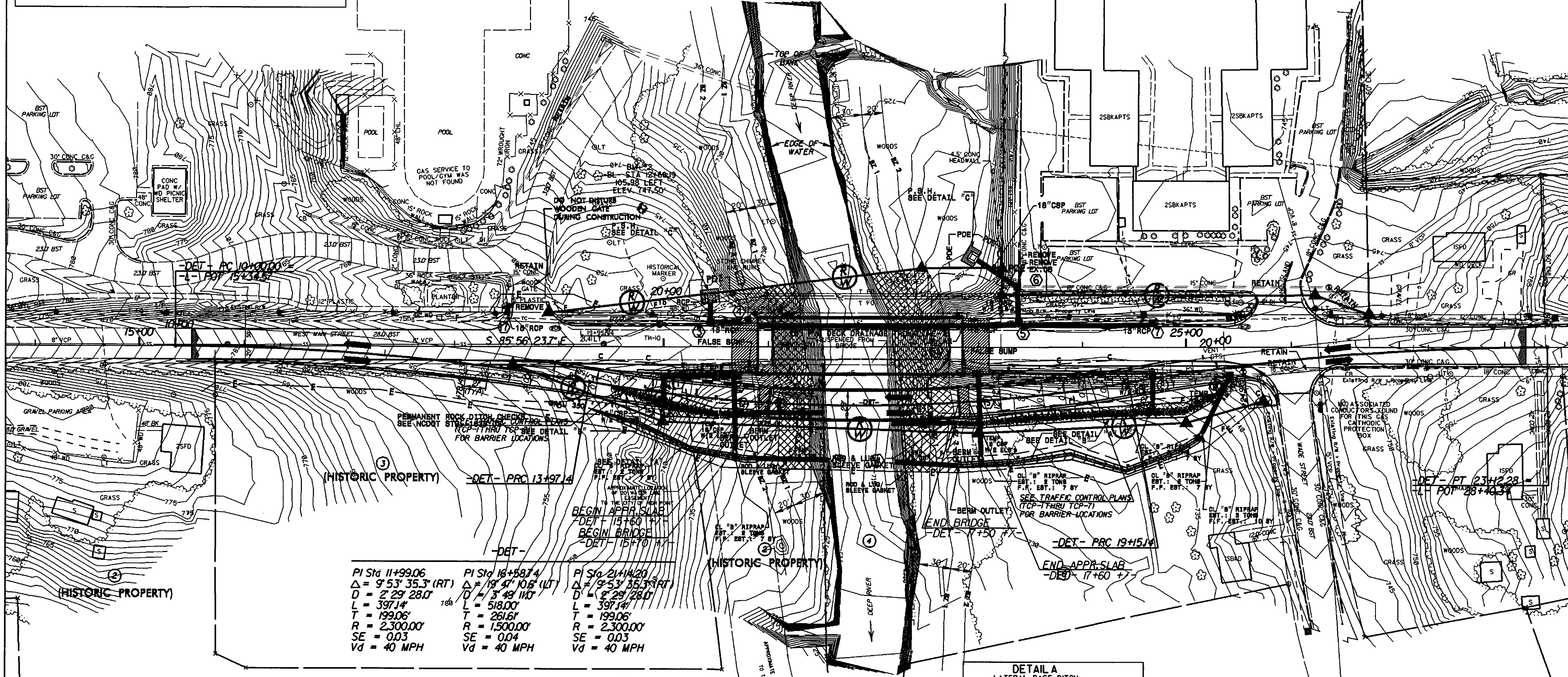
b = 5 Ft.
* When B is < 6.0'
Type of Liner = PSRM

STA. 19+50+/- TO STA. 20+85+/- RT
EST. 58 CY D.D.E.
EST. 130 SY PSRM

STA. 22+80+/- TO STA. 25+30+/- RT
EST. 102 CY D.D.E.
EST. 230 SY PSRM

DRAINAGE STRUCTURE LEGEND

STRUC. #	DESCRIPTION
1	2GI NARROW SLOT FLAT GRATE
2	2GI NARROW SLOT FLAT GRATE
3	CB
4	CB
5	CB
6	CB
7	CB
8	2GI NARROW SLOT FLAT GRATE
9	ADJUST TBJB



PI Sta 11+99.06
Δ = 9° 53' 35.3" (RT)
D = 2° 29' 28.0"
L = 397.14'
T = 199.06'
R = 2,300.00'
SE = 0.03
Vd = 40 MPH

PI Sta 16+58.74
Δ = 19° 47' 10.6" (LT)
D = 3° 49' 11.0"
L = 518.00'
T = 261.61'
R = 1,500.00'
SE = 0.04
Vd = 40 MPH

PI Sta 21+14.20
Δ = 9° 53' 35.3" (RT)
D = 2° 29' 28.0"
L = 397.14'
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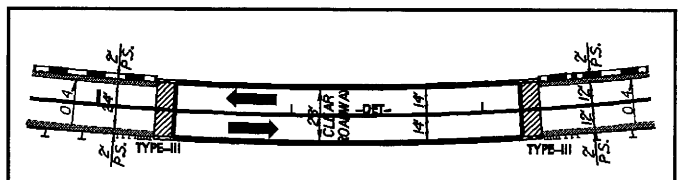
SE = 0.03
Vd = 40 MPH

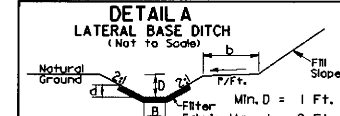
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3652-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 817687.6428(ft) EASTING: 1719317.6178(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992353
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3652-2" TO -L- STATION 15+50.00 IS
S 81° 25' 44.474" E 340.076'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29



BRIDGE/ROADWAY RELATIONSHIP SKETCH

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
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b = 5 Ft.
* When B is < 6.0'
Type of Liner = CL "B"

DETOUR
STA. 14+00+/- TO STA. 15+60+/- RT
EST. RIP RAP: 72 TONS +/-
EST. F.F.: 205 SY
EST. D.D.E.: 38 CY

STA. 17+50+/- TO STA. 19+75+/- RT
EST. RIP RAP: 107 TONS +/-
EST. F.F.: 285 SY
EST. D.D.E.: 67 CY

DENOTES FILL IN ZONE 1

DENOTES FILL IN ZONE 2

SCALE: 1" = 50' HORIZ.

LEGEND
PAVED SHOULDER, CURB & SIDEWALK

SEE SHEET 5 FOR -L- PROFILE

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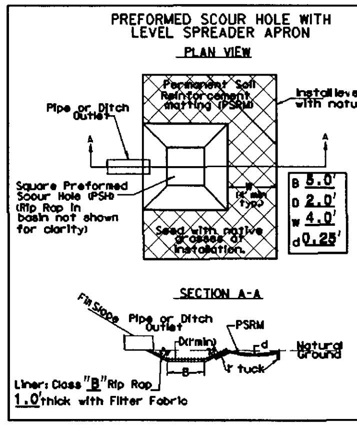
PROJECT REFERENCE NO.	SHEET NO.
B-3652	6
R/W SHEET NO.	of 8

English

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850



USE AT THE FOLLOWING LOCATIONS:
-L- 20+40 +/- LT
-L- 23+00 +/- LT

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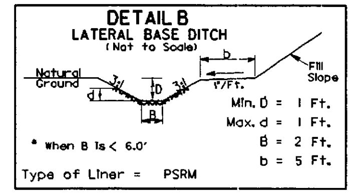
PERMANENT SOIL REINFORCEMENT MAT (PRSM)



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EST. 58 CY D.D.E.
EST. 130 SY PSRM

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EST. 102 CY D.D.E.
EST. 230 SY PSRM

DRAINAGE STRUCTURE LEGEND

STRUC. #	DESCRIPTION
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2	2GINARROW SLOT FLAT GRATE
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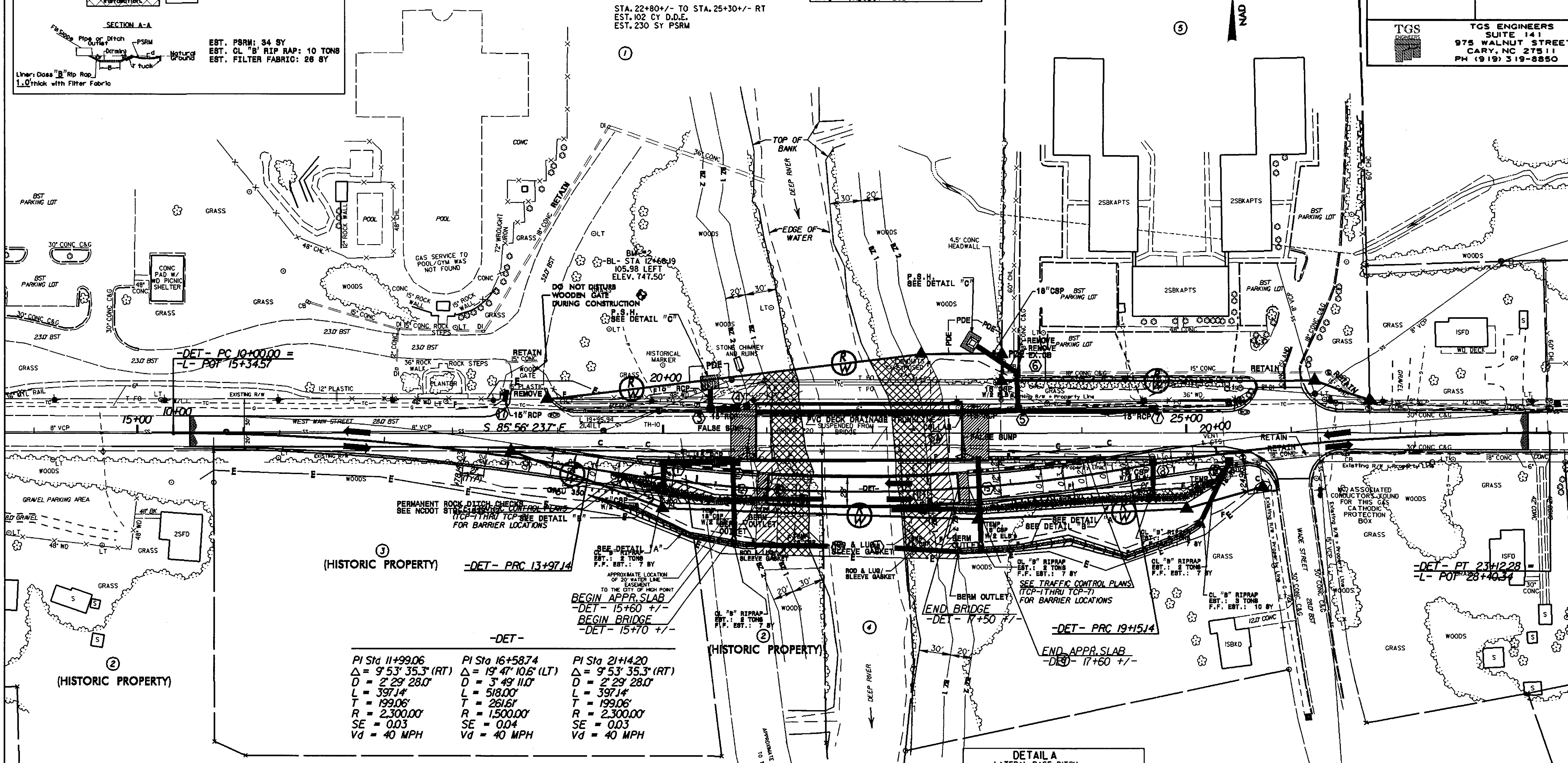
4	CB
5	CB
6	CB
7	CB
8	2GINARROW SLOT FLAT GRATE
9	ADJUST TBJB



-DET-

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D = 2° 29' 28.0"	D = 3° 49' 11.0"	D = 2° 29' 28.0"
L = 397.14'	L = 518.00'	L = 397.14'
T = 199.06'	T = 261.61'	T = 199.06'
R = 2,300.00'	R = 1,500.00'	R = 2,300.00'
SE = 0.03	SE = 0.04	SE = 0.03
Vd = 40 MPH	Vd = 40 MPH	Vd = 40 MPH

DATUM DESCRIPTION

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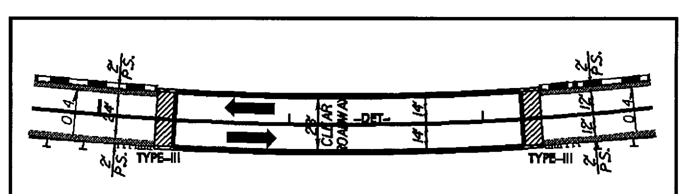
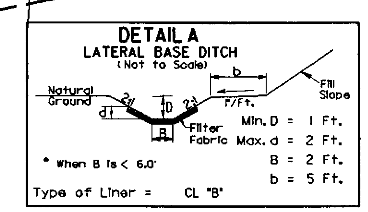


BRIDGE/ROADWAY RELATIONSHIP SKETCH



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EST. RIP RAP: 72 TONS +/-
EST. F.F.: 205 SY
EST. D.D.E.: 38 CY

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EST. RIP RAP: 107 TONS +/-
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DENOTES FILL IN ZONE 1
DENOTES FILL IN ZONE 2

SCALE: 1"= 50' HORIZ.

LEGEND
PAVED SHOULDER, CURB & SIDEWALK

SEE SHEET 5 FOR -L- PROFILE

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dduffield AT

8/17/99

IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS						BUFFER IMPACT		
Site No.	Station (From/To)	Structure Size	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Interchange Isolated Wetland (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Relocated Channel (ft)	Enclosed Channel (ft)	Zone 1 (sq ft)	Zone 2 (sq ft)	Mech Clear (Sq ft)
1	21+87+/-	PROPOSED												7841	3920	
		BRIDGE														
	16+30+/-	DETOUR												3920	2614	
		BRIDGE														
	TOTALS		0	0	0	0	0	0	0	0	0	0	0	11761	6534	0

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: 8.2495801 (B-3652)
BRIDGE #20 OVER DEEP RIVER
ON SR 4121

December-04

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	CITY OF HIGHPOINT	P.O. BOX 230 HIGH POINT, NC 27261
2	THE HISTORIC JAMESTOWN SOCIETY, INC.	P.O. BOX 512 JAMESTOWN, NC 27282-0512
3	MARY ELIZABETH PERRY RAGSDALE	P.O. BOX 367 JAMESTOWN, NC 27282
4	OAKDALE COTTON MILLS	P.O. BOX 787 JAMESTOWN, NC 27282-0787
5	JAMESTOWN VILLAGE ASSOCIATES, INC.	598 BONNYNECK DR. GEORGETOWN, SC 29440
6	TUCKER ENTERPRISES, INC.	309 COMMERCE DR. CHARLESTON, WV 25306-6405

NCDOT

DIVISION OF HIGHWAYS

GUILFORD COUNTY

PROJECT: 8.2495801 (B-3652)

REPLACE BRIDGE NO. 20
OVER DEEP RIVER ON SR 4121

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Guilford County
Bridge No. 20 on SR 4121 (Old US 29/70A)
over Deep River
Federal Aid Project No. BRSTP-4121(2)
State Project No. 8.2495801
T.I.P. No. B-3652

CATEGORICAL EXCLUSION

and

PROGRAMMATIC SECTION 4(F) EVALUATION AND APPROVAL

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

AND

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROVED:

02/19/04
DATE

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

2/19/04
DATE

for John F. Sullivan, III
Division Administrator, FHWA

Guilford County
Bridge No. 20 on SR 4121 (Old US 29/70A)
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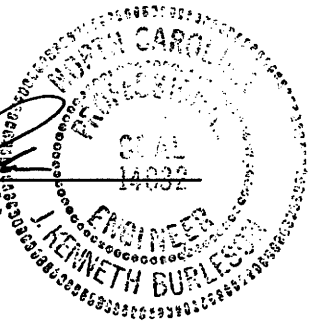
CATEGORICAL EXCLUSION

February 2004

Documentation Prepared by:
TGS Engineers



J. Kenneth Burleson, PE
Project Manager

2/12/04
Date

For the North Carolina Department of Transportation
Project Development and Environmental Analysis Branch

Elmo E. Vance
Project Manager

PROJECT ENVIRONMENTAL COMMITMENTS
Guilford County
Bridge No. 20 on SR 4121 (Old US 29/70A)
over Deep River
Federal Aid Project No. BRSTP-4121(2)
State Project No. 8.2495801
T.I.P. No. B-3652

NCDOT has agreed 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 Standard for Sensitive Watersheds, Best Management Practices for Bridge Demolition and Removal (BMPs-BDR), General Certification Conditions, and Section 401 Conditions of Certification.

Division 7 and Highway Design:

1. No in-stream work may occur on this project during a moratorium period of April 1 to May 31, due to the sunfish population.

2. High Quality Sedimentation and Erosion Control Measures will be used due to the DWQ water quality classification of WS-IV.

3. The project is within the area of the Deep River Basin covered by the Randleman Rules and NCDOT will comply with the conditions to obtain a "General" Major Variance and submit a "General" Major Variance form as described in 15A NCAC 2B.0250 to DENR with the 401 Water Quality Certification.

4. A 4-inch (10-centimeter) conduit will be provided on the replacement crossing to accommodate future expansion of the City of High Point Transportation Department's signal system.

5. Early and extensive utility coordination efforts will be conducted with local officials from High Point and Jamestown.

Project Development and Environmental Analysis Branch, Division 7, Highway Design and Roadside Environmental:

6. The aesthetic design for the project will be developed in consultation with the North Carolina State Historic Preservation Officer (SHPO) to reflect the character of the area including: 1)

minimization of tree cutting and impacts to the trees that remain (protective tree measures); 2) development of a landscape plan in consultation with the property owners and review of the landscape plan with the North Carolina State Historic Preservation Office (HPO); 3) inclusion of a two-bar metal bridge rail on a concrete parapet design on the replacement structure.

7. The new crossing will include clearance for 10-foot (3-meter) wide pathways beneath both sides of the bridge and NCDOT will allow access for these pathways.

8. Brick sidewalks, matching the brick sidewalks throughout the Town limits and along SR 4121, will be used when replacing the existing sidewalk. All decorative light standards affected by the project will be replaced.

Guilford County
Bridge No. 20 on SR 4121 (Old US 29/70A)
over Deep River
Federal Aid Project No. BRSTP-4121(2)
State Project No. 8.2495801
T.I.P. No. B-3652

INTRODUCTION: The replacement of Bridge No. 20 is included in the 2004-2010 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (TIP) and in the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion".

I. PURPOSE AND NEED STATEMENT

Bridge Maintenance Unit records indicate Guilford County Bridge No. 20 has a sufficiency rating of 37.3 out of a possible 100 for a new structure. The bridge is considered structurally deficient. The replacement of this inadequate structure will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

The project is located in the southwestern part of Guilford County in the Town of Jamestown. SR 4121 (Old US 29/70A) is also known as West Main Street and Greensboro-High Point Road. SR 4121 is a two-lane route classified as an urban principal arterial in the Statewide Functional Classification System. When the Transportation Improvement Program (TIP) projects and the expected changes in land use are considered, the current traffic volume of 15,600 vehicles per day (vpd) is expected to decrease to 14,500 vpd by the design year. The TIP projects include projects U-2412, R-609, U-2536, I-2402, U-2913, and U-2524. The projected volumes include 1 percent truck-tractor semi-trailer (TTST) and 3 percent dual-tired vehicles (DT).

In the vicinity of the bridge, SR 4121 has a 29-foot (8.8-meter) pavement width including one-foot (0.3-meter) paved shoulders. A 5-foot (1.5-meter) sidewalk exists along the north side of the route in the vicinity of the crossing. The posted speed limit along this section of SR 4121 is 35 miles (56 kilometers) per hour.

This section of SR 4121 is designated as City of High Point bicycle route 3 (see Figure 1a).

Jamestown Elementary School is located east of Bridge No. 20 and Guilford County Schools indicate approximately 41 school buses use this crossing daily.

Four accidents were reported in the vicinity of Bridge No. 20 during the period from July 2000 through June 2003.

Jamestown Apartments are located immediately northeast of the crossing. The only entrance to Jamestown Apartments is located on SR 4121 approximately 300 feet (90 meters) east of the bridge. The taper for the left turn lane into the apartment complex begins on the bridge.

City Lake Park, which is operated by the City of High Point, is located immediately northwest of the bridge. A one-way exit from the public pool area of the park onto SR 4121 is located approximately 200 feet (60 meters) west of the bridge; however, most of the park traffic uses the main entrance which is located approximately 800 feet (240 meters) west of the bridge. The park is open from March to December and the park pool is open from mid-May to September.

The Jamestown Historic District, which is listed in the National Register of Historic Places, includes properties along SR 4121 including the area southwest of the bridge. Bridge No. 20, built in 1926, is not considered eligible for the National Register of Historic Places and is not a contributing part of the district. The area southwest of the bridge and included in the district, is a wooded and non-landscaped portion of the former Mendenhall Plantation. The historic district also includes portions of City Lake Park along the north side of SR 4121.

Several aesthetic enhancements exist along SR 4121 in the vicinity of the crossing. The Town of Jamestown has added decorative lamp posts and light standards. A brick sidewalk is adjacent to the north side of the route, east of the entrance to the Jamestown Apartments.

Bridge No. 20 (see Figure 4) is considered to be in fair condition. The crossing is a four-span, two-lane structure. The clear roadway width is 30 feet (9.1 meters). The superstructure consists of reinforced concrete deck girders. The substructure contains reinforced concrete spill-through end bents on spread footings, with reinforced concrete post and web interior bents on spread footings. A 5-foot (1.5-meter) sidewalk exists on the north side of the bridge. The overall length of the structure is 169 feet (51.5 meters). The crossing has no posted weight limit. The roadway is situated approximately 37.5 feet (11.4 meters) above the river bed.

Utility impacts are anticipated to be high. Utilities are attached to the bottom on both sides of the existing structure. A 12-inch (30-centimeter) water line is suspended from the south side and a 6-inch (15-centimeter) natural gas line is suspended from the north side. A power line is located overhead along the north side of the crossing. Three large conduits for fiber optic telephone lines cross the river adjacent to the north side of the bridge. A fiber optic traffic signal interconnect cable is in place on the north side of the crossing.

III. ALTERNATIVES

A. Project Description

The recommended replacement structure will be a bridge approximately 185 feet (56.4 meters) long. The replacement structure will require a spill-through abutment on each end. This proposed bridge length is based on a preliminary hydraulic analysis. The final design of the bridge will be such that the backwater elevation will not encroach beyond the current 100-year floodplain limits (see Figure 5). The length of the new structure may be increased or decreased as necessary to accommodate peak flows as determined by further hydrologic studies.

Traffic service during construction must be maintained at this crossing since no adequate detour routes are available. To accommodate the 35 miles per hour posted speed limit along this section of the route, a design speed of 40 miles (64 kilometers) per hour will be provided. The roadway grade of the new structure will be approximately one-foot (0.30-meter) higher than the existing grade at this location.

To accommodate pedestrians, bicycles and motor vehicles, the approaches will provide a 5-foot (1.5-meter) sidewalk, a planting strip, a 2.5-foot (0.76-meter) curb and gutter and a 14-foot (4.3-meter) outside lane on the north side; a 12-foot (3.6-meter) center turning lane; and a 12-foot (3.6-meter) outside lane with a 4-foot (1.2-meter) paved shoulder on the south side (Figure 3). On the replacement structure, a 53.5-foot (16.3-meter) clear width will accommodate; a 5.5-foot (1.67-meter) sidewalk, a two-foot (0.6-meter) gutter and a 14-foot (4.3-meter) outside lane on the north side; a 12-foot (3.6-meter) center turn lane; and a 12-foot (3.6-meter) travel lane with an 8-foot (2.4-meter) shoulder along the south side.

B. Build Alternatives

The two alternatives evaluated for this project are described below and shown in Figure 2.

Alternative 1 (Preferred) replaces the structure along the existing alignment at its existing location. A temporary on-site detour with a 40-mile (64-kilometer) per hour design speed alignment to the south of the existing crossing will be used to maintain traffic service.

Alternative 2 replaces the structure on a new alignment to the south of its existing location. The alignment of Alternative 2 would introduce curves into an existing tangent alignment. The existing structure and approaches would serve to maintain traffic during construction. Due to the introduction of curves into an existing tangent alignment, additional estimated costs, and resulting impacts on historic sites,

Alternative 2 is not recommended.

C. Alternatives Eliminated from Further Study

Any alternative replacing the bridge to the north would require taking lands from City Lake Park and relocating the three large conduits for fiber optic telephone lines that cross the river adjacent to the north side of the bridge. Therefore, replacing the bridge to the north of the existing crossing was eliminated from further study.

The "Do-Nothing" or No-Build alternative will eventually necessitate closure of the bridge. This is not desirable due to the traffic service provided by SR 4121. "Rehabilitation" of the bridge is not desirable due to its age and deteriorated condition.

D. Preferred Alternative

Alternate 1 replaces the existing bridge on the existing alignment, is the preferred alternate (see Figure 2). A temporary detour structure and approaches will be provided to the south of the existing structure to maintain traffic on-site during construction.

To avoid adverse effects to the Jamestown Historical District, several environmental commitments must be followed during the project implementation. All sidewalks and decorative light standards affected by the project will be replaced. Brick sidewalks, matching the brick sidewalks through out the Town limits and along SR 4121, will be used when replacing the walkway. Tree cutting and impacts to the trees will be minimized. A landscaping plan will be developed and coordinated with the SHPO for approval before implementation. The bridge design will include a two-bar metal rail on a concrete parapet.

The local officials from High Point and Jamestown have identified a need for early and extensive utility coordination efforts. A 4-inch (10-centimeter) conduit will be provided on the replacement crossing to accommodate High Point's signal system interconnect.

Alternate 1 was selected because it is the most cost effective, has less impact on adjacent properties, and is less disruptive to the natural environment in the vicinity of the project. The selection of this alternate has the concurrence of the City of High Point, the Town of Jamestown and the NCDOT Division 9 office. This alternative received the most public support at a public meeting held to present the project alternatives.

IV. ESTIMATED COSTS

The estimated costs for the two alternatives, based on current prices, are as follows:

	Alternative 1 (Preferred)	Alternative 2
Structure	$692,825	$692,825
Roadway Approaches	307,494	708,362
Detour Structure and Approaches	163,800	N/A
Structure Removal	49,536	49,536
Misc. & Mob.	274,345	430,277
Eng. & Contingencies	262,000	319,000
Total Construction Cost	**$1,750,000**	**$2,200,000**
Right-of-Way and Utilities	134,000	267,000
Total Project Cost	**$1,884,000**	**$2,467,000**

The estimated cost of the project, shown in the 2004-2010 NCDOT Transportation Improvement Program (TIP), is $1,040,000, including $200,000 for right-of-way, $700,000 for construction and $140,000 prior years expense.

V. NATURAL RESOURCES

A review of the project area was undertaken to evaluate natural resource features likely to be affected by the project. Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic mapping (High Point East, NC 7.5 minute quadrangle, 1982), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (High Point East, NC NWI quadrangle,1995), and aerial photography.

A. Methodology

Bridge No. 20 is located along SR 4121 (West Main Street) at Deep River within the town limits of Jamestown (see Figure 1). The study corridor includes the channel and a portion of the floodplain adjacent to Deep River. The Deep River flows over the High Point Lake dam approximately 450 feet (137.2 meters) north of Bridge No. 20 and enters the study corridor from the north, then flows under the subject bridge and exits the study corridor to the south. Land use within the study corridor is principally urban/suburban land containing paved impervious surfaces and

landscaped or maintained areas. The land use includes a successional shrub assemblage (disturbed Piedmont Levee Forest), scattered trees along both banks, and a small, mature Piedmont Levee Forest.

Bridge No. 20 was visited on July 18, 2001. During the site visit, the study corridor was walked and visually surveyed for substantial features. For purposes of the field investigation and to assure proper area coverage of both alternatives, the study corridor was assumed to be approximately 1850 feet (564 meters) in length, with a width extending approximately 200 feet (61 meters) south and 100 feet (30.5 meters) north of the SR 4121 centerline. Plant community impact calculations provided in this report are based on corridors centered on each of the two alternatives. Final impacts will be limited to cut-and-fill boundaries of the constructed alternative. Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in Deep River.

Plant community descriptions are based on a classification system utilized by North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968), with adjustments made to reflect more current nomenclature (Kartesz 1998). Jurisdictional areas were evaluated using the three-parameter approach following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Geographical distribution and habitat requirements of terrestrial wildlife and aquatic organisms mentioned in this document were obtained by supportive literature (Webster *et al.* 1985, Potter *et al.* 1980, Martof *et al.* 1980, Rohde *et al.* 1994, Menhinick 1991, Palmer and Braswell 1995). Fish and wildlife nomenclature follow current standards. Water quality information for area streams and tributaries was derived from available sources (DWQ 2000a, DWQ 2000b). Quantitative sampling was not undertaken to support existing data.

The U.S. Fish and Wildlife Service (FWS) listing of federally protected species with ranges extending into Guilford County was obtained prior to initiation of the field investigation. In addition, NHP records documenting presence of federally or state listed species were consulted before commencing the field investigation.

B. Physiography and Soils

The study corridor is located within the Piedmont physiographic region and is underlain by the Mixed Felsic and Mafic soil region. In this region, close associations of acidic crystalline and more basic rocks results in very complex soil patterns (Daniels *et al.* 1999). The landscape is characterized by broad, gently sloping uplands, narrow convex ridges, and moderately steep valley slopes. Study corridor elevations rise from approximately 710 feet (216.4 meters) National Geodetic

Vertical Datum (NGVD) at stream side to 800 feet (243.8 meters) NGVD at the western terminus of the study corridor (High Point East, NC USGS quadrangle).

The Natural Resources Conservation Service (SCS 1977) indicates that several soil series are mapped within the study corridor. The series are Chewacla sandy loam (*Fluvaquentic Dystrochrepts*) and Madison clay loam (*Typic Hapludults*) along the channel of Deep River, Enon fine sandy loam (*Ultic Hapludalfs*) and Madison clay loam (*Typic Hapludults*) on side slopes along the channel, and Enon clay loam (*Ultic Hapludalfs*), Mecklenburg sandy clay loam (*Ultic Hapludalfs*), Mecklenburg-Urban land complex, and Vance-Urban land complex on upper stream terraces. Chewacla soils are considered non-hydric within Guilford County, but can contain inclusions of the hydric series Wehadkee (NRCS 1996). All of the other soils occurring in the study corridor are non-hydric, and without hydric inclusions.

Chewacla sandy loams are somewhat poorly drained, moderately permeable soils formed from recent alluvium deposited from medium to large streams. Chewacla soils occur in long, flat map units on floodplains. Within the study corridor, this series is mapped on the floodplain adjacent to both sides of the Deep River.

The Madison series consists of well drained, moderately permeable soils weathered from acid micaceous metamorphic rock. Madison soils occur on long, narrow side slopes. This series is mapped on the floodplain west of Deep River and adjacent to the Chewacla soils within the study corridor.

The Enon series consists of well drained, slowly permeable soils weathered from diorite, gabbro, hornblende schist, or mixed acidic and basic rocks. This series occurs on interstream divides or on side slopes. Within the study corridor, this series is mapped on the floodplain east of Deep River and adjacent to the Chewacla soils.

Mecklenburg soils are well drained, slowly permeable soils weathered from dark colored basic rocks such as diorite, gabbro, and hornblende schist. These soils are found on interstream divides or on long, narrow side slopes. This series is mapped on the floodplain in a narrow band in the west of the study corridor adjacent to the Madison series.

Soils are often modified by humans by cut and fill and are classified as "Urban" when built upon or "Pit" when substantial amounts of topsoil have been removed. The study corridor is located in an urban area in which much modification of the soil has occurred. Mecklenburg and Urban series together make up the Mecklenburg-Urban complex due to the difficulty of mapping such intricately mixed series. These complexes are located at the eastern and western extremes of the study corridor.

The Vance-Urban complex consists of about 40 to 60 percent Vance soils (*Typic Hapludults*). The Vance series are well-drained, slowly permeable soils that formed

in residuum weathered mainly from aplitic granite. Vance soils are found on narrow ridges and long narrow side slopes. The Vance-Urban complex occurs at the northeast quadrant of the study corridor.

C. Water Resources

1. Waters Impacted

The study corridor is located within sub-basin 03-06-08 of the Cape Fear River Basin (DWQ 2000a). This area is part of USGS accounting unit 03030003 of the South Atlantic-Gulf Coast Region. The section of Deep River crossed by the subject bridge has been assigned Stream Index Number 17-(3.3) by the N.C. Division of Water Quality (DWQ 2000b).

2. Stream Characteristics

Deep River is a fourth-order stream within a watershed primarily characterized by residential, agricultural, and urban land. Within the study corridor, Deep River is wide, exhibits weak sinuosity with poorly developed riffle/pool sequencing and flow. Stream width is approximately 18 feet (5.5 meters) at the point of the bridge crossing. The banks drop steeply from the floodplain approximately 12 feet (3.7 meters) on the west side of the stream and approximately 6 feet (1.8 meters) on the east side. The substrate is composed primarily of coarse sand and rocks with an organic muck from decaying algal mats.

During the field survey, the water level was below bankfull, flow velocity was stagnant, and depths along the study corridor varied from 0.5 to 4.0 feet (0.2 to 1.2 meters). Persistent emergent aquatic vegetation was not observed. Copious algal mats covered most substrate and floated free in the water. The stream was milky during the field visit, with visibility to the bottom impaired beyond several feet.

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. A best usage classification of WS-IV* has been assigned to Deep River. Class WS-IV denotes protected water supply waters that are generally in moderately to highly developed watersheds; point source discharges of treated wastewater are permitted under certain restrictions, and local programs to control nonpoint source and stormwater discharge of pollution are required. Class WS-IV waters are suitable for aquatic life propagation and survival, fishing, wildlife, agriculture, and secondary recreation. Secondary recreation refers to wading, boating, and other uses not involving human body contact with waters on an organized or frequent basis.

The designation "*" identifies waters that are within a designated Critical Supply Watershed and are subject to a special management strategy. This project is within the area of the Deep River Basin covered by the Randleman Rules described in 15A NCAC 2B.0248-.0250. No designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters occur within 1.0 mile (1.6 kilometers) of the study corridor. The Deep River, above High Point Lake (2.2 miles [3.5 kilometers] upstream of the study corridor) and below SR 1334 (0.8 mile [1.3 kilometers] downstream), is designated as a watershed Critical Area (CA).

The Division of Water Quality (DWQ) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed study corridor is summarized in the Cape Fear River basin management plan. Water quality in Deep River is currently designated Fair based on macroinvertebrate samples. The stream has been monitored approximately 1.0 mile (1.6 kilometers) downstream of the study corridor and currently has a use support rating of Partially Supporting. Sub-basin 03-06-08 supports two major point-source dischargers responsible for discharging 17.7 million gallons per day (67.0 million liters per day). No major point-sources discharge into Deep River upstream of the project corridor. The sub-basin supports 25 minor point-source dischargers responsible for discharging 10.3 million gallons per day (39.0 million liters per day). Non-point source pollution, water treatment, and agriculture are the prime sources of impairment within this sub-basin (DWQ 2000a).

3. Anticipated Impacts to Water Resources

A) General Impacts

Both proposed project alternatives include complete bridging of Deep River to maintain the current water quality, aquatic habitat, and flow regime. Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of a stringent erosion control schedule and the use of Best Management Practices (BMPs). The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation.

For both alternatives, the proposed bridge replacement will allow for continuation of pre-project stream flows in Deep River, thereby protecting the integrity of this waterway. Long-term impacts resulting from construction are expected to be negligible. In order to minimize impacts to water resources, NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the entire life of the project.

B) Impacts Related to Bridge Demolition and Removal

During removal of the existing bridge, there is potential for components of the deck and rails to be dropped into waters of the United States, resulting in a temporary fill of approximately 433.64 cubic yards (331.5 cubic meters). NCDOT's BMPs for Bridge Demolition and Removal will be applied for the removal of this bridge

D. Biotic Resources

1) Plant Communities

Three distinct plant communities were identified within the study corridor: Piedmont Levee Forest, disturbed Piedmont Levee Forest, and disturbed/maintained land. Piedmont Levee Forest and disturbed Piedmont Levee Forest are treated as one natural community by Schafale and Weakley (1990) but have been separated here due to substantial differences in structure and composition. These plant communities are described below.

Piedmont Levee Forest- this community is limited in extent to the floodplain and banks of the Deep River. Piedmont Levee Forest occurs in the southwest portion of the study corridor. The Piedmont Levee Forest is characterized by a closed canopy and well-developed shrub and herbaceous layers. Trees include American sycamore (*Platanus occidentalis*), tulip poplar (*Liriodendron tulipifera*), green ash (*Fraxinus pennsylvanica*), boxelder (*Acer negundo*), sugar maple (*A. barbatum*), red maple (*A. rubrum*), willow oak (*Quercus phellos*), and American elm (*Ulmus americana*). A prominent shrub layer includes saplings of the canopy as well as paw-paw (*Asimina triloba*), bladdernut (*Staphylea trifolia*), hazelnut (*Corylus americanus*), swamp dogwood (*Cornus amomum*), spicebush (*Lindera benzoin*), red bud (*Cercis canadensis*), bitternut (*Carya cordiformis*), American beech (*Fagus grandifolia*), black willow (*Salix nigra*), and mimosa (*Albizia julibrissin*). Herbaceous groundcover is dominated by winged stem (*Verbesina alternifolia*), false nettle (*Bohmeria cylindrica*), river oats (*Chasmanthium latifolium*), Solomon's-seal (*Polygonatum biflorum*), false Solomon's-seal (*Maianthemum racemosum*), and may-apple (*Podophyllum peltatum*).

Disturbed Piedmont Levee Forest- The disturbed Piedmont Levee Forest is characterized by a broken canopy and a dense, mixed growth of shrubs and groundcover. Trees include boxelder, black locust (*Robinia pseudoacacia*), black cherry (*Prunus serotina*), and golden rain tree (*Ailanthus altissima*). The understory consists of escaped exotics such as 'helleri' holly (*Ilex crenata* var. helleri), 'rotunda' holly (*Ilex cornuta* var. rotunda), Chinese privet (*Ligustrum sinense*), and golden rain tree. Herbaceous groundcover includes winged stem (*Verbesina alternifolia*), false nettle (*Bohmeria cylindrica*), Japanese grass (*Microstegium vimineum*), Indian strawberry (*Duchesnia indica*), jewelweed (*Impatiens capensis*), blackberry (*Rubus* sp.), and various knotweeds (*Polygonum* spp.) which are common near stream edges and sites with little canopy coverage. Scattered vines are common along ecotonal boundaries and include poison ivy (*Toxicodendron radicans*), greenbrier (*Smilax rotundifolia*), Japanese honeysuckle (*Lonicera japonica*), morning glory (*Ipomea* sp.), trumpet creeper (*Campsis radicans*), grape (*Vitis* sp.), English ivy (*Hedera helix*), and Virginia creeper (*Parthenocissus quinquefolia*). These vines may prevent or delay succession to mature Piedmont Levee Forest.

Disturbed/Maintained Land - Disturbed/maintained land occurs along the SR 4121 right-of-way and within private property adjacent to the northeast and southeast sides of SR 4121. The roadside right-of-way area is approximately 10 feet (3.0 meters) wide. These areas support an herb/grass assemblage which includes bluegrass (*Poa* sp.), fescue (*Festuca* sp.), goldenrod (*Solidago* sp.), blackberries, vetch (*Vicia* sp.), lespedeza (*Lespedeza* sp.), pokeberry (*Phytolacca americana*), and butterfly weed (*Asclepias* sp.). Shrubs and saplings within this assemblage include Chinese privet, golden rain tree, crepe myrtle (*Lagerstroemia indica*) redbud, boxelder, and black locust.

2) Plant Community Impacts

Plant community impacts are estimated based on the amount of each plant community present within the alternative corridors. A summary of potential plant community impact areas within the alternative corridors is presented in the following table.

From an ecological perspective, impacts of upgrading existing road facilities are minimal for same location alternatives (Alternative 1). Alternative 1 will result in less than half the permanent impact area of Alternative 2. Total plant community areas within Alternative 1 are approximately 60 percent of those encompassed by Alternative 2, because Alternative 1 utilizes a temporary detour rather than a new alignment. Both alternatives will require removal of mature Piedmont Levee Forest. No new fragmentation of plant

communities will be created by either alternative, as either project will result only in relocation of community boundaries. Both alternatives may only claim narrow strips of adjacent natural communities.

Plant Community Impacts within Alternative Corridors. Area of each plant community impacted by each alternative. Measurements are given in acres (hectares).

Plant Community	Alternative 1 (Preferred)			Alternative 2		
	Temp.	Perm.	Total	Temp.	Perm.	Total
Disturbed/ Maintained Land	0.11 (0.04)	0.19 (0.08)	0.30 (0.12)	0.03 (0.01)	0.93 (0.38)	0.96 (0.39)
Piedmont Levee Forest	0.29 (0.12)	0.37 (0.15)	0.66 (0.27)	0.08 (0.03)	0.90 (0.36)	0.98 (0.39)
Disturbed Piedmont Levee Forest	0.09 (0.04)	0.36 (0.15)	0.45 (0.19)	0.05 (0.02)	0.41 (0.17)	0.46 (0.19)
TOTAL:	0.49 (0.20)	0.92 (0.38)	1.41 (0.58)	0.16 (0.06)	2.24 (0.91)	2.40 (0.97)

Roadside-forest ecotones typically serve as vectors for invasive species into local natural communities. An example of an undesirable invasive species utilizing roadsides is kudzu (*Pueria montana*). The establishment of a hardy groundcover on road shoulders as soon as practicable will limit the availability of construction areas to invasive and undesirable plants.

3) Wildlife

Eastern chipmunk (*Tamiasciurus hudsonicus*) was the only mammal species observed within the study corridor; however, tracks were observed of raccoon (*Procyon lotor*). Other Mammals expected to occur within the study corridor include eastern mole (*Scalopus aquaticus*), eastern pipistrelle (*Pipistrellus subflavus*), eastern cottontail (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), white-footed mouse (*Peromyscus leucopus*), and Norway rat (*Rattus norvegicus*).

Bird species that were identified during the field visit are northern cardinal (*Cardinalis cardinalis*), Carolina chickadee (*Poecile carolinensis*), barn swallow (*Hirundo rustica*), blue jay (*Cyanocitta cristata*), broad-winged hawk (*Buteo platypterus*), and eastern towhee (*Pipilo erythrophthalmus*). The stream-side habitat may also be expected to support northern flicker (*Colaptes auratus*), common yellowthroat (*Geothlypis trichas*), red-shouldered hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), barred owl (*Strix varia*), belted kingfisher (*Megaceryle alcyon*), tufted titmouse (*Baeolophus bicolor*), white-breasted nuthatch (*Sitta carolinensis*), and gray catbird (*Dumetella carolinensis*).

An American toad (*Bufo americanus*) and a five-lined skink (*Eumeces faciatus*) were observed within the study corridor. Species that might be expected in this habitat (Conant and Collins 1991) are northern cricket frog (*Acris crepitans*), gray treefrog (*Hyla versicolor*), ringneck snake (*Diadophis punctatus*), rat snake (*Elaphe obsoleta*), and eastern box turtle (*Terrapene carolina*).

No aquatic amphibian or reptile was observed during field investigations. Deep River provides suitable habitat for aquatic and semi-aquatic reptiles including snapping turtle (*Chelydra serpentina*) and northern water snake (*Nerodia sipedon*). Typical amphibian species for this habitat type include green frog (*Rana clamitans*) and southern two-lined salamander (*Eurycea cirrigera*).

Two mollusk species were observed within the study corridor, the Asian clam (*Corbicula fluminea*) and another larger, unidentified pelecypod (bivalve). Crayfish and damselfly nymphs were observed in-stream.

No sampling was undertaken in Deep River to determine fishery potential. Many small minnows and some large fish, bream and large-mouth bass (*Micropterus salmoides*), were seen during visual surveys. Species which may be present in Deep River include golden shiner (*Notemigonus crysoleucas*), bluehead chub (*Nocomis leptocephalus*), greenfin shiner (*Notropis chloristius*), spottail shiner (*N. hudsonius*), whitemouth shiner (*N. alborus*), margined madtom (*Noturus insignis*), tessellated darter (*Etheostoma olmstedi*) and redbreast sunfish (*Lepomis auritus*). Migratory fish are not expected to occur within the study corridor.

According to the North Carolina Wildlife Resources Commission (WRC) (letter dated January 2, 2001), the Deep River just below High Point Lake contains good numbers of sunfish and may support a tailrace fishery. The WRC requests that no in-water work be performed from April 1 to May 31.

4) Wildlife Impacts

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. No substantial habitat fragmentation is expected since potential improvements will be restricted to or adjoining existing roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement patterns. Long-term impacts are expected to be inconsequential for both alternatives. Impacts associated with turbidity and suspended sediments resulting from construction of bridge bents will affect benthic populations on a short-term basis. Temporary impacts to downstream habitats from increased sedimentation during construction will be minimized by the implementation of stringent erosion control measures and continual inspection.

E. Special Topics

1) Waters of the United States

Surface waters within the embankments of Deep River are subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR Section 328.3). Deep River is characterized on NWI mapping as a riverine, lower perennial, permanently flooded stream with an unconsolidated bottom (R2UBH). The field visit verified this characterization, finding Deep River to be a perennial stream with an unconsolidated bottom of sand, gravel, and pebbles.

There is potential that components of the bridge deck and rails may be dropped into waters of the United States during construction. The resulting temporary fill associated with bridge removal is approximately 433.64 cubic yards (331.5 cubic meters). In consideration of surface water impacts, this project can be classified as Case 2, where no in-stream work may occur during the moratorium period of April 1 to May 31, due to the sunfish population. In addition, restrictions outlined in Best Management Practices for Protection of Surface Waters must be followed. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

2) Permits

Vegetated wetlands are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). No

vegetated wetlands subject to jurisdictional consideration under Section 404 of the Clean Water Act as "waters of the United States" (33 CFR Section 328.3) occur within the study corridor.

Within the study corridor, jurisdictional areas are limited to the open waters of Deep River. Replacement of Bridge No. 20 will result in no permanent impacts to jurisdictional areas.

3) Permit Requirements

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) #23 (61 FR 65874, 65916; December 13, 1996) for CEs due to expected minimal impact. DWQ has made available a General 401 Water Quality Certification for NWP #23. However, authorization for jurisdictional area impacts through use of this permit will require written notice to DWQ. In the event that NWP #23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the COE. Notification to the COE is required if this general permit is utilized.

4) Mitigation

Fill or alteration of streams may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). Compensatory mitigation is not expected to be offered for this project due to the avoidance of impacts to jurisdictional areas. Utilization of BMPs is recommended in an effort to further minimize impacts. A final determination regarding mitigation rests with the COE and DWQ.

F. Rare and Protected Species

1. Federal Protected Species

Species with the federal classification of Endangered, Threatened, or officially Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "Threatened species" is defined as "any species which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). Bald eagle (*Haliaeetus leucocephalus*) is the only federally protected species listed for Guilford County (February 18, 2003 FWS list). Bald eagle is considered

"Threatened" by FWS, and has been proposed for delisting.

Bald Eagle - The bald eagle is a large raptor with a wingspan greater than 6.0 feet (1.8 meters). Adult bald eagles are dark brown with a white head and tail. Immature eagles are brown with whitish mottling on the tail, belly, and wing linings. Bald eagles typically feed on fish but may also take birds and small mammals. In the Carolinas, nesting season extends from December through May. Bald eagles typically nest in tall, living trees in a conspicuous location near open water. Eagles forage over large bodies of water and utilize adjacent trees for perching. Disturbance activities within a primary zone extending 750 to 1500 feet (229 to 458 meters) from a nest tree are considered to result in unacceptable conditions for eagles (FWS 1987). The FWS recommends avoiding disturbance activities, including construction and tree-cutting within this primary zone. Within a secondary zone, extending from the primary zone boundary out to a distance of 1.0 mile (1.6 kilometers) from a nest tree, construction and land-clearing activities should be restricted to the non-nesting period. The FWS also recommends avoiding alteration of natural shorelines where bald eagles forage, and avoiding substantial land-clearing activities within 1500 feet (457.2 meters) of known roosting sites.

The study corridor contains no large bodies of open water that might serve as bald eagle habitat. The nearest large body of water, High Point Lake, is approximately 0.8 mile (1.3 kilometers) to the north. Tall, old trees which might serve as perching sites do grow near the stream, but lack of open water access is probably a key limiting factor for the species within the study corridor. NHP records document no occurrences of bald eagle within 5.0 miles (8.0 kilometers) of the study corridor, and no eagles were observed during the site visit.

BIOLOGICAL CONCLUSION: The Deep River study corridor contains no suitable open water habitat for bald eagles. No nearby occurrences have been documented by the NHP, and no eagles were seen during the site survey. Based on these factors and professional judgement, the proposed project will not affect bald eagle. **NO EFFECT**

2. Federal Species of Concern

The February 18, 2003, FWS list includes a category of species designated as "Federal species of concern" (FSC). A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). The Carolina darter (*Etheostoma collis lepidinion*) is the only FSC listing for Guilford County. The NHP records no occurrences of the Carolina darter within 2.0 miles (3.2 kilometers) of the study corridor.

3. State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered, Threatened, Special Concern, Candidate, Significantly Rare, or Proposed receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). No species with these designations are documented within 1.0 mile (1.6 kilometers) of the study corridor.

VI. CULTURAL RESOURCES

A) Compliance Guidelines

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

B) Historic Architecture

A NCDOT architectural historian surveyed the Area of Potential Effects (APE) and photographed and evaluated all properties over fifty years of age according to eligibility criteria established by the National Register of Historic Places. On January 5, 2001, NCDOT submitted a report with the eligibility findings to the State Historic Preservation Office (HPO). In that report it was determined that the Jamestown Historic District (listed in the National Register in 1973) remained eligible for the National Register, but that the boundaries should be reduced because the district had lost many contributing resources and infill construction visually impeded the sense of the overall historic environment. Furthermore, it was determined that Bridge No. 20 was not eligible for the National Register. On February 20, 2001 the HPO submitted a letter to NCDOT which concurred with the findings of that report. On November 29, 2001 NCDOT met with HPO and FHWA to discuss the effects of the proposed project on the Jamestown Historic District. Alternative 2 was determined to have an adverse effect on the district, while Alternative 1 was determined to have a no adverse effect on the district provided the following environmental commitments were met:

- Minimization of tree cutting and impacts to the trees that remain (protective tree measures);
- Development of a landscape plan in consultation with property owners and review of the landscape plan with the North Carolina State Historic Preservation Office

(HPO); and

- Inclusion of a two-bar metal rail on a concrete parapet design on the replacement structure.

(All correspondence and forms are included in the Appendix)

C) Archaeology

The State Historic Preservation Officer (SHPO), in a memorandum dated April 2, 2001, recommended that "no archaeological investigation be conducted in connection with this project." A copy of the SHPO memorandum is included in Appendix A.

VII. SECTION 4(f) RESOURCES

As the proposed replacement is anticipated to be constructed with Federal funds, and this project will involve the taking of minor amounts of public park and historic property for highway use, it is necessary that this project comply with the requirements of Section 4(f) of the Department of Transportation Act (80 Stat. 931, PL 89-670). These requirements are designed to insure that special efforts are made "to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Since this project necessitates the use of a minor amount of land from a public park and historic property, and since this project meets the criteria set forth in the Federal Register, a programmatic Section 4(f) evaluation satisfies the requirements of Section 4(f) (see FINAL NATIONWIDE SECTION 4(f) EVALUATION AND APPROVAL FOR FEDERALLY-AIDED HIGHWAY PROJECTS WITH MINOR INVOLVEMENT WITH PUBLIC PARKS, RECREATION LANDS, AND WILDLIFE AND WATERFOWL REFUGES).

The following alternatives, which avoid use of the historic bridge and properties, have been fully evaluated:

(1) Do-Nothing Alternative. The Do-Nothing or "No-Build" Alternative would not correct the safety and maintenance problems caused by the deteriorating structure. Additionally, this alternative would eventually necessitate closure of the bridge, separating areas that have been connected by a crossing at this location for years.

(2) Alternatives on New Location. With the park in the northwest quadrant and the Medenhall Plantation of the Jamestown Historic District in the southwest quadrant, relocation to the north or south of the structure's present location does not avoid the considered properties. The boundaries of the properties preclude new construction alternatives that avoid the properties, given the project objective is to replace a deficient bridge structure and to provide safe approaches to the structure. Any location other than the existing location would require

more right-of-way and land disturbance to these properties.

(3) Rehabilitate the Bridge. Due to the age and deteriorated condition of the concrete substructure, complete "rehabilitation" of the old bridge is not considered feasible.

These alternatives were not found to be feasible and prudent.

All possible planning to minimize harm to the historic properties, public park and recreation lands have been incorporated and performed as an integral part of this project. These measures include:

Project Design: An aesthetic design for the project will be developed in consultation with the North Carolina State Historic Preservation Officer (SHPO) and to reflect the character of the area to include: 1) minimization of tree cutting and impacts to the trees that remain; 2) development of a landscape plan in consultation with the property owners and review of the landscape plan with the North Carolina State Historic Preservation Office (HPO); and 3) the inclusion of a two-bar metal rail on a concrete parapet design on the replacement structure.

Approval of the programmatic Section 4(f) by the FHWA Administrator is included as the FINAL NATIONWIDE SECTION 4(f) EVALUATION AND APPROVAL FOR FEDERALLY-AIDED HIGHWAY PROJECTS WITH MINOR INVOLVEMENTS WITH HISTORIC SITES.

VIII. ENVIRONMENTAL EFFECTS

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

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

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

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

No adverse impact on families or communities is anticipated. Right-of-Way acquisition will be limited. No relocatees are expected with implementation of the preferred alternative.

In compliance with executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations) a review was conducted to

determine whether minority or low-income populations were receiving disproportionately high and adverse human health or environmental impacts as a result of this project. The investigation determined the project would not disproportionately impact any minority or low income populations.

No adverse effect on public facilities or services is anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

The Farmland Protection Policy Act (FPPA) requires all federal agencies or their representatives to consider the potential impacts to prime, unique or important farmland soils for all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). The proposed project has been coordinated with the US Department of Agriculture and no prime, unique or important farmland will be converted as a result of this bridge replacement project. This project is exempt from the FPPA since it is within the urban limits of Jamestown..

A GeoEnvironmental Impact Evaluation was conducted along the project. Based on the field reconnaissance survey and a review of the Geographical Information Service (GIS) map, there were no Underground Storage Tank (UST) impacts, no Superfund sites, no regulated or unregulated landfills or dumpsites located within the project limits.

The project is located in Guilford County, which is within the Greensboro-Winston-Salem-High Point nonattainment area for ozone (O_3) as defined by the EPA. The 1990 Clean Air Act Amendments (CAAA) designated these areas as "moderate" nonattainment area for O_3. However, due to improved monitoring data, these areas were redesignated as "maintenance" for O_3 on November 7, 1993. Section 176(c) of the CAAA requires that transportation plan, programs, and projects conform to the intent of the state air quality implementation plan (SIP). The current SIP does not contain any transportation control measures for Guilford County. The Greensboro Urban Area 2025 Long Range Transportation Plan (LTRP) and the 2004-2010 Metropolitan Transportation Improvement Program (MTIP) have been determined to conform to the intent of the SIP. The USDOT air quality conformity approval of the LRTP was October 1, 2001 and the USDOT air quality conformity approval of the MTIP was October 1, 2003. The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. There have been no significant changes in the project's design concept or scope, as used in the conformity analyses.

If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise of Title 23 of the Code of Federal Regulations, Part 772, and for air quality of the 1990 Clean Air Act Amendments and the NEPA process, and no additional reports are necessary.

Since the project is located along the existing alignment and will not substantially increase

traffic volumes, the impact on noise levels will not be substantial. Noise levels will increase during construction, but the increase will only be temporary. Also, construction activities are usually conducted only during daylight hours along projects of this nature. Therefore, traffic noise reports are considered unnecessary. This noise assessment completes the requirements for evaluating highway traffic noise in Title 23 of the Code of Federal Regulations, Part 772.

Guilford County is a participant in the National Flood Insurance Program. Bridge No. 20 is located in a detailed 100-year Federal Emergency Management Agency (FEMA) Flood Study. The approximate 100-year floodplain in the project area is shown in Figure 5. The proposed replacement will not adversely affect the existing floodplain, or modify flood characteristics, and will have minimal impacts on the floodplain due to roadway encroachment. The existing drainage pattern will not be affected.

Since the project is within the area of the Deep River Basin covered by the Randleman Rules, NCDOT will comply with the conditions to obtain a "General" Major Variance and submit a "General" Major Variance form as described in 15A NCAC 2B.0250 to DENR with the 401 Water Quality Certification.

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

IX. PUBLIC INVOLVEMENT

On March 27, 2002, a public officials meeting and a citizen informational workshop were conducted in Jamestown. At the workshop and the public officials meeting, several requests for the project were noted. At the public officials meeting, the numerous utility conflicts were identified and the need for early and extensive utility coordination efforts was noted. The City of High Point requested conduit on the replacement crossing to accommodate their signal system. Jamestown requested the top elevation of both bridge rails be placed at the same elevation instead of providing a southern rail higher than the northern rail to accommodate bicycle traffic. Jamestown also requested the light standards and decorative poles be replaced in kind and the sidewalk along the northern approach be replaced with a brick sidewalk to match the existing walk east of the Jamestown Apartment entrance. Proposed walking trails along both sides of the Deep River beneath the bridge were noted with the request for sufficient clearances to accommodate 10-foot (3- meter) wide trails. At the citizen informational workshop, it was requested to provide signing to note the Cape Fear River Basin. An expedited construction period along with any other means to minimize sedimentation impacts to the river were requested.

X. AGENCY COMMENTS

North Carolina Wildlife Resources Commission

Comment: This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be performed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV.

Response: All necessary sedimentation and erosion control measures will be implemented during the construction of the new structure. No in-water work will be performed during the months of April and May.

Historic Jamestown Society, Inc.

Comments: We... support Alternate 1 for the bridge replacement.

We understand this procedure will require a temporary bridge constructed on the south side during the replacement phase of the bridge.

We request permission to develop a pathway beneath the bridge to connect the Deep River Trail to the sidewalk on the north side of SR 4121.

Jamestown Historical Society also requests that the sidewalks be replaced with the brick pavers and the lights be replaced on the new bridge.

Response: Alternate 1, replacement of the bridge at the existing location with a temporary bridge constructed on the south side to maintain traffic during construction, is the preferred alternative. The new crossing will include clearance for a 10-foot (3-meter) pathways beneath the bridge and NCDOT will allow access beneath the new crossing for these pathways. The sidewalks will be replaced with brick pavers and any disturbed decorative lights will be replaced along the project.

Town of Jamestown

Comment: The Town of Jamestown requests an easement under the W. Main Street Bridge on both sides of the River and both sides of the walkway.

Response: The new crossing will include clearance for 10-foot (3-meter) pathways beneath both sides of the bridge and NCDOT will allow access for these pathways.

Comment: The Town of Jamestown is requesting that brick sidewalks be used when replacing the walkway at this location. The Town of Jamestown has spent significant dollars to install brick sidewalks throughout the Town limits. We request that DOT does the same for conformity throughout the Town.

Response: The existing sidewalks will be replaced with brick pavers.

City of High Point

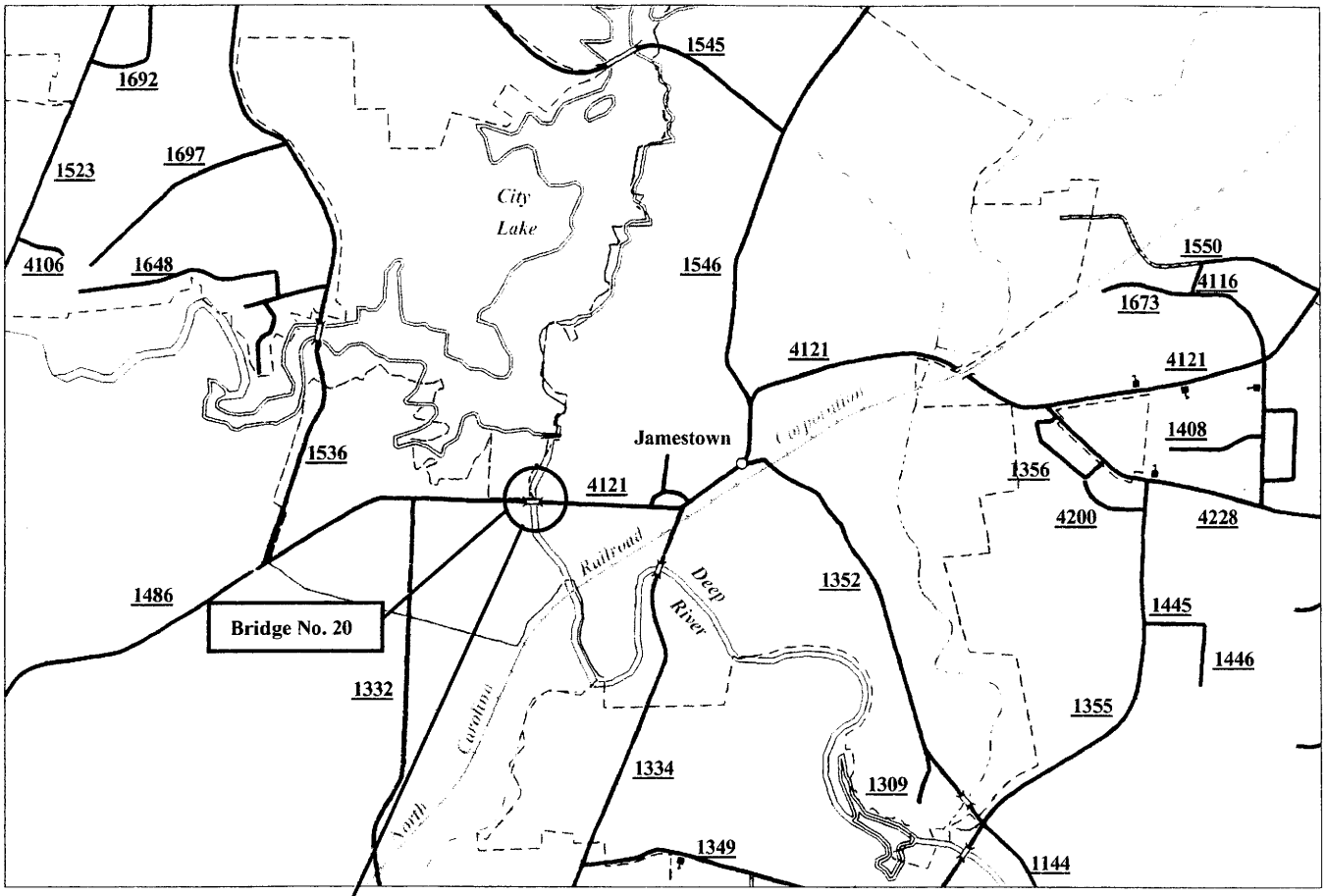
Comment: This is to confirm that fiber optic traffic signal interconnect cable is in place (at the crossing) and will need to be kept in service during the bridge replacement. We would also like to request that provisions be made in the new bridge for a minimum four-inch conduit for the fiber optic signal cable.

Response: NCDOT will conduct extensive utility coordination with local officials from High Point and Jamestown. A 4-inch (10-centimeter) conduit will be provided on the replacement crossing to accommodate the City of High Point Transportation Department's signal system.

Guilford County

Comment: We feel that the new bridge over the Deep River should incorporate wide sidewalks on both sides and should allow for the future construction of a walking path along the river under the bridge.

Response: A 5-foot (1.5-meter) sidewalk will be constructed on the north side to replace the existing sidewalk on this side. A 12-foot (3.6-meter) outside lane with a 4-foot (1.2-meter) paved shoulder will be provided on the south side. This typical section has been approved by the Town of Jamestown, the City of High Point, the Jamestown Historical Society and the North Carolina State Historic Preservation Officer (SHPO). The new bridge will provide clearance for 10-foot (3-meter) pathways beneath both sides of the bridge and access will be allowed for these pathways.



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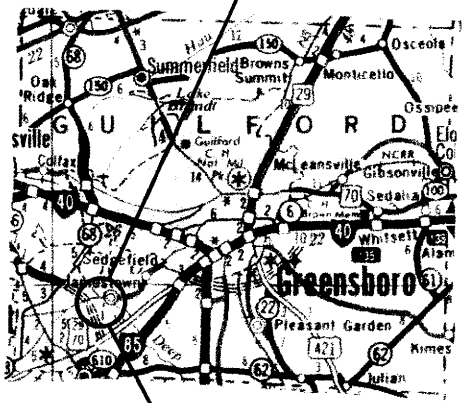
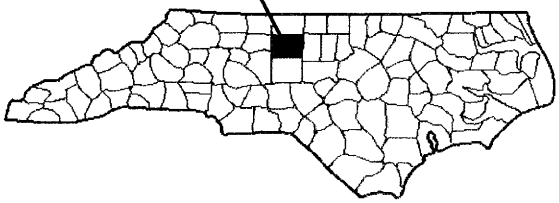
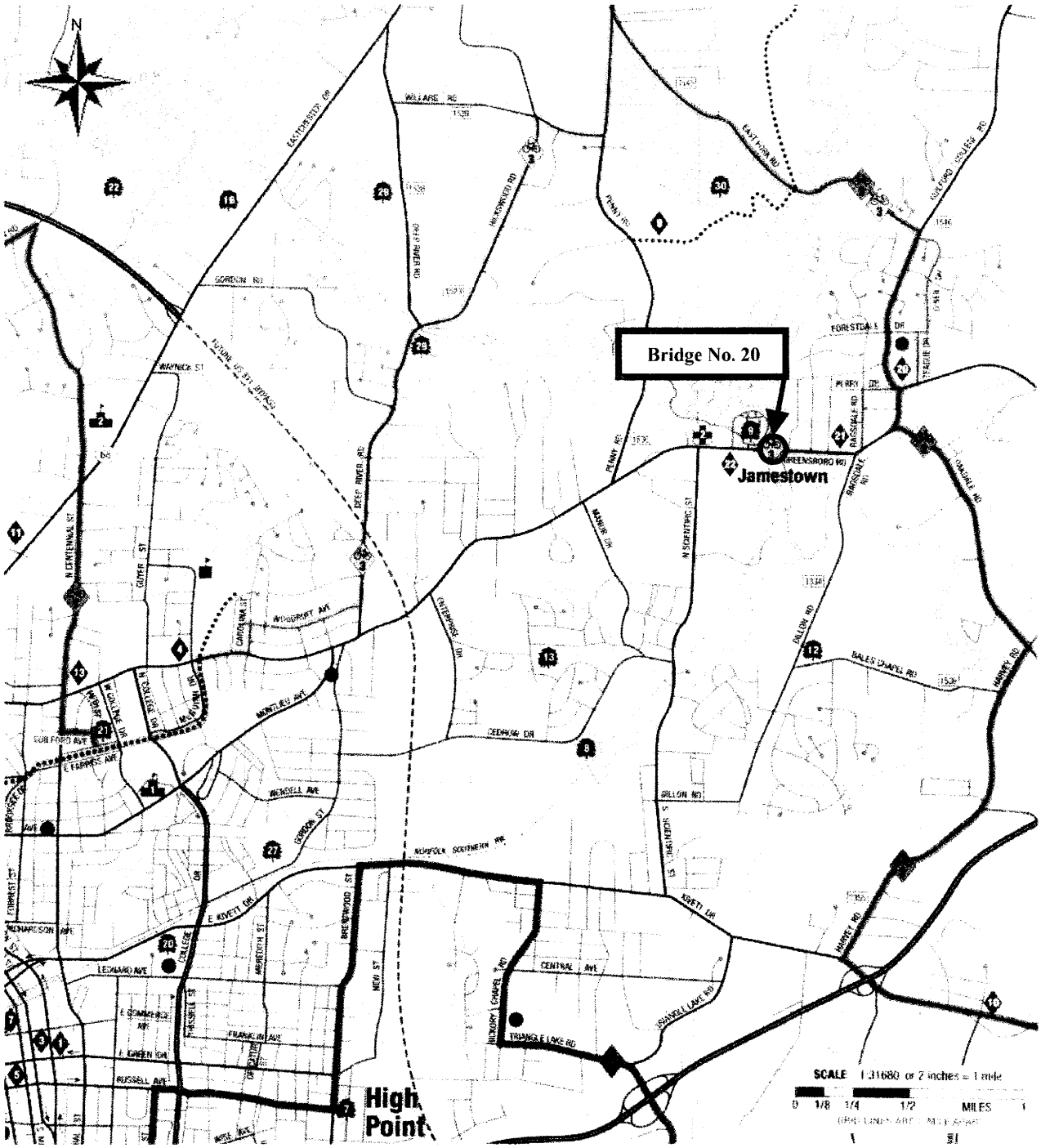
APPROXIMATE SCALE





	North Carolina Department of Transportation Project Development & Environmental Analysis Branch
GUILFORD COUNTY Bridge No. 20 on SR 4121 (Old US 29-70A) over Deep River TIP No. B-3652	
	Figure 1



High Point Area Bicycle Map

Symbols

- Signed Bicycle Route
- Unsigned Connector Route
- Winston-Salem/Forsyth County Route & Number
- Greenway
- Road, Street
- Minor Arterial
- Major Arterial, Divided
- Limited Access Highway (bicycles prohibited)
- One-Way Streets
- North Carolina Highway, Secondary Road
- US Highway, Business, Loop
- Interstate Highway, Business Loop, Bypass
- Points of Interest, Parks
- Public High Schools, Colleges and Universities
- Fire Stations, Police Stations, Hospitals

	North Carolina Department of Transportation Project Development & Environmental Analysis Branch
GUILFORD COUNTY Bridge No. 20 on SR 4121 (Old US 29-70A) over Deep River TIP No. B-3652	
	Figure 1a


N
Alternative 1 (Preferred)
Alternative 1 (Temporary Detour)
Alternative 2
SR 4121 (Old US 29/70)
Deep River
0 Meters 30
0 Feet 100
APPROXIMATE SCALE
North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch
GUILFORD COUNTY
Bridge No. 20
on SR 4121 (Old US 29/70A)
Over Deep River
TIP No. B-3652
Figure 2

be planted with a spacing of not more than 10'x10'. If possible, when using temporary structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

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

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

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

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

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

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

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

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

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

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

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

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

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If

North Carolina Wildlife Resources Commission

512 N. Salisbury Street, Raleigh, North Carolina 27604-1188, 919-733-3391
Charles R. Fullwood, Executive Director

TO: John Conforti
Project Engineer, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program

DATE: January 2, 2001

SUBJECT: NCDOT Bridge Replacements in Anson, Cabarrus, Catawba, Cleveland, Davie, Forsythe, Gaston, Guilford, Mecklenburg, Randolph, Rockingham, and Stanly counties of North Carolina. TIP Nos. B-3404, B-3421, B-3822, B-3828, B-3637, B-3835, B-3454, B-3839, B-3840, B-3337, B-3652, B-3851, B-3677, B-3506, B-3694, and B-3700.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations are as follows:

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

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

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

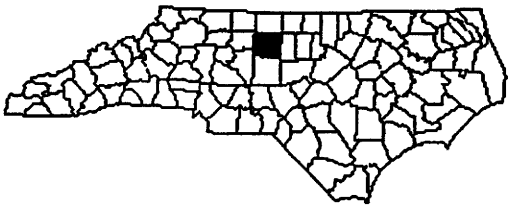
4. If possible, bridge supports (bents) should not be placed in the stream.

5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should

Updated: 02/18/2003

U.S. Fish & Wildlife Service

GUILFORD COUNTY



Common Name	Scientific Name	Status
Vertebrates		
Bald eagle	*Haliaeetus leucocephalus*	Threatened(Proposed for delisting)
Carolina darter	*Etheostoma collis lepidinion*	FSC

KEY:

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

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

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

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

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

encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

The Service appreciates the opportunity to comment on this project. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding these comments, please contact Tom McCartney at 919-856-4520, Ext. 32.

Sincerely,

M. Lee Wicker

Acting for Dr. Garland B. Pardue
Ecological Services Supervisor

Enclosure

cc: COE, Raleigh, NC (Eric Alsmeyer)
NCDWQ, Raleigh, NC (John Hennessy)
NCDNR, Creedmoor, NC (David Cox)

FWS/R4:TMcCartney:TM:12/22/00:919/856-4520 extension 32:\3brdggui.lfd

systems should use existing crossings and/or occur on a structure wherever feasible. Where bridging is not feasible, culvert structures that maintain natural water flows and hydraulic regimes without scouring, or impeding fish and wildlife passage, should be employed. Highway shoulder and median widths should be reduced through wetland areas. Roadway embankments and fill areas should be stabilized by using appropriate erosion control devices and techniques. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

The National Wetlands Inventory (NWI) maps of the Greensboro and High Point East 7.5 Minute Quadrangles indicate there may be wetland resources in the specific work areas. However, while the NWI maps are useful for providing an overview of a given area, they should not be relied upon in lieu of a detailed wetland delineation by trained personnel using an acceptable wetland classification methodology. Therefore, in addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to facilitate a thorough review of the action.

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

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

The document presents a number of scenarios for replacing each bridge, ranging from in-place to relocation, with on-site and off-site detours. The Service recommends that each bridge be replaced on the existing alignment with an off-site detour.

The enclosed list identifies the federally-listed endangered and threatened species, and Federal Species of Concern (FSC) that are known to occur in Guilford County. The Service recommends that habitat requirements for the listed species be compared with the available habitats at the respective project sites. If suitable habitat is present within the action area of the project, biological surveys for the listed species should be performed. Environmental documentation that includes survey methodologies, results, and NCDOT's recommendations based on those results, should be provided to this office for review and comment.

FSC's are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSC's receive no statutory protection under the ESA, we would

United States Department of the Interior

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

December 22, 2000

Mr. William D. Gilmore, P.E., Manager
NCDOT
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Gilmore:

Thank you for your November 15, 2000, requests for information from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of proposed bridge replacements in Guilford County, North Carolina. This report provides scoping information and is provided in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-667d) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543). This report also serves as initial scoping comments to federal and state resource agencies for use in their permitting and/or certification processes for this project.

The North Carolina Department of Transportation (NCDOT) proposes to replace the following bridge structures:

1. B-3337 Bridge No. 527 on SR 1001 over North Buffalo Creek;

2. B-3652 Bridge No. 20 on SR 4121 over Deep River, and

3. B-3851 Bridge No. 21 on SR 3163(421) over US 29/70.

The following recommendations are provided to assist you in your planning process and to facilitate a thorough and timely review of the project.

Generally, the Service recommends that wetland impacts be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. In regard to avoidance and minimization of impacts, we recommend that proposed highway projects be aligned along or adjacent to existing roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. Areas exhibiting high biodiversity or ecological value important to the watershed and region should be avoided. Crossings of streams and associated wetland

GUILFORD COUNTY

PLANNING AND DEVELOPMENT DEPARTMENT

December 4, 2000

RECEIVED
DEC 6 2000

William D. Gilmore, PE
Project Development and Environmental Analysis
NCDOT
1548 Mail Service Center
Raleigh, NC 27699-1548

Reference: Bridge Replacement Project B-3652

Dear Mr. Gilmore:

Thank you for the opportunity to comment on this project. SR 4121 (Old US 29/70) crosses Deep River just west of downtown Jamestown. In recent years, the Town has invested considerable money and effort to create a bike and pedestrian-friendly environment. This includes new sidewalks on both sides of SR 4121 (Main Street), a pedestrian bridge across Deep River along Dillon Rd., a pedestrian bridge across High Point Lake along Penny Rd., and sidewalks in several other locations.

The reason for this effort is easy to see: Jamestown is a compact community characterized by small businesses, historic buildings and parks in its downtown area. The small-town feel has been enhanced now that residents can walk from place to place. Based on this, we feel that the new bridge over Deep River should incorporate wide sidewalks on both sides and should allow for the future construction of a walking path along the River under the bridge.

Please review the enclosed map of greenways and trails in Guilford County. I have highlighted the Jamestown area to show that Jamestown Park, Piedmont Environmental Center, City Lake Park, Town Center Park, Jamestown Elementary School and other destinations are all located within walking or biking distance of the proposed bridge. Please ensure that the new bridge will add to the environment that Jamestown has been working so hard to achieve. Thank you once again for the opportunity to comment.

Sincerely,

Roger W. Bardsley

Roger W. Bardsley, AICP

Cc: John Frezell, Town Manager

Post Office Box 3427 • Greensboro, North Carolina 27402
Telephone: (919) 373-3334

CITY OF HIGH POINT
NORTH CAROLINA

April 9, 2003

Ms. Gail Grimes, P.E., Assistant Manager
Project Development & Environmental Analysis Branch
NCDOT
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Subject: B-3652, Guilford County Bridge No. 20 on SR 4121 (High Point Road) over Deep River in Jamestown, State Project No. 8.2495801, Federal Project No. BRSTP-4121(2)

Dear Ms. Grimes:

I understand that as a part of your project development, you need confirmation that the City of High Point has had the opportunity for input into the planning of the project. Since the project will involve lands from City Lake Park, the City of High Point Parks and Recreation Department and the Transportation Department were both involved in the project planning meetings conducted in November 2001 and March 2002. The City concurs with the recommended alternative to replace the crossing in the existing location while maintaining traffic during construction on a temporary detour located south of the crossing.

If I can provide additional information, please let me know.

Sincerely,

Patrick Pate
Assistant City Manager

Cc: Ken Burleson, TGS Engineers

P.O. BOX 230, 211 S. HAMILTON STREET, HIGH POINT, NORTH CAROLINA 27261 FAX 336-883-3419 TDD 336-883-8517

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 23, 2004

Mr. Patrick Pate, Assistant City Manager
City of High Point
P.O. Box 230
High Point, NC 27282

Subject: Replacement of Guilford County Bridge No. 20 on SR 4121 (High Point Road) over Deep River in Jamestown, State Project No. 8.2495801, Federal Project No. BRSTP-4121(2), TIP No B-3652.

Dear Mr. Pate:

This letter is to update you on the status of the replacement of Bridge No. 20 on High Point Road over Deep River in Jamestown. We have completed the project development and environmental analysis and begun the design phase. The preferred alternative replaces Bridge No. 20 at the existing location and an on-site temporary detour to the south will maintain traffic during construction. The new crossing will include a four-inch conduit for the City's traffic fiber optic signal cable.

The NCDOT is in the process of designing the proposed bridge replacement at the existing location. If you would like to check the design status of this project please contact Ms. Cathy Houser, P.E. at NCDOT Design Services Unit at (919) 250-4128. Construction is anticipated to begin in 2005. If you have any questions or comments concerning the project development please contact Mr. Elmo Vance of the Branch at (919) 733-7844, extension 263.

Sincerely,

Stacy Baldwin

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

cc: Phil Wylie, Director of Transportation, High Point
Cathy Houser, P.E.
Stacy Baldwin, P.E.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: www.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

TOWN OF JAMESTOWN

Settled in 1752 Chartered in 1816
P.O. Box 848
Jamestown, North Carolina 27282

December 8, 2000

Mr. William D. Gilmore, PE
Project Development and Environmental Analysis
NCDOT
1548 Mail Service Center
Raleigh, NC 27699-1548

Re: Bridge Replacement Project B-3652

Dear Mr. Gilmore:

The Town of Jamestown has spent a considerable amount of money and planning to make our Town a walkable community. The Mayor and the Town Council approved brick sidewalks in our downtown area. We just finished another phase of brick sidewalks, which extends down Guilford College Rd. to East Fork Rd.

The Town of Jamestown received an enhancement grant to extend sidewalks down East Fork Rd. and to install a pedestrian bridge. This construction will enable Jamestown to connect with the Piedmont Environmental Center trails.

The Bridge replacement project B-3652 is in the area Jamestown has planned to install sidewalks. Nearby the referenced bridge is the Mendenhall Plantation, which is a designated historic site. The Historic Jamestown Society and the Jamestown In Motion Committee are working on a walking nature trail which when completed would start at the Mendenhall Plantation and run along the Deep River ending at the Oakdale Cotton Mill. The Historic Society has completed the first phase behind the Mendenhall Plantation. Jamestown has installed a pedestrian bridge on Dillon Rd. Also, on Dillon Rd. there are two new residential developments that have incorporated the walking trails in their plans. The developments are River Walk and River Walk West and they have paved walking trials that will connect with the proposed Deep River Historic Trail.

Also, located at this Bridge Project is the High Point City Lake Park. A large number of people use this park, lake and swimming pool. This Bridge is also a main connector of the East and West sides of our Town.

Due to the extensive planning and investment by Jamestown, we request a wide sidewalk be installed on the North side of the bridge. This will connect with the Town's existing sidewalks. We also request to allow for future construction of a walking path along the River under the bridge to connect with the proposed Deep River Historic Trail project.

Thank you for the opportunity to comment on this important project. We feel that it is imperative a close relationship with the Town staff is needed in the planning and construction of this bridge. Your actions could greatly impact the work that Jamestown has completed and the future plans of the Town of Jamestown.

Sincerely,

John J. Frezell,
Town Manager

TOWN OF JAMESTOWN

Settled in 1752 Chartered in 1816
P.O. Box 848
Jamestown, North Carolina 27282

December 18, 2001

Mr. William D. Gilmore, PE
Project Development & Environment Analysis
NCDOT
1548 Mail Service Center
Raleigh, NC 27699-1548

Re: Bridge Replacement Project B-3652

Dear Mr. Gilmore:

I met with Ron Elmore, Project Manager with DOT and J. Kenneth Burleson, TGS Engineering to discuss the bridge replacement of the above referenced project.

The Town is requesting that brick sidewalks be used when replacing the walkway at this location. The Town of Jamestown has spent significant dollars to install brick sidewalks through out the Town limits. We request that DOT does the same for conformity throughout the Town.

The Town also requests that a decorative railing be placed on both sides of the bridge. This request is both for protection and symmetry.

The Town of Jamestown understands that DOT is to meet with the Historic Society regarding this project. This project will require that a temporary bridge be built on or near property owned by the Historic Society. The Historic Society will be requesting an easement under the new bridge for access to a walking trail.

Please advise the Town of Jamestown when you plan to hold a public hearing. We offer the use of our Civic Center for this public hearing if you would like to reserve this space.

Sincerely,

John J. Frezell

John J. Frezell,
Town Manager

Post-it® Fax Note 7671	Date 8-26-03	# of pages ▶ 1
To Ken Burleson	From Martha Wolfe	
Co./Dept.	Co.	
Phone #	Phone # 454-1138	
Fax # 919-319-6599	Fax #	

TOWN OF JAMESTOWN

Settled in 1752 Chartered in 1816
P.O. Box 848
Jamestown, North Carolina 27282

RESOLUTION
BRIDGE REPLACEMENT PROJECT

WHEREAS, the Department of Transportation is proposing to construct a bridge replacement due to its poor condition and;

WHEREAS, the proposed Bridge is known as Bridge No. 20 on SR 4121 located on Old 29/70 (West Main Street) and immediately south of High Point Lake and located within the city limits of Jamestown and;

WHEREAS, the Department of Transportation has presented two alternates to this project No. 8.2495801, TIP No. B-3652 and;

NOW THEREFORE, BE IT RESOLVED, that the Town Council of the Town of Jamestown does hereby endorse the construction alternate #1 of said project.

Adopted this the 16th day of April, 2002

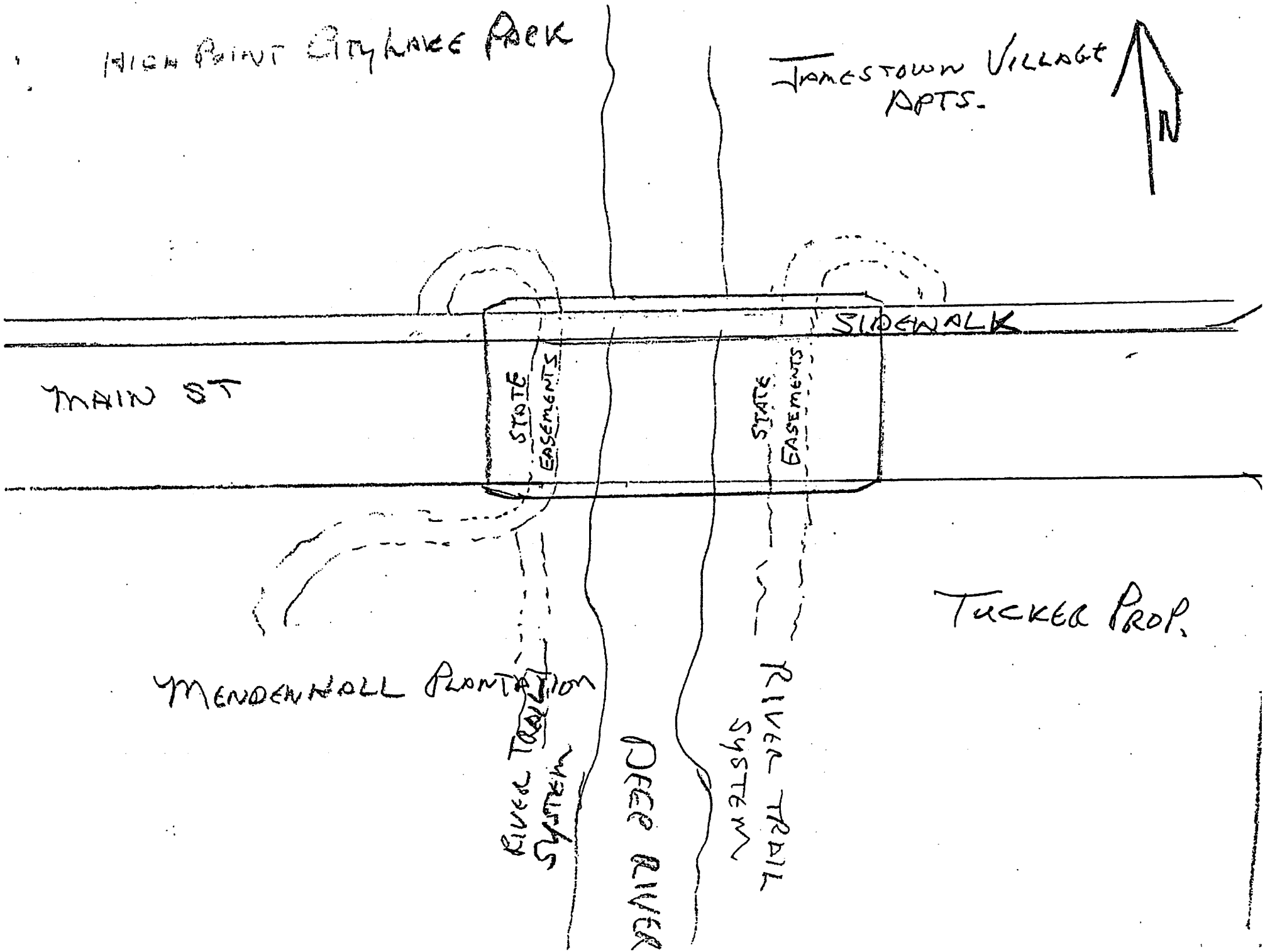
W.R. Ragsdale IV
MAYOR WILLIAM G. RAGSDALE, III

Emily B Ragsdale
COUNCILMAN EMILY B. RAGSDALE

Charles W. Dowdy
COUNCILMAN CHARLES W. DOWDY

Mickey Peeler
COUNCILMAN MICKEY PEELER

Keith L. Volz
COUNCILMAN KEITH L. VOLZ


HIGH POINT CITY LAKE PARK
JAMESTOWN VILLAGE APTS.
N
SIDEWALK
MAIN ST
STATE EASEMENTS
STATE EASEMENTS
TUCKER PROP.
MENDENHALL PLANTATION
RIVER TRAIL SYSTEM
DEEP RIVER
RIVER TRAIL SYSTEM

TOWN OF JAMESTOWN

Settled in 1752 Chartered in 1816

P.O. Box 848
Jamestown, North Carolina 27282

April 24, 2003

Mr. Ron Elmore
NC Department of Transportation
PO Box 25201
Raleigh, NC 27611

Re: Bridge Replacement Project B-3652

Dear Mr. Elmore:

At the request of Mr. Ken Burleson, this letter is to confirm that the Town of Jamestown requests an easement under the W. Main St. Bridge on both sides of the River and both sides of the walkway. This request is made in order to construct a cloverleaf loop for the trail system as proposed on the attached drawing.

Thank you for your consideration. If you need additional information, please let me know.

Sincerely,

Martha S. Wolfe

Martha S. Wolfe,
Deputy Clerk

enclosure

Tel: (336) 454-1138 website: http://cg.thedepot.com/jamestown Fax: (336) 886-3504

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 23, 2004

Mr. John J. Frezell, Manager
Town of Jamestown
P.O. Box 848
Jamestown, NC 27282

Subject: Replacement of Guilford County Bridge No. 20 on SR 4121 (High Point Road) over Deep River in Jamestown, State Project No. 8.2495801, Federal Project No. BRSTP-4121(2), TIP No B-3652.

Dear Mr. Frezell:

This letter is to update you on the status of the replacement of Bridge No. 20 on High Point Road over Deep River in Jamestown. We have completed the project development and environmental analysis and begun the design phase. The preferred alternative replaces Bridge No. 20 at the existing location and an on-site temporary detour to the south will maintain traffic during construction. The new crossing will include clearance for 10-foot (3-meter) wide pathways beneath both sides of the bridge and NCDOT will allow access for these pathways. All sidewalks and decorative light standards affected by the project will be replaced. Brick sidewalks, matching the brick sidewalks through out the Town limits and along SR 4121, will be used when replacing the sidewalk.

The NCDOT is in the process of designing the proposed bridge replacement at the existing location. If you would like to check the design status of this project please contact Ms. Cathy Houser, P.E. at NCDOT Design Services Unit at (919) 250-4128. Construction is anticipated to begin in 2005. If you have any questions or comments concerning the project development please contact Mr. Elmo Vance of the Branch at (919) 733-7844, extension 263.

Sincerely,

Stacy Baldwin

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

cc: Martha Wolfe, Deputy Clerk, Town of Jamestown
Cathy Houser, P.E.
Stacy Baldwin, P.E.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: www.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Conforti

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

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

April 2, 2001

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook RSH for David Brook
Deputy State Historic Preservation Officer

Re: Replace Bridge No. 20 on SR 4121 over the Deep River, TIP No. B-3652, Guilford County, ER 01-8186

Thank you for your letter of November 15, 2000, concerning the above project.

We have conducted a search of our maps and files and have located the following structures of historical or architectural importance within the general area of the project.

- Bridge No. 20 was built in 1926
- Jamestown Historic District (GF 10) located along Greensboro – High Point Road. This district is listed in the National Register of Historic Places.
- Richard Mendenhall Plantation Building (GF 14) located on US 29 – 70A south of its junction with Lakeside Drive.

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

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

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: M.P. Furr

	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

3652

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

Michael F. Easley, Governor
Lisbeth C. Evans, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

February 20, 2001

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook RLL for David Brook
Deputy State Historic Preservation Officer

Re: Replace Bridge No. 20 on SR 4121 over Deep River,
TIP No. B-3652, Guilford County, ER 01-8415

Thank you for your letter of January 5, 2001, transmitting the survey report by Heather Fernbach, North Carolina Department of Transportation concerning the above project.

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following properties are eligible for listing in the National Register of Historic Places:

> Jamestown Historic District remains eligible for listing in the National Register of Historic Places. We concur with the boundaries as noted in Figure 3 of the report. However, in order for the boundary to be formally reduced, as suggested in the report, an official boundary reduction must be reviewed and approved by the National Register Advisory Committee.

In addition, we concur that the following property is not eligible for listing in the National Register of Historic Places:

Bridge No. 20

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 any questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919 733-4763.

cc: Nicholas Graf, FHWA
Mary Pope Furr, 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

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

October 14, 2003

J. Kenneth Burleson, PE
TGS Engineers
975 Walnut Street, Suite 141
Cary, NC 27511

Re: Replace Bridge #20 on SR 4121 over Deep River, Jamestown, B-3652, Guilford County, ER01-8186 & ER01-8415

Dear Mr. Burleson: Ken

This letter is to follow up on our meeting this morning, concerning the above referenced undertaking. We reviewed the proposed use of the "Standard 2 Bar Railing (metal)" that you propose to use on the bridge and concurred that it is an appropriate design for the location. Its use will not adversely affect the historic property within the Area of Potential Effect.

The above comments are offered in accordance with Section 106 of the National Historic Preservation Act and the regulations of the Advisory Council on Historic Preservation at 36 CFR 800. If you have any questions concerning them, please contact me at 733-4763.

Sincerely,

Renee Gledhill-Earley

Renee Gledhill-Earley
Environmental Review Coordinator

cc: Mary Pope Furr. NCDOT

APPENDIX A

SUMMARY AND APPROVAL

The project meets all criteria included in the programmatic 4(f) evaluation approved on December 23, 1986.

All required alternatives have been evaluated and the findings made are clearly applicable to this project. There are no feasible and prudent alternatives to the use of the historic site.

The project includes all possible planning to minimize harm, and the measures to minimize harm will be incorporated in the project.

All appropriate coordination has been successfully completed with local and state agencies.

Approved:

2/19/04 Stacy Baldwin
Date for Environmental Management Director, Project Development and Environmental Analysis Branch, NCDOT

2/19/04 for [signature]
Date Division Administrator, FHWA

2. Measures to minimize harm have been agreed to, in accordance with 36 CFR Part 800, by the FHWA, the SHPO, and as appropriate, the ACHP. √ ☐

3. Specific measures to minimize harm are described as follows:

   a. Minimization of tree cutting and impacts to the trees that remain.

   b. Development of a landscape plan in consultation with the property owners and review of this plan with the North Carolina State Historic Preservation Officer (SHPO).

   c. Inclusion of a two-bar metal bridge rail on a concrete parapet design on the replacement structure.

Note: Any response in a box requires additional information prior to approval. Consult Nationwide 4(f) evaluation.

COORDINATION

The proposed project has been coordinated with the following (attach correspondence):

a. State Historic Preservation Officer	X
b. Advisory Council on Historic Preservation	X
c. Property owner	X
d. Local/State/Federal Agencies	X
e. US Coast Guard (for bridges requiring bridge permits)	N/A

(b) The items in 2(a) would result in: (circle, as appropriate)

(i) substantial adverse environmental impacts

or (ii) substantial increased costs

or (iii) unique engineering, transportation, maintenance, or safety problems

or (iv) substantial social, environmental, or economic impacts

or (v) a project which does not meet the need

or (vi) impacts, costs, or problems which are of extraordinary magnitude

	Yes	No
3. Build an improved facility on new location without using the historic site.	√	☐

(a) An alternate on new location would result in: (circle, as appropriate)

(i) a project which does not solve the existing problems

or (ii) substantial social, environmental, or economic impacts

or (iii) a substantial increase in project cost or engineering difficulties

and (iv) such impacts, costs, or difficulties of truly unusual or unique or extraordinary magnitude

MINIMIZATION OF HARM

	Yes	No
1. The project includes all possible planning to minimize harm necessary to preserve the historic integrity of the site.	√	☐

7. Has the SHPO agreed, in writing, with the assessment of impacts and the proposed mitigation? √ ☐

8. Does the project require the preparation of an EIS? ☐ √

ALTERNATIVES CONSIDERED AND FOUND NOT TO BE FEASIBLE AND PRUDENT

The following alternatives were evaluated and found not to be feasible and prudent:

		Yes	No
1.	Do nothing	√	☐
	Does the "do nothing" alternative:		
	(a) correct capacity deficiencies?	☐	√
or	(b) correct existing safety hazards?	☐	√
or	(c) correct deteriorated conditions?	☐	√
and	(d) create a cost or impact of extraordinary measure?	☐	√
2.	Improve the highway without using the adjacent historic site		
	(a) Have minor alignment shifts, changes in standards, use of retaining walls, etc., or traffic management measures been evaluated?	√	☐

NORTH CAROLINA DIVISION
FINAL NATIONWIDE SECTION 4(f) EVALUATION AND APPROVAL
FOR FEDERALLY-AIDED HIGHWAY PROJECTS WITH MINOR INVOLVEMENTS
WITH HISTORIC SITES

F. A. Project BRSTP-4121(2)
State Project 8.2495801
T. I. P. No. B-3652

Description: Replacement of Guilford County Bridge No. 20 on SR 4121 (Old US 29/70A, West Main Street, Greensboro-High Point Road) over Deep River in Jamestown

		YES	NO
1.	Is the proposed project designed to improve the operational characteristics, safety, and/or physical condition of the existing highway facility on essentially the same alignment?	√	☐
2.	Is the project on new location?	☐	√
3.	Is the historic site adjacent to the existing highway?	√	☐
4.	Does the project require the removal or alteration of historic buildings, structures, or objects? (None other than Historic Bridge being replaced by project)	☐	√
5.	Does the project disturb or remove archaeological resources which are important to preserve in place rather than to recover for archaeological research?	☐	√
6.	a. Is the impact on the Section 4(f) site considered minor (i.e. no effect, no adverse effect)?	√	☐
	b. If the project is determined to have "no adverse effect" on the historic site, does the Advisory Council on Historic Preservation object to the determination of "no adverse effect"?	☐	√

COORDINATION

The proposed project has been coordinated with the following (attach correspondence):

(a)	Officials having jurisdiction over the Section 4(f) Land	Attached
(b)	Local/State/Federal Agencies	Attached
c.	US Coast Guard (for bridges requiring bridge permits)	N/A
d.	DOI, if Section 6(f) lands are involved	N/A

SUMMARY AND APPROVAL

The project meets all criteria included in the programmatic 4(f) evaluation approved on December 23, 1986.

All required alternatives have been evaluated and the findings made are clearly applicable to this project. There are no feasible or prudent alternatives which avoid use of the Section 4(f) land.

The project includes all possible planning to minimize harm, and there are assurances that the measures to minimize harm will be incorporated in the project.

All appropriate coordination has been successfully completed.

Approved:

2/19/04
Date

for Environmental Management Director, Project Development and Environmental Analysis Branch, NCDOT

2/19/04
Date

for Division Administrator, FHWA

improvements to the remaining Section 4(f) site equal to the fair market value of the land and improvements taken.

f. Additional or alternative mitigation measures as determined necessary based on consultation with the officials having jurisdiction over the parkland, recreation area, or wildlife or waterfowl refuge.

3. A discussion of specific mitigation measures is provided as follows:

   a. Minimization of tree cutting and impacts to the trees that remain.

   b. Development of a landscape plan in consultation with the property owners and review of this plan with the North Carolina State Historic Preservation Officer (SHPO).

   c. Inclusion of a two-bar metal bridge rail on a concrete parapet design on the replacement structure.

Note: Any response in a box requires additional information prior to approval. Consult Nationwide 4(f) evaluation.

(a) An alternate on new location would result in: (circle, as appropriate)

(i) a project which does not solve the existing problems

or (ii) substantial social, environmental, or economic impacts

or (iii) a substantial increase in project cost or engineering difficulties

and (iv) such impacts, costs, or difficulties of truly unusual or unique or extraordinary magnitude

MINIMIZATION OF HARM

	Yes	No
1. The project includes all possible planning to minimize harm.	√	☐

2. Measures to minimize harm include the following:

(circle those which are appropriate)

a. Replacement of lands used with lands of reasonably equivalent usefulness and location and of at least comparable value.

(b) Replacement of facilities impacted by the project including sidewalks, paths, benches, lights, trees, and other facilities.

(c) Restoration and landscaping of disturbed areas.

(d) Incorporation of design features and habitat features, where necessary, to reduce or minimize impacts to the Section 4(f) property.

(e) Payment of the fair market value of the land and improvements taken or

Does the "do nothing" alternative:

(a) correct capacity deficiencies? ☐ √

or (b) correct existing safety hazards? ☐ √

or (c) correct deteriorated conditions? ☐ √

and (d) create costs, unusual problems, or impacts of extraordinary measure? √ ☐

2. Improvement of the highway without using the adjacent public park, recreational land, or wildlife waterfowl refuge. √ ☐

(a) Have minor alignment shifts, changes in standards, use of retaining walls, etc., or traffic management measures been evaluated? √ ☐

(b) The items in 2(a) would result in (circle, as appropriate)

(i) substantial adverse community impact

or (ii) substantial increased costs

or (iii) unique engineering, transportation, maintenance, or safety problems

or (iv) substantial social, environmental, or economic impacts

or (v) a project which does not meet the need

and (vi) impacts, costs, or problems which are extraordinary magnitude

	Yes	No
3. Build an improved facility on new location without using the public park, recreational land, or wildlife and waterfowl refuge. (This would be a localized "run around.")	√	☐

		Yes	No
5.	Do the proximity impacts of the project (e.g., noise, air and water pollution, wildlife and habitat effects, aesthetic values) on the remaining Section 4(f) land impair the use of such land for its intended purpose?	☐	√
6.	Do the officials having jurisdiction over the Section 4(f) land agree, in writing, with the assessment of the impacts of the proposed project on, and the proposed mitigation for, the Section 4(f) lands?	√	☐
7.	Does the project use land from a site purchased or improved with funds under the Land and Water Conservation Act (Section 6(f)), the Federal Aid in Fish Restoration Act (Dingell-Johnson Act), the Federal Aid in Wildlife Act (Pittman-Robertson Act), or similar laws, or are the lands otherwise encumbered with a Federal interest (e.g., former Federal surplus property)?	☐	√
8.	If the project involves lands described in Item 7 above, does the appropriate Federal Agency object to the land conversion or transfer?	☐	N/A
9.	Does the project require preparation of an EIS?	☐	√

ALTERNATIVES CONSIDERED AND FOUND NOT TO BE FEASIBLE AND PRUDENT

The following alternatives were evaluated and found not to be feasible and prudent:

		Yes	No
1.	Do-nothing.	√	☐

NORTH CAROLINA DIVISION
FINAL NATIONWIDE SECTION 4(f) EVALUATION AND APPROVAL
FOR FEDERALLY-AIDED HIGHWAY PROJECTS WITH MINOR INVOLVEMENT
WITH PUBLIC PARKS, RECREATION LANDS, AND WILDLIFE AND
WATERFOWL REFUGES

F. A. Project BRSTP-4121(2)

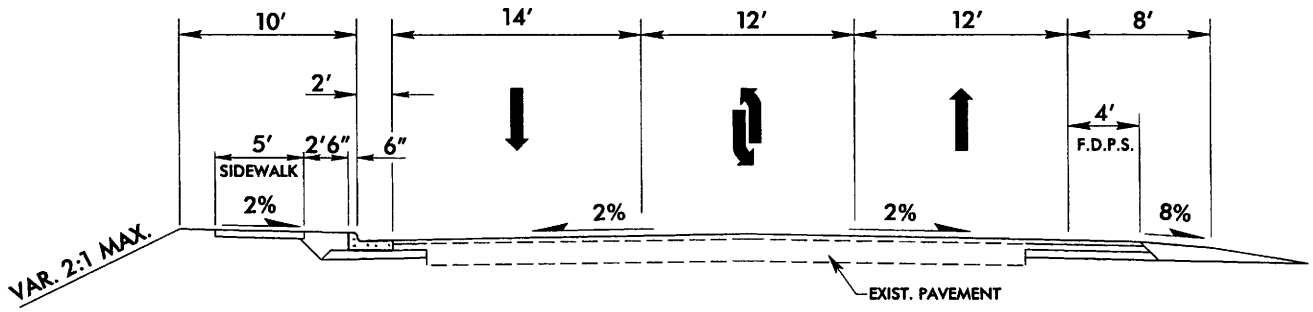
State Project 8.2495801

T. I. P. No. B-3652

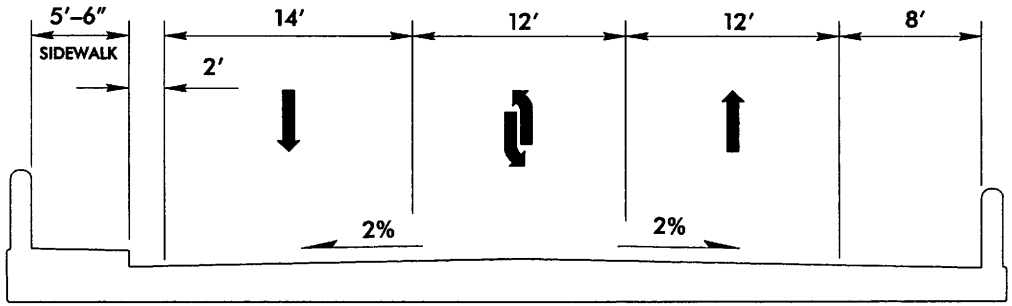
Description: Replacement of Guilford County Bridge No. 20 on SR 4121 (Old US 29/70A, West Main Street, Greensboro-High Point Road) over Deep River in Jamestown

		Yes	No
1.	Is the proposed project designed to improve the operational characteristics, safety, and/or physical condition of existing highway facilities on essentially the same location?	√	☐
2.	Is the project on new location?	☐	√
3.	Is the Section 4(f) land a publicly owned public park, recreation land, or wildlife and waterfowl refuge located adjacent to the existing highway?	√	☐
4.	Does the amount and location of the land to be used impair the use of the remaining Section 4(f) land, in whole or in part, for its intended purpose? (See chart below)	☐	√

Total size of section 4(f) site		Maximum to be acquired
less than 10 acres	.....	10 percent of site
10 acres-100 acres	..√.....	1 acre
greater than 100 acres	.....	1 percent of site



PROPOSED TYPICAL ROADWAY APPROACH SECTION



PROPOSED TYPICAL BRIDGE SECTION

FUNCTIONAL CLASSIFICATION: URBAN PRINCIPAL ARTERIAL

AVERAGE DAILY TRAFFIC

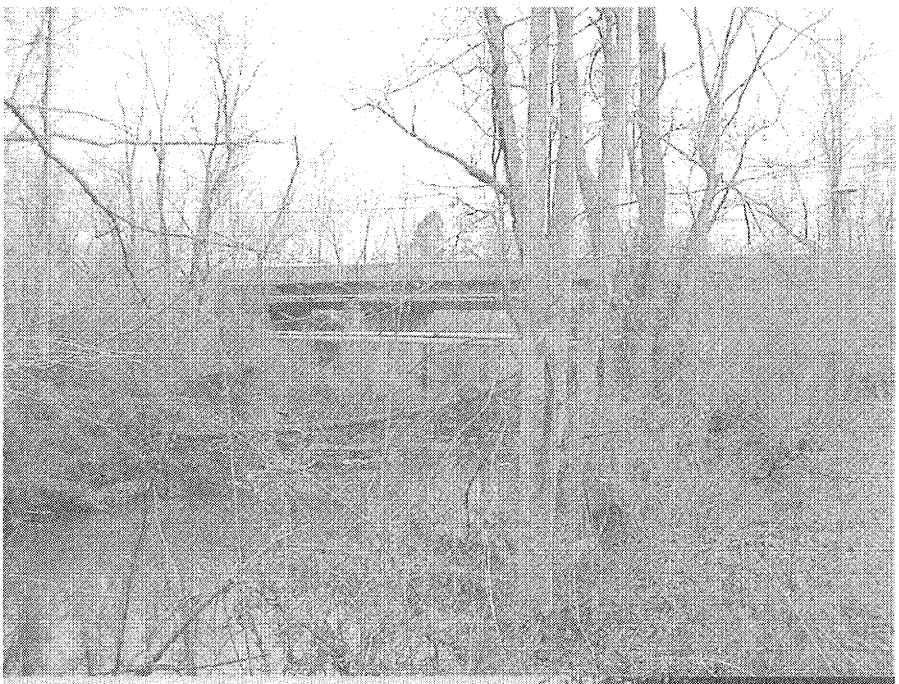
(EXISTING)	*2003*	=	*15,600*
(DESIGN YR.)	*2030*	=	*14,500*

North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

GUILFORD COUNTY
Bridge No. 20
on SR 4121
over Deep River
TIP No. B-3652

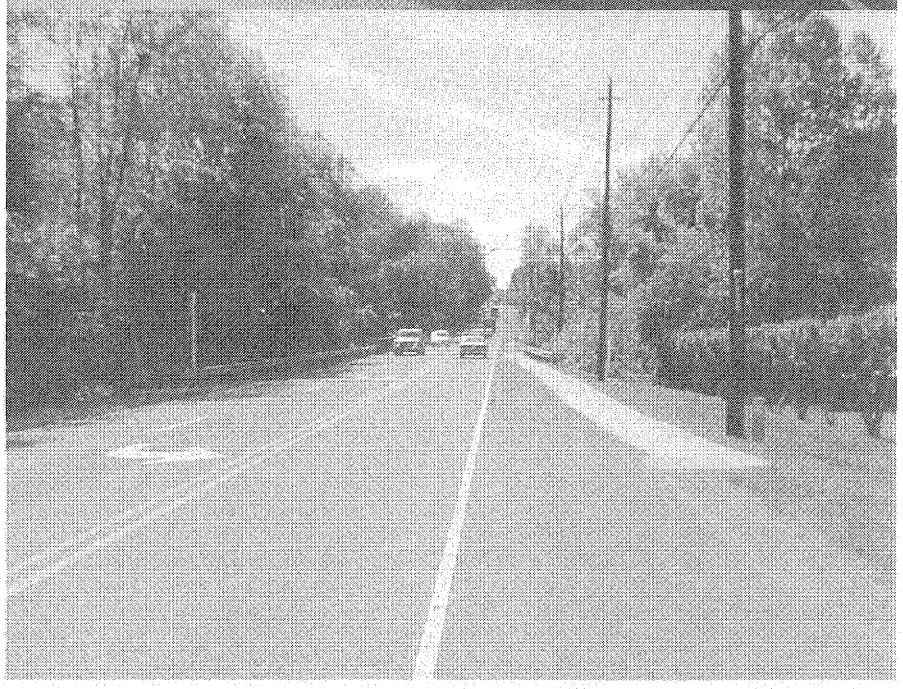
Figure 3

GUILFORD COUNTY
BRIDGE NO. 20 ON SR 4121 OVER
DEEP RIVER
B-3652



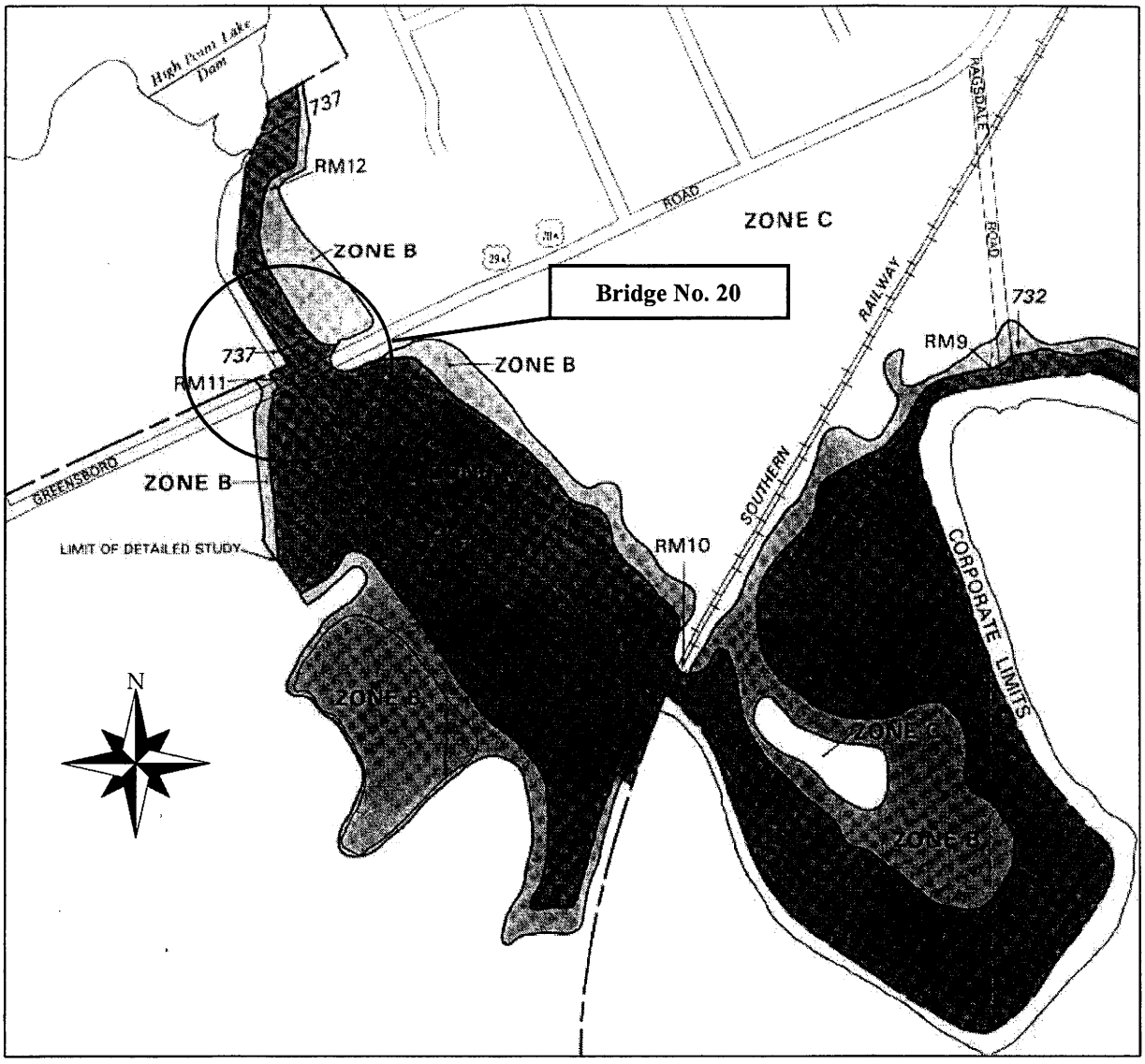
SIDE VIEW
LOOKING SOUTH

WEST APPROACH
LOOKING EAST



EAST APPROACH
LOOKING WEST

FIGURE 4



0 700
FEET

0 215
METERS

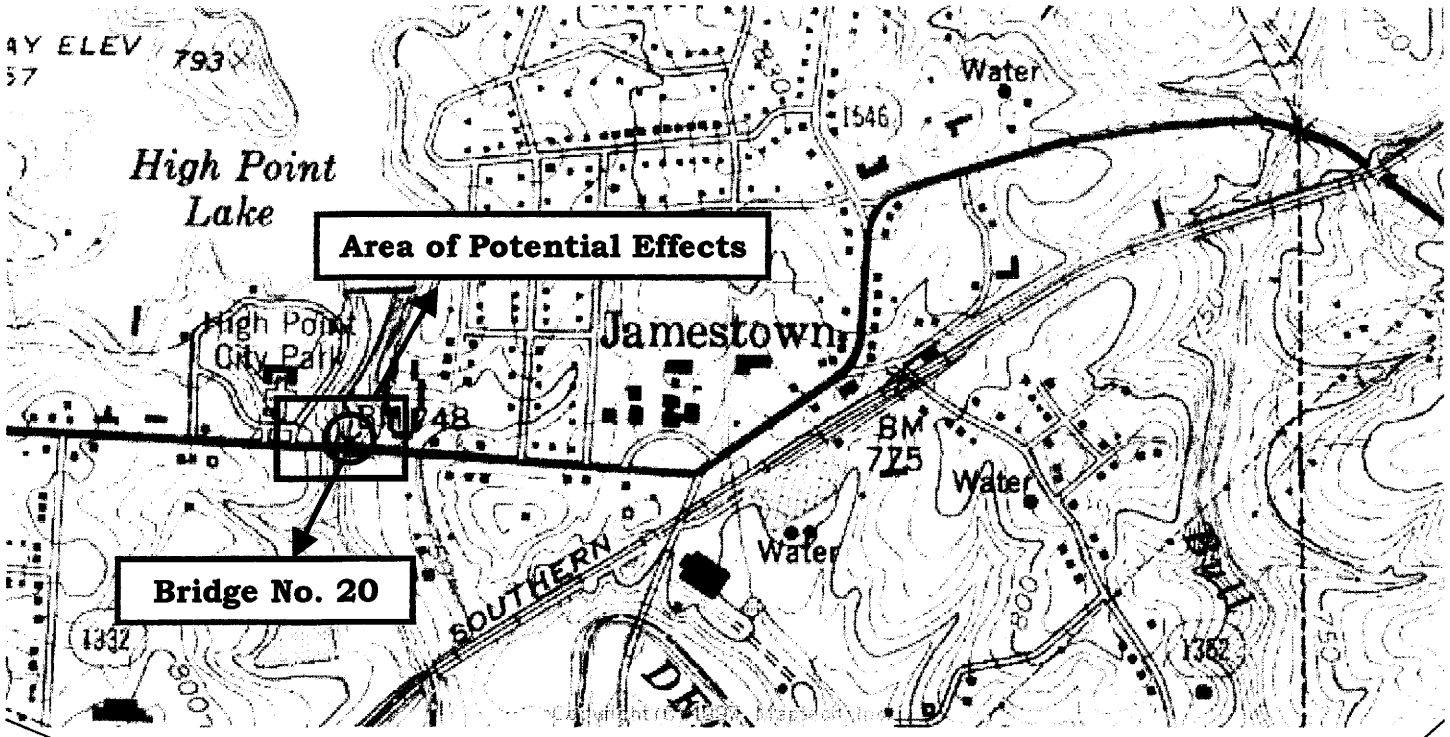
APPROXIMATE SCALE

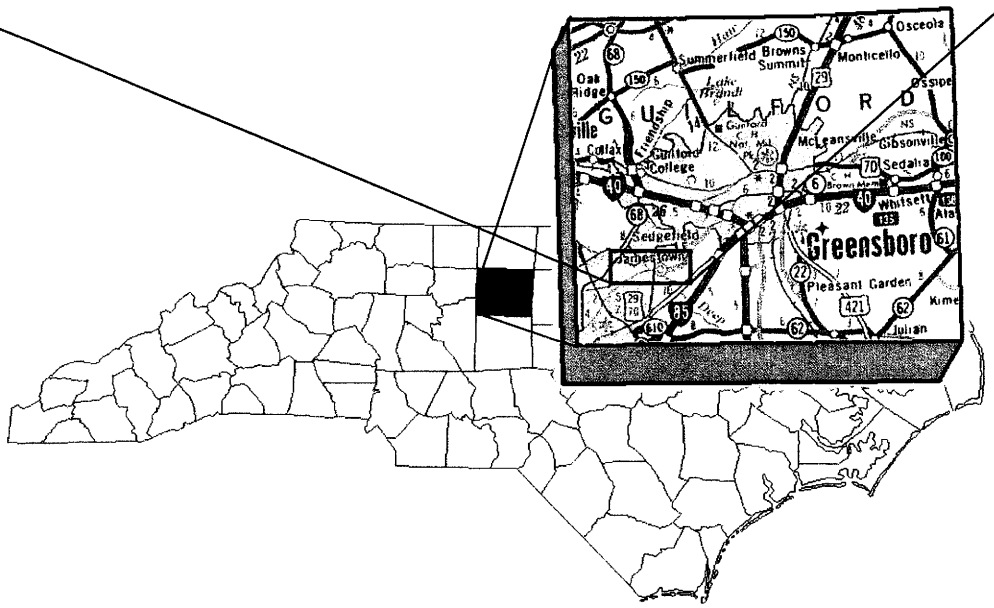
FEMA – Floodplain Map of Project Area

North Carolina
Department of Transportation
Project Development
& Environmental Analysis Branch

GUILFORD COUNTY
Bridge No. 20
on SR 4121 (Old US 29/70A)
over Deep River
TIP No. B-3652

Figure 5





N

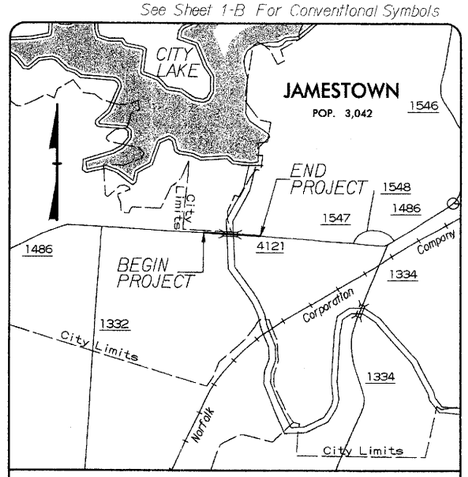
Historic Architecture NCDOT 1 South Wilmington Street P.O. Box 25201 Raleigh, NC 27611-5201 T 919-733-7844 F 919-733-9794 www.dot.state.nc.us	Project **Replace Bridge No. 20 on SR 4121 over Deep River** Sheet Title **Vicinity Map and Area of Potential Effects**	Drawn By: Fearnbach Issue Date: 11-28-00	TIP No. **B-3652** Scale **NTS** Figure No. **6**

09/08/09

CONTRACT:

TIP PROJECT: B-3652

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



VICINITY MAP

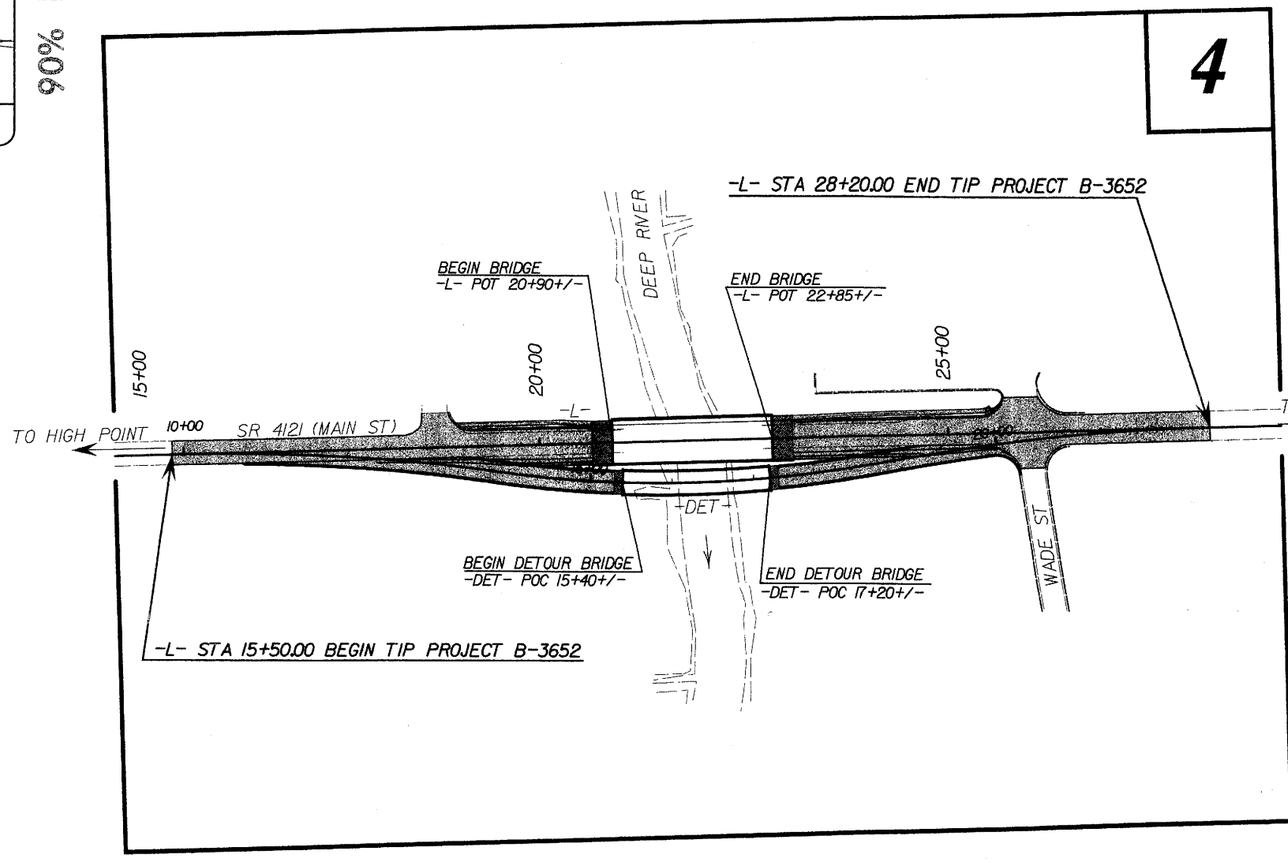
90% PLANS SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3652	1	
STATE WBS NO.	F.A. PROJ. NO.	DESCRIPTION	
33198.1.1	BRSTP-4121(2)	PE	
33198.2.1	BRSTP-4121(2)	RW, UTIL.	

LOCATION: BRIDGE NO. 20 OVER DEEP RIVER ON SR 4121 (MAIN ST)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE



NC GRID
NAD 83

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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	=	17,650
ADT 2025	=	24,500
DHV	=	9 %
D	=	55 %
T	=	4 % *
V	=	40 MPH

* (TTST 1 % + DUAL 3 %)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3652 =	*0.204 MI*
LENGTH STRUCTURE TIP PROJECT B-3652 =	*0.037 MI*
TOTAL LENGTH TIP PROJECT B-3652 =	*0.241 MI*

PLANS PREPARED BY:
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
March 15, 2004

LETTING DATE:
March 15, 2005

NCDOT CONTACT: *TERESA BRUTON, PE*
PROJECT ENGINEER - DESIGN SERVICES

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh, NC 27610

CHARLES L. FLOWE, PE
PROJECT ENGINEER

W. CRAIG PARKER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER
SIGNATURE: *P.E.*

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

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR *DATE*

PROJECT REFERENCE NO.	SHEET NO.
B-3652	1-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-3652	1-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

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

RIGHT OF WAY

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

HYDROLOGY

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

STRUCTURES

MAJOR

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

MINOR

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

UTILITIES

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

- Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS TS
- Water Line — W W
- Sanitary Sewer — SS SS
- Sanitary Sewer Force Main — FSS FSS
- Gas Line — G G
- Storm Sewer — S S
- Power Line — P P
- Telephone Cable — T T
- U/G Telephone Conduit — TC TC
- Unknown Utility — ?UTL ?UTL
- Television Cable — TV TV
- Fiber Optics Cable — FO FO
- Exist. Water Meter — 0
- Drawn According to U/G Records — DATUR
- Abandoned According to U/G Records — AATUR
- End Of Information — E.O.I.

BOUNDARIES & PROPERTIES

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

BUILDINGS & OTHER CULTURE

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

TOPOGRAPHY

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

VEGETATION

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

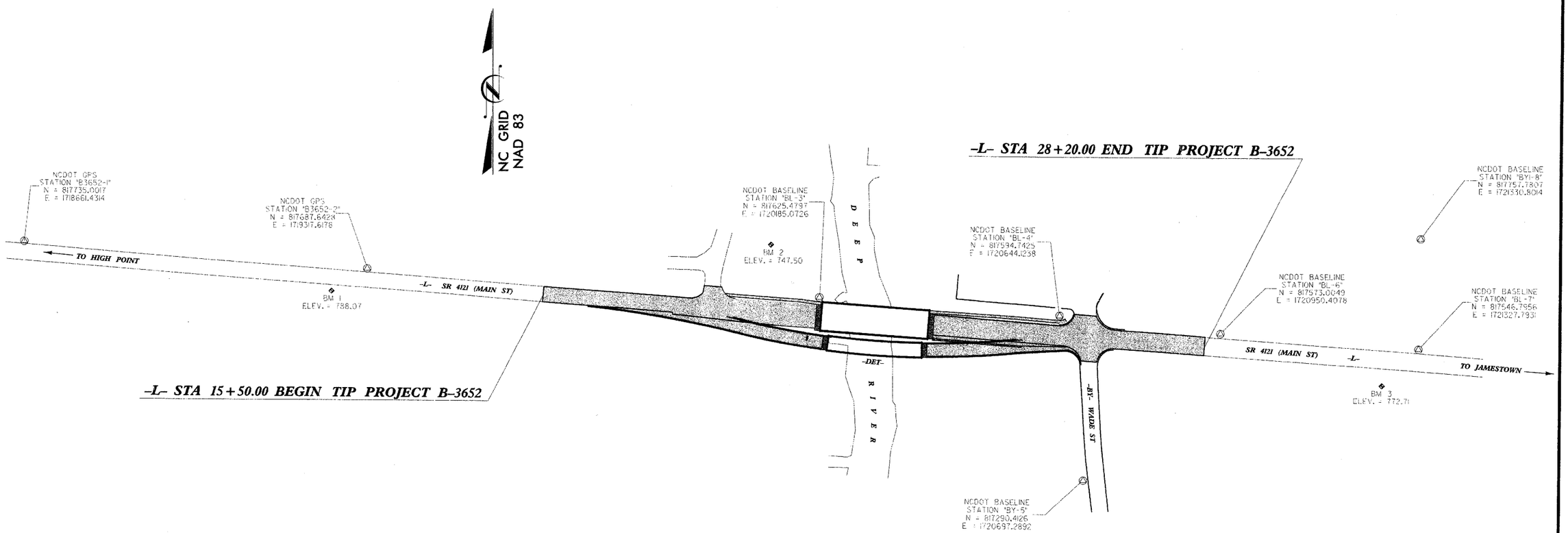
RAILROADS

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

revised 02/25/97

PROJECT REFERENCE NO.	SHEET NO.
B-3652	1C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	"B3652-2"	817687.6428	1719317.6178	783.93	12+18.98	26.75 LT
3	"BL-3"	817625.4797	1720185.0726	746.76	20+80.66	26.16 LT
4	"BL-4"	817594.7425	1720644.1238	747.56	25+40.73	28.00 LT
6	"BL-6"	817573.0049	1720950.4078	756.34	28+47.79	28.00 LT
7	"BL-7"	817546.7956	1721327.7931	767.78	32+26.08	28.58 LT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5000	"BL-4"	817594.7425	1720644.1238	747.56	25+40.73	28.00 LT
5	"BY-5"	817290.4126	1720697.2892	740.57	26+15.31	271.80 RT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
8	"BY1-8"	817757.7807	1721330.8014	749.11	32+14.14	239.25 LT
5002	"BL-7"	817546.7956	1721327.7931	767.78	32+26.08	28.58 LT

```
**********************************************
BM1       ELEVATION = 788.07
N 817644       E 1719250
L STATION 6+43 2079 RIGHT
PAINTED BOLT ATOP FIRE HYDRANT S. SIDE
MAIN ST.
**********************************************
**********************************************
BM2       ELEVATION = 747.50
N 817738       E 1720091
L STATION 5+37 1239 RIGHT
RR SPIKE IN BASE OF 20" LOCUST TREE
**********************************************
**********************************************
BM3       ELEVATION = 772.71
N 817476       E 1721258
L STATION 7+11
S 44° 44' 56.0" W  DIST     99.22
RR SPIKE IN BASE OF 20" PINE TREE
**********************************************
```

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3652-2" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 817687.6428(ft) EASTING: 1719317.6178(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992353
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3652-2" TO -L- STATION 15+50.00 IS S 81° 25' 44.474" E 340.076'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

NOTES

1. 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: b3652_ls_control_040412.txt

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

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING NCGS MONUMENTATION.

NOTE: DRAWING NOT TO SCALE

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$DGNFILE$$$$
$$$$MODEL$$$$

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1¼" IN DEPTH OR GREATER THAN 1½" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2¼" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J	PROPOSED 8" AGGREGATE BASE COURSE
R1	2'X6" CONCRETE CURB.
R2	SHOULDER BERM GUTTER
S	4" SIDEWALK (BRICK PAVERS)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

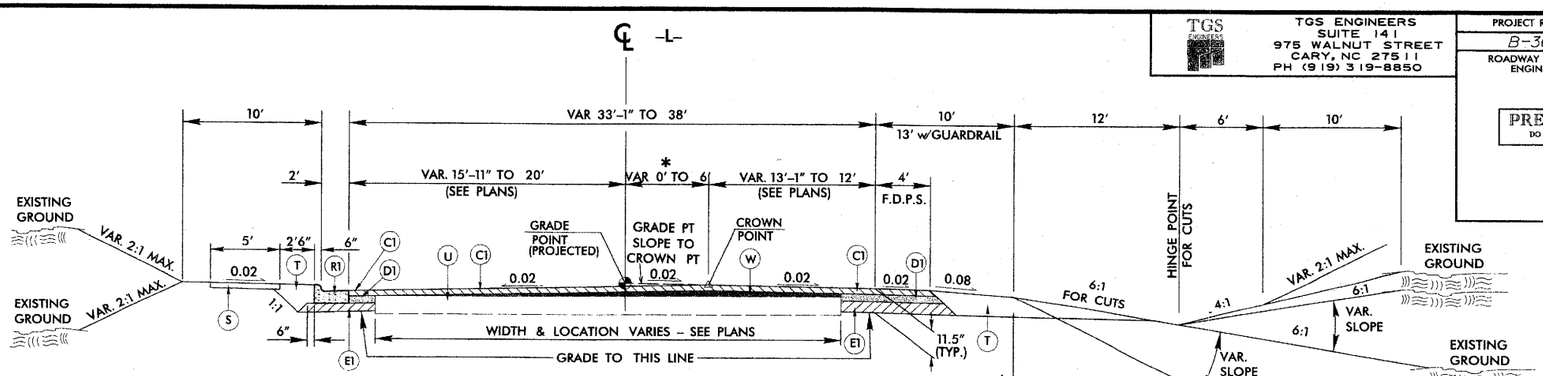
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PROJECT REFERENCE NO.	SHEET NO.
B-3652	2

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

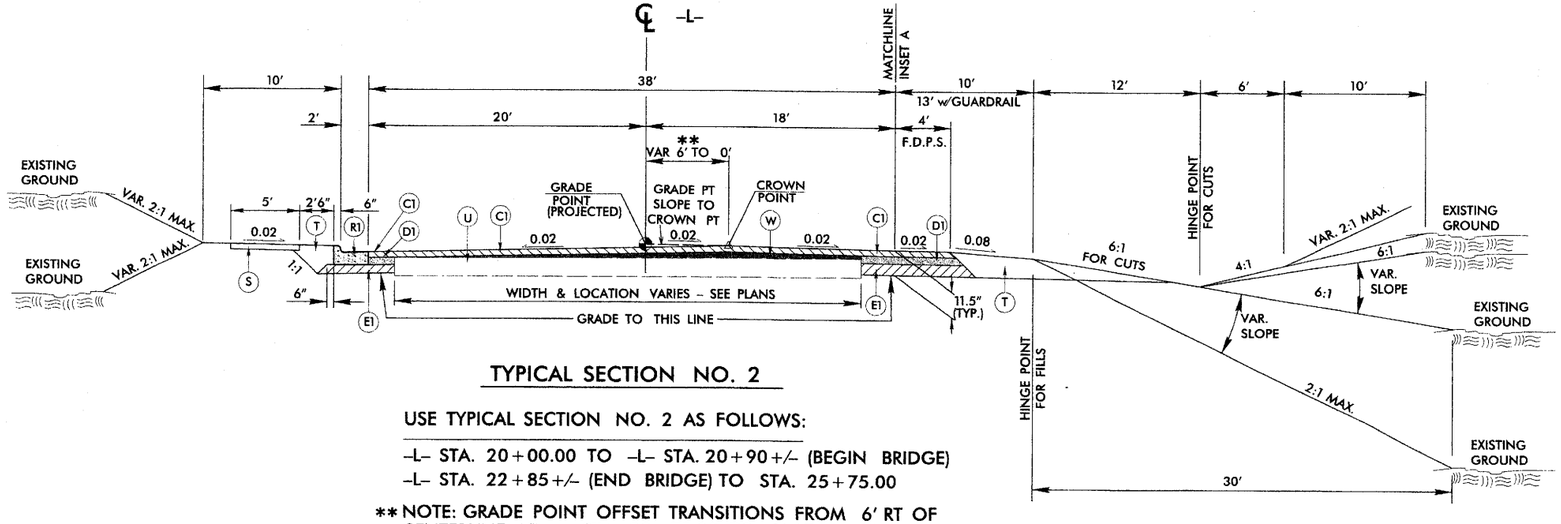


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
–L– STA. 18+00.00 TO –L– STA. 20+00.00

NOTES:
MINIMAL RESURFACING ONLY FROM –L– STA. 15+50.00 TO 18+00.00 AND FROM –L– STA. 25+75.00 TO 28+20.00.

* GRADE POINT OFFSET TRANSITIONS FROM 0′ AT –L– STA. 15+50.00 TO 6′ RT OF CENTERLINE AT –L– STA. 25+75.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:

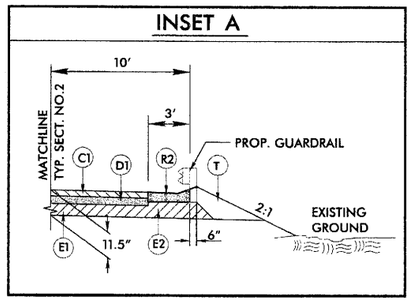
–L– STA. 20+00.00 TO –L– STA. 20+90+/– (BEGIN BRIDGE)
–L– STA. 22+85+/– (END BRIDGE) TO STA. 25+75.00

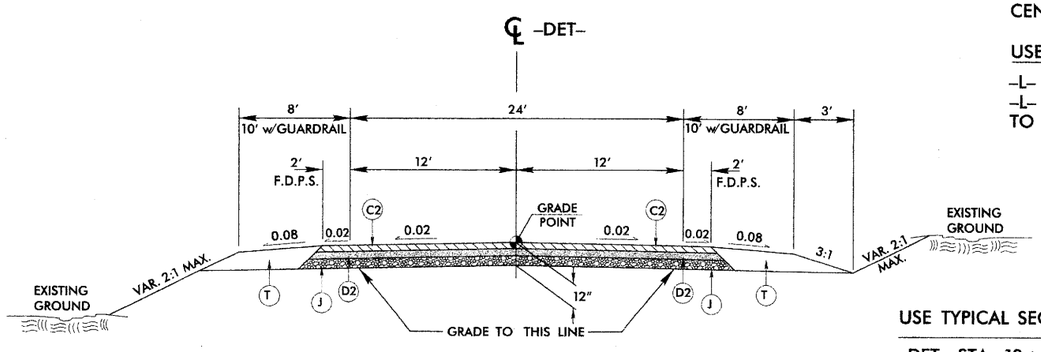
** NOTE: GRADE POINT OFFSET TRANSITIONS FROM 6′ RT OF CENTERLINE AT –L– STA. 23+75.00 TO 0′ AT –L– STA. 25+75.00

USE INSET A AS FOLLOWS:

–L– STA. 19+75 TO –L– STA. 20+90+/– (BEGIN BRIDGE)
–L– STA. 22+90+/–(END BRIDGE)
TO STA. 24+70.00

INSET A

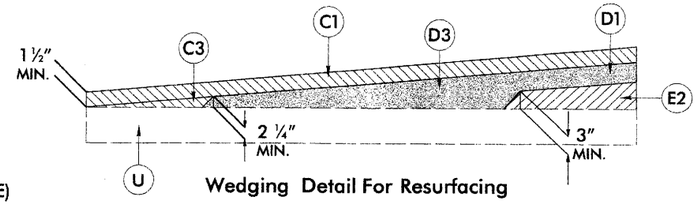




TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

–DET– STA. 12+45.87 TO 15+40+/– (BEGIN BRIDGE)
–DET– STA. 17+20+/– (END BRIDGE) TO 19+98.67



Wedging Detail For Resurfacing

8/17/99

TEMPORARY DETOUR

PROJECT REFERENCE NO.	SHEET NO.
B-3652	2-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

-DET-

PI Sta 11+89.99	PI Sta 16+28.63	PI Sta 20+63.60
Δ = 9° 26' 39.3" (RT)	Δ = 18° 53' 18.5" (LT)	Δ = 9° 26' 39.2" (RT)
D = 2° 29' 28.0"	D = 3° 49' 11.0"	D = 2° 29' 28.0"
L = 379.12'	L = 494.50'	L = 379.12'
T = 189.99'	T = 249.51'	T = 189.99'
R = 2,300.00'	R = 1,500.00'	R = 2,300.00'
SE = 0.03	SE = 0.04	SE = 0.03
Vd = 40 MPH	Vd = 40 MPH	Vd = 40 MPH

DETOUR

STA. 14+00+/- TO STA. 15+35+/- RT
EST. RIP RAP: 62 TONS +/-
EST. F.F.: 162 SY
EST. D.D.E.: 39 CY

STA. 17+09+/- TO STA. 19+50+/- RT
EST. RIP RAP: 107 TONS +/-
EST. F.F.: 283 SY
EST. D.D.E.: 92 CY

LEGEND

▨ PAVED SHOULDER
▬ TEMPORARY CONCRETE BARRIER

SEE SHEET 5 FOR -DET- PROFILE

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3652	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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CARY, NC 27511
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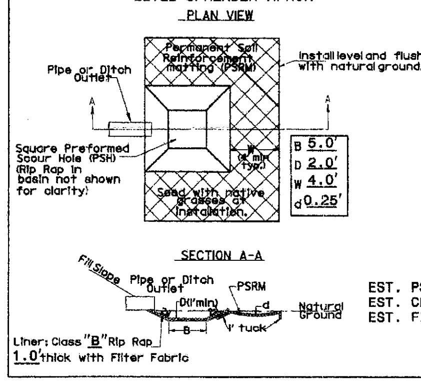
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON

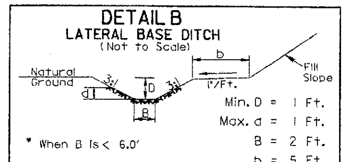


USE AT THE FOLLOWING LOCATIONS:
-L- 20+40 +/- LT
-L- 23+00 +/- LT

EST. PSRM: 34 SY
EST. CL "B" RIP RAP: 10 TONS
EST. FILTER FABRIC: 26 SY

PERMANENT SOIL REINFORCEMENT MAT (PRSM)

DETAIL B
LATERAL BASE DITCH (Not to Scale)

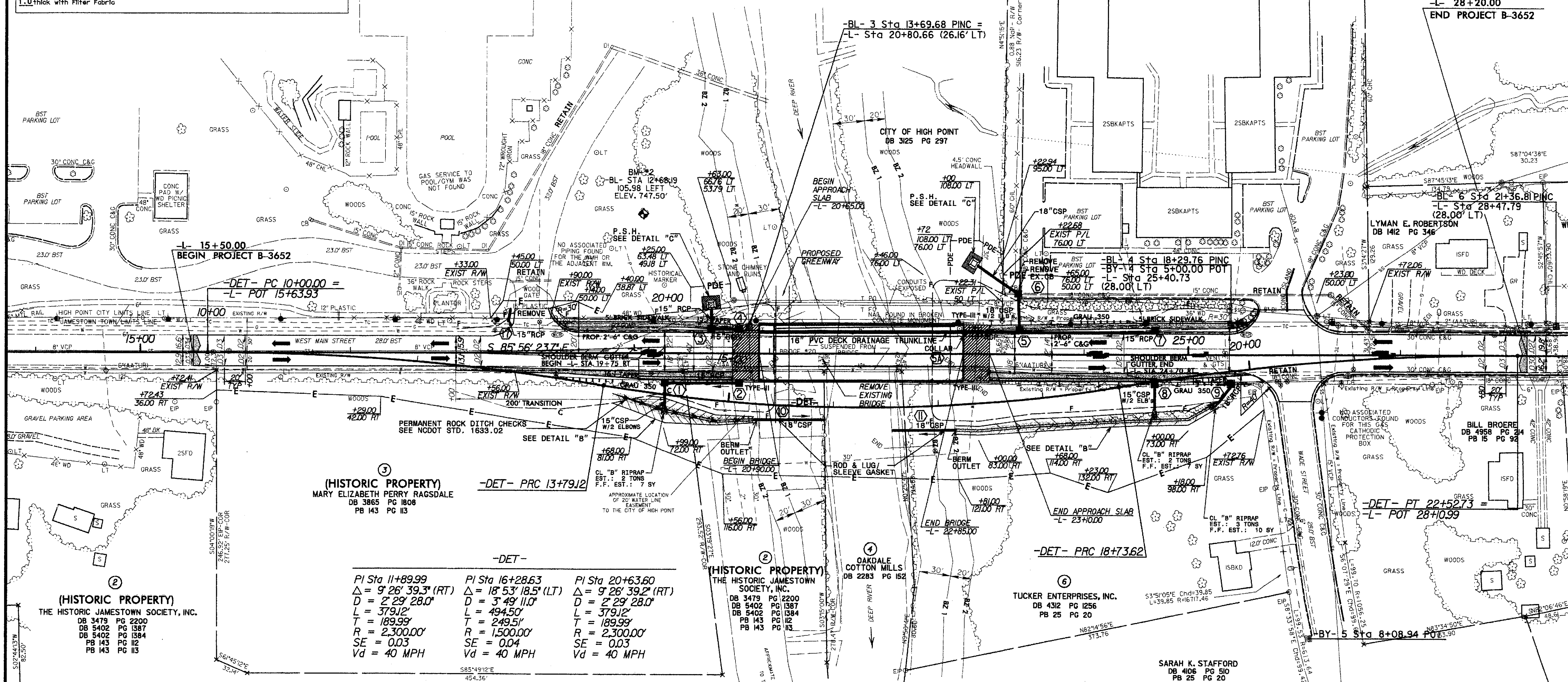


STA. 19+50+/- TO STA. 20+85+/- RT
EST. 58 CY D.D.E.
EST. 130 SY PSRM

STA. 22+80+/- TO STA. 25+30+/- RT
EST. 102 CY D.D.E.
EST. 230 SY PSRM

DRAINAGE STRUCTURE LEGEND

STRUC. #	DESCRIPTION
1	2GI NARROW SLOT FLAT GRATE
2	2GI NARROW SLOT FLAT GRATE
3	CB
4	CB
5	CB
6	CB
7	CB
8	2GI NARROW SLOT FLAT GRATE
9	ADJUST TBJB

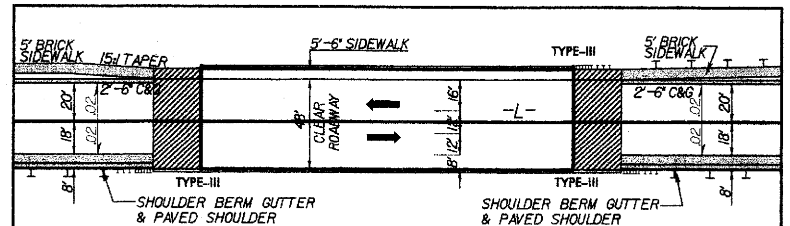


-DET-

PI Sta 11+89.99	PI Sta 16+28.63	PI Sta 20+63.60
Δ = 9° 26' 39.3" (RT)	Δ = 18° 53' 18.5" (LT)	Δ = 9° 26' 39.2" (RT)
D = 2° 29' 28.0"	D = 3° 49' 11.0"	D = 2° 29' 28.0"
L = 379.12'	L = 494.50'	L = 379.12'
T = 189.99'	T = 249.51'	T = 189.99'
R = 2,300.00'	R = 1,500.00'	R = 2,300.00'
SE = 0.03	SE = 0.04	SE = 0.03
Vd = 40 MPH	Vd = 40 MPH	Vd = 40 MPH

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3652-2"
WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 817687.6428(ft) EASTING: 1719317.6178(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99992353
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3652-2" TO -L- STATION 15+50.00 IS
S 81° 25' 44.414" E 340.076'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29



BRIDGE/ROADWAY RELATIONSHIP SKETCH

LEGEND

PAVED SHOULDER, CURB & SIDEWALK

SEE SHEET 2-A FOR DETOUR
SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS

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

5/26/99

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850

PROJECT REFERENCE NO.	SHEET NO.
B-3652	5

ROADWAY DESIGN ENGINEER

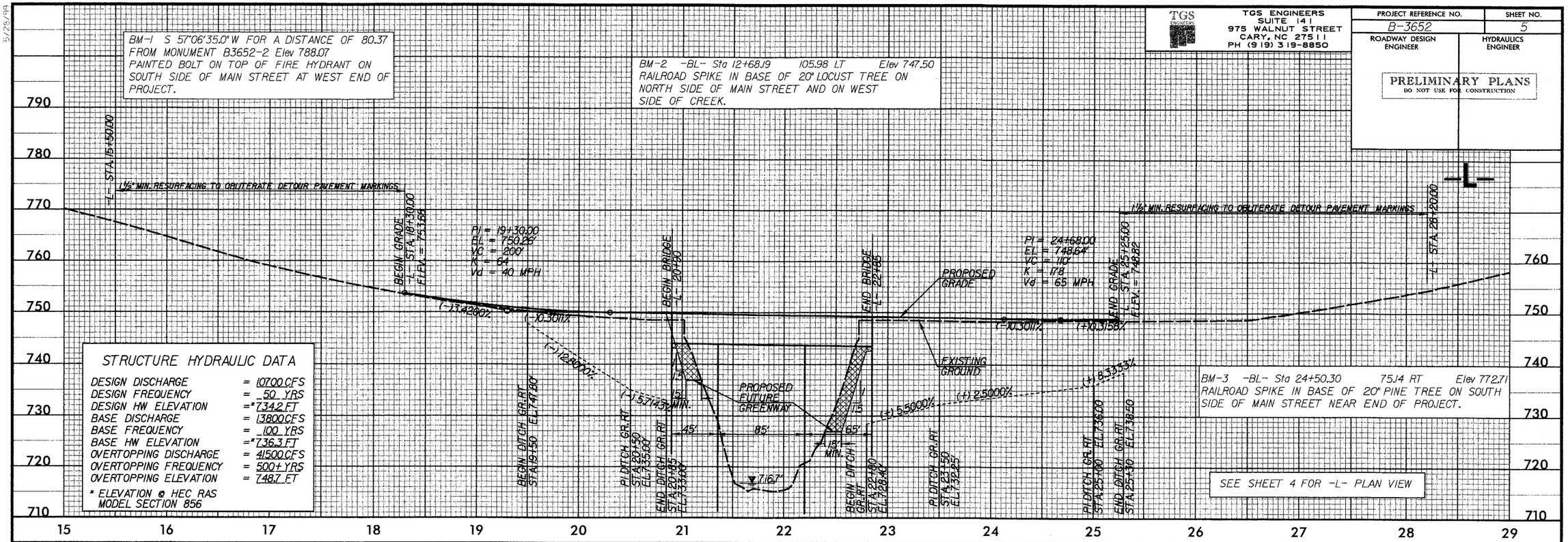
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM-1 S 57°06'35.0" W FOR A DISTANCE OF 80.37 FROM MONUMENT B3652-2 Elev 788.07
PAINTED BOLT ON TOP OF FIRE HYDRANT ON SOUTH SIDE OF MAIN STREET AT WEST END OF PROJECT.

BM-2 -BL- Sta 12+68.19 105.98 LT Elev 747.50
RAILROAD SPIKE IN BASE OF 20" LOCUST TREE ON NORTH SIDE OF MAIN STREET AND ON WEST SIDE OF CREEK.

BM-3 -BL- Sta 24+50.30 75.14 RT Elev 772.71
RAILROAD SPIKE IN BASE OF 20" PINE TREE ON SOUTH SIDE OF MAIN STREET NEAR END OF PROJECT.

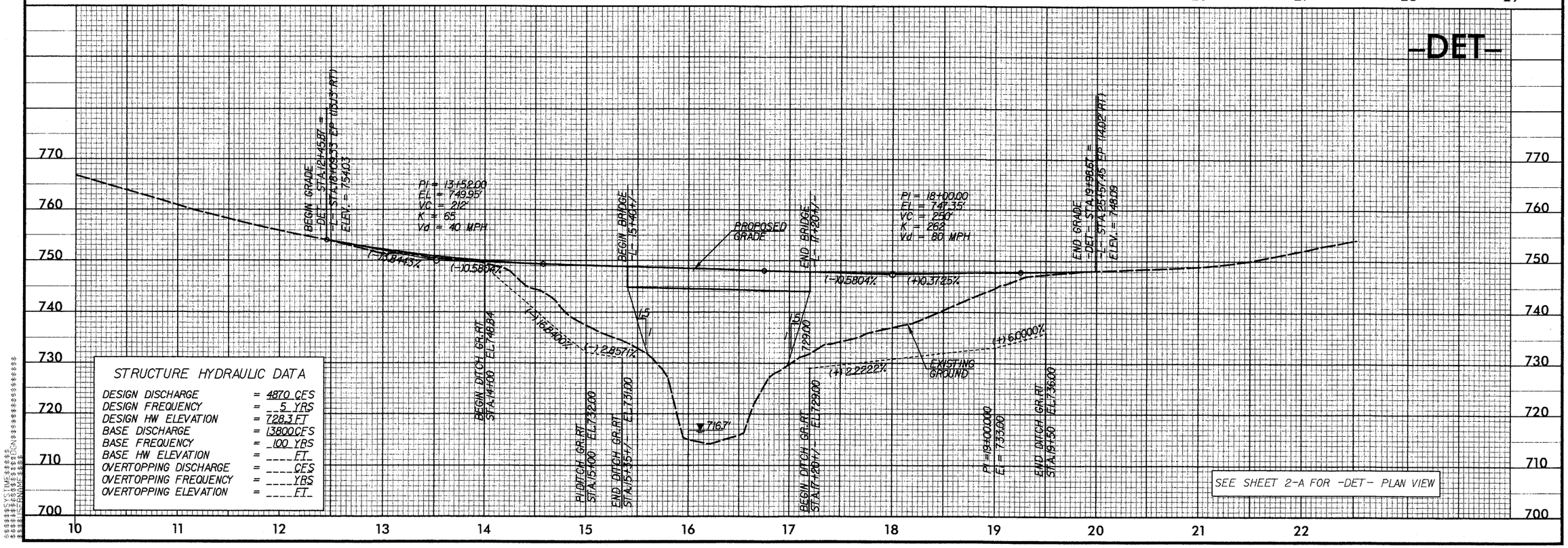


STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 10700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= *734.2 FT
BASE DISCHARGE	= 13800 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= *736.3 FT
OVERTOPPING DISCHARGE	= 41500 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 748.7 FT

* ELEVATION @ HEC RAS MODEL SECTION 856

SEE SHEET 4 FOR -L- PLAN VIEW



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 4870 CFS
DESIGN FREQUENCY	= 5 YRS
DESIGN HW ELEVATION	= 728.3 FT
BASE DISCHARGE	= 13800 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= ____ FT
OVERTOPPING DISCHARGE	= ____ CFS
OVERTOPPING FREQUENCY	= ____ YRS
OVERTOPPING ELEVATION	= ____ FT

SEE SHEET 2-A FOR -DET- PLAN VIEW

multiple cells are required the second and/or third cells should be placed so that their bottoms are at stream bankful 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 stream bed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3404 – Anson County – Bridge No. 314 over South Fork Jones Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

2. B-3421 – Cabarrus County – Bridge No. 266 over Norfolk and Southern Railway. No comment.

3. B-3822 – Catawba County – Bridge No. 8 over unnamed tributary to the Catawba River. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened of endangered species in the project vicinity.

4. B-3828 – Cleveland County – Bridge No. 233 over Buffalo Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

5. B-3637 – Davie County – Bridge No. 37 over I-40. No comment.

6. B-3835 – Davie-Forsyth counties – Bridge No. 35 over the Yadkin River. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We request that the new bridge span the adjacent wetlands

entirely. The old fill causeways should then be removed and graded to natural ground level. We are not aware of any threatened of endangered species in the project vicinity.

7. B-3454 – Forsyth County – Bridge No. 260 over Muddy Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

8. B-3839 – Forsyth County – Bridge No.139 over Fishers Branch. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

9. B-3840 – Gaston County – Bridge No. 52 over South Crowders Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

10. B-3337 – Guilford County – Bridge No. 527 over North Buffalo Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

11. B-3652 – Guilford County – Bridge No. 20 over the Deep River. SR 4121 crosses the Deep River just below the dam of High Point City Lake. This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be preformed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened of endangered species in the project vicinity.

12. B-3851 – Guilford County – Bridge No. 21 over US 29/70. No comment.

13. B-3677 – Mecklenburg County – Bridge No. 36 over Greasy Creek. We have no specific comments. We are not aware of any threatened of endangered species in the project vicinity.

14. B-3506 – Randolph County – Bridge No. 226 over Richland Creek. Richland Creek is a medium sized stream that supports good populations of sunfish. Therefore, we request that no in-water work be preformed from April 1 to May 31. We are not aware of any threatened of endangered species in the project vicinity.

15. B-3694 – Rockingham County – Bridge No. 55 over the Belews Lake Spillway. This bridge appears to be just downstream of the Belews Lake dam. This area supports good numbers of sunfish and may support a tailrace fishery. Therefore, we request that no in-water work be preformed from April 1 to May 31. We request that High Quality Sedimentation and Erosion Control Measures be used due to the DWQ water quality classification of WS-IV. We are not aware of any threatened of endangered species in the project vicinity.

16. B-3700 – Stanly County – Bridge No. 187 over Long Creek. This segment of Long Creek may support the state listed Carolina darter. Therefore, we request that High Quality Sedimentation and Erosion Control Measures be used to minimize project impacts to this species.

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

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.