



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

December 21, 2007

**Addendum No. 1**

RE: Contract ID: C201737

WBS# 34503.3.7

F.A. # STP-98 (23)

**Wake County (R-2809A)**

NC-98 ( Wake Forest Bypass) From West of SR-1923  
(Thompson Mill Road) to US-1

**January 15, 2008 Letting**

To Whom It May Concern:

Reference is made to the plans and proposal form recently furnished to you on this project.

The following revisions have been made to the plans:

Plan Sheet Nos. TCP-3 and TCP-6 have been revised to include phasing and pavement marking details for the installation of a temporary traffic signal at SR-4535 (Retail Drive). This temporary traffic signal will provide for the safe movement of construction vehicles leaving the project. Please void Sheet Nos. TCP-3 and TCP-6 in your plans and staple the revised Sheets Nos. TCP-3 and TCP-6 thereto.

New Sheet Nos. SIG 15A thru SIG 15D are being added to include details for the installation of a temporary traffic signal at SR-4535 (Retail Drive). Please staple new Sheet Nos. SIG 15A thru SIG 15D after sheet No. SIG 15 in your plans.

Sheet No. 3 (Sheet 2 of 2) has been revised to reflect the new quantities associated with the addition of the above mentioned temporary traffic signal. Please void Sheet No. 3 ( Sheet 2 of 2) in your plans and staple the revised Sheet No. 3 thereto.

The following revisions have been made the proposal form:

On Page No. 195 the first paragraph of the Project Special Provision entitled " Permits" has been revised. Also, new Page Nos. 196 thru 266 have been added to include the required permits. Please void Page No. 195 in your proposal and staple the revised Page No. 195 and New Page Nos. 196 thru 266 thereto.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
DESIGN SERVICES UNIT  
1591 MAIL SERVICE CENTER  
RALEIGH NC 27699-1591

TELEPHONE: 919-250-4128  
FAX: 919-250-4119  
WEBSITE: [WWW.NCDOT.ORG/](http://WWW.NCDOT.ORG/)

**LOCATION:**  
CENTURY CENTER COMPLEX  
ENTRANCE B2  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC

Page 2  
Contract ID: C201737  
Wake County (R-2809A)

The Table of Contents has been revised to reflect the addition of the permits. Please void the Table of Contents and staple the revised Table of Contents thereto.

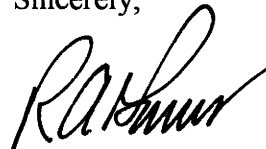
On Page Nos. 11, 12 and 13 of the Item Sheets by copy of this addendum, the following pay item quantities are hereby revised:

<u>Item</u>	<u>Old Quantity</u>	<u>New Quantity</u>
196-7060000000-M-1705 Signal Cable	1, 410 M	1, 485 M
197-7120000000-M-1705 Vehicle Signal Head (300 MM, 3 Section)	32 EA	34 EA
201-7264000000-M-1710 Messenger Cable (9.52 MM)	185 M	231 M
203-7300000000-M-1715 Trenching (Unpaved)	1,969 M	1,989 M
208-7360000000-N-1720 Wood Pole	4 EA	6 EA
209-7372000000-N-1721 Guy Assembly	16 EA	18 EA
211-7420000000-M-1722 50MM Riser With Weatherhead	3 EA	4 EA
213-7444000000-M-1725 Inductive Loop Sawcut	1,575 M	1, 630 M
214-7456000000-M-1726 Lead-In Cable	2, 290 M	2,300 M
220-7636000000-N-1745 Sign for Signals	8 EA	10 EA
224-7780000000-N-SP Detector Card (Type 2070L)	25 EA	26 EA

The Contractor's bid must be based on these revised pay item quantities. The contract will be prepared accordingly.

The Expedite File has been updated to reflect these revisions. Please download the Expedite Addendum File and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

Sincerely,



R. A. Garris, PE  
Contract Officer

RAG/jag/blr  
Attachments

cc: Mr. W. S. Varnedoe, PE  
Mr. E. C. Powell, PE  
Mr. J. W. Bowman, PE  
Ms. D. M. Barbour, PE  
Mr. Art McMillan, PE  
Mr. J. V. Barbour, PE  
Mr. Stuart Bourne, PE  
Mr. Mark Staley (2)

Mr. Robert Memory  
Mr. R. E. Davenport, Jr., PE  
Ms. Norma Smith  
Mr. Ronnie Higgins  
Ms. Taylor Mishoe  
Project File (2)

**PERMITS** (WHITE SHEETS) ..... 195-266

**STANDARD SPECIAL PROVISIONS** (YELLOW SHEETS)

Availability of Funds – Termination of Contracts..... 1  
 General Seed Specification for Seed Quality..... 2-4  
 Errata..... 5-6  
 Award of Contract..... 7  
 Minority and Female Employment Requirements..... 8-10  
 Required Contract Provisions Federal-Aid Construction Contracts..... 11-20  
 On The Job Training ..... 21-23  
 Wage Rates..... 24-26

**PROPOSAL ITEM SHEET AND SIGNATURE SHEET**

- Item Sheets
- Signature Sheet (Bid Acceptance by Department)

PROJECT SPECIAL PROVISION

(10-18-95)

Z-1

PERMITS

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

<u>PERMIT</u>	<u>AUTHORITY GRANTING THE PERMIT</u>
Dredge and Fill and/or Work in Navigable Waters (404)	U. S. Army Corps of Engineers
Water Quality (401)	Division of Environmental Management, DENR State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by \* are the responsibility of the department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-14 of the *Standard Specifications* and the following:

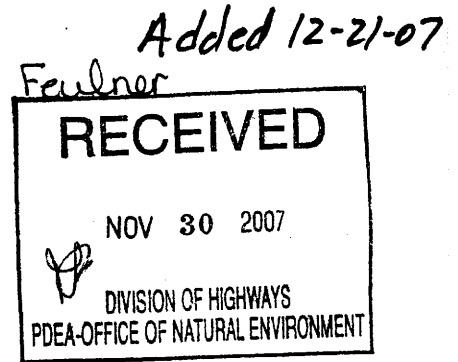
Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

**Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.**



196

DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 1890  
WILMINGTON, NORTH CAROLINA 28402-1890



IN REPLY REFER TO

November 29, 2007

Regulatory Division

SUBJECT: Action ID 2007-03114-292; TIP No. R-2809

Gregory J. Thorpe, Ph.D.  
Environmental Management Director, PDEA  
N.C. Department of Transportation  
1598 Mail Service Center  
Raleigh, NC 27699-1598

Dear Dr. Thorpe:

Reference the Department of the Army (DA) permit issued on April 4, 2002, and subsequently modified, to authorize the discharge of dredged and fill material into the waters of United States, for construction of Sections A, B, and C of the NC 98 Wake Forest Bypass (T.I.P.No. R-2809), located generally south of Wake Forest, in Wake County, North Carolina. Reference also your September 10, 2007 letter requesting modification of the permit to authorize additional impacts for Section A of R-2809 based on final design, as well as revised plans for the restoration of the temporary stream and wetland impacts at Site 5 of Section C.

We have reviewed your proposal, issued a public notice for the proposal on October 11, 2007, and have determined that the proposed modification is reasonable and justified. Therefore, the permit is hereby modified to include the revised impacts to an additional 264 linear feet of stream, for total impacts to 354 linear feet of stream and 0.01 acre of wetlands for Section A, as shown on the attached drawings, subject to additional Special Conditions 1) and 2) below.

1) Within 270 days from the date of this permit modification, the permittee shall complete the restoration of the temporary stream and wetland impacts at Site 5 in Section C (Station 85+20 -L- LT), as shown in the revised construction plans for Section C at Buffer Sites 4 and 5, in the September 10, 2007 permit modification application.

\*2) Compensatory mitigation for the unavoidable impacts to 0.01 acre of non-riparian wetlands, and 95 linear feet of stream associated with Section A of the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated August 29, 2007 from William D. Gilmore, EEP Director. Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide

0.02 acre of restoration equivalent non-riparian wetlands, and 190 linear feet of restoration equivalent warm water stream channel in the Neuse River basin (Hydrologic Cataloging Unit 03020201) by one year of the date of this permit. For wetlands, a minimum of 1:1 (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

It is understood that all other conditions of the modified permit, including the extended expiration date of December 31, 2010, remain applicable.

If you have questions, please contact Eric Alsmeyer of the Raleigh Regulatory Field Office, at telephone (919) 876-8441, extension 25.

Sincerely,



for John E. Pulliam, Jr.  
Colonel, U.S. Army  
District Commander

Copies Furnished:

Mr. Clarence Coleman  
Federal Highway Administration  
310 New Bern Ave., Rm. 410  
Raleigh, North Carolina 27601-1442

Mr. Brian Wrenn  
Division of Water Quality  
North Carolina Department of  
Environment and  
Natural Resources  
1650 Mail Service Center  
Raleigh, NC 27699-1650



**198**  
**DEPARTMENT OF THE ARMY**  
**WILMINGTON DISTRICT, CORPS OF ENGINEERS**  
 P.O. BOX 1890  
 WILMINGTON, NORTH CAROLINA 28402-1890

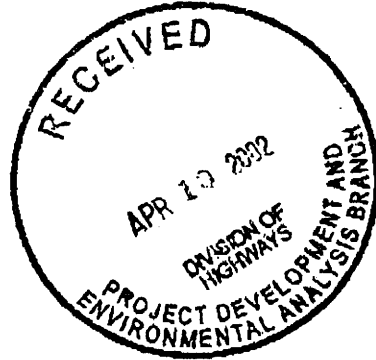
*454*  
 APR 10 2002  
 APR 10 2002

IN REPLY REFER TO

April 4, 2002

Regulatory Division

Action ID. 199601836



Mr. William D. Gilmore, P.E., Manager  
 Project Development & Environmental Analysis  
 North Carolina Department of Transportation  
 1548 Mail Service Center  
 Raleigh, North Carolina 27699-1548

Dear Mr. Gilmore:

In accordance with the written request of March 23, 2001, and the ensuing administrative record, enclosed is a permit to authorize the discharge of dredged and fill material into waters of the United States, for construction of a new bypass alignment for NC 98 (T.I.P. No. R-2809), crossing Richland Creek, Smith Creek, unnamed tributaries, and adjacent wetlands, generally south of Wake Forest, in Wake County, North Carolina.

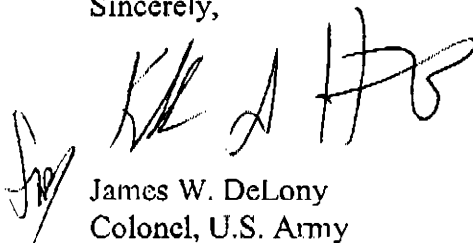
If any change in the authorized work is required because of unforeseen or altered conditions or for any other reason, the plans revised to show the change must be sent promptly to this office. Such action is necessary, as revised plans must be reviewed and the permit modified.

Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

- a. You must complete construction before December 31, 2005.
- b. You must notify this office in advance as to when you intend to commence and complete work.
- c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

Should you have questions, contact Mr. Eric Alsmeyer of my Raleigh Field Office regulatory staff at telephone (919) 876-8441, extension 23.

Sincerely,



James W. DeLony  
Colonel, U.S. Army  
District Engineer

Enclosures

Copy Furnished with enclosures:

Chief, Source Data Unit  
NOAA/National Ocean Service  
ATTN: Sharon Tear N/CS261  
1315 East-West Hwy., Rm 7316  
Silver Spring, MD 20910-3282

Copies Furnished with special conditions and plans:

Mr. Garland Pardue, Field Supervisor  
U.S. Fish and Wildlife Service  
Fish and Wildlife Enhancement  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

Mr. Ron Sechler  
National Marine Fisheries  
Service, NOAA  
Pivers Island  
Beaufort, North Carolina 28516

Mr. David Rackley  
National Marine Fisheries  
Service, NOAA  
219 Fort Johnson Road  
Charleston, South Carolina 29412-9110



Mr. Ronald Mikulak, Chief  
Wetlands Section - Region IV  
Water Management Division  
U.S. Environmental Protection Agency  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303

Mr. Dug Huggett  
Division of Coastal Management  
North Carolina Department of  
Environment and Natural Resources  
1638 Mail Service Center  
Raleigh, North Carolina 27699-1638

United States Coast Guard  
Marine Safety Office Wilmington  
1502 North 23<sup>rd</sup> Street  
Wilmington, North Carolina 28405

Commander, Aoww  
Coast Guard, Atlantic Area  
ATTN: Tom Flynn  
431 Crawford Street  
Portsmouth, Virginia 23704

Mr. Ronald E. Ferrell  
Wetlands Restoration Program  
Division of Water Quality/NCDENR  
1650 Mail Service Center  
Raleigh, NC 27699-1650

DEPARTMENT OF THE ARMY PERMIT

RECEIVED  
MAR 28 2007  
WATERWAYS DIVISION

NC Department of Transportation

Permittee \_\_\_\_\_

199601836

Permit No. \_\_\_\_\_

CESAW-RG-R

Issuing Office \_\_\_\_\_

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Place fill material impacting wetlands and streams, for construction of a new bypass alignment for NC 98 (T.I.P. No. R-2809), crossing Richland Creek, Smith Creek, unnamed tributaries, and adjacent wetlands.

Project Location:

Generally south of Wake Forest, in Wake County, North Carolina.

Permit Conditions:

General Conditions:

December 31, 2005

1. The time limit for completing the work authorized ends on \_\_\_\_\_ . If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**Special Conditions:**

See enclosed sheet.

**Further Information:**

1. **Congressional Authorities:** You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. **Limits of this authorization.**

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. **Limits of Federal Liability.** In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

*William D. Shaw*  
(PERMITTEE)  
NC DEPARTMENT OF TRANSPORTATION

3/19/02  
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

*J. W. Delony*  
(DISTRICT ENGINEER)  
JAMES W. DELONY, COLONEL

4/4/02  
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

\_\_\_\_\_  
(TRANSFeree)

\_\_\_\_\_  
(DATE)

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



Michael F. Easley, Governor  
 William G. Ross, Jr., Secretary  
 Gregory J. Thorpe, Ph.D., Acting Director

February 26, 2002

Mr. William D. Gilmore, P.E., Manager  
 Planning and Environmental Branch  
 North Carolina Department of Transportation  
 1548 Mail Service Center  
 Raleigh, North Carolina, 27699-1548

Dear Mr. Gilmore:

Re: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act.  
 Wake Forest Bypass, on NC 98 from (Jones Dairy Road) to just west of SR 1923 (Thompson Mill Road) in Wake County (TIP R-2809).  
 WQC Project No. 010550  
 Wake County

Attached hereto is a modification to Certification No. 3343 issued to The North Carolina Department of Transportation dated February 4, 2002. The attached certification supercedes the original 401 Water Quality Certification issued on February 4, 2002.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Gregory J. Thorpe, Ph.D.  
 Acting Director

Attachments\

cc: Wilmington District Corps of Engineers  
 Corps of Engineers Raleigh Field Office  
 DWQ Raleigh Regional Office  
 Ron Ferrell, Wetlands Restoration Program  
 Central Files  
 File Copy

Wetlands/401 Unit

1621 Mail Service Center

Raleigh, North Carolina 27699-1621

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

205



Michael F. Easley, Governor  
William G. Ross, Jr., Secretary  
Gregory J. Thorpe, Ph.D., Acting Director

**APPROVAL OF 401 Water Quality Certification and ADDITIONAL CONDITIONS and the  
Neuse River Buffer Rules**

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H, Section .0500, and 15A NCAC 2B .233. Attached hereto is a modification to Certification No. 3343 issued to The North Carolina Department of Transportation dated February 4, 2002. This certification supercedes the original 401 Water Quality Certification issued on February 4, 2002. This certification authorizes the NCDOT to place fill material in 1.09 acres of jurisdictional wetlands, 3708 linear feet of streams, and 7.19 acres of protected riparian buffers in Wake County. The project shall be constructed pursuant to the application dated March 23, 2001, and the addendums dated August 7, 2001, October 3, 2001, November 2, 2001, and November 30, 2001 to construct the Wake Forest Bypass from west of SR 1923 (Thompson Mill Road) to east of SR 2053 (Jones Dairy Road), State Project Number 8.1402501, Federal Aid Number STP-98(1), TIP R-2809).

The application provides adequate assurance that the discharge of fill material into the waters of Neuse River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application, as described in the Public Notice. Should your project change, you are required to 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 additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of the corresponding Corps of Engineers Permit, whichever is sooner.

Condition(s) of Certification:

1. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with

Wetlands/401 Unit

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Feb 26

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

-206



Michael F. Easley, Governor  
William G. Ross, Jr., Secretary  
Gregory J. Thorpe, Ph.D., Acting Director

the appropriate turbidity water quality standard (50 NTUs in all fresh water streams and rivers not designated as trout waters; 25 NTUs in all lakes and reservoirs, and all saltwater classes; and 10 NTUs in trout waters);

2. All sediment and erosion control measures shall not be placed in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored after the Division of Land Resources has released the project;
3. If an environmental document is required, this Certification is not valid until a FONSI or ROD is issued by the State Clearinghouse. All water quality-related conditions of the FONSI or ROD shall become conditions of this Certification;
4. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;
5. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit. Should waste or borrow sites be located in wetlands or stream, compensatory mitigation will be required since it is a direct impact from road construction activities.
6. All channel relocations will be constructed in a dry work area, and stabilized before stream flows are diverted. Channel relocations will be completed and stabilized prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30 foot wide wooded and an adjacent 20 foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating coir fiber and seedling establishment is allowable. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested.
- \* 7. Compensatory mitigation shall be done for impacts to 2.09 acres of jurisdictional wetlands (1.04 acres of non-riparian, 0.04 acres of riparian) at a replacement ratio of 2:1. Thus, 2.10 acres of mitigation for non-riparian wetlands, and 0.08 acres of riparian wetlands shall be provided. In addition, compensatory mitigation shall be done for impacts to 1522 linear feet of streams at a replacement ratio of 1:1. Therefore, 2970 linear feet of stream mitigation shall be provided. We understand that you have chosen to perform mitigation through an in lieu payment to the North Carolina Wetland Restoration Program (NCWRP), and that the WRP has agreed to implement mitigation for the project. In accordance with 15A NCAC 2R.0500, the contribution will satisfy our compensatory mitigation requirements under 15A NCAC 2H.0506(h). Until the Wetland Restoration Program receives and clears your check (made payable to DENR - Wetland Restoration Program), wetland or stream fill shall not occur. Mr. Ron Ferrell should be contacted at 919-733-5083 ext. 358 if you have any questions concerning the Wetland Restoration Program. The payment to NCWRP shall be sent within two months of issuance of the 404 permit.

Wetlands/401 Unit

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Raleigh, North Carolina 27699-1621

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Feb 26

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

207



Michael F. Easley, Governor  
 William G. Ross, Jr., Secretary  
 Gregory J. Thorpe, Ph.D., Acting Director

- \* 8. Compensatory mitigation for impacts to Neuse Riparian Buffers shall be provided for as described below.

Zone of Impact	Impacts (Acres)	Replacement Ratio	Total Acres of Mitigation Required
Zone 1	4.37	3:1	13.11
Zone 2	2.82	1.5:1	4.23
<b>Total</b>			<b>17.34</b>

Mitigation for unavoidable impacts to Neuse Riparian Buffers shall be provided through an in-lieu payment to the North Carolina Wetlands Restoration Program (NCWRP) at a rate of \$41,625 per acre for 17.25 acres of buffer impact. Therefore, a total payment of \$718,031 shall be submitted to the NCWRP to offset the impacts for the project. No construction activities in buffers shall begin until payment for buffer mitigation is made to the NCWRP.

- \* 9. Upon completion of the project, the NCDOT shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed. The responsible party shall complete the attached form and return it to the 401/Wetlands Unit of the Division of Water Quality upon completion of the project.
- 10. This certification only authorizes construction activities in Segment C of the referenced project. No construction activities are authorized in Segment A or B until a modification request with final project design, appropriate fees, and number of copies is submitted to, and approved by, the North Carolina Division of Water Quality.
- 11. The proposed stream relocation in Segment B located at Y2 Station Number 11+25 will require approval by the NCDWQ prior to it being accepted as appropriate on-site mitigation. The final design for the referenced stream relocation will need to be presented. In addition, the reference reach used to design the stream segment will need NCDWQ approval. Until the proposed relocation is approved the NCDWQ, no construction activities can occur for Segment B of the project.
- 12. Construction activities for Segment C shall strictly adhere to sediment and erosion control Best Management Practices as described for High Quality Waters entitled "Design Standards in Sensitive Watersheds" (15A NCAC 04B .0024) throughout design and construction of the project.
- 13. Future modifications for Segment A shall include the design for Hazardous Spill Catch Basins for any stormwater that drains to Horse Shoe Creek (WS-IV NSW CA) and any of its tributaries. The design shall be such that no stormwater from the project site, either during construction or after the project is opened to the traveling public, shall discharge directly into Horse Shoe Creek. Instead, all stormwater shall be designed to discharge first into a Hazardous Spill Catch Basin.

Wetlands/401 Unit

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State of North Carolina  
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Division of Water Quality

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William G. Ross, Jr., Secretary  
Gregory J. Thorpe, Ph.D., Acting Director

14. Placement of culverts and other structures in waters, streams, and wetlands must be placed below the elevation of the streambed to allow low flow passage of water and aquatic life unless it can be shown to DWQ that providing passage would be impractical. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium shall be maintained if requested in writing by DWQ.

Violations of any condition herein set forth shall result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, P.O. Box 27447, Raleigh, N.C. 27611-7447. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 26<sup>th</sup> day of February 2002

DIVISION OF WATER QUALITY

Gregory J. Thorpe, Ph.D.  
Acting Director

WQC No. 3343

Wetlands/401 Unit

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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/Wetlands Unit, North Carolina Division of Water Quality, 1621 Mail Service Center, Raleigh, NC, 27699-1621. 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 \_\_\_\_\_

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

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Michael F. Easley, Governor  
William G. Ross, Jr., Secretary  
Gregory J. Thorpe, Ph.D., Acting Director

**NORTH CAROLINA - DIVISION OF WATER QUALITY  
401 WATER QUALITY CERTIFICATION  
SUMMARY OF PERMITTED IMPACTS AND MITIGATION REQUIREMENTS**

In accordance with 15A NCAC 2H.0500, the North Carolina Department of Transportation is authorized to impact the waters of the State of North Carolina as indicated below for the purpose of constructing the Wake Forest Bypass from west of SR 1923 (Thompson Mill Road) to east of SR 2053 (Jones Dairy Road) in Wake County (TIP No. R-2809, DWQ No. 010550). All activities associated with these authorized impacts must be conducted in accordance with the conditions listed in the attached certification transmittal letter. **THIS CERTIFICATION IS NOT VALID WITHOUT THE ATTACHMENTS.**

**COMPENSATORY MITIGATION REQUIREMENTS FOR WETLAND RESTORATION:**

**LOCATION:** Wake Forest Bypass from west of SR 1923 (Thompson Mill Road) to east of SR 2053 (Jones Dairy Road)  
**COUNTY:** Wake  
**BASIN/SUBBASIN:** Neuse River, Cataloging Unit 03020201  
**DWQ No.:** 010550

As required by 15A NCAC 2H.0506, and the conditions of this certification, you are required to compensate for the above impacts through the restoration, creation, enhancement or preservation of wetlands and surface waters as outlined below prior to conducting any activities that impact or degrade waters of the state. Note: Acreage requirements proposed to be mitigated through the Wetland Restoration Program must be rounded to one-quarter increments according to 15A 2R.0503(b).

2.18 acres of Class WL wetlands  
0.08 acres of riparian wetlands  
2.10 acres of non-riparian wetlands

17.34 acres of Neuse Riparian Buffers

2970 linear feet of stream channel

One of the options you have available to satisfy the compensatory mitigation requirements is through payment of a fee to the Wetland Restoration Fund per 15A NCAC 2R.0503. If you choose this option, please sign this form and mail it to the Wetlands Restoration Fund at the address listed below. An invoice for the appropriate amount of payment will be sent to you upon receipt of this form. **PLEASE NOTE, THE ABOVE IMPACTS ARE NOT AUTHORIZED UNTIL YOU RECEIVE NOTIFICATION THAT YOUR PAYMENT HAS BEEN PROCESSED BY THE WETLANDS RESTORATION PROGRAM.**

Signature

Date

**WETLANDS RESTORATION PROGRAM  
DIVISION OF WATER QUALITY  
P.O. BOX 29535  
RALEIGH, NC, 27626-0535  
(919) 733-5208**

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SPECIAL CONDITIONS (Action ID. 199601836; NCDOT/TIP R-2809)

a. All work authorized by this permit must be completed in strict compliance with the attached plans, which are a part of this permit.

b. The permittee shall mitigate for 2,970 linear feet of important stream impact and 1.1 acre of wetland impact for this project, as described below (384 linear feet of onsite stream relocation, and 5,172 linear feet of stream mitigation and 2.2 acres of wetland mitigation through the North Carolina Wetlands Restoration Program (NCWRP), in the upper Neuse River basin (Cataloging Unit 03020201)).

ONSITE STREAM RELOCATION

c. The permittee shall mitigate for 384 linear feet of unavoidable impacts to important stream channel associated with this project by completing 384 linear feet of onsite stream relocation, as described in the permit application. The stream relocation shall be constructed in accordance with the North Carolina Wildlife Resources Commission's (NCWRC) "Stream Relocation Guidelines", and with the attached permit drawings, and the attached "Natural Channel Design; ~~Long Branch~~", dated August 17, 1999. NCDOT shall consult with NCWRC on all stream relocations and implement all practicable recommendations in the design of specific site requirements for re-establishment of bank vegetation, and placement of meanders and habitat structures. Vegetation shall be used to the maximum extent practicable to stabilize banks, and riprap and other man-made structural measures shall be minimized. NCDOT shall ensure that the stream channel is sufficiently stabilized prior to the diversion of water into the new channel.

d. The permittee shall visually monitor the vegetative plantings on all mitigation stream banks to assess and insure complete stabilization of the mitigation stream segments. This monitoring shall include adequate visual monitoring of planted vegetation quarterly for a minimum of one year after final planting, and appropriate remedial actions (e.g., replanting, streambank grading, etc.). If within any monitoring year, bank stabilization is not acceptable as determined by the Corps of Engineers, and remedial action required by the Corps of Engineers is performed, the one year monitoring of the affected portions of the stream will begin again. The permittee will coordinate stream mitigation activities with the Corps of Engineers, Raleigh Regulatory Field Office Project Manager, and will report verbally on the status of the stream mitigation within thirty days of the quarterly monitoring. The permittee will submit a brief written report with representative photographs within 90 days after the monitoring year is completed.

NCWRP STREAM MITIGATION

e. The permittee shall mitigate for 2,586 linear feet of unavoidable impacts to important stream channel associated with this project by payment to the North Carolina Wetlands Restoration Program (NCWRP) in an amount determined by the NCWRP sufficient to perform 5,172 linear feet of warm water stream mitigation, or the equivalent

water quality improvement projects, as approved by the Corps of Engineers, in the upper Neuse River basin (Cataloging Unit 03020201). Construction within streams on the permitted highway project shall begin only after the permittee has made full payment to the NCWRP, and the NCWRP has made written confirmation to the District Engineer, that it agrees to accept responsibility for the mitigation work required, pursuant to Paragraph IV.D. of the Memorandum of Understanding between the North Carolina Department of Environment and Natural Resources and the U.S. Army Corps of Engineers, Wilmington District, dated November 4, 1998.

#### NCWRP WETLANDS MITIGATION

f. The permittee shall mitigate for 1.1 acres of unavoidable impacts to wetlands associated with this project by payment to the North Carolina Wetlands Restoration Program (NCWRP) in an amount determined by the NCWRP sufficient to perform 2.2 acres of riparian, palustrine forested wetland mitigation in the Cape Fear River basin (Cataloging Unit 03020201). Construction within wetlands on the permitted highway project shall begin only after the permittee has made full payment to the NCWRP, and the NCWRP has made written confirmation to the District Engineer, that it agrees to accept responsibility for the mitigation work required, pursuant to Paragraph IV.D. of the Memorandum of Understanding between the North Carolina Department of Environment and Natural Resources and the U.S. Army Corps of Engineers, Wilmington District, dated November 4, 1998.

g. Failure to institute and carry out the details of special conditions a. - f., above, may result in a directive to cease all ongoing and permitted work within waters and/or wetlands associated with R-2809, or such other remedy as the District Engineer or his authorized representatives may seek.

#### OTHER CONDITIONS

h. When final design plans are completed for Sections R-2809A and R-2809B, any necessary permit modifications shall be submitted to the District Engineer and the North Carolina Division of Water Quality (NCDWQ). If necessary, a public notice will be circulated for review. Final designs shall reflect all appropriate avoidance, minimization and mitigation for impacts within streams and wetlands. Construction within streams and wetlands on Sections R-2809A and R-2809B shall begin only after approval by the District Engineer of the modified impacts.

i. NCDOT shall restore the temporary wetland impact area at Site 5 in Section C (Station 85+20 -L- LT) to original contours and seed it with appropriate wetland species.

j. Prior to commencing construction within jurisdictional waters of the United States, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings are acceptable.

\*

k. The permittee shall schedule an onsite preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall notify the Corps of Engineers Project Manager a minimum of thirty (30) days in advance of the scheduled meeting in order to provide that individual with ample opportunity to schedule and participate in the required meeting.

l. The permittee and its contractors and/or agents shall not excavate, fill, or perform mechanized landclearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by this permit, or any modification to this permit. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and fill activities connected with this project.

m. To ensure that all borrow and waste activities occur on high ground, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall ensure that all such areas comply with the preceding condition (m.) of this permit, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the preceding condition (m.). All information will be available to the Corps of Engineers upon request.

n. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit.

o. If the permittee discovers any previously unknown historic or archeological remains while accomplishing the authorized work, he will immediately notify the Wilmington District Engineer who will initiate the required State/Federal coordination.

p. No excavated or fill material will be placed at any time in waters or wetlands outside the permitted construction areas, nor will it be placed in any location or in any manner so as to impair surface water flow into or out of any wetland area.

q. The permittee will maintain the authorized work in good condition and in conformance with the terms and conditions of this permit. The permittee is not relieved of this requirement if he abandons the permitted activity without transferring it to a third party.

r. All fill material will be clean and free of any pollutants except in trace quantities. Metal products, organic materials, or unsightly debris will not be used.

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s. This Department of the Army permit does not obviate the need to obtain other Federal, State or local authorizations required by law.

t. This permit does not grant any property rights or exclusive privileges.

u. In issuing this permit, the Federal Government does not assume any liability for:

1. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

2. Damages to the permitted project or uses thereof as a result of current or future Federal activities initiated on behalf of the general public.

3. Damages to other permitted or unpermitted activities or structures caused by the authorized activity.

4. Design and construction deficiencies associated with the permitted work.

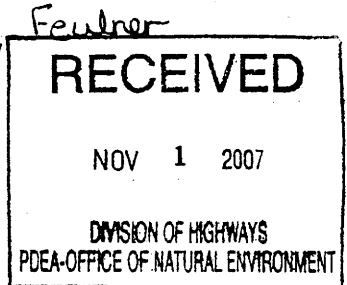
5. Damage claims associated with any future modification, suspension, or revocation of this permit.



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

Coleen Sullins, Director  
 Division of Water Quality

October 29, 2007



Dr. Greg Thorpe, PhD., Manager  
 Planning and Environmental Branch  
 North Carolina Department of Transportation  
 1548 Mail Service Center  
 Raleigh, North Carolina, 27699-1548

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and NEUSE BUFFER RULES, with ADDITIONAL CONDITIONS for Proposed construction of NC 98 Bypass in Wake County, Federal Aid Project No. HPSTP-55(12), State Project No. 8.1402501, TIP No. R-2809A & R-2809C, US COE Action ID No. 2007-03114.  
 DWQ Project No. 20010550 version 7.

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3343 issued to The North Carolina Department of Transportation dated February 4, 2002 and subsequent modifications dated September 25, 2002; October 22, 2003; October 13, 2004; September 30, 2005; and February 28, 2006. This modification is applicable only to the additional proposed activities in Section A and proposed modification in Section C. All the authorized activities and conditions of certification associated with the original Water Quality Certification and subsequent modifications still apply except where superceded by this certification.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Coleen Sullins  
 Director

Attachments

cc: Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office  
 Brett Feulner, NCDOT PDEA  
 Chris Murray, Division 5 Environmental Officer  
 Kathy Matthews, Environmental Protection Agency  
 Travis Wilson, NC Wildlife Resources Commission  
 Gary Jordan, US Fish and Wildlife Service  
 Beth Harmon, Ecosystem Enhancement Program  
 File Copy




**Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and NEUSE BUFFER RULES, with ADDITIONAL CONDITIONS**

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H .0500 and 15A NCAC 2B.0233. This certification authorized the NCDOT to impact 0.01 acres of jurisdictional wetlands, 354 linear feet of jurisdictional streams and 43,382 square feet of protected riparian buffers in Wake County. The project shall be constructed pursuant to the modification dated received September 18, 2007. The revised authorized impacts for Section A of the project are as described below:

**Revised Stream Impacts in the Neuse River Basin (R-2809A)**

Site	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)
1	0	0	95	23	118
2	62	20	0	0	82
3	118	36	0	0	154
<b>Total</b>	<b>180</b>	<b>56</b>	<b>95</b>	<b>23</b>	<b>354</b>

Total Stream Impact for Project: 354 linear feet.

**Revised Wetland Impacts in the Neuse River Basin (R-2809A)**

Site	Fill (ac)	Fill (temporary) (ac)	Total Wetland Impact (ac)
1	0.01	0	0.01
<b>Total</b>	<b>0.01</b>	<b>0</b>	<b>0.01</b>

Total Wetland Impact for Project: 0.01 acres.

**Revised Neuse Riparian Buffer Impacts (R-2809A)**

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	5,651	0	5,651	N/A	3,283	0	3,283	N/A
2	4,338	0	4,338	N/A	2,788	0	2,788	N/A
3	7,556	0	7,556	22,668	4,198	0	4,198	6,297
<b>Totals</b>	<b>25,814</b>	<b>0</b>	<b>25,814</b>	<b>22,668</b>	<b>17,568</b>	<b>0</b>	<b>17,568</b>	<b>6,297</b>

\* 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: 43,382 square feet.

The application provides adequate assurance that the discharge of fill material into the waters, wetlands and buffers of the Neuse River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.



This approval is only valid for the purpose and design that you submitted in your modified application dated received September 18, 2007. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated February 4, 2002 and all subsequent modifications still apply except where superceded by this certification. The revised impact tables above apply for project Section A only, and does not change the jurisdictional impacts of Sections B or C. However, the proposed design changes for Section C, sites 4 and 5, are also covered by this modification. Should your project make additional changes, you are required to 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 any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

**Conditions of Certification:**

1. All other conditions written into previous Water Quality Certifications and modifications for this project still apply except where superceded by this modification.
2. Compensatory mitigation for impacts to 7,556 square feet of protected riparian buffers in Zone 1 and 4,198 square feet of protected riparian buffers in Zone 2 shall be required at the following rates:

Zone of Impact	Impacts (Square Feet)	Replacement Ratio	Total Square Feet of Mitigation Required
Zone 1	7,556	3:1	22,668
Zone 2	4,198	1.5:1	6,297
<b>Total</b>	<b>11,754</b>		<b>28,965</b>

We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through use of the North Carolina Ecosystem Enhancement Program (EEP). Mitigation for unavoidable impacts to Neuse Riparian Buffers shall be provided in the Neuse River Basin and done in accordance with 15A NCAC 2B. EEP has indicated in a letter dated August 29, 2007 that they will assume responsibility for satisfying the compensatory mitigation requirements for the above-referenced project, in accordance with the Tri-Party MOA signed on July 22, 2003 and the Dual-Party MOA signed on April 12, 2004.

3. Placement of culverts and other structures in waters, streams, and wetlands shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by DWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NC DWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
5. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
6. For any streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.



7. All stormwater runoff shall be directed as sheetflow through stream buffers at nonerosive velocities, unless otherwise approved by this certification.
8. 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.
9. Pursuant to NCAC15A 2B.0233(6), sediment and erosion control devices shall not be placed in Zone 1 of any Neuse 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
15. 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.
16. 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.
17. 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.
18. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
19. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
20. 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.



21. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..
22. A copy of this Water Quality Certification shall be maintained on site at the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
23. 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.
24. 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.
25. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.
26. 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 401 Certification has been completed.
27. Native riparian vegetation (trees and shrubs native to the project's geographic region) must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.
28. 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*.
  - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
29. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.
30. 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.



William G. Ross Jr., Secretary  
North Carolina Department of Environment and Natural Resources

Coleen Sullins, Director  
Division of Water Quality

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 29th day of October 2007

DIVISION OF WATER QUALITY

A handwritten signature in black ink, appearing to read "John E. Sullins", is written over the typed name of the Director.

Coleen Sullins  
Director

WQC No. 3343

One  
North Carolina  
*Naturally*



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

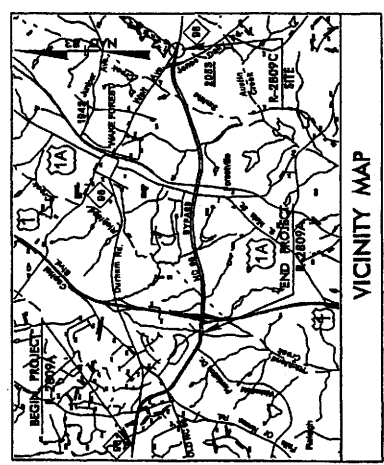
I, \_\_\_\_\_, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation 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 \_\_\_\_\_

# CONTRACT: C201737 TIP PROJECT: R-2809A

See Sheet 1-B For Conventional Symboling  
See Sheet 1-C & 1-D For Survey Control Sheets

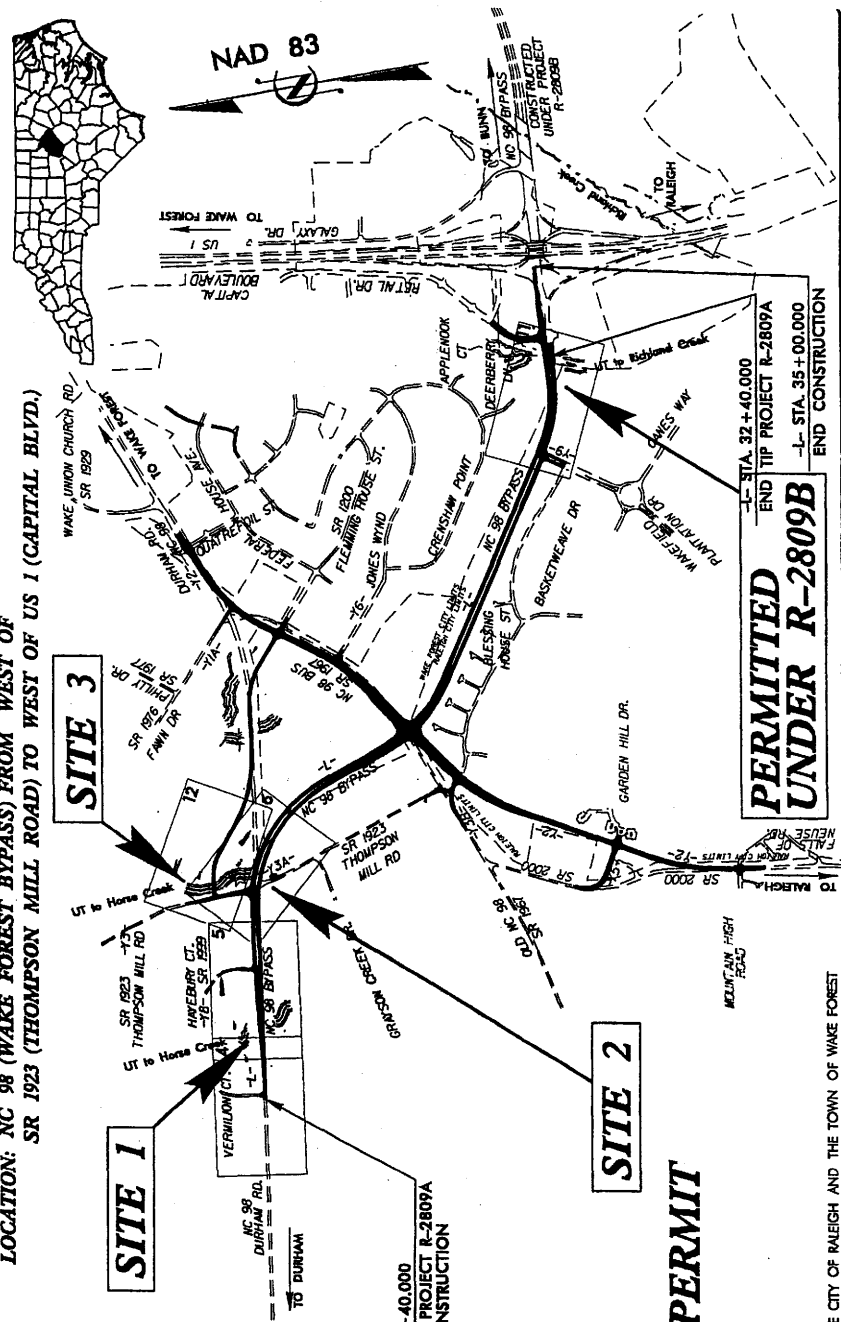


## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS WAKE COUNTY

**LOCATION: NC 98 (WAKE FOREST BYPASS) FROM WEST OF SR 1923 (THOMPSON MILL ROAD) TO WEST OF US 1 (CAPITAL BLVD.)**

STATE PROJECT NUMBER	R-2809A
DATE	1
PROJECT NUMBER	34600.1.1
DATE	3/1/01
PROJECT NUMBER	34600.2.5
DATE	3/1/02
PROJECT NUMBER	34600.3.7
DATE	
PROJECT NUMBER	
DATE	

ALL DIMENSIONS IN THESE PLANS ARE IN METERS OR MILLIMETERS UNLESS OTHERWISE SHOWN



**PERMITTED UNDER R-2809B**

### WETLAND\STREAM PERMIT

PORTIONS OF THIS PROJECT FALLS WITHIN THE BOUNDARIES OF THE CITY OF RALEIGH AND THE TOWN OF WAKE FOREST

<b>GRAPHIC SCALES</b>	<b>DESIGN DATA</b>
PLANS 1" = 100'	ADT 2007 = 24,100
PROFILE (HORIZONTAL) 1" = 100'	ADT 2025 = 36,500
PROFILE (VERTICAL) 1" = 20'	DHY = 10 %
	D = 60 %
	T = 6 % *
	V = 100 km/h
	* (TST 2% & DUAL 4%)

**PROJECT LENGTH**  
LENGTH ROADWAY TIP PROJECT R-2809A = 2.500 km  
TOTAL LENGTH OF TIP PROJECT R-2809A = 2.500 km

PREPARED BY	JASON MOORE, PE
PROJECT NUMBER	PROJECT NUMBER
RIGHT OF WAY DATE	JUNE 30, 2005
LETTING DATE	DECEMBER 18, 2007

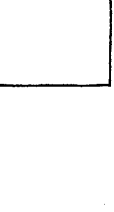
HYDRAULICS ENGINEER	PE
ROADWAY DESIGN ENGINEER	PE

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

**METRIC**

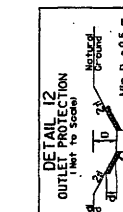
PROJECT REFERENCE NO. **7-2022A**  
 ROADWAY DESIGN  
 PARALLEL TO HIGHWAY

SHEET NO. **1**



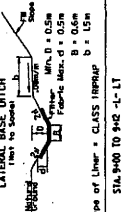
**DETAIL 1**  
 LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



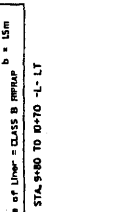
**DETAIL 2**  
 SPECIAL LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



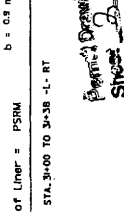
**DETAIL 3**  
 SPECIAL LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



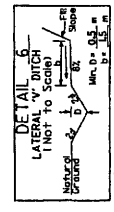
**DETAIL 4**  
 LATERAL BASE DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



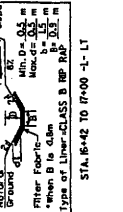
**DETAIL 5**  
 LATERAL BASE DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



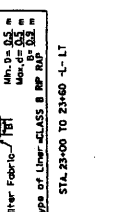
**DETAIL 6**  
 LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



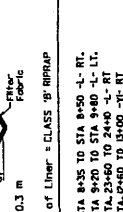
**DETAIL 7**  
 LATERAL BASE DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



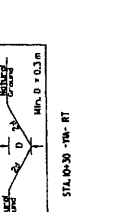
**DETAIL 8**  
 SPECIAL LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



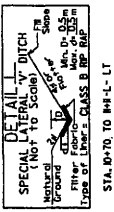
**DETAIL 9**  
 LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



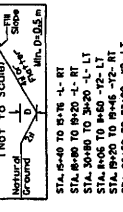
**DETAIL 10**  
 STANDARD DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



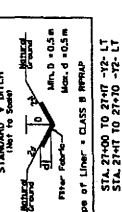
**DETAIL 11**  
 SPECIAL LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



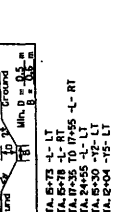
**DETAIL 12**  
 OUTLET DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



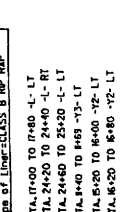
**DETAIL 13**  
 LATERAL DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



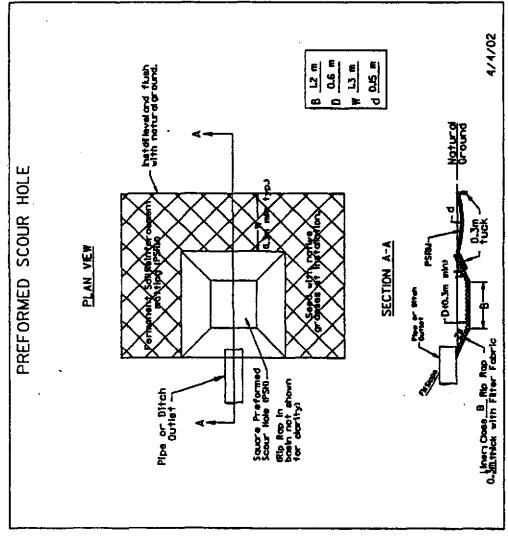
**DETAIL 14**  
 LATERAL BASE DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



**DETAIL 15**  
 LATERAL BASE DITCH  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



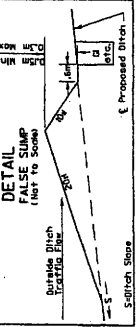
**PREFORMED SCOUR HOLE**

PLAN VIEW

SECTION A-A

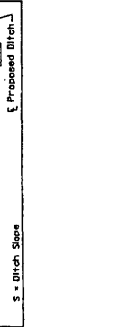
4/1/02

Min. D = 0.5 m  
 B = 1.5 m



**DETAIL FALSE SUMP**  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m



**DETAIL FALSE SUMP**  
 (NOT TO SCALE)

Min. D = 0.5 m  
 B = 1.5 m










**PROJECT REFERENCE NO.** 12057A  
**R/W SHEET NO.** 5  
**ROADWAY DESIGN ENGINEER**  
**HYDRAULICS ENGINEER**

**CONTRACT**  
 R/W REV. 12/15/05



Scale: 1" = 100'

**-78-**  
 PI = 10+67.625  
 Δ = 17° 25' 37.4" (LT)  
 L = 30.225  
 R = 50.000

CHARLES B. SMITH &  
 STEPHEN M. SMITH  
 DB 1988 PAGE 970  
 BM 1988 PAGE 970

DAVID E. SARTORE &  
 COLLEEN R. SARTORE  
 DB 1988 PAGE 970  
 BM 1988 PAGE 970

IMPACTS IN SURFACE WATER  
 DENOTES IMPACTS IN SURFACE WATER

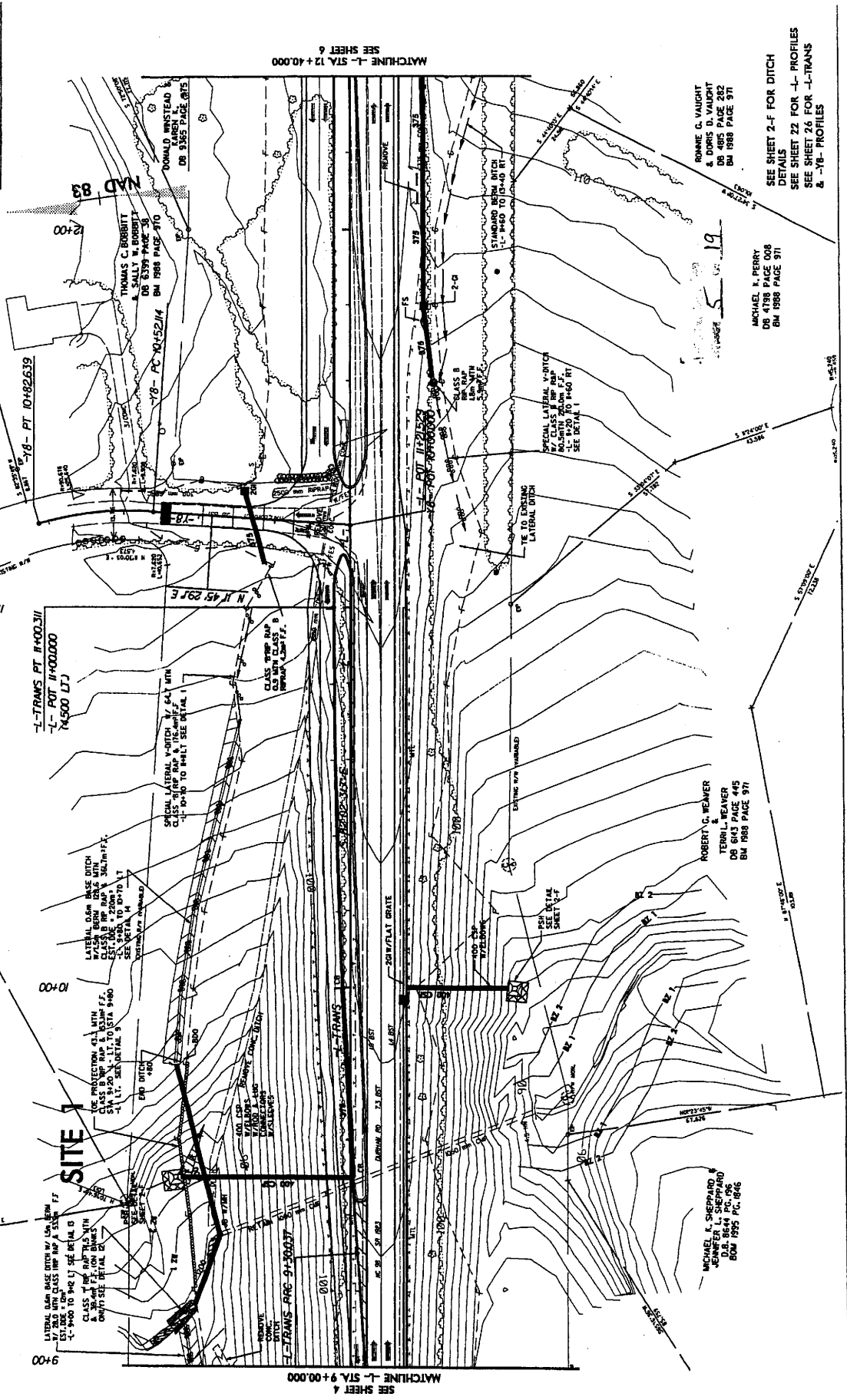
DEMOIES FILL IN WETLAND

**-L-TRANS**  
 PI = 8+44.639  
 Δ = 14° 30' 22" (LT)  
 L = 170.274  
 R = 2,300.000  
 SE = 0.02  
 Vmax = 100 MPH

PI = 10+45.213  
 Δ = 14° 30' 22" (RT)  
 L = 170.274  
 R = 2,300.000  
 SE = 0.02  
 Vmax = 100 MPH

PAUL J. TERRACIANO &  
 PATRICIA M. TERRACIANO  
 DB 4821 PAGE 357  
 BM 1988 PAGE 970

CLASS 1 R/R RAP WITH 1% SURFACE WATER  
 CLASS 2 R/R RAP WITH 1% SURFACE WATER  
 CLASS 3 R/R RAP WITH 1% SURFACE WATER  
 CLASS 4 R/R RAP WITH 1% SURFACE WATER  
 CLASS 5 R/R RAP WITH 1% SURFACE WATER



MATCHLINE -L- STA. 9+00.000  
 SEE SHEET 4

MATCHLINE -L- STA. 17+40.000  
 SEE SHEET 6

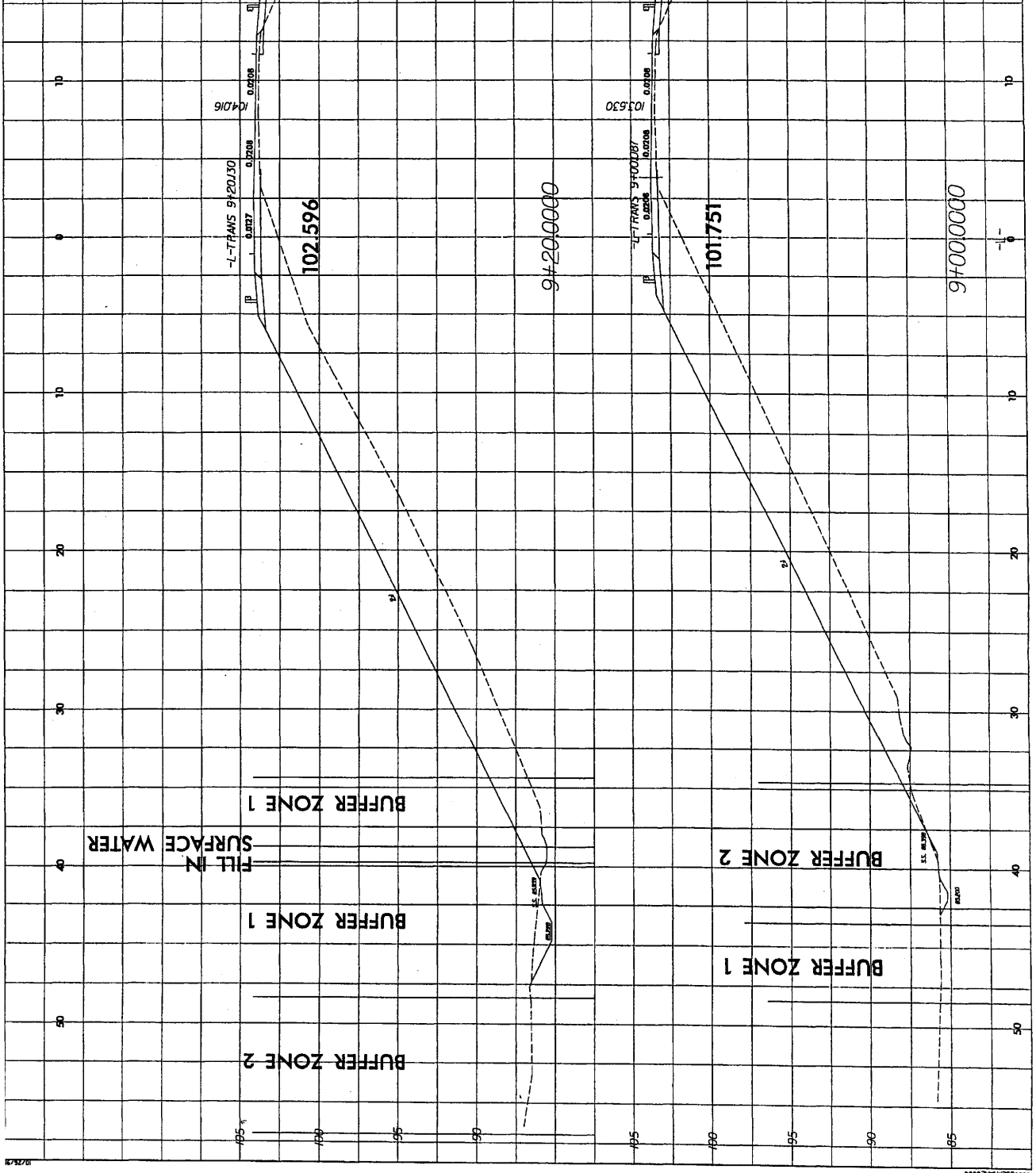
RONNIE G. VAUGHT  
 & DORIS D. VAUGHT  
 DB 1988 PAGE 971  
 BM 1988 PAGE 971

MICHAEL K. PERRY  
 DB 4738 PAGE 008  
 BM 1988 PAGE 971

ROBERT G. REAVER  
 TERRILL REAVER  
 DB 8043 PAGE 445  
 BM 1988 PAGE 971

MICHAEL K. SHERMAN  
 & JENNIFER L. SHERMAN  
 D.B. 1664 PC. 196  
 BOM 1992 PC. 866

SEE SHEET 2-F FOR DITCH  
 DETAILS  
 SEE SHEET 22 FOR -L- PROFILES  
 & -78- PROFILES



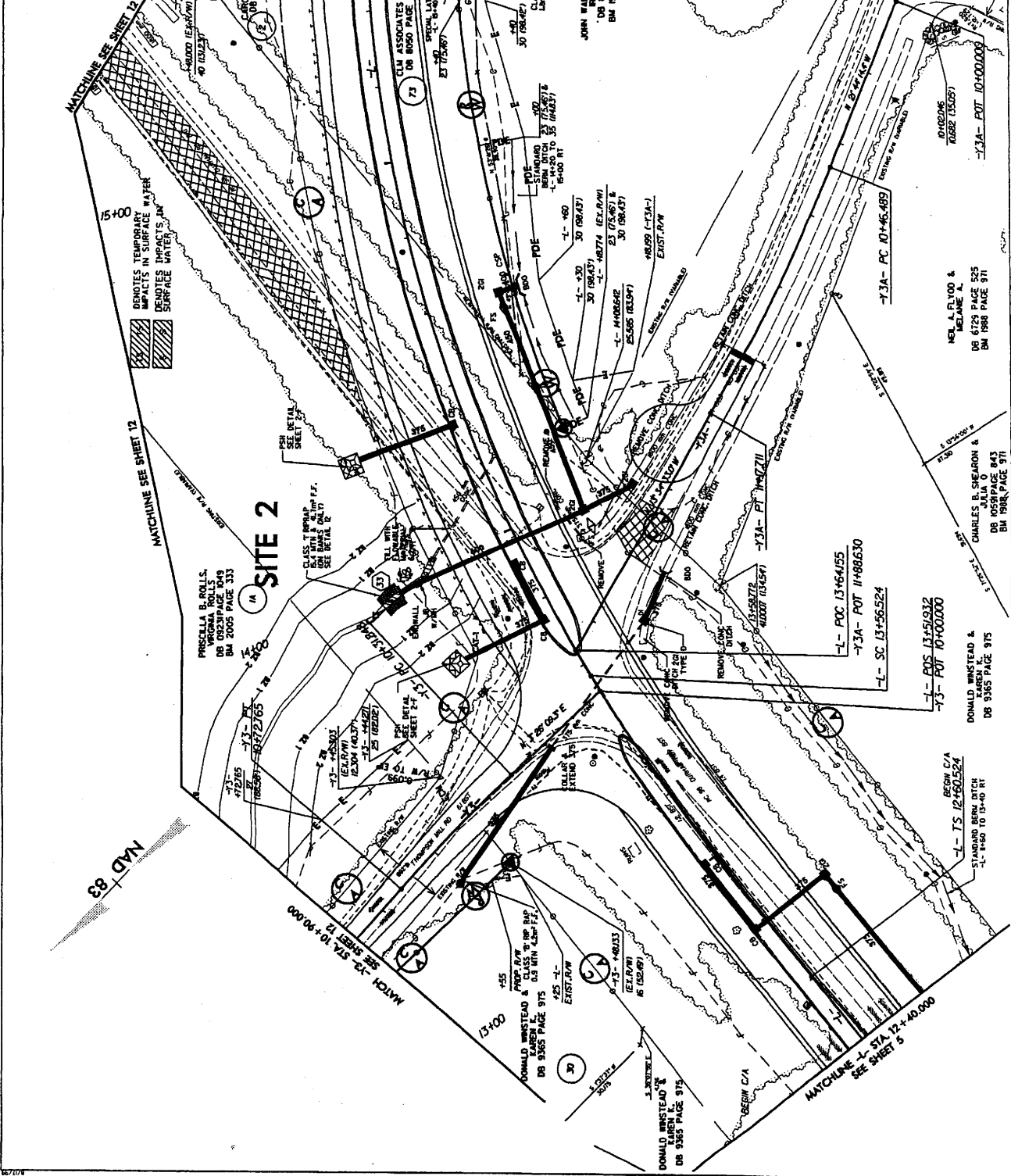
227

**SITE 1**

Permit Drawing  
 Sheet 12 of 14

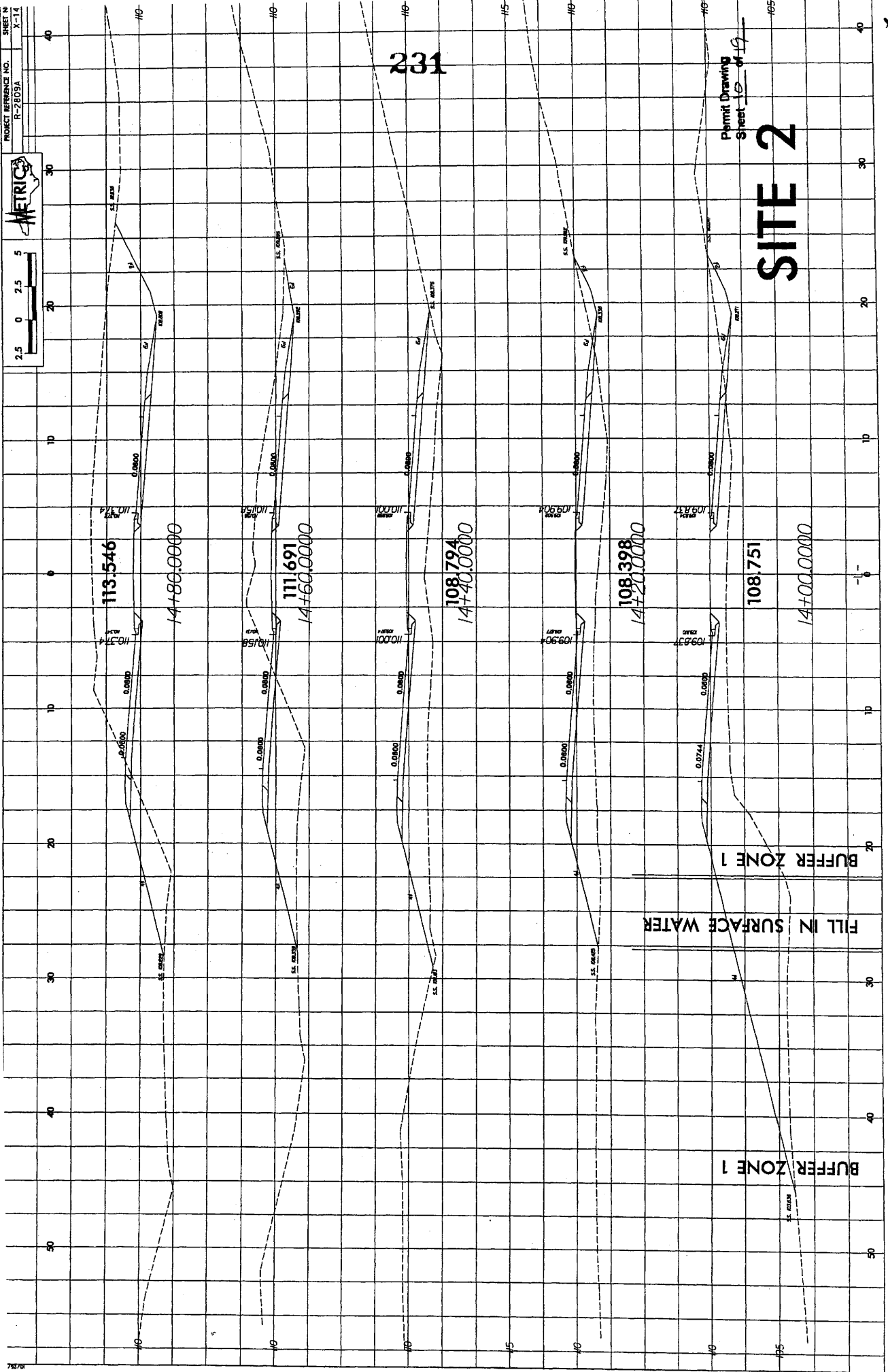
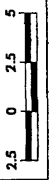


PROJECT REFERENCE NO. 1-2807A SHEET NO. 6  
 ROADWAY DESIGNER: METRICS  
 METRICS  
 CONSULTING ENGINEER  
 CONTRACT NO. 5/3/06  
 SCALE: 1" = 40'





PROJECT REFERENCE NO. R-2805A  
SHEET NO. X-14



109.700

109.774

109.837

109.904

108.794  
14+40.0000

111.691  
14+60.0000

113.546  
14+80.0000

108.398  
14+20.0000

108.751

14+00.0000

FILL IN SURFACE WATER

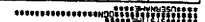
BUFFER ZONE 1

BUFFER ZONE 1

231

Permit Drawing  
Sheet 8 of 19

SITE 2











**METRICS**

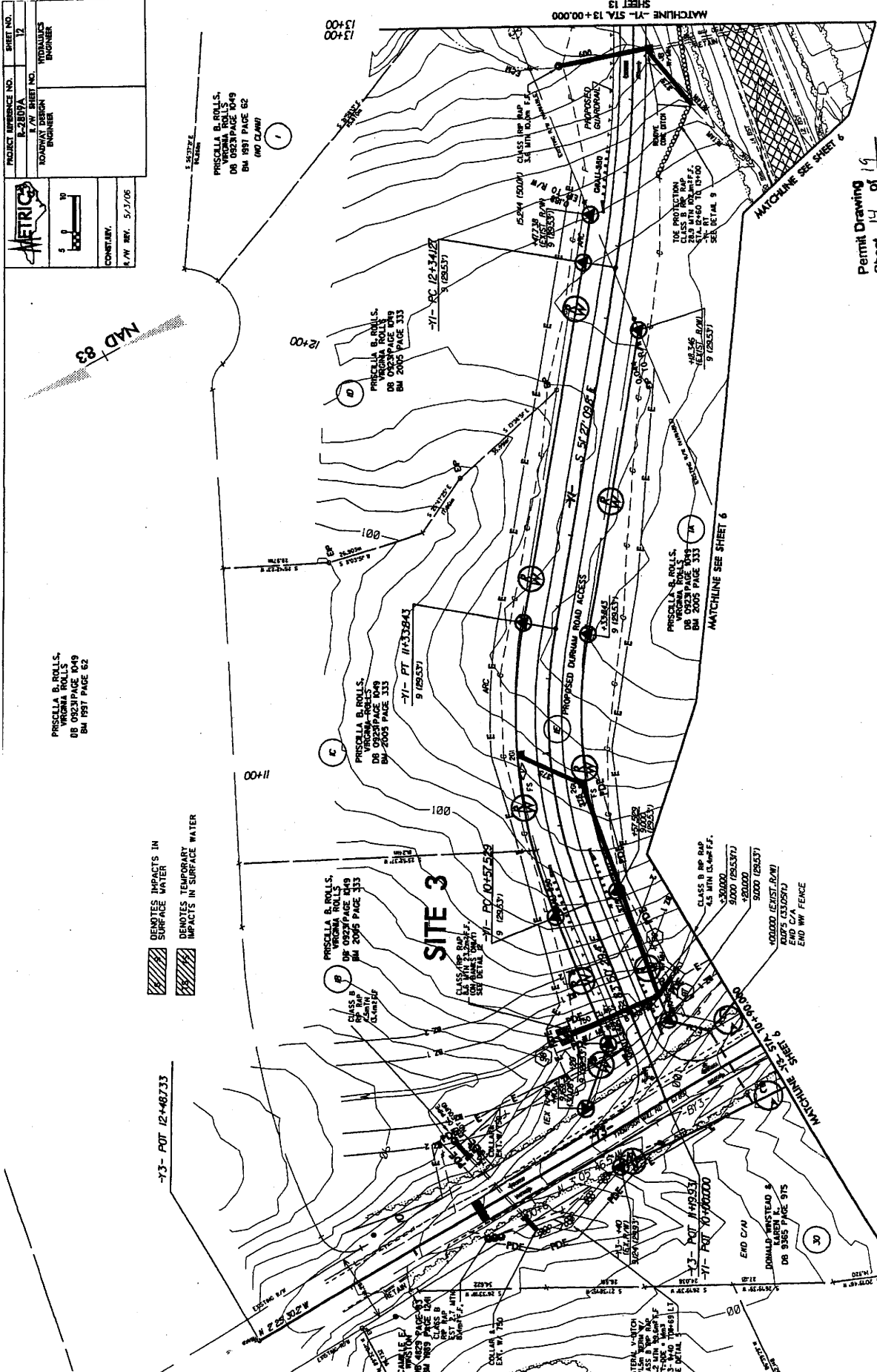
PROJECT REFERENCE NO. R-2807A  
 SHEET NO. 12  
 ROADWAY DESIGN ENGINEER  
 CONTRACTOR  
 DATE: 5/3/06

PRISCILLA B. ROLLS,  
 VIRGINIA ROLLS  
 DB 0923 PAGE 1049  
 BM 1987 PAGE 62

PRISCILLA B. ROLLS,  
 VIRGINIA ROLLS  
 DB 0923 PAGE 1049  
 BM 1987 PAGE 62

DIAGONAL HATCHING  
 DENOTES IMPACTS IN SURFACE WATER

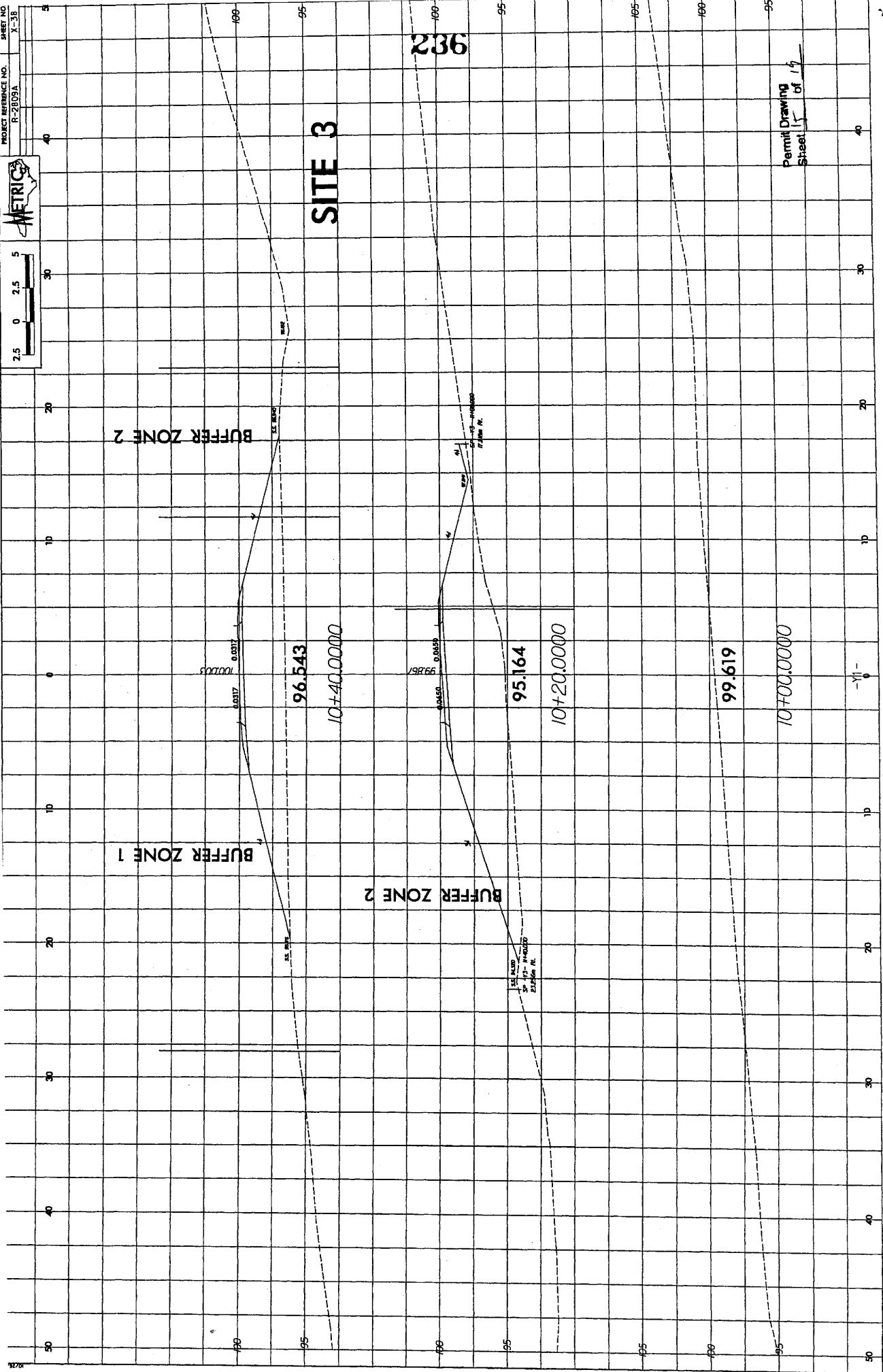
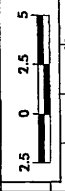
VERTICAL HATCHING  
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER



Permit Drawing  
 Sheet 14 of 19

SEE SHEET 2-F FOR DITCH DETAILS  
 SEE SHEET 27 FOR PROFILES





# SITE 3

BUFFER ZONE 2

BUFFER ZONE 1

BUFFER ZONE 2

236

96.543

95.164

99.619

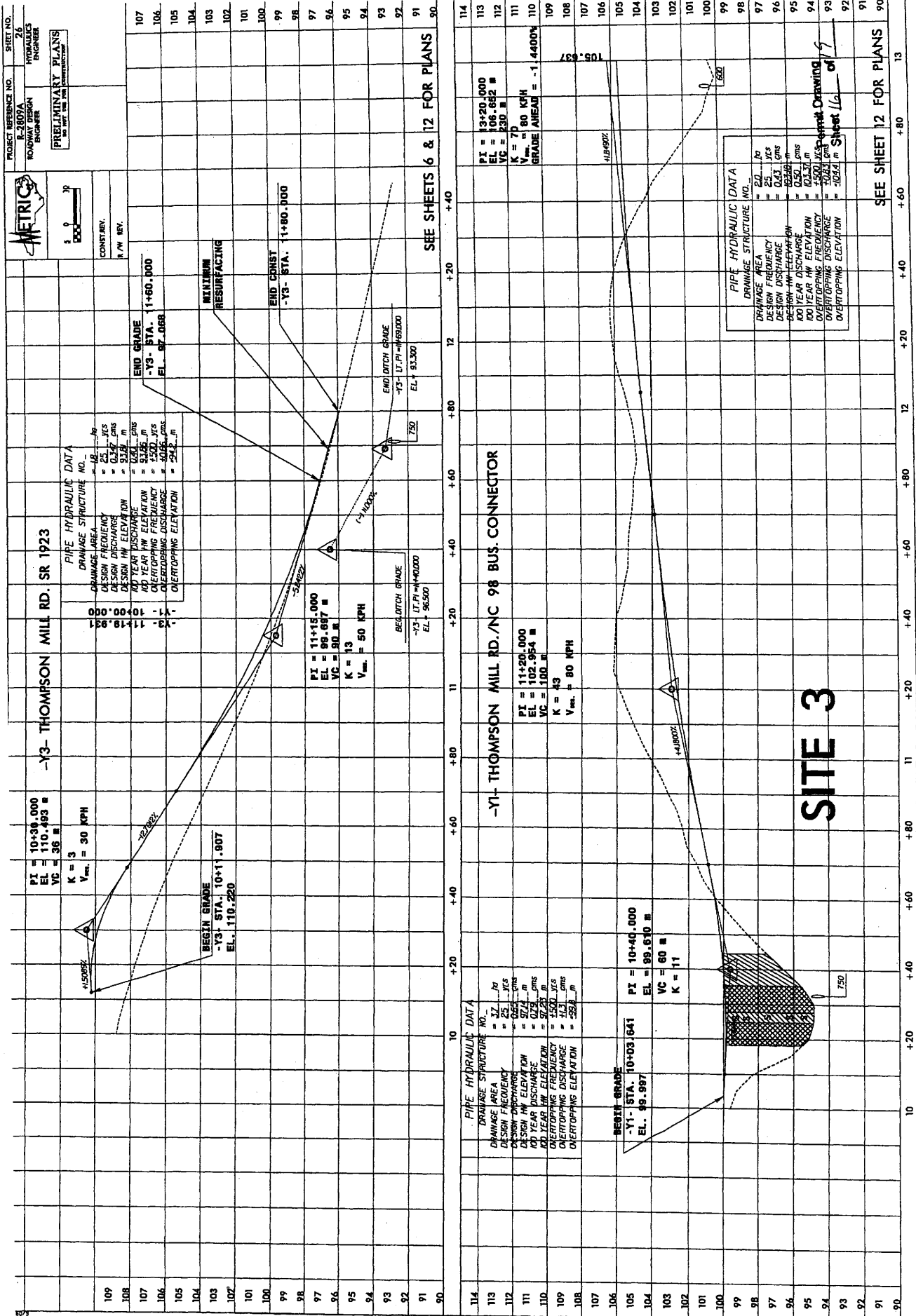
10+40.0000

10+20.0000

10+00.0000

Permit Drawing  
Sheet 15 of 15

-11-



PROJECT REFERENCE NO. R-2807A  
 ROADWAY DESIGN ENGINEER  
 SHEET NO. 26  
 HYDRAULICS ENGINEER  
 PRELIMINARY PLANS  
 NO. 107 FOR THE CONSTRUCTION



CONST. REV.  
 R/W REV.

PIPE HYDRAULIC DATA

DRAINAGE AREA	= 21.70
DESIGN FREQUENCY	= 2.33 yrs
DESIGN DISCHARGE	= 0.50 cfs
DESIGN HW ELEVATION	= 91.8 m
100 YEAR HW ELEVATION	= 102.1 m
100 YEAR FREQ	= 1.500 yrs
OVERTOPPING DISCHARGE	= 0.00 cfs
OVERTOPPING ELEVATION	= 94.2 m

PIPE HYDRAULIC DATA

DRAINAGE AREA	= 21.70
DESIGN FREQUENCY	= 2.33 yrs
DESIGN DISCHARGE	= 0.50 cfs
DESIGN HW ELEVATION	= 91.8 m
100 YEAR HW ELEVATION	= 102.1 m
100 YEAR FREQ	= 1.500 yrs
OVERTOPPING DISCHARGE	= 0.00 cfs
OVERTOPPING ELEVATION	= 94.2 m

PIPE HYDRAULIC DATA

DRAINAGE AREA	= 21.70
DESIGN FREQUENCY	= 2.33 yrs
DESIGN DISCHARGE	= 0.50 cfs
DESIGN HW ELEVATION	= 91.8 m
100 YEAR HW ELEVATION	= 102.1 m
100 YEAR FREQ	= 1.500 yrs
OVERTOPPING DISCHARGE	= 0.00 cfs
OVERTOPPING ELEVATION	= 94.2 m

PIPE HYDRAULIC DATA

DRAINAGE AREA	= 21.70
DESIGN FREQUENCY	= 2.33 yrs
DESIGN DISCHARGE	= 0.50 cfs
DESIGN HW ELEVATION	= 91.8 m
100 YEAR HW ELEVATION	= 102.1 m
100 YEAR FREQ	= 1.500 yrs
OVERTOPPING DISCHARGE	= 0.00 cfs
OVERTOPPING ELEVATION	= 94.2 m

PIPE HYDRAULIC DATA

DRAINAGE AREA	= 21.70
DESIGN FREQUENCY	= 2.33 yrs
DESIGN DISCHARGE	= 0.50 cfs
DESIGN HW ELEVATION	= 91.8 m
100 YEAR HW ELEVATION	= 102.1 m
100 YEAR FREQ	= 1.500 yrs
OVERTOPPING DISCHARGE	= 0.00 cfs
OVERTOPPING ELEVATION	= 94.2 m

PIPE HYDRAULIC DATA

DRAINAGE AREA	= 21.70
DESIGN FREQUENCY	= 2.33 yrs
DESIGN DISCHARGE	= 0.50 cfs
DESIGN HW ELEVATION	= 91.8 m
100 YEAR HW ELEVATION	= 102.1 m
100 YEAR FREQ	= 1.500 yrs
OVERTOPPING DISCHARGE	= 0.00 cfs
OVERTOPPING ELEVATION	= 94.2 m

SEE SHEETS 6 & 12 FOR PLANS

109  
108  
107  
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130

SEE SHEET 12 FOR PLANS

WETLAND PERMIT IMPACT SUMMARY														
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS						
			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	9+25 -L- LT	48" RCP	0.01							0.01	<0.01	95	23	
2	14+00 -L- LT	24" CSP								0.01	<0.01	62	20	
3	10+30 -Y1-	30" RCP								0.01	<0.01	118	36	
TOTALS:			0.01		0.00			0.00	0.00	0.03	0.00	275	70	

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 WAKE COUNTY  
 PROJECT: 34503.1.1 (R-2809A)  
 SHEET 17 of 19  
 Jul-07





List of Property Owners:

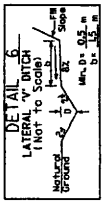
<u>SITE #</u>	<u>PROPERTY OWNER</u>	<u>ADDRESSES</u>
1	NCDOT	
2	NCDOT	
3	PRISCILLA ROLLS	7104 THOMPSON MILL ROAD WAKE FOREST, NC 27587

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
34503.1.1 (R-2809A)  
WAKE FOREST BYPASS

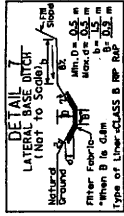


PROJECT REFERENCE NO. **R-2800A** **2-F**  
**ROADWAY DESIGN**  
**ENGINEER**

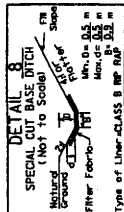
PROJECT REFERENCE NO. **2-F**  
**PAVEMENT DESIGN**  
**ENGINEER**



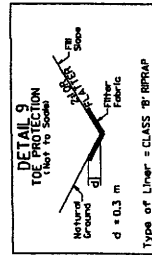
STA. 8+70 TO 8+35 -L- RT.  
 STA. 25+80 TO 25+20 -L- LT.



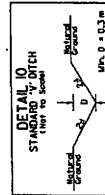
STA. 18+42 TO 17+00 -L- LT.



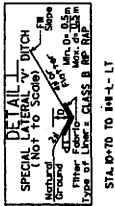
STA. 20+00 TO 23+40 -L- LT.



Type of Liner = CLASS 'B' RRAPP  
 STA. 8+35 TO STA. 8+50 -L- RT.  
 STA. 9+20 TO STA. 9+80 -L- LT.  
 STA. 23+60 TO 24+40 -L- RT.  
 STA. 24+80 TO 19+00 -RT- RT.  
 STA. 25+80 TO 27+20 -RT- RT.



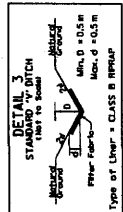
STA. 01+30 -RT- RT.



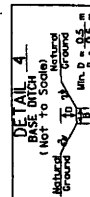
STA. 18+70 TO 18+4 -L- LT.  
 STA. 19+40 TO 19+00 -L- RT.  
 STA. 19+40 TO 19+80 -L- RT.  
 STA. 23+60 TO 22+90 -L- LT.  
 STA. 18+62 TO 19+00 -RT- RT.



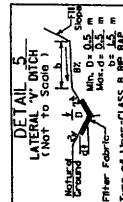
STA. 8+40 TO 8+76 -L- RT.  
 STA. 8+80 TO 8+20 -L- RT.  
 STA. 30+80 TO 30+20 -L- LT.  
 STA. 19+40 TO 19+80 -L- RT.  
 STA. 19+20 TO 18+42 -RT- RT.  
 STA. 25+60 TO 27+00 -RT- LT.  
 STA. 0+70 TO 0+40 -RT- RT.  
 STA. 0+20 TO 0+50 -RT- LT.



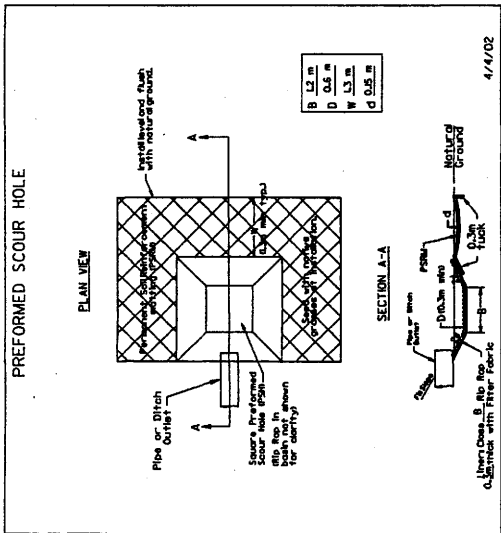
Type of Liner = CLASS 'B' RRAPP  
 STA. 27+00 TO 27+77 -RT- LT.  
 STA. 27+77 TO 27+70 -RT- LT.



STA. 8+73 -L- LT.  
 STA. 8+78 -L- RT.  
 STA. 19+25 -L- RT.  
 STA. 19+55 -L- LT.  
 STA. 18+30 -RT- LT.  
 STA. 18+04 -RT- LT.

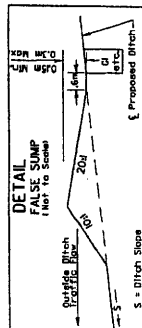
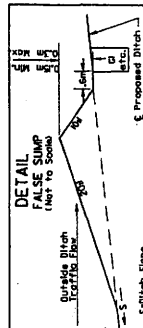


Type of Liner = CLASS 'B' RRAPP  
 STA. 17+00 TO 17+80 -L- LT.  
 STA. 24+20 TO 24+40 -L- RT.  
 STA. 24+60 TO 25+20 -L- LT.  
 STA. 1+40 TO 1+85 -RT- LT.  
 STA. 5+20 TO 6+00 -RT- LT.  
 STA. 15+20 TO 16+80 -RT- LT.



4/4/02

STA. 9+50 -L- LT.  
 STA. 9+9 -L- RT.  
 STA. 14+30 -L- LT.  
 STA. 14+73 -L- LT.  
 STA. 19+25 -L- LT.



3/23/02



MATCHLINE L- STA 7+00.000  
SEE SHEET 5

**METRICS**

PROJECT NO. R-2809A  
SHEET NO. 4

DESIGNED BY: ROBERT W. BENDER  
CHECKED BY: ROBERT W. BENDER

DATE: 12/15/05

SCALE: 1" = 40'

CONTRACT NO. 04-00000-01

**L-TRANS**

PI = 8+44.939  
Δ = 41° 30.2' (LT)  
L = 102.274  
T = 85.176  
R = 2,300.000  
SE = 0.02  
Vmax = 100 KPH

THE DREES COMPANY  
D.A. 8552 P.C. 1958  
BOM 1995 P.C. 2003

ALLOWABLE IMPACTS ZONE 1  
ALLOWABLE IMPACTS ZONE 2

L-TRANS PC 7+59763  
7+55282  
59623 (R2337)

THE DREES COMPANY  
D.A. 8552 P.C. 1958  
BOM 1995 P.C. 2003

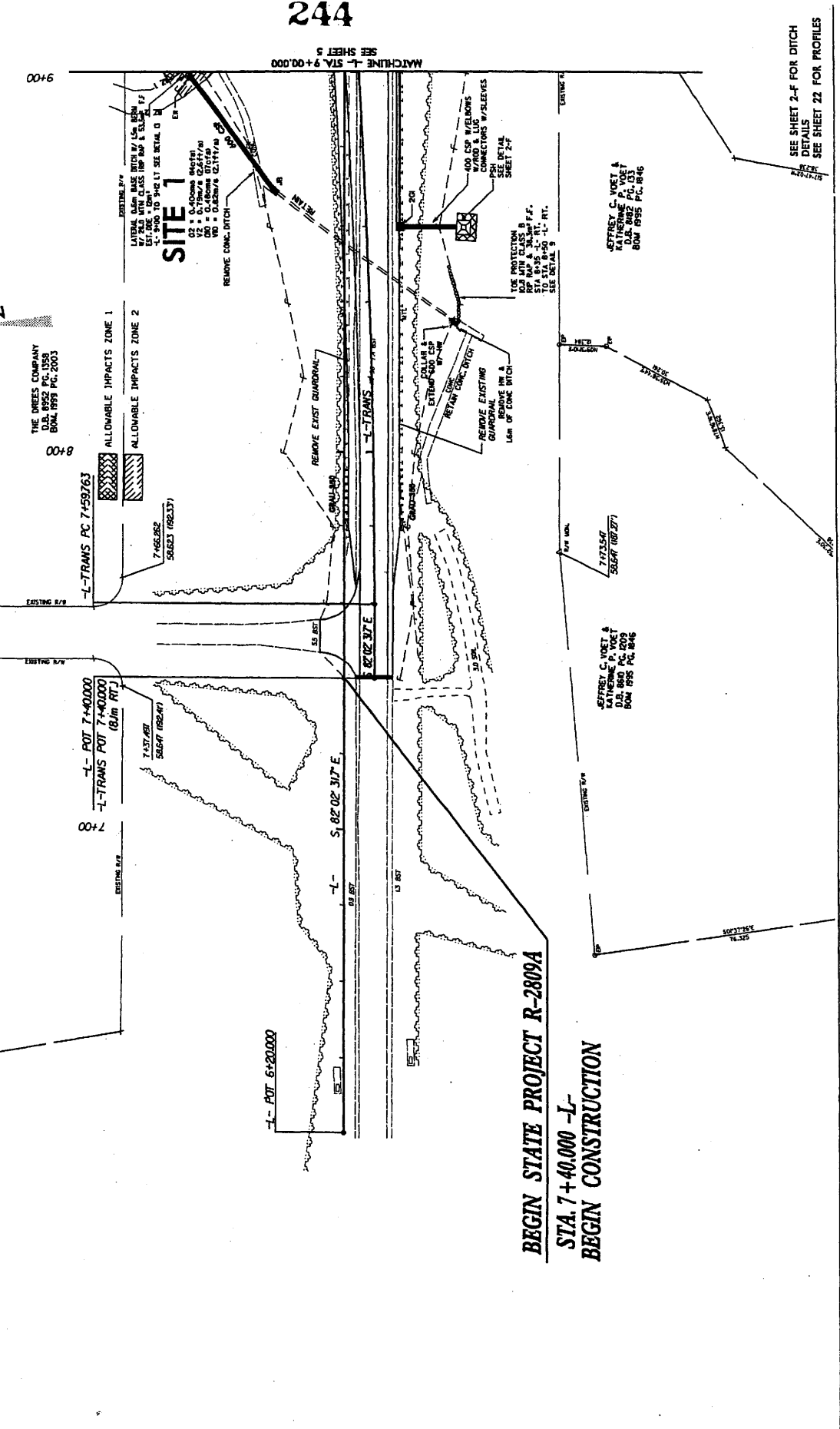
L-TRANS POT 7+40.000  
L-TRANS POT (6.1m RT)

7+37.857  
59627 (R2341)

L-TRANS POT 6+20.000

L-TRANS POT 7+40.000

7+37.857  
59627 (R2341)



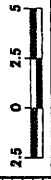
**BEGIN STATE PROJECT R-2809A**

**STA. 7+40.000 -L-**

**BEGIN CONSTRUCTION**

SEE SHEET 2-F FOR DITCH  
DETAILS  
SEE SHEET 22 FOR PROFILES

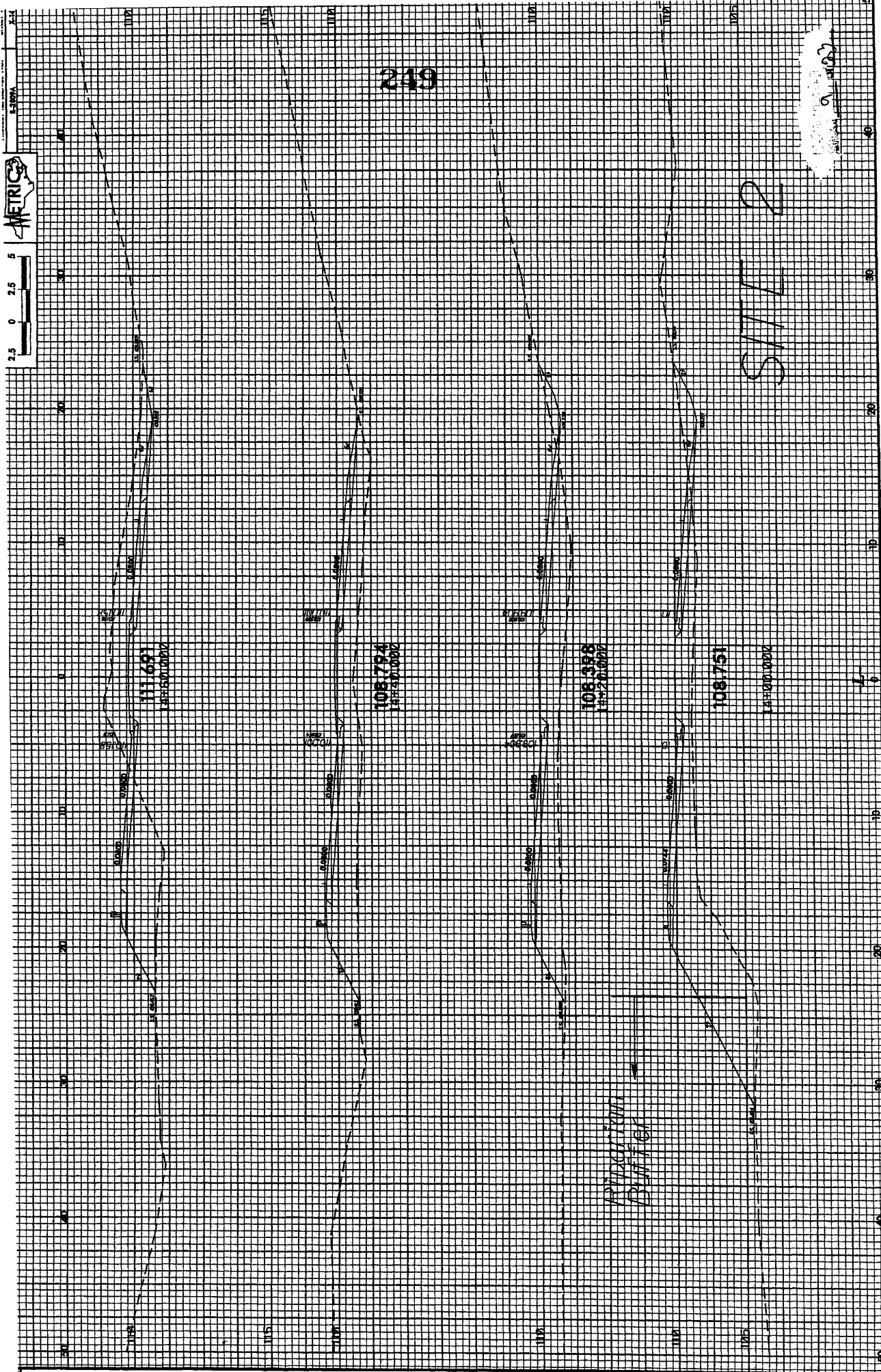












249

111.69  
108.500

108.794  
108.700

108.388  
108.300

108.751  
108.700

108.700  
108.700

SITL 2

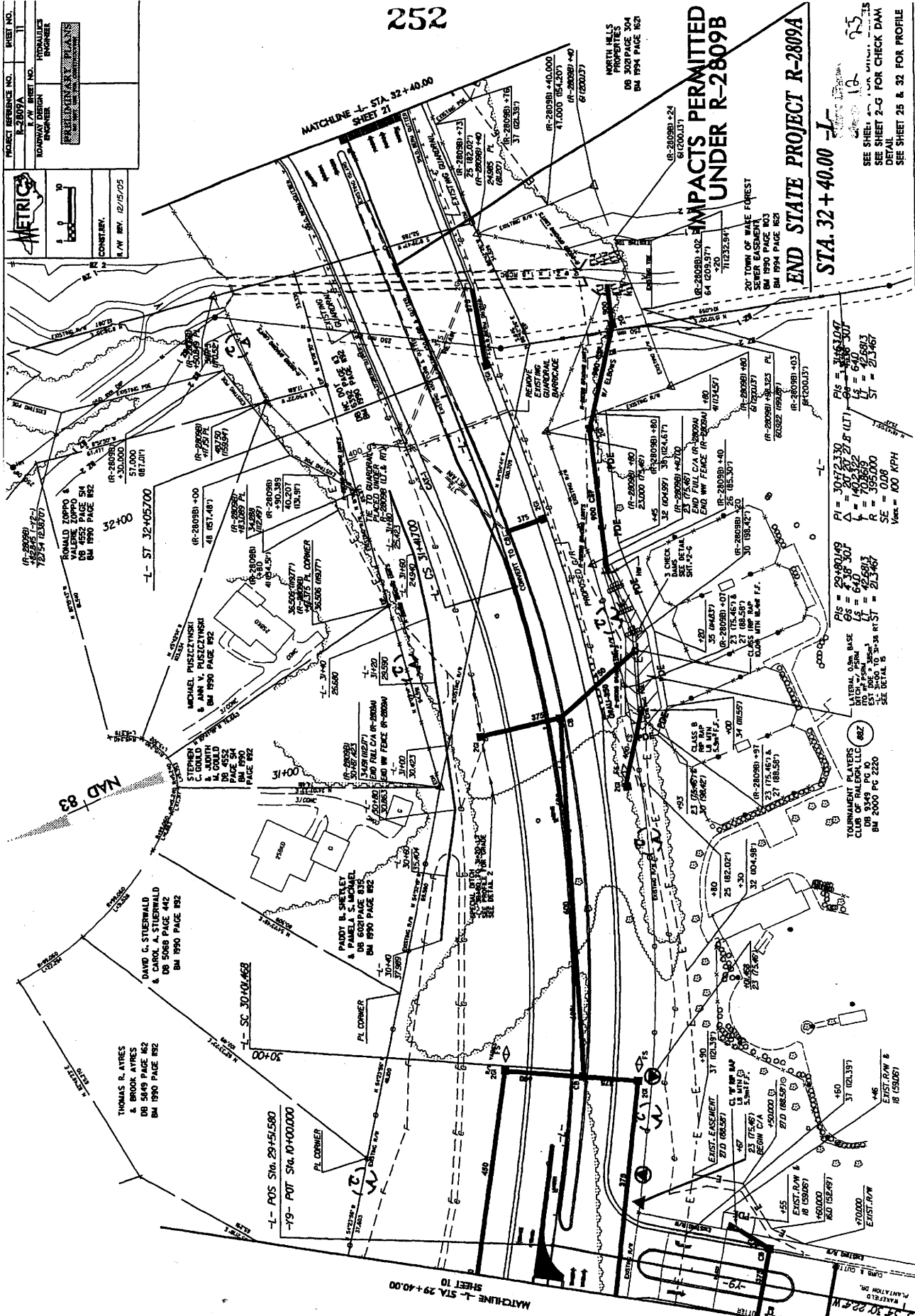
EXTRACTED FROM  
BLUFF CH

Contour  
108.5





PROJECT REFERENCE NO. 12-2809A  
 SHEET NO. 11  
 ROADWAY DESIGN ENGINEER  
 METRICS  
 COUNTY, ILL.  
 DATE REV. 12/15/05



**IMPACTS PERMITTED UNDER R-2809B**

20 TONS OF WHITE FOREST  
 20 TONS OF BLACK FOREST  
 64 200.577  
 71232.54  
 61200.137  
 (R-2809B) +24  
 (R-2809B) +40.000  
 11.000 (854.201)  
 (R-2809B) +40  
 61200.137

**END STATE PROJECT R-2809A**

**STA. 32+40.00**

SEE SHEET 10 FOR CHECK DAM  
 SEE SHEET 2-G FOR CHECK DAM  
 DETAIL  
 SEE SHEET 25 & 32 FOR PROFILE

PI = 30472.330  
 LI = 30757.29 (LIT)  
 LS = 640  
 LT = 42591.3  
 ST = 213467

PI = 29491.049  
 LI = 29757.29 (LIT)  
 LS = 640  
 LT = 42591.3  
 ST = 213467

CLASS B  
 END FILL C/A (R-2809A)  
 END NW FENCE (R-2809A)  
 23 175.457 L  
 27 188.581 L  
 CLASS NW FENCE  
 23 175.457 L  
 27 188.581 L

CLASS B  
 END FILL C/A (R-2809A)  
 END NW FENCE (R-2809A)  
 23 175.457 L  
 27 188.581 L  
 CLASS NW FENCE  
 23 175.457 L  
 27 188.581 L

CLASS B  
 END FILL C/A (R-2809A)  
 END NW FENCE (R-2809A)  
 23 175.457 L  
 27 188.581 L  
 CLASS NW FENCE  
 23 175.457 L  
 27 188.581 L

CLASS B  
 END FILL C/A (R-2809A)  
 END NW FENCE (R-2809A)  
 23 175.457 L  
 27 188.581 L  
 CLASS NW FENCE  
 23 175.457 L  
 27 188.581 L


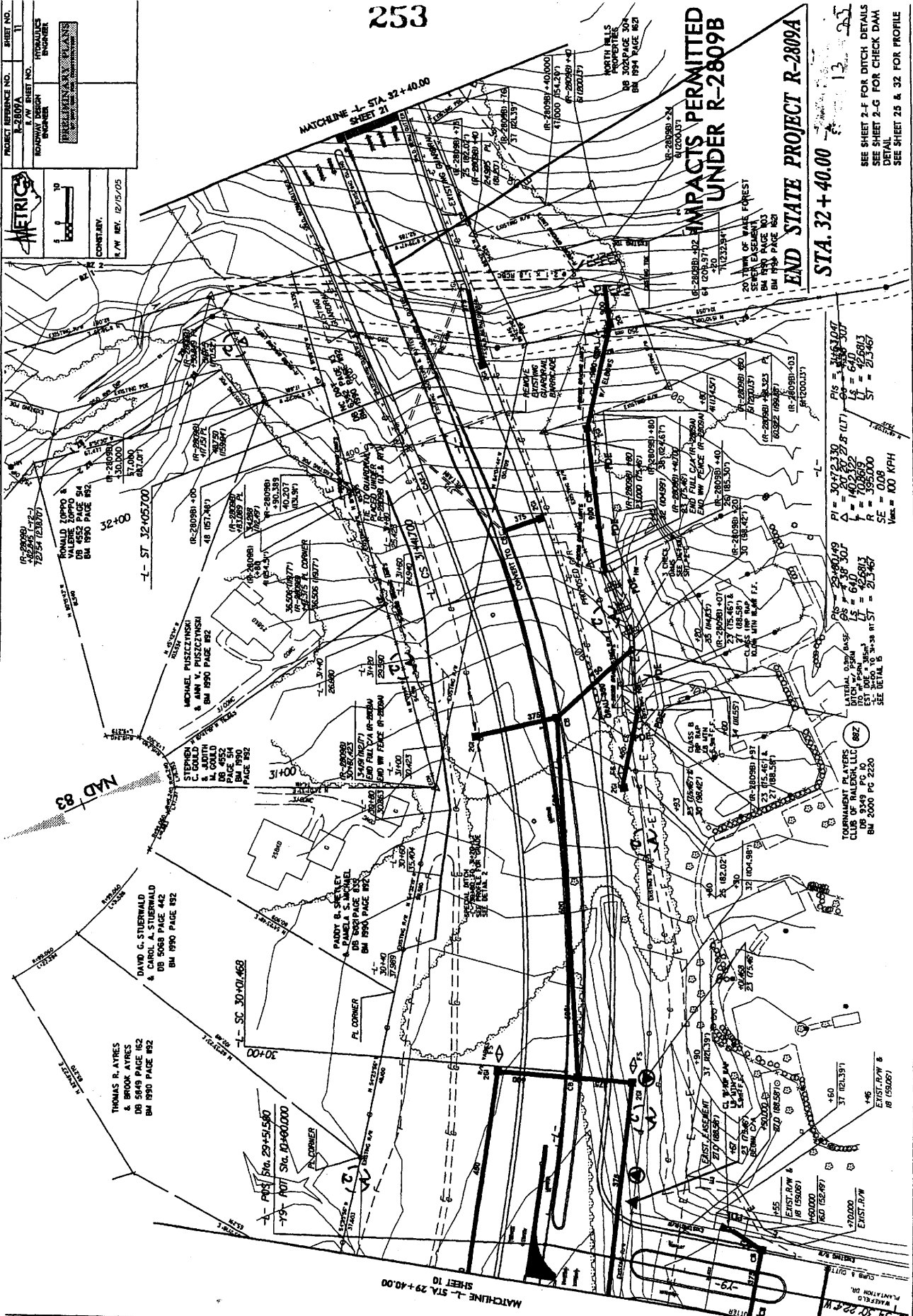
CLASS B  
 END FILL C/A (R-2809A)  
 END NW FENCE (R-2809A)  
 23 175.457 L  
 27 188.581 L  
 CLASS NW FENCE  
 23 175.457 L  
 27 188.581 L

PROJECT REFERENCE NO. R-2809A SHEET NO. 11

R.W. ERIET NO. HYDRAULIC ENGINEER

CONTRACT NO. 12/15/05

DATE REV. 12/15/05

**IMPACTS PERMITTED UNDER R-2809B**

END STATE PROJECT R-2809A

STA. 32+40.00

SEE SHEET 2-F FOR DITCH DETAILS  
SEE SHEET 2-G FOR CHECK DAM  
DETAIL  
SEE SHEET 25 & 32 FOR PROFILE

RONALD ZOPPO & VALERIE ZOPPO DB 4552 PAGE 84 BM 1950 PAGE 82

STEPHEN C. GOULD & AMY V. PUSCZYNSKI BM 1950 PAGE 82

DAVID G. STUERWALD & CAROL A. STUERWALD DB 5068 PAGE 442 BM 1950 PAGE 82

MICHAEL PUSCZYNSKI & AMY V. PUSCZYNSKI BM 1950 PAGE 82

STEPHEN C. GOULD & AMY V. PUSCZYNSKI BM 1950 PAGE 82

DAVID G. STUERWALD & CAROL A. STUERWALD DB 5068 PAGE 442 BM 1950 PAGE 82

PADY & S. PAMELA S. MANUEL DB 5068 PAGE 442 BM 1950 PAGE 82

TOURNAMENT PLAYERS CLUB OF RALEIGH, LLC DB 8349 PG. 10 EST. 10/10/10 3'-38" AT ST = 21.467 SEE DETAIL B

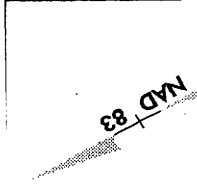
END FILL C&G (R-2809A) END NW CORNER (R-2809A) END SW CORNER (R-2809A) END SE CORNER (R-2809A)

PIG = 30712.330  
PI = 60732.330 (UT)  
LS = 640  
LS = 42.500  
SE = 350.000  
VCL = 100 MPH

MATCHLINE -L- STA. 29+40.00 SHEET 10

MATCHLINE -L- STA. 32+40.00 SHEET 11

PROJECT REFERENCE NO.	SHEET NO.
E-2007A	12
E.A.W. SHEET NO.	
TRAFFIC ENGINEER	
ROADWAY DESIGN	
ENGR. NO.	
REGISTERED PROFESSIONAL ENGINEER	
CONTRACT NO.	
DATE	
REV. 5/23/06	



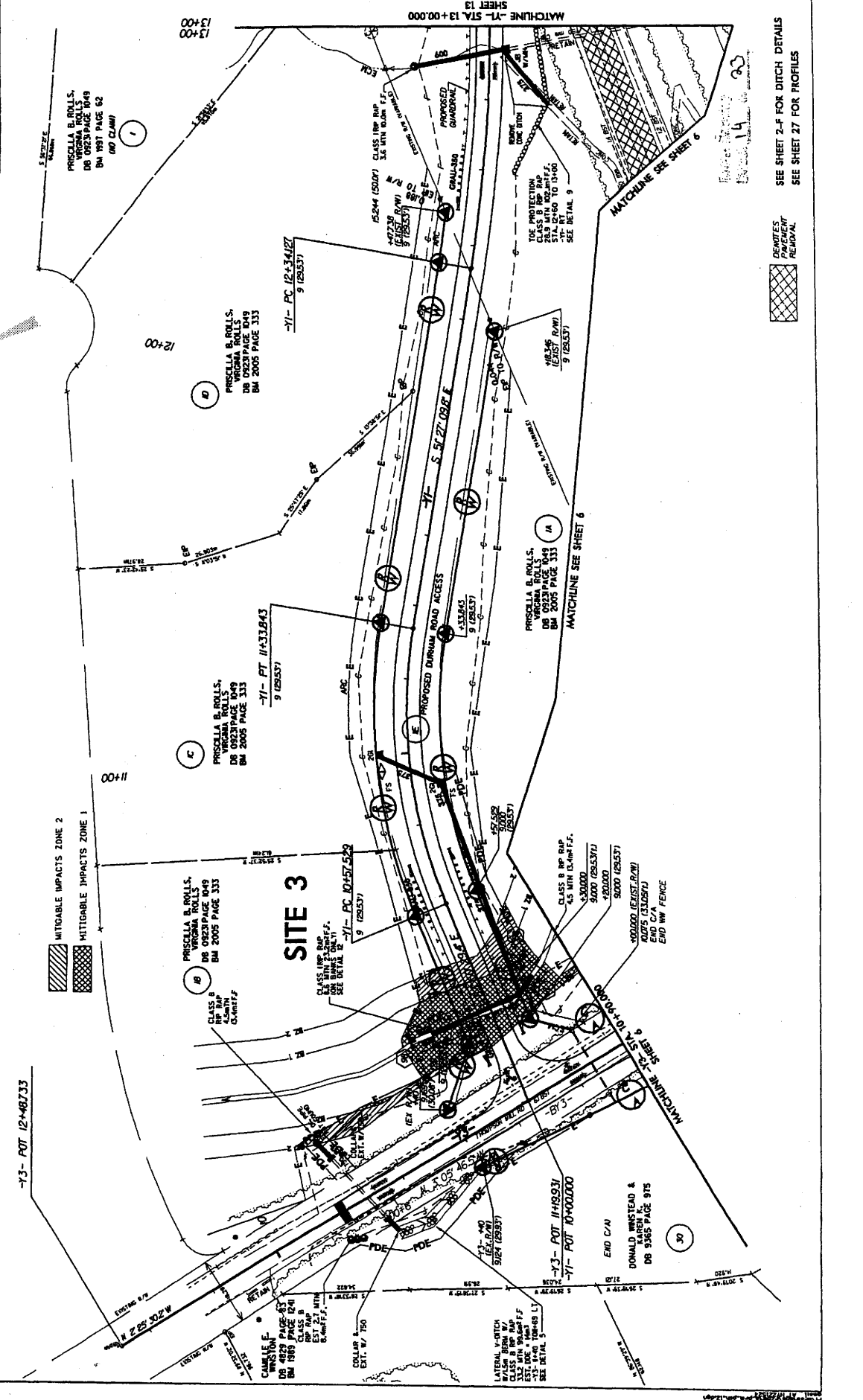
PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 1987 PAGE 02

PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333

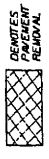
PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333

PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333

PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333



SEE SHEET 2-F FOR DITCH DETAILS  
SEE SHEET 27 FOR PROFILES



PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333

PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333

PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333

PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333

PRISCILLA B. ROLLS,  
VIRGINIA ROLLS  
DB 0923 PAGE 049  
BM 2005 PAGE 333





PROJECT REFERENCE NO. 4-2000A  
 SHEET NO. 2-88  
  
 2.5 0 2.5 5













R-2809A Wake Forest Bypass. Affected Buffer Areas  
 Discharge is considered to be treated if it meets the following criteria:  
 100 ft. of grass swale for every 1 acre of drainage area. AND  
 2 yr. velocity is less than or equal to 2 ft./sec.

Site @ End R-2809A & Begin R-2809B @ Existing RCBC  
 Dsn. By: FFF  
 Check: SDG  
 Date: 8/15/2007

SHT.	Structure	Station	Type	Total D.A.		Required length for treatment		Actual Length (m)	Channel Slope (m/m)	Side Slopes	Treated Discharge?	Q2 cfs	Q2 vel. fps	Q10 cfs	Q10 vel. fps	Treatment Provided	Remarks
				ha	ac	(ft.)	(m.)										
10	72	26+60 rt	2GI	0.42	1.0	103.8	32	160	0.018	4:1/2:1	YES	0.19	1.5	0.26	2.2	GS	
10	73	26+60 lt.	2GI	0.79	2.0	195.2	60	160	0.018	4:1/2:1	YES	0.26	1.8	0.35	2.2	GS	
10	74	27+70 lt.	2GI	0.44	1.1	108.7	33	110	0.018	4:1/2:1	YES	0.21	1.7	0.29	2.2	GS	
10	75	27+70 lt.	Open									0.00		0.00			
10	76	27+70 rt.	2GI	0.44	1.1	108.7	33	110	0.018	4:1/2:1	YES	0.14	0.9	0.20	1.1	GS	
10	169	29+20 rt.	2GI	0.46	1.1	113.7	35	140	0.018	4:1/2:1	YES	0.15	0.9	0.21	1.1	GS	
11	77	30+00 Lt.	2GI	0.33	0.8	81.5	25	200	0.018	4:1/2:1	YES	0.13	1.8	0.17	2.2	GS	
11	78	30+00 Med	CB	0.09	0.2	21.5	7	0			NO	0.05		0.06		CD	*
11	79	30+00 Rt.	2GI	0.69	1.7	170.5	52	200	0.018	4:1/2:1	YES	0.34	2.0	0.46	2.3	GS	
11	83	30+80 Rt.	2GI	0.12	0.3	29.7	9	100	0.003	4:1/2:1	YES	0.06	0.3	0.09	0.8	GS	
11	80	31+02 Med	CB	0.15	0.4	37.1	11	0			NO	0.08		0.11		CD	*
11	81	31+02 Lt.	2GI	0.33	0.8	81.5	25	100	0.003	4:1/2:1	YES	0.23	0.4	0.31	0.9	GS	
11	170	10+60-Y9-RT	CB	0.18	0.4	44.5	14	0			**	0.00	0.0	0.00	0.0	**SEE 172	
11	171	10+60-Y9-LT	CB	0.03	0.1	7.4	2	0			**	0.00	0.0	0.00	0.0	**SEE 172	
11	172	10+50-Y9-LT	OUTLET	0.21	0.5	51.9	16	57	0.018	4:1/2:1	YES	0.20	0.4	3.03	0.9	GS	

\*STRUCTURE NO.'S 78 & 83 OUTLET INTO A DITCH WITH THREE PROPOSED CHECK DAMS. THESE DAMS REDUCE THE SLOPE OF THE DITCH TO ACHIEVE 2.0'/SEC AND THEREFORE TREATMENT OF THESE INLETS. THE REQUIRED LENGTH OF TREATMENT FOR THESE TWO INLETS IS 18M. THE ACTUAL LENGTH IS 23M.

2GI = 2 GRATED INLET  
 SBG = SHOULDER BERM GUTTER  
 CB = CATCH BASIN  
 DDB = DRY DETENTION BASIN  
 B = BASIN  
 GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
 OTCB = OPEN THROAT CATCH BASIN  
 OPEN = OPEN END PIPE  
 PSH = PRE FORMED SCOUR HOLE  
 LS = LEVEL SPREADER  
 CD= CHECK DAMS

22 of 23

List of Property Owners:

<u>SITE #</u>	<u>PROPERTY OWNER</u>	<u>ADDRESSES</u>
1	NCDOT	
2	NCDOT	
3	PRISCILLA ROLLS	7104 THOMPSON MILL ROAD WAKE FOREST, NC 27587

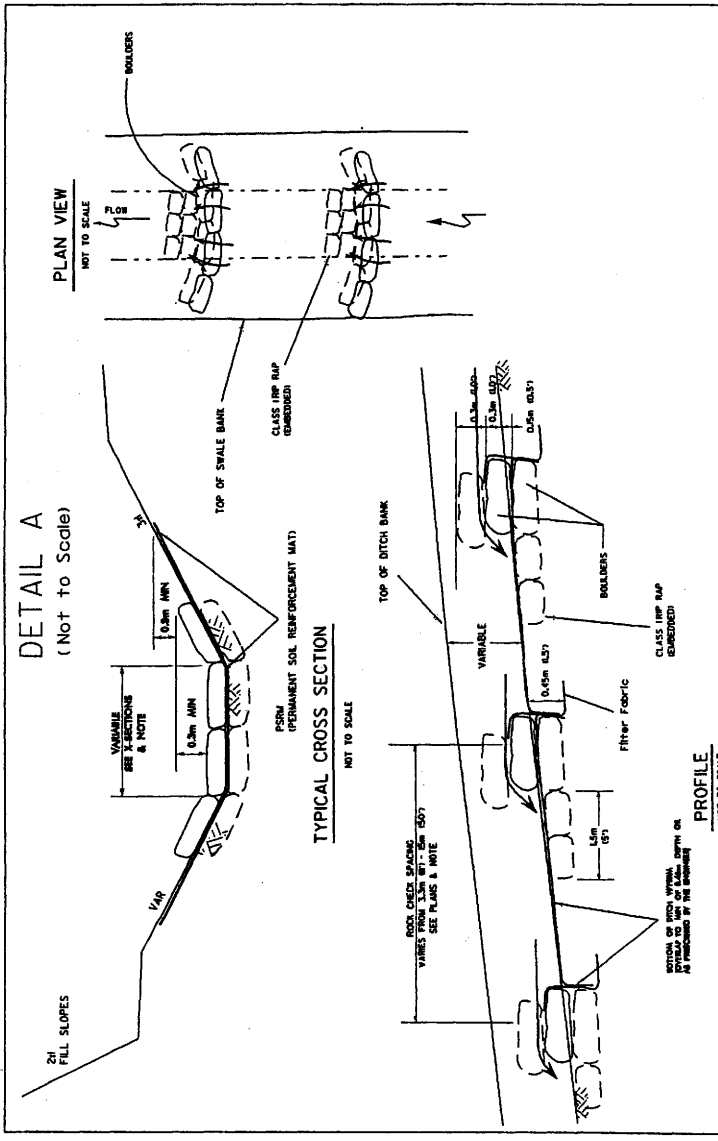
NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
WAKE COUNTY  
34503.1.1 (R-2809A)  
WAKE FOREST BYPASS



K-2804 C - Revised

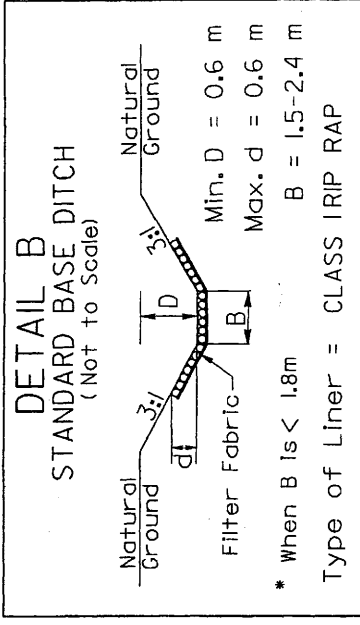
REVISION	DATE	BY


**LATERAL SWALE/DITCH W/ROCK CHECKS**  
**STA 82+21 TO 82+95 -L- RT**  
**& STA 83+80 TO STA 84+20 -L- LT**

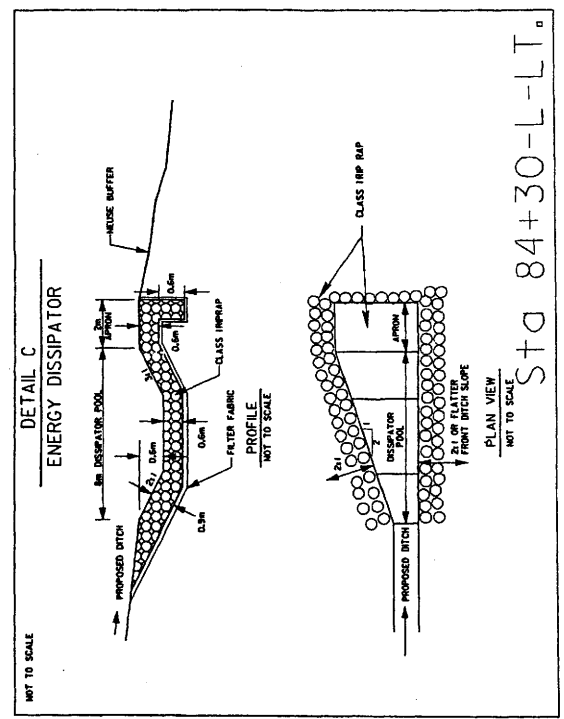


**NOTE:**  
 BOULDERS SHOULD BE ANGULAR AND OBLONG WITH APPROXIMATE DIMENSIONS OF 0.6m x 0.45m x 0.45m (2' x 1.5' x 1.5'). ROCK SHOULD FIT TIGHTLY TOGETHER WITH MINIMAL VOIDS. STAGGER BOULDER JOINTS.  
 ROCK CHECK SPACING IS DEPENDENT ON DITCH GRADES AT 1' DROP INTERVALS OR SLOPE CONTROL. DITCH WIDTHS VARY. WIDEN TO EXTENT PRACTICAL WITHIN R/W LIMITS. SEE X-SECTIONS.

**STANDARD BASE DITCH**  
**STA 85+36 TO 85+51 -L- LT**  
**STA 85+80 TO 86+36 -L- LT**



264



Sta 84+30-L-LT.



