STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

December 4, 2008

NC Division of Water Quality
Transportation Permitting Unit
2321 Crabtree Boulevard, Suite 250
Raleigh, North Carolina 27604

ATTN: Mr. Brian Wrenn

Dear Sir,

Subject: **Tar - Pamlico Riparian Buffer Authorization Request** for the proposed replacement of Bridge No. 82 over Cypress Creek on SR 1316 in Nash and Franklin Counties. Federal Aid Project No. BRZ-1316(4), WBS Element 33787.1.1, **TIP No. B-4587**.

Please find enclosed the PCN form, permit drawings, and half-size plan sheets for the above referenced project. A Programmatic Categorical Exclusion (PCE) was completed for this project on August 15, 2007, and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT) proposes to replace existing Bridge No. 22 over Cypress Creek on SR 1316, in Nash and Franklin Counties. The project involves replacement of the existing 92-foot structure with a 125-foot bridge at approximately the same location. The bridge will be constructed with the use of prestressed concrete cored slabs. There will be 19 square feet of permanent impacts to Cypress Creek and no impacts to its adjacent wetlands. Traffic will be detoured off-site, on surrounding roads, during construction.

Regulatory Approvals

Tar / Pamlico Riparian Buffer Authorization: NCDOT requests that the NCDWQ review this application and issue a written approval for a Tar / Pamlico Riparian Buffer Authorization.

Section 404 / 401 Permit: The only impacts to waters of the US consist of bent installation, which do not require permits under Section 401 and 404 of the Clean Water Act. Therefore we are not requesting written authorization for Clean Water Act permits.

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

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

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

LOCATION:
PARKER LINCOLN BUILDING
2728 CAPITAL BLVD. SUITE 240
RALEIGH NC 27604

WEBSITE: WWW.NCDOT.ORG

Thank you for your time and assistance with this project. Please contact Veronica Barnes at vabarnes@ncdot.gov or (919) 715-7232 if you have any questions or need additional information.

Sincerely,

E. P. Luck

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

W/attachment
Mr. Brian Wrenn, NCDWQ (2 Copies)

W/o attachment (see website for attachments)
Dr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Mark Staley, Roadside Environmental
Mr. Richard E. Greene , P.E. Division 4
Mr. Chad Coggins, Division 4 Environmental Officer
Mr. Scott McLendon, USACE, Wilmington
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Mr. Ron Sechler, NMFS
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Ms. Natalie Lockhart, PDEA

Office Use Only: Form Version March 05

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

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

I. Processing

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

2. Nationwide, Regional or General Permit Number(s) Requested: N/A

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

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

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

II. Applicant Information

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

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: Bridge No. 82 over Cypress Creek on SR 1316 (Lake Royale Road)

2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4587

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

4. Location
   County: Franklin/Nash Nearest Town: Spring Hope
   Subdivision name (include phase/lot number): N/A
   Directions to site (include road numbers/names, landmarks, etc.): From Highway 64, take the Spring Hope (NC 98/NC 231) exit. Turn left onto NC 231. Then turn left on to NC 98 West. Continue on Highway 98 for about 2 miles and turn right onto Sledge Rd. After about 1 mile, turn right onto Paul Sledge Road. Paul Sledge Road will turn into Lake Royale Road at the County line (about 1 mile from the turn). The bridge is located on the County line.

5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
   Decimal Degrees (6 digits minimum): 78.182153 °N 35.938850 °W

6. Property size (acres): N/A

7. Name of nearest receiving body of water: Cypress Creek

8. River Basin: Tar-Pamlico River Basin
   (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: Land use in the area is mostly agriculture. The areas around

streams are forested and there is low density residential areas associated with the agricultural use of the land.

10. Describe the overall project in detail, including the type of equipment to be used:
The existing bridge is 25.7 feet wide and has 3 spans totaling 92 feet in length. The structure consists of prestressed concrete channels with timber pile bents. A steel crutch bent was added to strengthen the structure until it could be replaced. The project consists of replacing the existing bridge with a new 3 span bridge totaling 125 feet in length. The new bridge will be 33 feet wide and the structure will consist of cored slabs on drilled concrete pier bents. The bridge will be replaced in place. A temporary work bridge will be utilized for the installation of the drilled piers as shown in the attached drawings.

11. Explain the purpose of the proposed work: The current bridge has a sufficiency rating of 27.7 out of 100 and is considered structurally deficient due to structural appraisal of 2 out of 9 by Federal Highway Administration standards.

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.
A jurisdictional determination was issued for this project by USACE under the Action ID 200411234 on April 22, 2004.

V. Future Project Plans

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

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

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an

accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: There are no proposed permanent or temporary impacts to wetlands for this project. There will be 0.02 acre of hand clearing in wetland areas. There will be 19 square feet (<0.01ac) of permanent impacts to surface waters due to one interior bent with drilled piers.
2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
N/A					
Total Wetland Impact (acres)					0.0

3. List the total acreage (estimated) of all existing wetlands on the property: 4.16 ac

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

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Cypress Creek	Permanent – Bent	Perennial	25 ft.	0	<0.01
Total Stream Impact (by length and acreage)					0	<0.01

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

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Total Open Water Impact (acres)				0

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

Stream Impact (acres):	<0.01
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	<0.01
Total Stream Impact (linear feet):	0

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

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

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. The number of bents in the stream channel is being reduced from two for the existing bridge to one for the new bridge. In compliance with 15A NCAC 02B.0104(m) we have incorporated the use of BMP's in the design of the project. All measures will be taken to avoid any temporary fill from entering Waters of the United States. Design Standards in Sensitive Watersheds were used.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

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

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

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.
   No mitigation is proposed for this project because the impacts to buffers due to bridge construction are considered Allowable.

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

   Amount of stream mitigation requested (linear feet): 0
   Amount of buffer mitigation requested (square feet): 0
   Amount of Riparian wetland mitigation requested (acres): 0
   Amount of Non-riparian wetland mitigation requested (acres): 0
   Amount of Coastal wetland mitigation requested (acres): 0

IX. Environmental Documentation (required by DWQ)

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

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

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

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

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

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

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

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	2,285	3 (2 for Catawba)	0
2	1,026	1.5	0
Total	3,311		0

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

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

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. 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. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at http://h2o.enr.state.nc.us/ncwetlands. If no, please provide a short narrative description:
The project is a relatively small bridge in a residential area. There will be no new road created and no additional lanes added, therefore it is unlikely to attract development.

XV. Other Circumstances (Optional):

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

E. L. Lusk 12.4.08

Applicant/Agent's Signature **Date**
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

STATE	STATE PROJECT REFERENCE NO.	TOTAL SHEETS
N.C.	B-4587	1

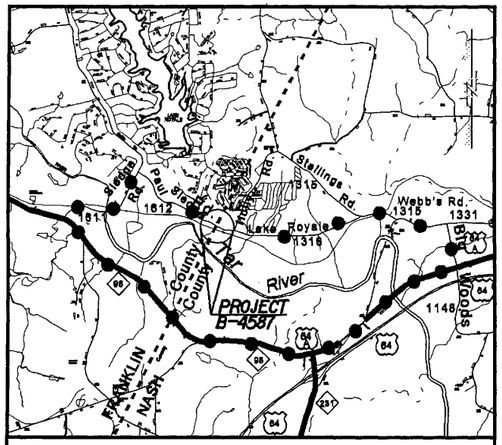
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33787.1.1	BRZ-1316(4)	PE
33787.2.1	BRZ-1316(4)	R/W, & UTI

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH–FRANKLIN COUNTIES

LOCATION: BRIDGE 82 OVER CYPRESS CREEK ON SR 1316

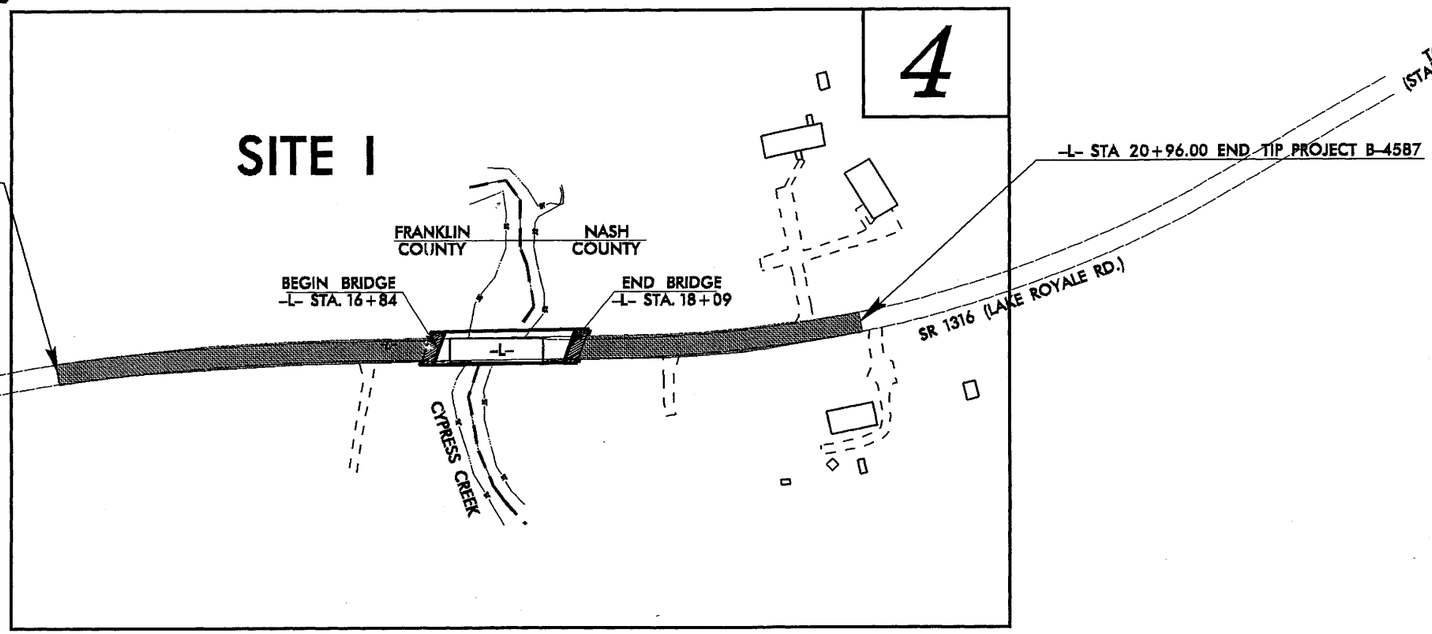
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



VICINITY MAP

DETOUR ROUTE

NAD 83



BUFFER PERMIT

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT
CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: B-4587

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 554
ADT 2030 = 1,200
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH

* TTST 1 DUAL 2
FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4587 = 0.126 Mi.

LENGTH STRUCTURE TIP PROJECT B-4587 = 0.024 Mi.

TOTAL LENGTH TIP PROJECT B-4587 = 0.15 Mi.

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2008

LETTING DATE: AUGUST 18, 2009

JIMMY GOODNIGHT, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

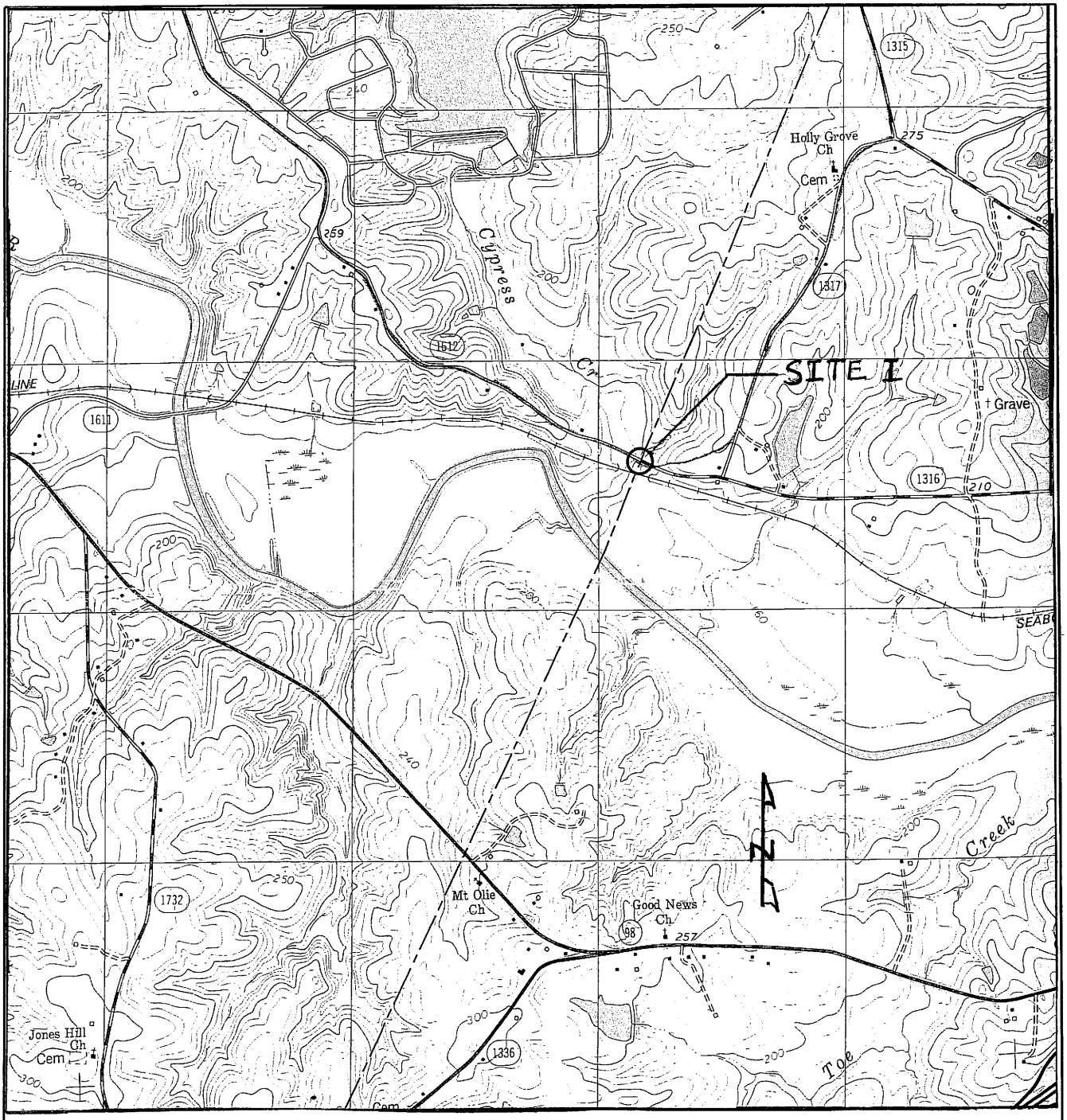
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER *P.E.*

Buffer Drawing
Sheet 1 of 5

16-SEP-2008 10:02
r:\hydraulics\permits_environmental\b4587_hyd_tsh_wet.dgn
mshown AT HY239382

09/80/60



NOT TO SCALE

NEUSE RIVER BUFFER
VICINITY MAPS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
FRANKLIN / NASH COUNTY

PROJECT: 33787.1.1 (B-4587)

BRIDGE No. 82 OVER
CYPRESS CREEK ON SR 1316

SHEET OF

Buffer Drawing
Sheet 2 of 5

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	BRIDGE	17+46.50 -L-		X		2083.0	223.0	2306.0					
			X			202.0	803.0	1005.0					
TOTAL:						2285.0	1026.0	3311.0	0.0	0.0	0.0		

NOTE: THERE WILL BE 804 SQ. FT. OF HAND CLEARING IN WETLANDS IN BUFFER ZONE 1

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

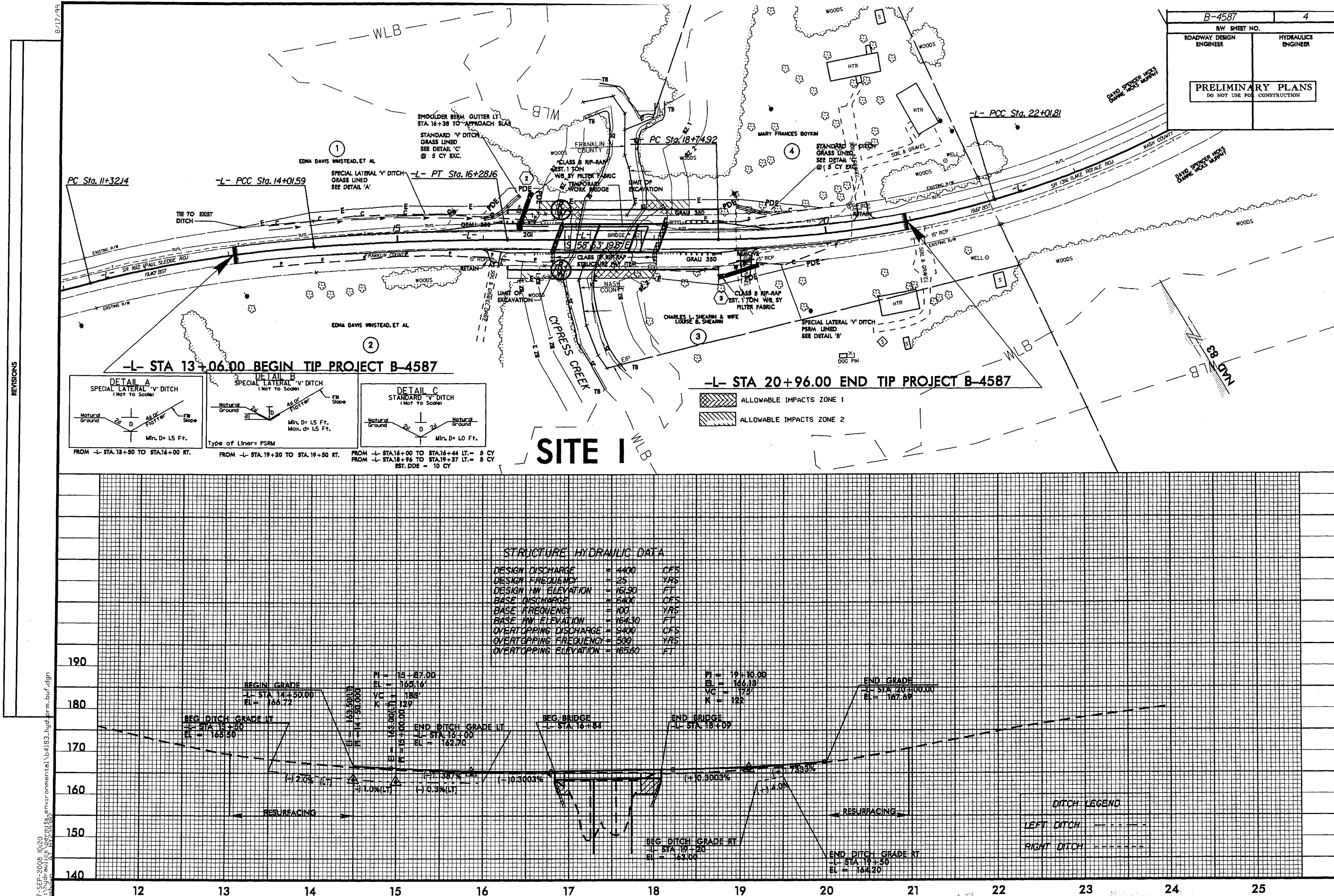
FRANKLIN/NASH COUNTY
PROJECT: 33787.1.1 (B-4587)

9/16/2008
SHEET OF

Rev. May 2006

Buffer Drawing
Sheet 3 of 5

Buffer Drawing
Sheet _____ of _____


B-4587
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
8/17/99
-L- STA 13+06.00 BEGIN TIP PROJECT B-4587
-L- STA 20+96.00 END TIP PROJECT B-4587
PC Sta. 11+32.14
-L- PCC Sta. 14+01.59
-L- PT Sta. 16+28.16
-L- PC Sta. 18+74.92
-L- PCC Sta. 22+01.81
SR 1612 (PAUL SLEDGE RD)
SR 1316 (LAKE ROYALE RD)
CYPRESS CREEK
FRANKLIN COUNTY
NASH COUNTY
EDNA DAVIS WINSTEAD, ET AL
MARY FRANCES BOYKIN
CHARLES L. SHEARIN & WIFE LOUISE B. SHEARIN
DAVID SPENCER HICKS DIANNE HICKS MURPHY
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
DETAIL A SPECIAL LATERAL 'V' DITCH (Not to Scale)
DETAIL B SPECIAL LATERAL 'V' DITCH (Not to Scale)
DETAIL C STANDARD 'V' DITCH (Not to Scale)
FROM -L- STA. 13+50 TO STA.16+00 RT.
FROM -L- STA. 19+20 TO STA. 19+50 RT.
FROM -L- STA.16+00 TO STA.16+44 LT.= 5 CY
FROM -L- STA.18+96 TO STA.19+37 LT.= 5 CY
EST. DDE = 10 CY
SITE 1
BEGIN GRADE -L- STA. 14+50.00 EL = 166.72
END GRADE -L- STA. 20+00.00 EL = 167.69
BEG. BRIDGE -L- STA. 16+84
END BRIDGE -L- STA. 18+09
PI = 15+87.00 EL = 165.16' VC = 185' K = 129
PI = 19+10.00 EL = 166.13' VC = 175' K = 122
RESURFACING
DITCH LEGEND
LEFT DITCH
RIGHT DITCH

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	4400	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	161.90	FT
BASE DISCHARGE	=	6400	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	164.30	FT
OVERTOPPING DISCHARGE	=	9400	CFS
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING ELEVATION	=	165.60	FT

Buffer Drawing
Sheet 4 of 5

B-4587

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- PC Sta. 11+32.14

-L- PCC Sta. 14+01.59

-L- PT Sta. 16+28.16

PC Sta. 18+74.92

-L- PCC Sta. 22+01.81

-L- STA 13+06.00 BEGIN TIP PROJECT B-4587

-L- STA 20+96.00 END TIP PROJECT B-4587

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

SITE 1

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not To Scale)

Min. D= 1.5 Ft.

FROM -L- STA. 13+50 TO STA.16+00 RT.

DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not To Scale)

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.

Type of Liner= PSRM

FROM -L- STA. 19+20 TO STA. 19+50 RT.

DETAIL C
STANDARD 'V' DITCH
(Not To Scale)

Min. D= 1.0 Ft.

FROM -L- STA.16+00 TO STA.16+44 LT.= 5 CY
FROM -L- STA.18+96 TO STA.19+37 LT.= 5 CY
EST. DDE = 10 CY

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 9400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 166.90	FT
BASE DISCHARGE	= 9400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 164.30	FT
OVERTOPPING DISCHARGE	= 9400	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 165.60	FT

BEG. DITCH GRADE LT
-L- STA 13+50
EL = 165.50

BEGIN GRADE
-L- STA 14+50.00
EL = 166.72

(+)2.0%(LT)

PI = 15+87.00
EL = 165.16'
VC = 185'
K = 129

EL = 163.30(LT)
PI = 14+50.00(LT)

(-)1.0%(LT)

END DITCH GRADE LT
-L- STA 15+00
EL = 162.70

(-)1.38%

(-)0.3%(LT)

BEG. BRIDGE
-L- STA 16+84

(+)0.3003%

END BRIDGE
-L- STA 18+09

(+)0.3003%

PI = 19+10.00
EL = 166.13'
VC = 175'
K = 122

(+)7.35%

(+)4.0%

END GRADE
-L- STA 20+00.00
EL = 167.89

RESURFACING

RESURFACING

BEG. DITCH GRADE RT
-L- STA 19+20
EL = 163.00

END DITCH GRADE RT
-L- STA 19+50
EL = 164.20

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

REVISIONS

8/17/9

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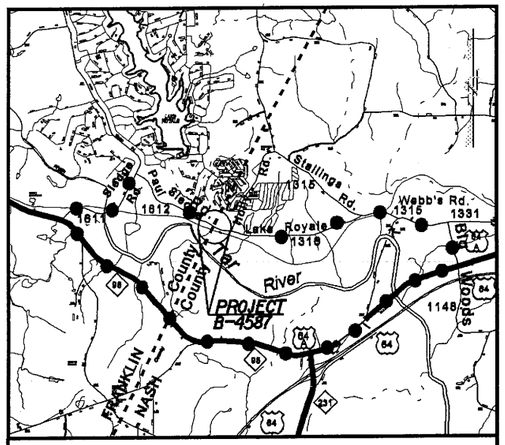
Buffer Drawing
Sheet 5 of 5

09/09/99

TIP PROJECT: B-4587

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH–FRANKLIN COUNTIES

LOCATION: BRIDGE 82 OVER CYPRESS CREEK ON SR 1316

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

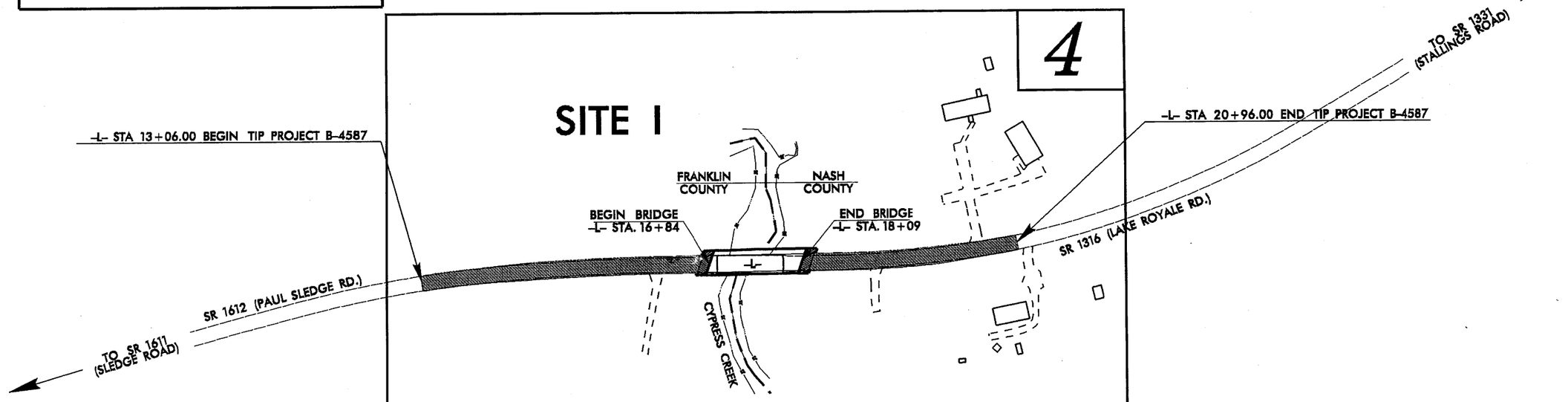
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4587	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33787.1.1	BRZ–1316(4)	PE
33787.2.1	BRZ–1316(4)	R/W, & UTI

NAD 83

4

SITE I



WETLAND PERMIT

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT
CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 554
ADT 2030 = 1,200
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH

* TTST 1 DUAL 2
FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4587 = 0.126 Mi.

LENGTH STRUCTURE TIP PROJECT B–4587 = 0.024 Mi.

TOTAL LENGTH TIP PROJECT B–4587 = 0.15 Mi.

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2008

LETTING DATE: AUGUST 18, 2009

JIMMY GOODNIGHT, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

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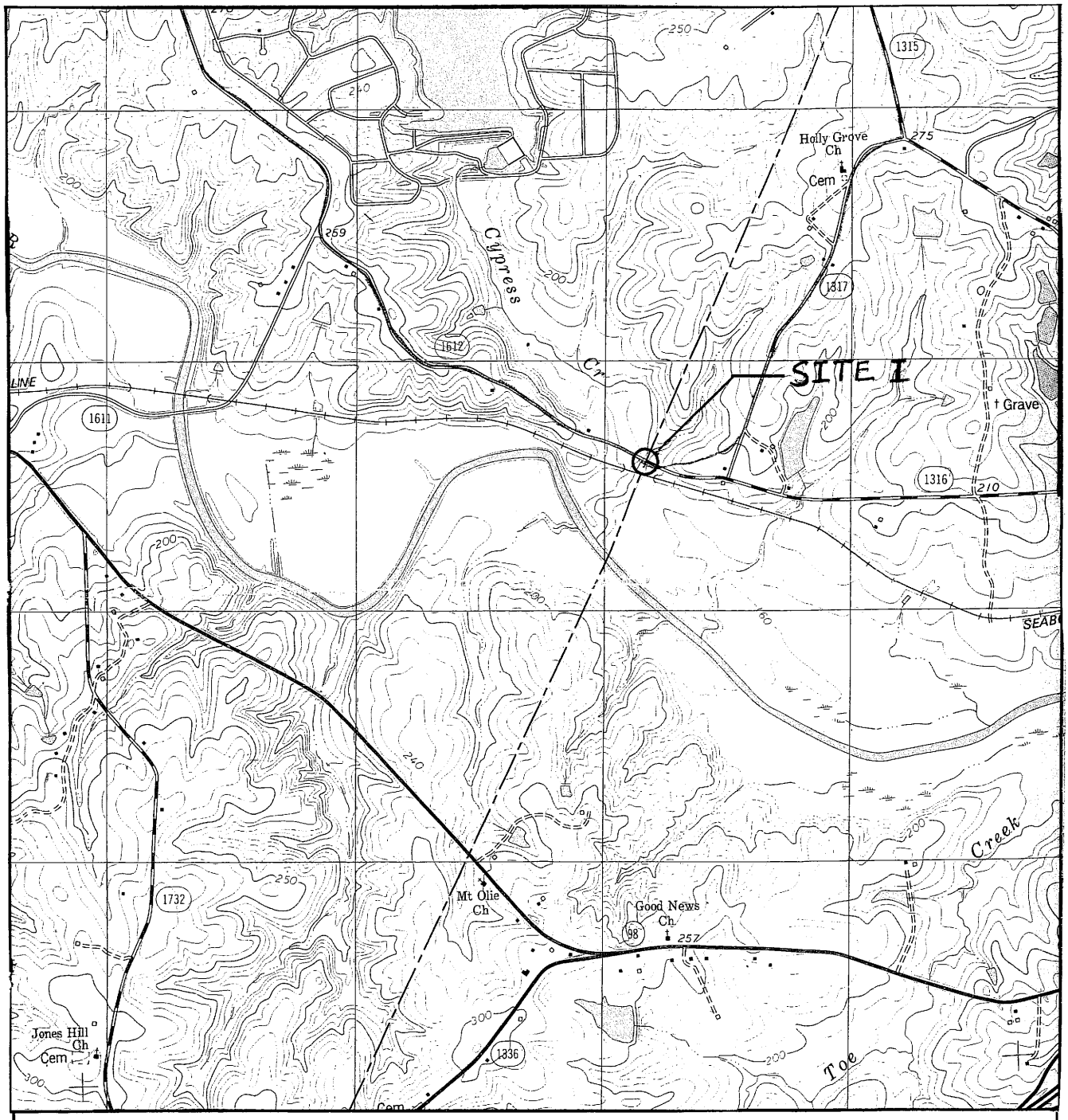
Permit Drawing
Sheet 1 of 7



NOT TO SCALE

VICINITY MAPS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
FRANKLIN / NASH COUNTY

PROJECT: 33787.1.1 (B-4587)

BRIDGE No. 82 OVER
CYPRESS CREEK ON SR 1316

SHEET OF

Permit Drawing
Sheet 2 of 7

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	17+46.50 -L-	BRIDGE					0.02					
TOTALS:							0.02					

1 INTERIOR BENT W/ DRILLED PIERS
AREA IMPACTED - 19 SQ.FT. <0.01 Ac.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

FRANKLIN/NASH COUNTY
WBS - 33787.1.1 (B-4587)

SHEET 10/14/08

ATN Revised 3/31/05

Permit Drawing
Sheet 3 of 7

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
3	CHARLES L. SHEARIN & LOUISE B. SHEARIN	10014 LAKE ROYALE RD. SPRING HOPE, NC 27882

NCDOT

DIVISION OF HIGHWAYS

FRANKLIN / NASH COUNTY

PROJECT: 33787.1.1 (B-4587)

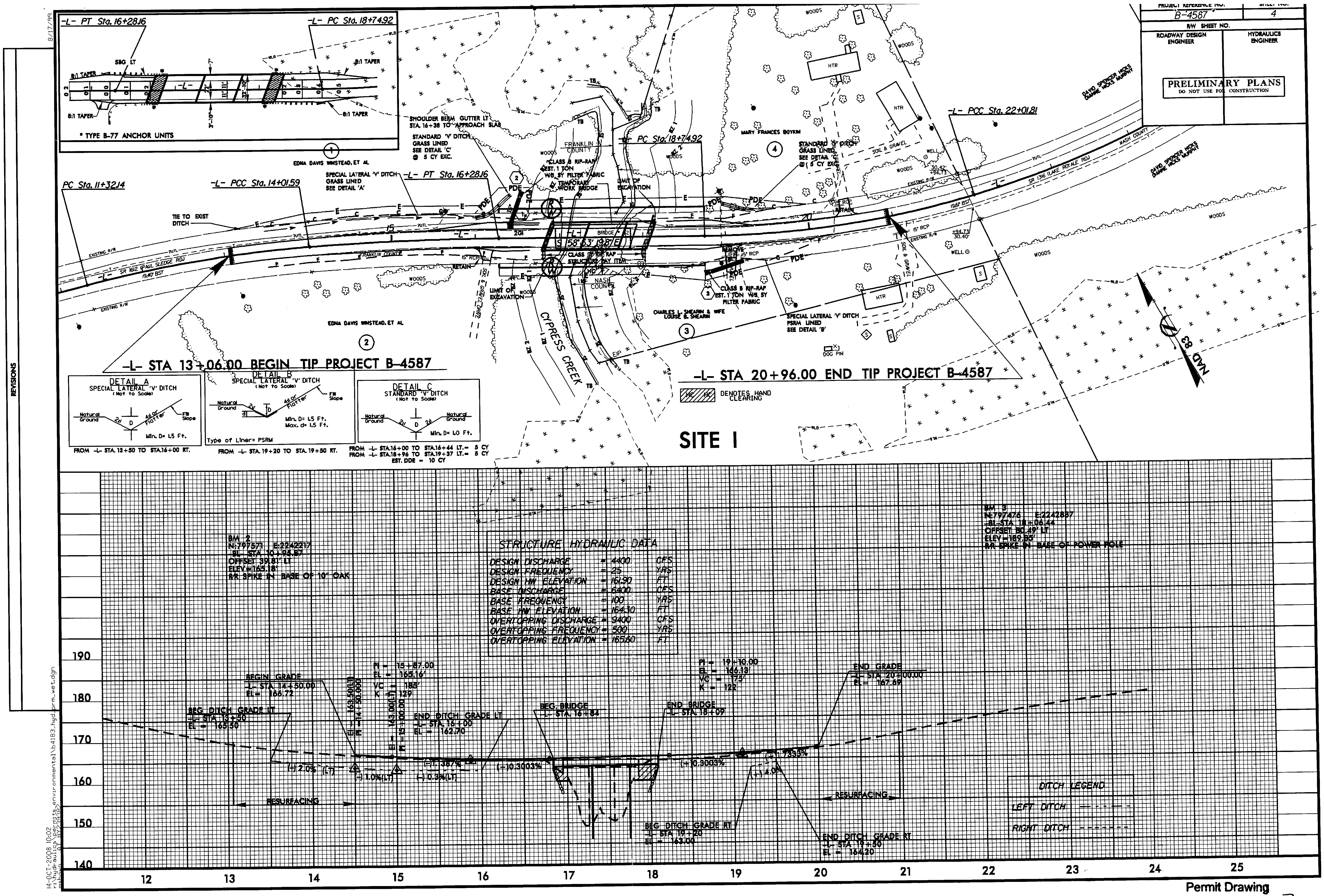
BRIDGE No. 82 OVER

CYPRESS CREEK ON SR 1316

SHEET OF 9 / 17 / 08

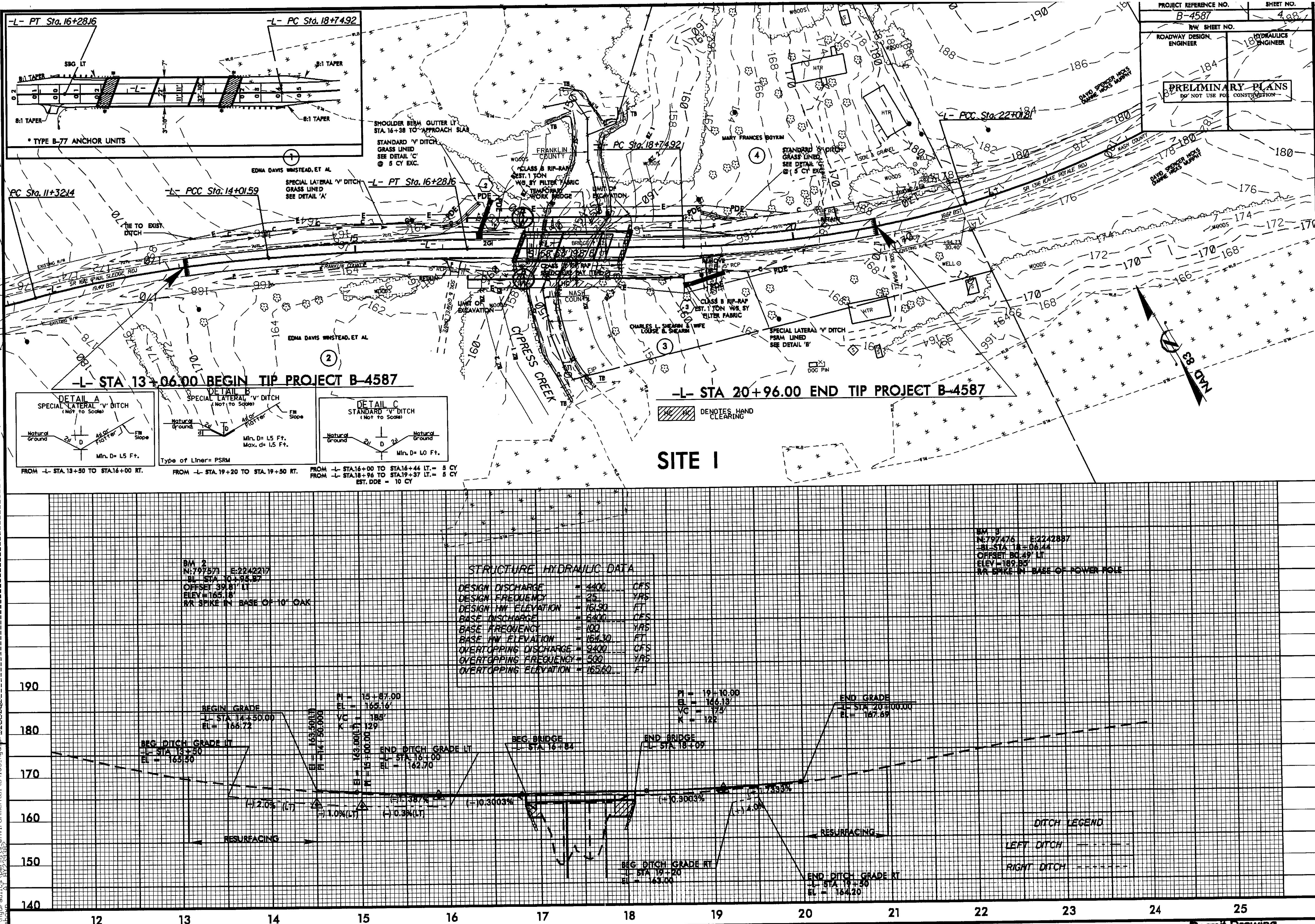
Permit Drawing

Sheet 4 of 7



Permit Drawing
Sheet 5 of 7

PROJECT REFERENCE NO.	SHEET NO.
B-4587	4


PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-L- PT Sta. 16+28.16
-L- PC Sta. 18+74.92
* TYPE B-77 ANCHOR UNITS
-L- PCC Sta. 14+01.59
PC Sta. 11+32.14
-L- PCC Sta. 22+01.81
EDNA DAVIS WINSTEAD, ET AL
MARY FRANCES BOYKIN
CHARLES L. SHEARIN & WIFE LOUISE B. SHEARIN
DAVID SPENCER HICKS DIANNE HICKS MURPHY
FRANKLIN COUNTY
NASH COUNTY
CYPRESS CREEK
SR 1612 (PAUL SLEDGE RD)
SR 1316 (LAKE ROYALE RD)
CLASS B RIP-RAP EST. 1 TON W/& SY FILTER FABRIC
TEMPORARY WORK BRIDGE
LIMIT OF EXCAVATION
STANDARD 'V' DITCH GRASS LINED SEE DETAIL 'C' @ 5 CY EXC.
SPECIAL LATERAL 'V' DITCH GRASS LINED SEE DETAIL 'A'
SPECIAL LATERAL 'V' DITCH PSRM LINED SEE DETAIL 'B'
SHOULDER BERM GUTTER LT STA. 16+38 TO APPROACH SLAB
-L- STA 13+06.00 BEGIN TIP PROJECT B-4587
-L- STA 20+96.00 END TIP PROJECT B-4587
DENOTES HAND CLEARING
NAD 83
DETAIL A SPECIAL LATERAL 'V' DITCH (Not to Scale) Min. D= 1.5 Ft.
FROM -L- STA. 13+50 TO STA.16+00 RT.
DETAIL B SPECIAL LATERAL 'V' DITCH (Not to Scale) Min. D= 1.5 Ft. Max. d= 1.5 Ft. Type of Liner= PSRM
FROM -L- STA. 19+20 TO STA. 19+50 RT.
DETAIL C STANDARD 'V' DITCH (Not to Scale) Min. D= 1.0 Ft.
FROM -L- STA.16+00 TO STA.16+44 LT.= 5 CY
FROM -L- STA.18+96 TO STA.19+37 LT.= 5 CY
EST. DDE = 10 CY
SITE 1
BM 2 N:797571 E:2242217 -BL- STA. 10+56.87 OFFSET 39.81' LT ELEV=165.18' R/R SPIKE IN BASE OF 10" OAK
BM 3 N:797476 E:2242887 -BL-STA 18+06.44 OFFSET 80.49' LT ELEV=189.85' R/R SPIKE IN BASE OF POWER POLE
BEGIN GRADE -L- STA. 14+50.00 EL= 166.72
PI = 15+87.00 EL = 165.16' VC = 185' K = 129
PI = 19+10.00 EL = 166.13' VC = 175' K = 122
END GRADE -L- STA 20+00.00 EL= 167.69
BEG. DITCH GRADE LT -L- STA. 13+50 EL = 165.50
END DITCH GRADE LT -L- STA. 16+00 EL = 162.70
BEG. BRIDGE -L- STA. 16+84
END BRIDGE -L- STA. 18+09
BEG DITCH GRADE RT -L- STA 19+20 EL = 163.00
END DITCH GRADE RT -L- STA. 19+50 EL = 164.20
RESURFACING
DITCH LEGEND
LEFT DITCH
RIGHT DITCH

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 4400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 161.90	FT
BASE DISCHARGE	= 6400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 164.30	FT
OVERTOPPING DISCHARGE	= 9400	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 165.60	FT

Permit Drawing
Sheet 6 of 7

0 2,5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-4587	X-3

INCOMPLETE PLANS
DO NOT USE FOR ROW ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 1

CLEARING IN WETLANDS

EASEMENT LIMIT

WETLAND BOUNDARY

18+00.00

17+50.00

17+00.00

166.13

164.87

164.39

163.62

161.03

0.0200

0.0200

0.0200

0.0200

0.0200

0.0200

Permit Drawing
Sheet 7 of 7

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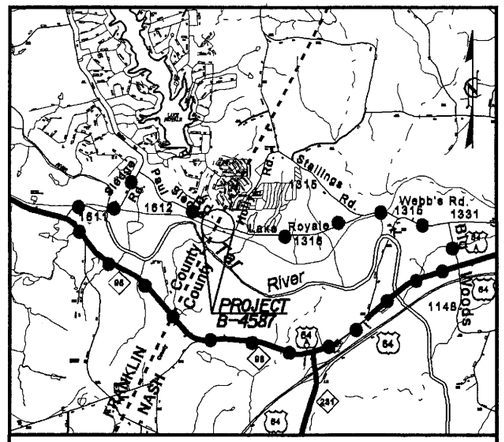
TIP PROJECT: B-4587

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

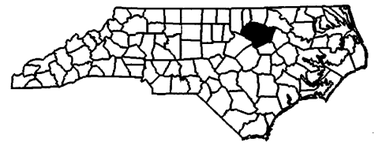
NASH–FRANKLIN COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4587	1	

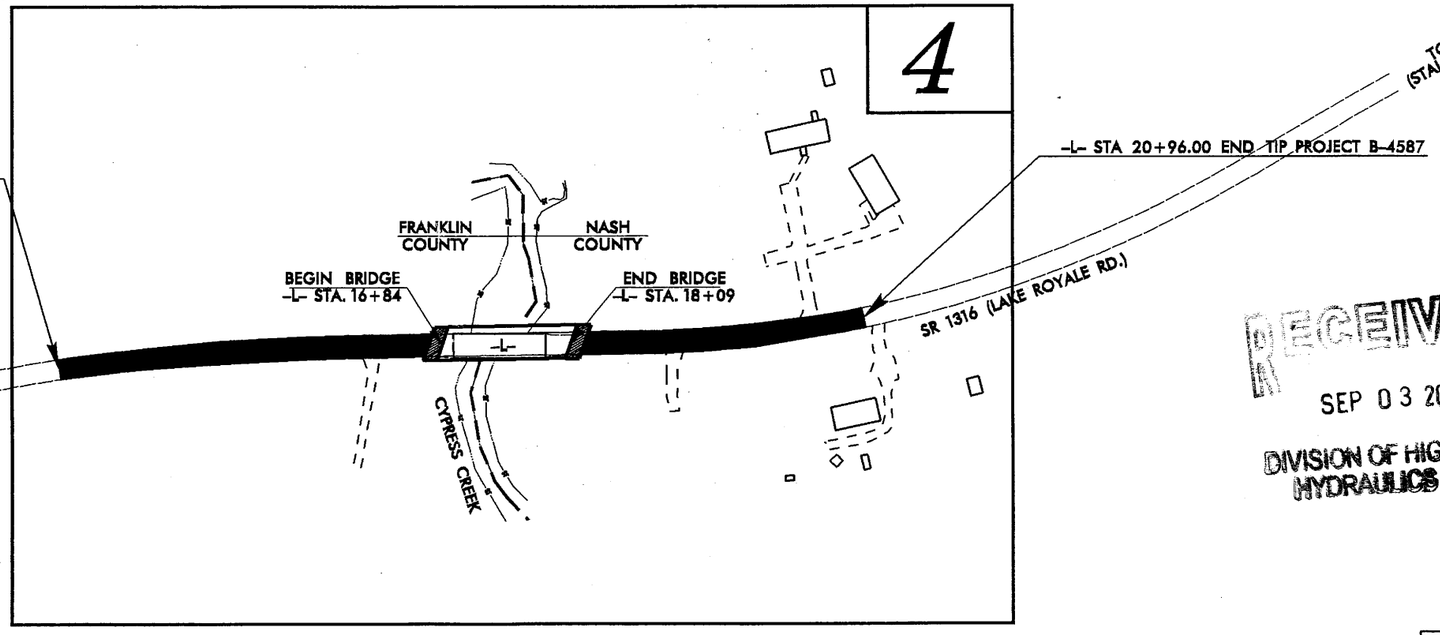
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33787.1.1	BRZ-1316(4)	PE
33787.2.1	BRZ-1316(4)	R/W, & UTI

LOCATION: BRIDGE 82 OVER CYPRESS CREEK ON SR 1316

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



NAD 83



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT
CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 554
ADT 2030 = 1,200
DHV = 10 %
D = 60 %
T = 3 % *
V = 50 MPH

* TTST 1 DUAL 2
FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4587 = 0.126 Mi.

LENGTH STRUCTURE TIP PROJECT B-4587 = 0.024 Mi.

TOTAL LENGTH TIP PROJECT B-4587 = 0.15 Mi.

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 15, 2008

LETTING DATE: AUGUST 18, 2009

JIMMY GOODNIGHT, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-4587	1-B

Note: Not to Scale

S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

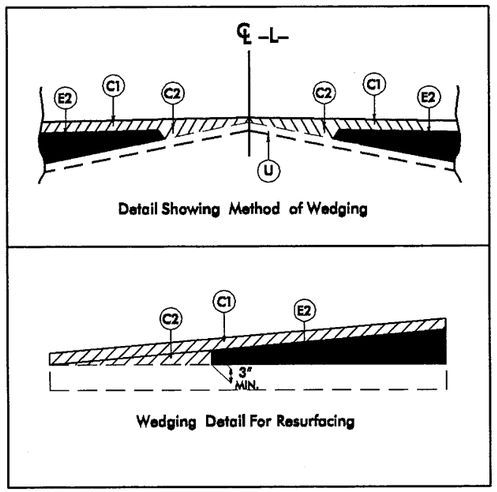
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?U/TL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

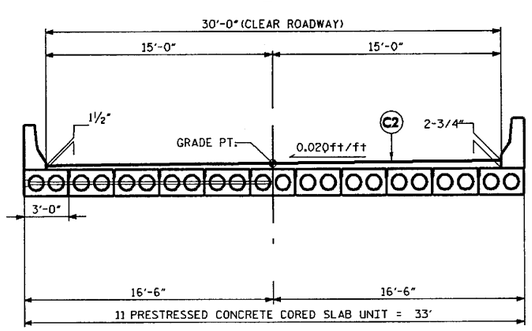
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4587	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

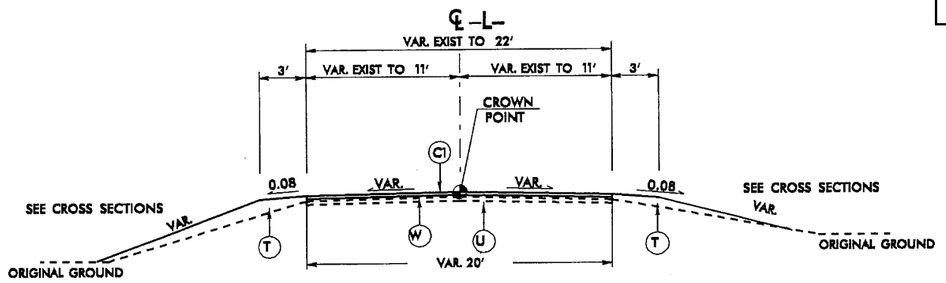
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 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.
T	EARTH MATERIAL
W	WEDGING
U	EXISTING PAVEMENT





TYPICAL SECTION NO. 4

–L– STA. 16+89.83 TO –L– STA. 17+89.83

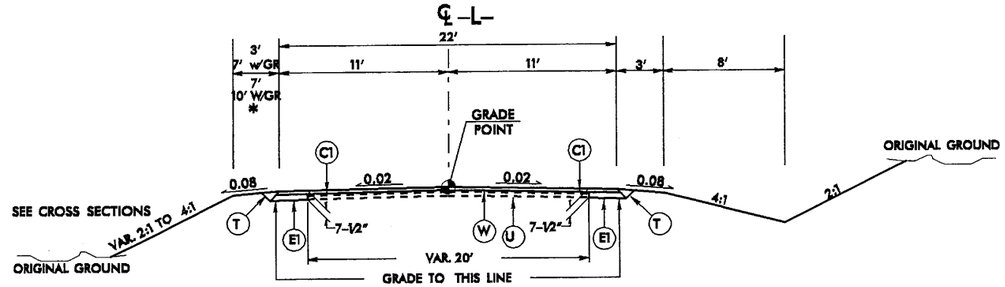


TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

–L– STA. 13+06.00 TO STA. 14+50.00

–L– STA. 20+00.00 TO STA. 20+96.00



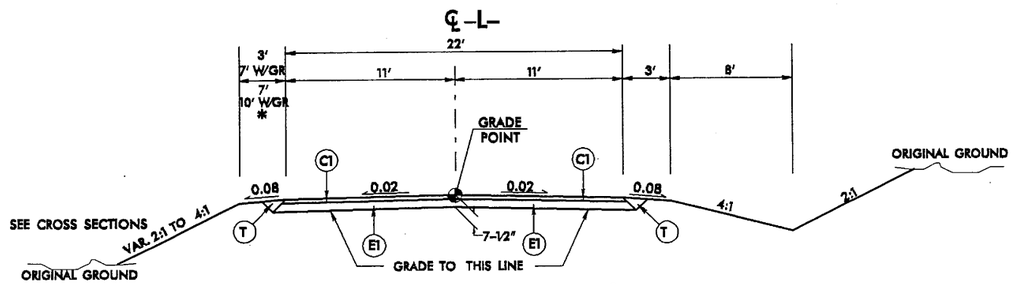
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO.2 AS FOLLOWS:

–L– STA. 14+50.00 TO STA. 16+34.00

–L– STA. 18+59.00 TO STA. 20+00.00

* –L– LT WHERE GUARDRAIL IS LOCATED



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

–L– STA. 16+34.00 TO BEG BRIDGE STA. 16+84.00

–L– END BRIDGE STA. 18+09.00 TO STA. 18+59.00

* –L– LT WHERE GUARDRAIL IS LOCATED

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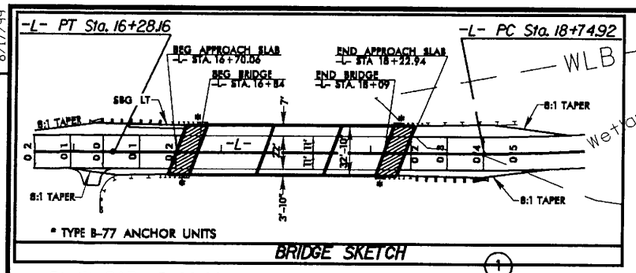
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-4587	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

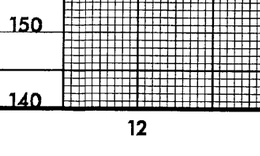


BRIDGE SKETCH

-L- STA 13+06.00 BEGIN TIP PROJECT B-4587

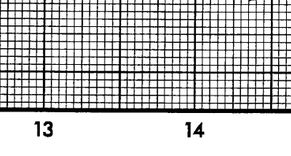
-L- STA 20+96.00 END TIP PROJECT B-4587

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM -L- STA. 13+50 TO STA.16+00 RT.

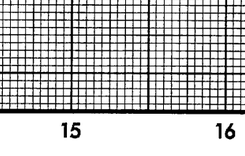
DETAIL B
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= PSRM

FROM -L- STA. 19+20 TO STA. 19+50 RT.

DETAIL C
STANDARD 'V' DITCH
(Not to Scale)



FROM -L- STA.16+00 TO STA.16+44 LT.= 5 CY
FROM -L- STA.18+96 TO STA.19+37 LT.= 5 CY
EST. DDE = 10 CY

-L- CURVE DATA

PI Sta 12+67.24	PI Sta 15+14.92	PI Sta 20+39.44	PI Sta 23+41.30
Δ = 10° 31' 38.9" (RT)	Δ = 4° 03' 24.1" (RT)	Δ = 16° 00' 27.9" (LT)	Δ = 13° 15' 38.5" (LT)
D = 3° 54' 25.4"	D = 1° 47' 25.8"	D = 4° 53' 49.5"	D = 4° 46' 28.7"
L = 269.45'	L = 226.57'	L = 326.88'	L = 277.73'
T = 135.10'	T = 113.33'	T = 164.54'	T = 139.49'
R = 1,466.47'	R = 3,200.00'	R = 1,170.00'	R = 1,200.00'

SEE PLANS FOR SUPERELEVATION AND RUNOFF

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 4400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 161.90	FT
BASE DISCHARGE	= 6400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 164.30	FT
OVERTOPPING DISCHARGE	= 9400	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 165.60	FT

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