STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE
GOVERNOR

EUGENE CONTI
SECRETARY

January 6, 2009

MEMORANDUM TO: Mr. Richard E. Greene, Jr., PE
Division Four Engineer

FROM: Philip S. Harris, III, P.E., Unit Head
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Nash County, Replace Bridge No. 82 on SR 1316 over Cypress Creek; T.I.P. Number B-4587; Federal Aid Project No. BRZ-1316(4); State Project 8.2322901

Attached is the Riparian Buffer Authorization for the above referenced project. All environmental permits have been received for the construction of this project.

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

PSH/gyb

Attachment

Cc: W/attachment
Mr. Randy Garris, P.E. State Contract Officer
Ms. Beth Harmon, EEP
Mr. Chad Coggins, Division Environmental Officer

Cc: W/o attachment (see website for attachments)
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Art McMillan, P.E., Highway Design
Mr. Tom Koch, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA

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

TELEPHONE: 919-733-3141
FAX: 919-715-1501
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Mike Robinson, P.E., State Bridge Construction Engineer
Mr. Rob Hanson, P.E., PDEA Eastern Region Unit Head

PROJECT COMMITMENTS:

Nash County
Bridge No. 82 on SR 1316
Over Cypress Creek
Federal Aid Project No. BRZ-1316(4)
State Project No. 8.2322901
W.B.S. No. 33787.1.1
T.I.P. No. B-4587

Commitments Developed Through Project Developement

Division Four Construction, Resident Engineer's Office – Offsite Detour

In order to have time to adequately reroute school busses, Nash County Schools should be contacted at (252) 459-5289 at least one month prior to road closure.

Nash County Emergency Services needs to be contacted at (252) 459-9805 at least one month prior to road closure to make the necessary temporary reassignments to primary response units.

Resident Engineer/Division Environmental Officer/Office of Natural Environment

Habitat for the dwarf wedge mussel and Tar spinymussel is present in Cypress Creek. A biological conclusion of "May Affect, Not Likely to Adversely Affect" has been determined for both species. Concurrence will be obtained from USFWS prior to applying for permits.

Concurrence was received from USFWS on November 10, 2008.

Commitments Developed Through Permitting

There are no additional special commitments for this project.

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

Coleen Sullins, Director
Division of Water Quality

Barnes

December 15, 2008
Nash & Franklin Counties
DWQ Project No. 20081798
Bridge 82 on SR 1316
TIP No. B-4587

APPROVAL of TAR-PAMLICO BUFFER AUTHORIZATION with ADDITIONAL CONDITIONS

Dr. Gregory J. Thorpe, Ph.D., Environmental Management Director
NCDOT PDEA
1598 Mail Service Center
Raleigh, NC 27699-1598

Dear Dr. Thorpe;

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of replacing Bridge 82 in Nash and Franklin Counties:

Tar-Pamlico Riparian Buffer Impacts

Site	Zone 1 Impact (sq ft)	*minus* Wetlands in Zone 1 (sq ft)	= Zone 1 Buffers (not wetlands) (sq ft)	Zone 1 Buffer Mitigation Required (using 3:1 ratio)		Zone 2 Impact (sq ft)	*minus* Wetlands in Zone 2 (sq ft)	= Zone 2 Buffers (not wetlands) (sq ft)	Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)
1	2285	0	2285	N/A		1026	0	1026	N/A
Totals	**2285**	**0**	**2285**	**0**		**1026**	**0**	**1026**	**0**

* n/a = Total for Site is less than 1/3 acre and 150 linear feet of impact, no mitigation required

Total Buffer Impact for Project: 3,311 square feet.

The project shall be constructed in accordance with your application dated received December 10, 2008. This approval is valid for the Tar-Pamlico Riparian Buffer Rules (15A NCAC 2B.0259). In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you must adhere to the conditions listed in the attached certification as well as those listed below.

Conditions of Certification:

1. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

2. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the certification.

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

3. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices.*

4. All stormwater runoff shall be directed as sheetflow through stream buffers at nonerosive velocities, unless otherwise approved by this certification.

5. All riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated. Maintained buffers shall be permanently revegetated with non-woody species by the end of the growing season following completion of construction. For the purpose of this condition, maintained buffer areas are defined as areas within the transportation corridor that will be subject to regular DOT maintenance activities including mowing. The area with non-maintained buffers shall be permanently revegetated, with native woody species before the next growing season following completion of construction.

6. Pursuant to NCAC15A 2B.0259(6), sediment and erosion control devices shall not be placed in Zone 1 of any Tar-Pamlico Buffer without prior approval by the NCDWQ. At this time, the NCDWQ has approved no sediment and erosion control devices in Zone 1, outside of the approved project impacts, anywhere on this project. Moreover, sediment and erosion control devices shall be allowed in Zone 2 of the buffers provided that Zone 1 is not compromised and that discharge is released as diffuse flow.

7. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

8. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.

9. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

10. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.

11. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

12. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

13. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

14. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

15. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

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

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17. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If DWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, DWQ may reevaluate and modify this certification.

18. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..

19. A copy of this Certification shall be maintained on site at the construction site at all times. In addition, the Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.

20. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

21. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

22. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

23. Upon completion of the project (including any impacts at associated borrow or waste site), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the Certification has been completed.

24. Native woody riparian vegetation (i.e., trees and shrubs native to your geographic region) must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

25. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

26. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:

a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual.*
b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual.* The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual.*

Transportation Permitting Unit
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2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

27. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

If you do not accept any of the conditions of this certification, you may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. To ask for a hearing, send a written petition that conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699. This certification and its conditions are final and binding unless you ask for a hearing. This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Robert Ridings (919) 733-9817.

Sincerely,

Coleen Sullins,
Director

Attachments (General Certification and Certificate of Completion form)

cc: Chad Coggins, Division 4 Environmental Officer
Chris Murray, Division 5 Environmental Officer
Travis Wilson, NC Wildlife Resources Commission
Veronica Barnes, NCDO NEU
File Copy

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

Coleen Sullins, Director
Division of Water Quality

DWQ Project No.: _____ **County:** _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion
Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to DWQ by the applicant, the applicant's authorized agent, **or** the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification
I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification
I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date:_____

Engineer's Certification
_____ Partial _____ Final
I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project,for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

CC: L. Williams 11-10-08

United States Department of the Interior

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

November 5, 2008

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of October 24, 2008 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 82 on SR 1316 over Cypress Creek in Franklin and Nash Counties (TIP No. B-4587) may affect, but is not likely to adversely affect the federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) and Tar spinymussel (*Elliptio steinstansana*). These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

As stated in your letter, concurrence with your biological determination was previously denied. Subsequently, Service biologist Mr. Gary Jordan met with NCDOT staff on-site on July 24, 2007 and determined that poor habitat conditions were present at and immediately downstream of the project site. The presence of either of the listed species is very unlikely. Based on the new information, the Service concurs with your determination that the proposed bridge replacement may affect, but is not likely to adversely affect the dwarf wedgemussel and Tar spinymussel. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Gary Jordan

for Pete Benjamin
Field Supervisor

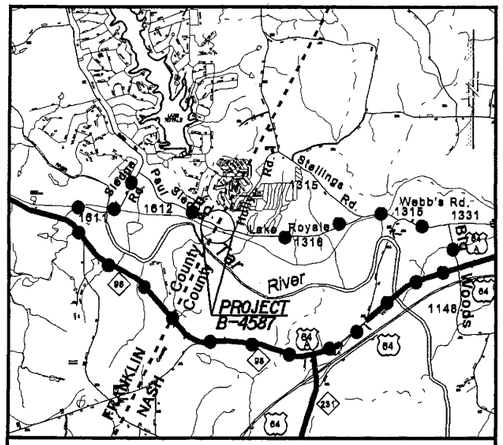
cc: William Wescott, USACE, Washington, NC
Eric Alsmeyer, USACE, Wake Forest, NC
Travis Wilson, NCWRC, Creedmoor, NC
Chris Militscher, USEPA, Raleigh, NC
John Sullivan, FHWA, Raleigh, NC
David Harris, NCDOT, Raleigh, NC

09/08/08

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.	TOTAL SHEETS NO.	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

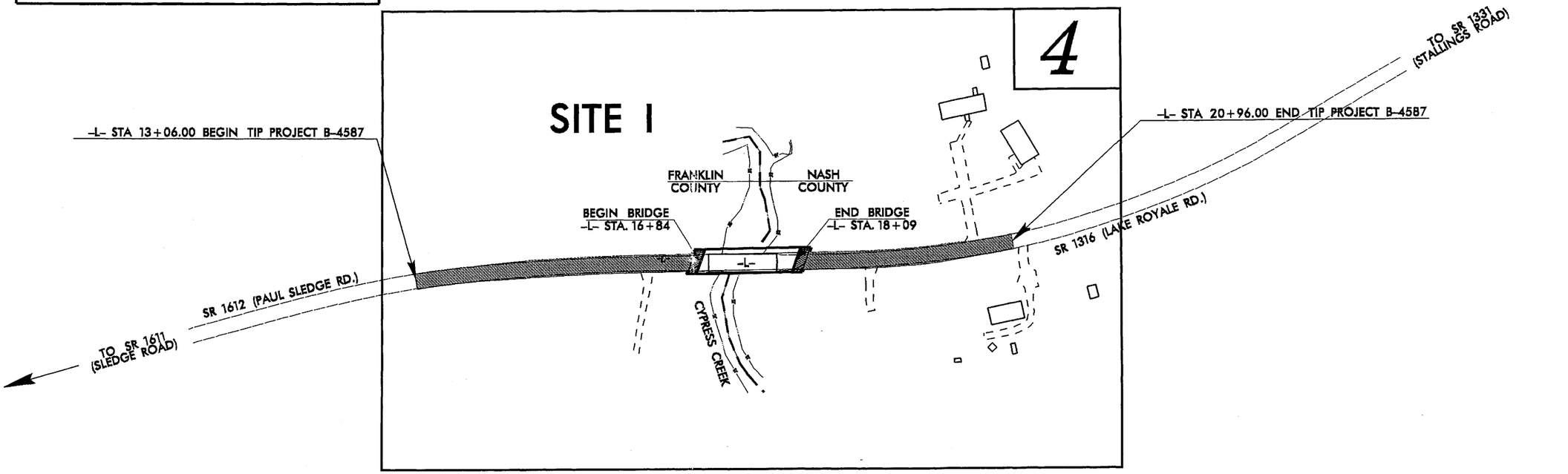
LOCATION: BRIDGE 82 OVER CYPRESS CREEK ON SR 1316

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

NAD 83

4

SITE I



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

BUFFER PERMIT

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

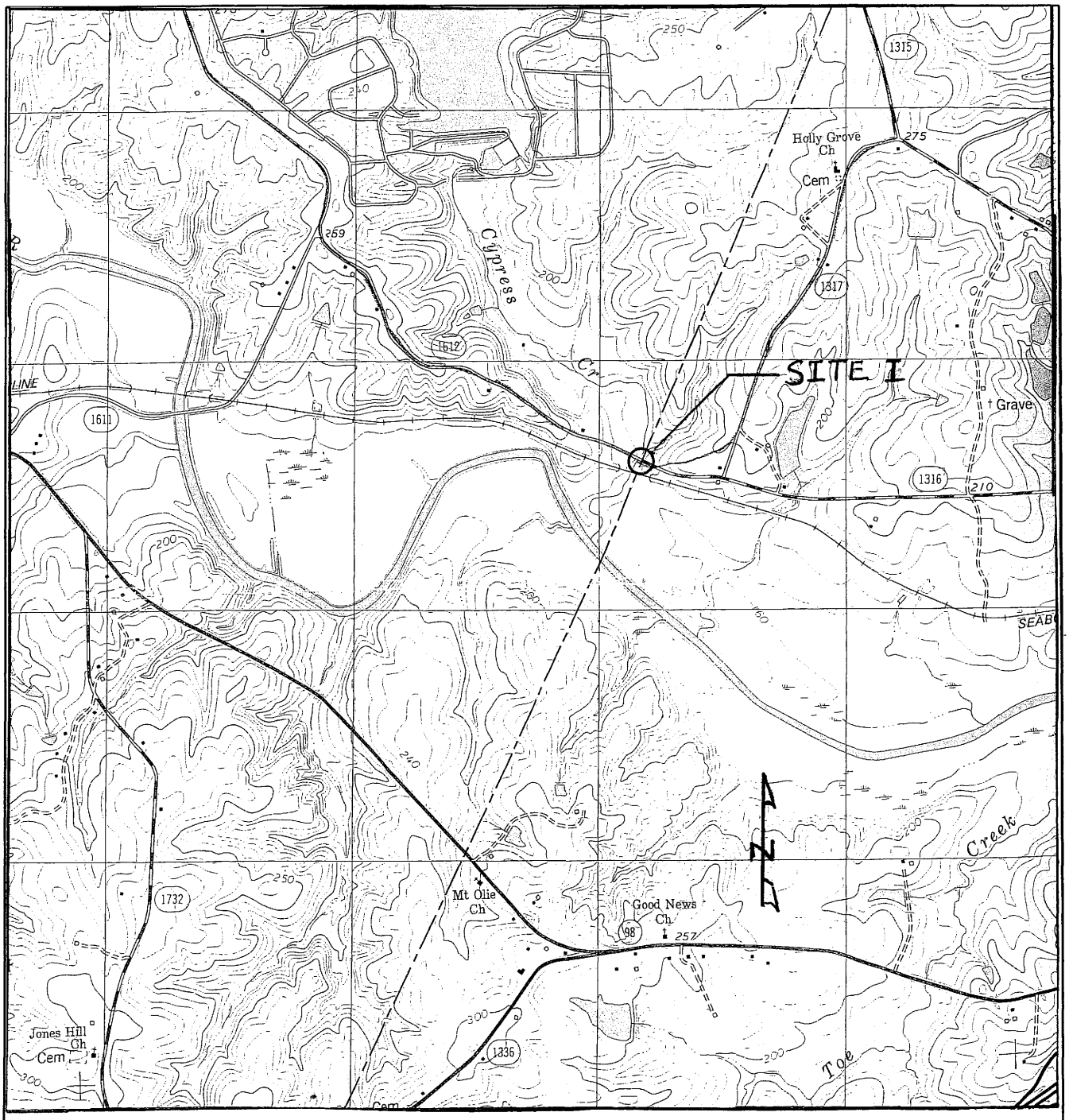
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

16-SEP-2008 10:02
r:\hydraulics\permits_environmental\b4587_hyd_tsh_wet.dgn
mshown AT HY23582

Buffer Drawing
Sheet 1 of 5



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

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT TYPE: ROAD CROSSING	IMPACT TYPE: BRIDGE	IMPACT TYPE: PARALLEL IMPACT	ALLOWABLE: ZONE 1 (ft^2)	ALLOWABLE: ZONE 2 (ft^2)	ALLOWABLE: TOTAL (ft^2)	MITIGABLE: ZONE 1 (ft^2)	MITIGABLE: ZONE 2 (ft^2)	MITIGABLE: TOTAL (ft^2)	BUFFER REPLACEMENT: ZONE 1 (ft^2)	BUFFER REPLACEMENT: 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

8/17/99

REVISIONS

WLB

SMOULDER BERM GUTTER LT
STA. 16+38 TO APPROACH SLAB

STANDARD 'V' DITCH
GRASS LINED
SEE DETAIL 'C'
@ 5 CY EXC.

EDNA DAVIS WINSTEAD, ET AL

SPECIAL LATERAL 'V' DITCH
GRASS LINED
SEE DETAIL 'A'

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

TIE TO EXIST DITCH

SR 1612 (PAUL SLEDGE RD.)

EXISTING R/W

FRANKLIN COUNTY

NASH COUNTY

CLASS B RIP-RAP
EST. 1 TON
WS, SY FILTER FABRIC

TEMPORARY WORK BRIDGE

LIMIT OF EXCAVATION

GRAU 350

-L- BRIDGE
S 58° 03' 19.8" E

CLASS 'A' RIP-RAP
STRUCTURE PAY ITEM

15" RCP

RETAIN

CYPRESS CREEK

MARY FRANCES BOYKIN

STANDARD 'V' DITCH
GRASS LINED
SEE DETAIL 'C'
@ 5 CY EXC.

SOIL & GRAVEL

WELL

TIE RCP RETAIN

SR 1316 (LAKE ROYALE RD.)

19.67' BST

CHARLES L. SHEARIN & WIFE
LOUISE B. SHEARIN

SPECIAL LATERAL 'V' DITCH
PSRM LINED
SEE DETAIL 'B'

DOG PIN

DAVID SPENCER HICKS
DIANNE HICKS MURPHY

NAD 83

-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)

Natural Ground | 2H | D | 4:1 or Flatter | Fill Slope

Min. D= 1.5 Ft.

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

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

Natural Ground | 2H | D | 4:1 or Flatter | Fill Slope

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)

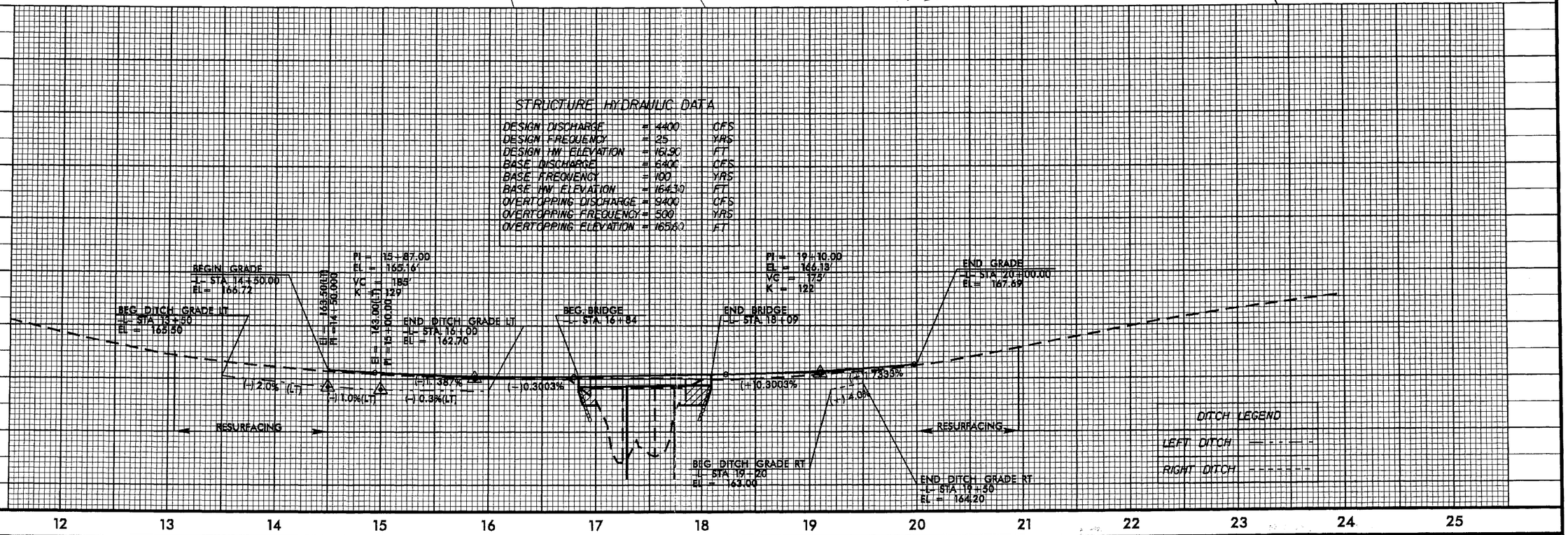
Natural Ground | 2H | D | 2H | Natural Ground

Min. D= 1.0 Ft.

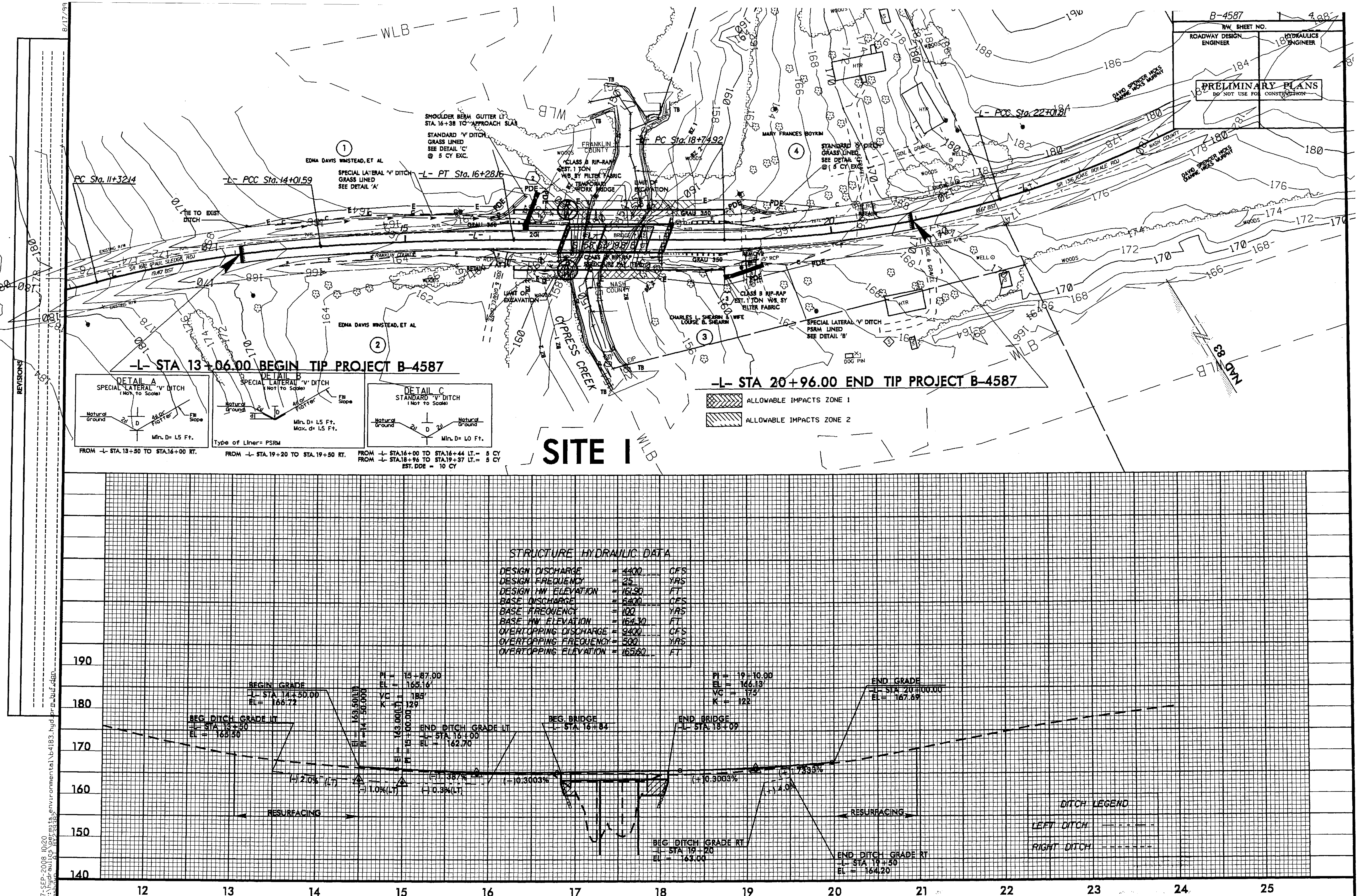
FROM -L- STA.16+00 TO STA.16+44 LT.= 5 CY
FROM -L- STA.18+96 TO STA.19+37 LT.= 5 CY
EST. DDE = 10 CY

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 4400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 165.90	FT
BASE DISCHARGE	= 6400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 166.50	FT
OVERTOPPING DISCHARGE	= 9400	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 165.60	FT



Buffer Drawing
Sheet 4 of 5



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 5 of 5

09/08/99

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

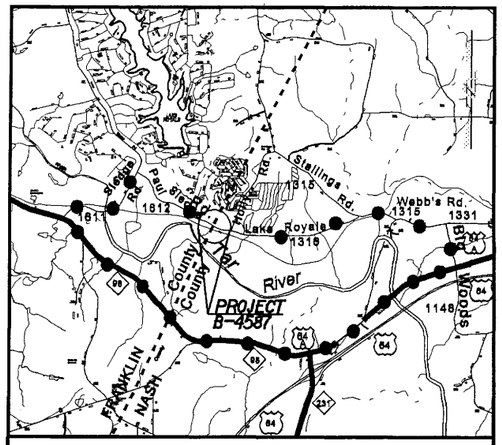
NASH–FRANKLIN COUNTIES

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

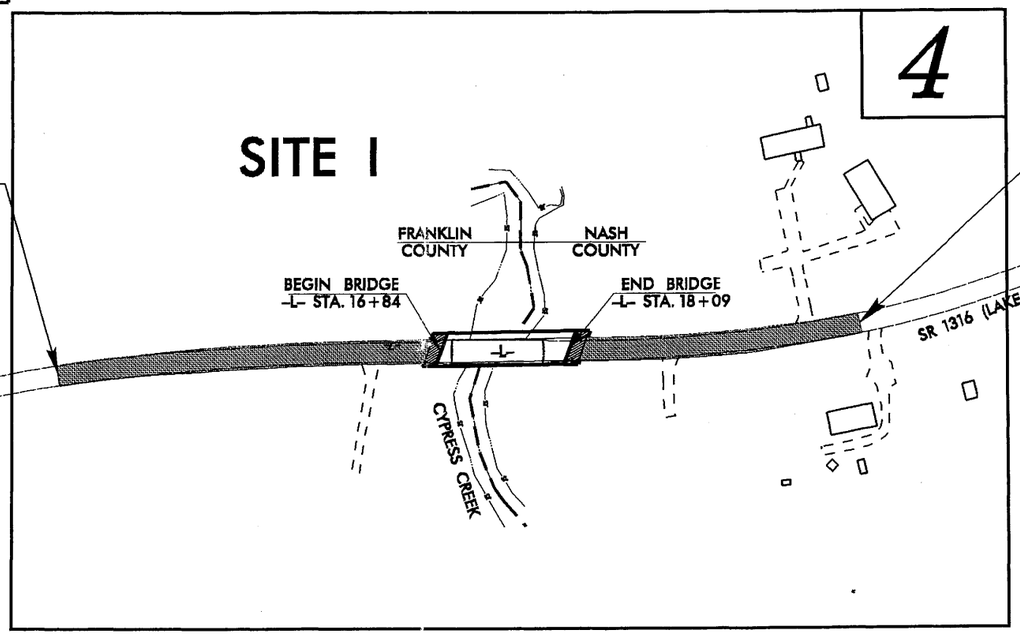
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



VICINITY MAP

DETOUR ROUTE

NAD 83



WETLAND 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

CONTRACT:

TIP PROJECT: B-4587

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.

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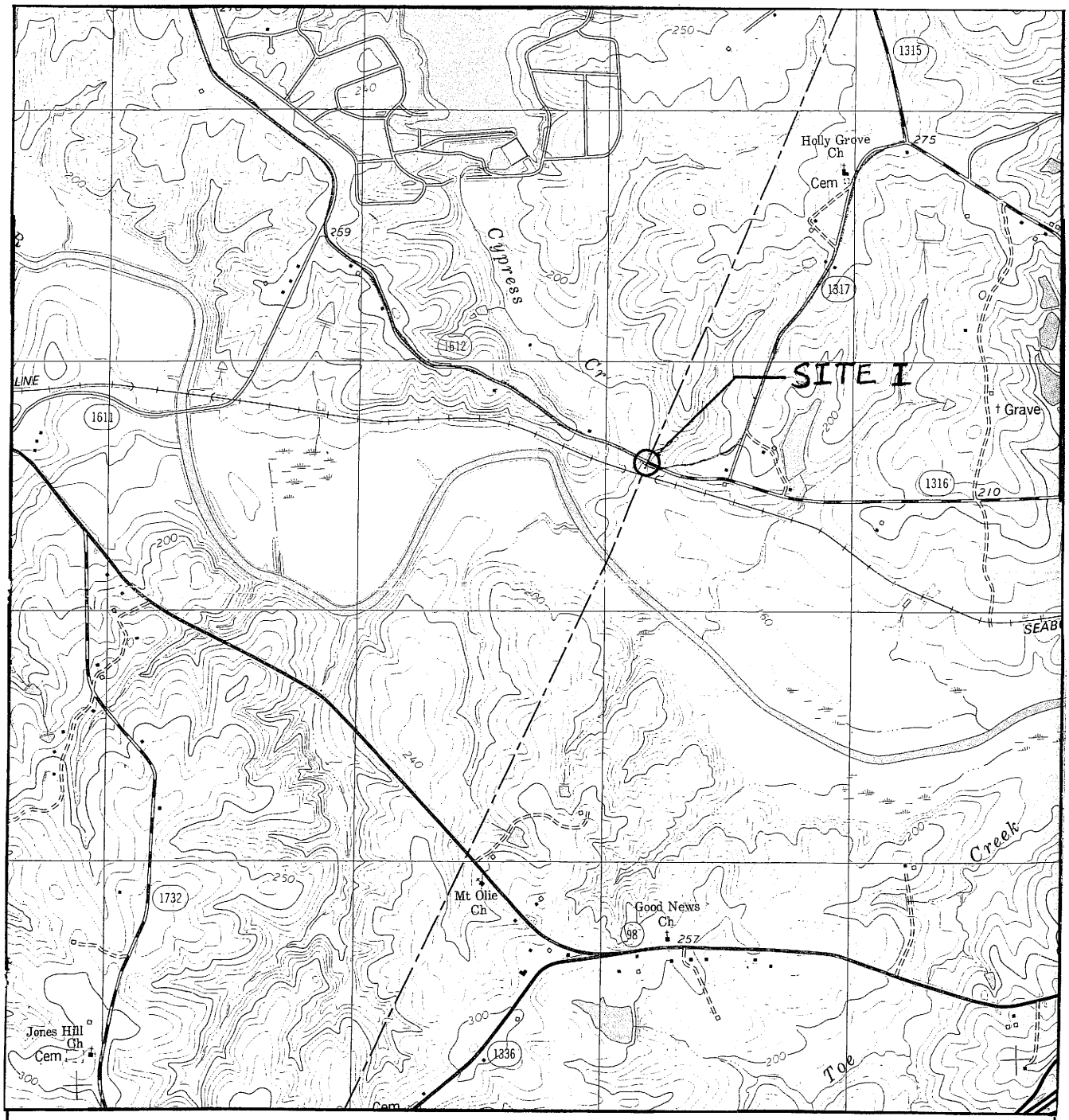
Permit Drawing
Sheet 1 of 7



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

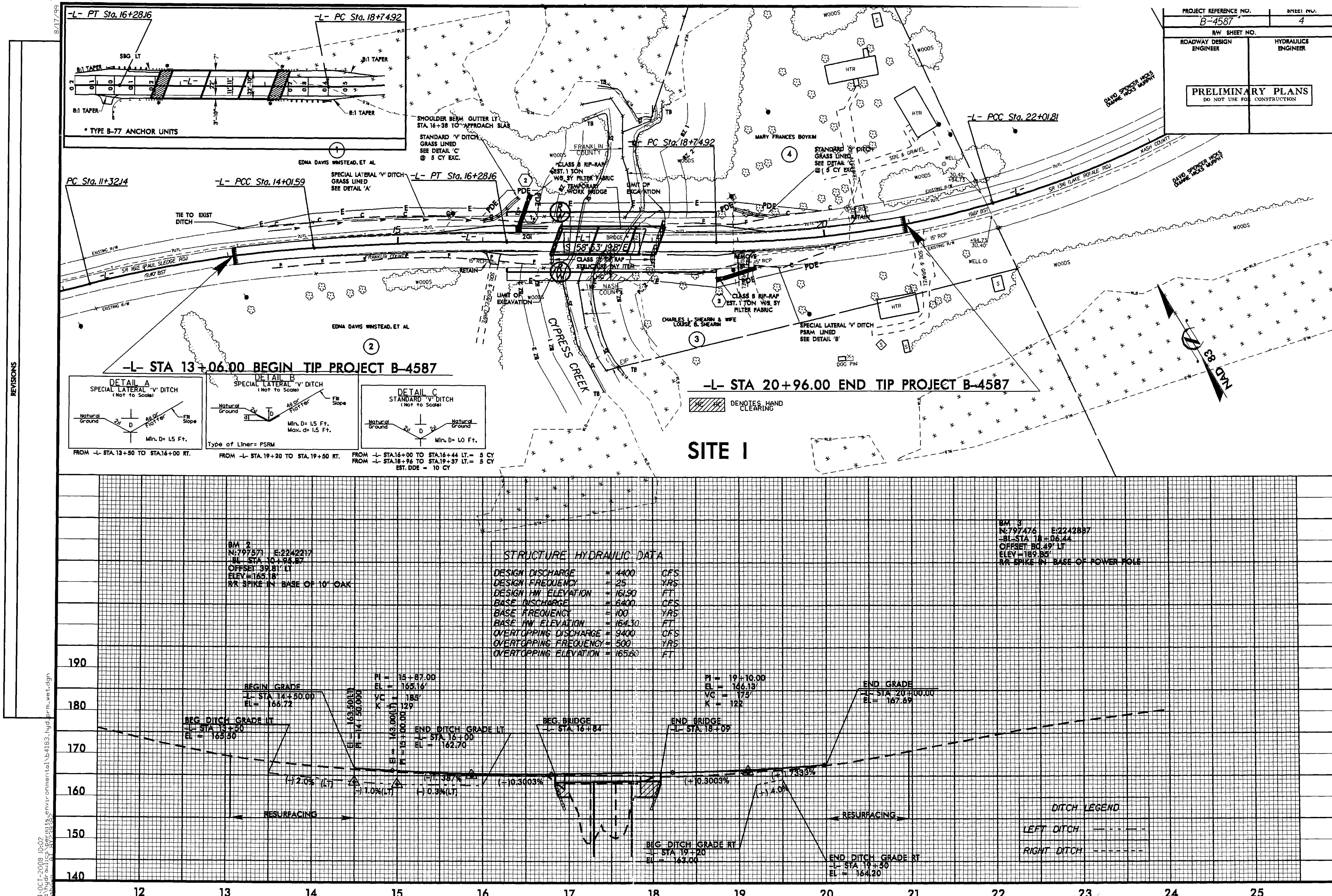
Sheet 4 of 7

PROJECT REFERENCE NO.	SHEET NO.
B-4587	4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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 5 of 7

PROJECT REFERENCE NO.	SHEET NO.
B-4587	4.88.1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

-L- PT Sta. 16+28.16

-L- PC Sta. 18+74.92

SBG LT

8:1 TAPER

8:1 TAPER

8:1 TAPER

8:1 TAPER

* TYPE B-77 ANCHOR UNITS

SHOULDER BERM GUTTER LT
STA. 16+38 TO APPROACH SLAB

STANDARD 'V' DITCH
GRASS LINED
SEE DETAIL 'C'
@ 5 CY EXC.

EDNA DAVIS WINSTEAD, ET AL

FRANKLIN COUNTY

CLASS B RIP-RAP
EST. 1 TON
W/6 SY FILTER FABRIC
& TEMPORARY
WORK BRIDGE

LIMIT OF EXCAVATION

-L- PC Sta. 18+74.92

MARY FRANCES BOYKIN

STANDARD 'V' DITCH
GRASS LINED
SEE DETAIL 'C'
@ 5 CY EXC.

-L- PC Sta. 22+01.81

DAVID SPENCER HICKS
DIANNE HICKS MURPHY

PC Sta. 11+32.14

-L- PCC Sta. 14+01.59

SPECIAL LATERAL 'V' DITCH
GRASS LINED
SEE DETAIL 'A'

-L- PT Sta. 16+28.16

TIE TO EXIST. DITCH

EXISTING R/W

-L- SR 1316 (PAUL SLEDGE RD)
19.40' BST

FRANKLIN COUNTY

15" RCP

REMOVE

SR 1316 (KAKE ROYALE RD)
-L- 20.00' BST

WOODS

WELL

SOIL & GRAVEL

HTR

EDNA DAVIS WINSTEAD, ET AL

LIMIT OF EXCAVATION

NASH COUNTY

CLASS B RIP-RAP
EST. 1 TON W/6 SY
FILTER FABRIC

CHARLES L. SHEARIN & WIFE
LOUISE B. SHEARIN

SPECIAL LATERAL 'V' DITCH
PSRM LINED
SEE DETAIL 'B'

DOG PIN

CYPRESS CREEK

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

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

DENOTES HAND CLEARING

SITE 1

NAD 83

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

Natural Ground — 2:1 — D — 4:1 or Flatter — Fill Slope

Min. D= 1.5 Ft.

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

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

Natural Ground — 2:1 — T — d — 4:1 or Flatter — Fill Slope

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)

Natural Ground — 2:1 — D — 2:1 — Natural Ground

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

BM 2
N:797571 E:2242217
-BL- STA 10+55.87
OFFSET 39.81' LT
ELEV=165.18'
RR SPIKE IN BASE OF 10" OAK

BM 3
N:797476 E:2242887
-BL- STA 18+06.44
OFFSET 80.49' LT
ELEV=189.85'
RR SPIKE IN BASE OF POWER POLE

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

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

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

PI = 15+87.00
EL = 165.16'
VC = 183'
K = 129

163.50(LT)
PI = 14+50.00
EL = 163.00(LT)
K = 92

END DITCH GRADE LT
-L- STA 16+00
EL = 162.70

BEG. BRIDGE
-L- STA 16+84

END BRIDGE
-L- STA 18+09

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

END GRADE
-L- STA 20+00.00
EL = 167.69

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

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

(+) 2.0% (LT)
(-) 1.0%(LT)
(-) 3.87%
(-) 0.3%(LT)
(=)0.3003%
(+)0.3003%
(+) 7.33%
(+) 4.0%

RESURFACING
RESURFACING

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

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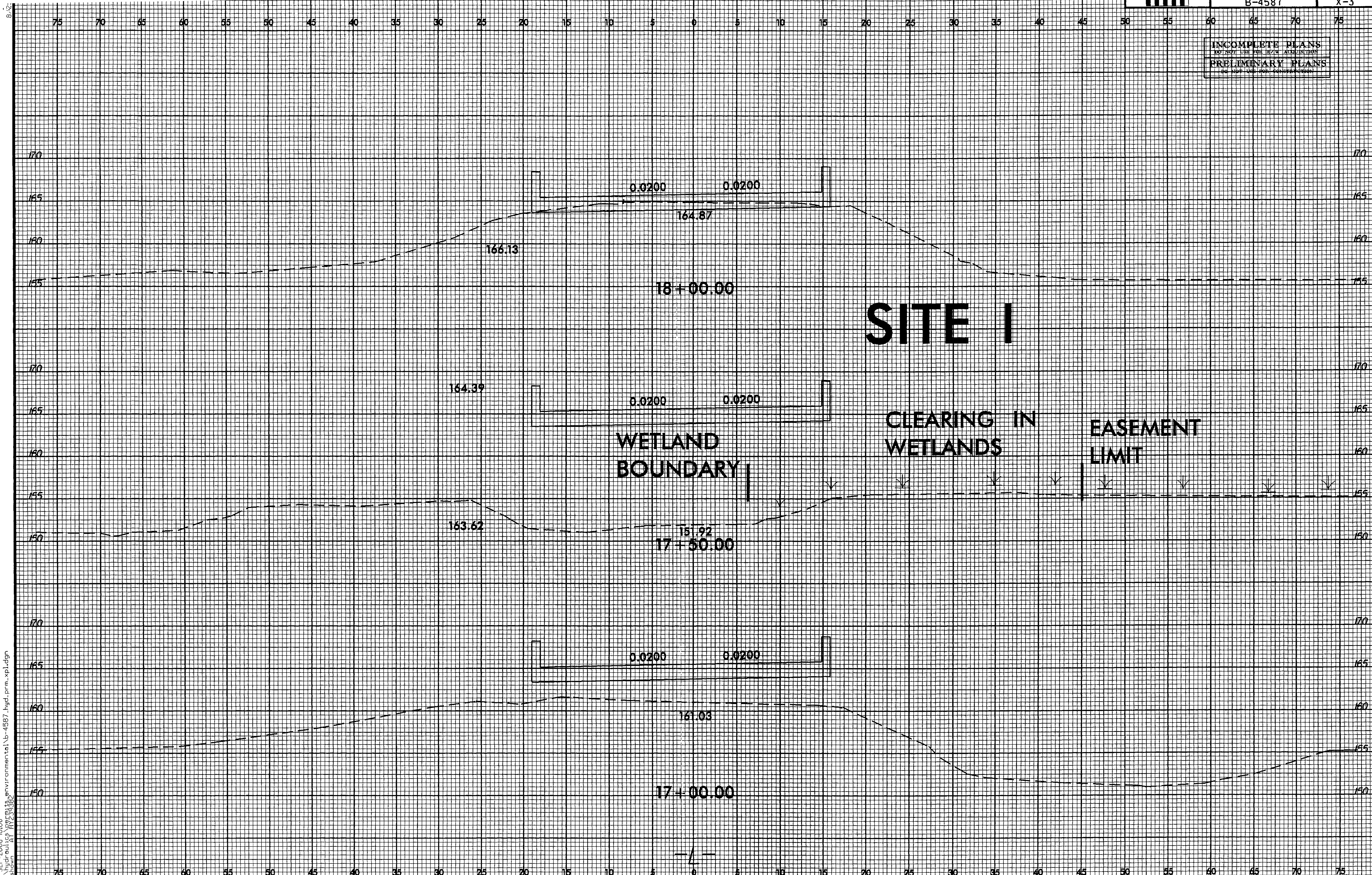
Permit Drawing
Sheet 12 of 17

PROJ. REFERENCE NO.	SHEET NO.
B-4587	X-3



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Permit Drawing
Sheet 7 of 7