

**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.

<b><u>PERMIT</u></b>	<b><u>AUTHORITY GRANTING THE PERMIT</u></b>
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.**

## DEPARTMENT OF THE ARMY PERMIT

Permittee North Carolina Department of Transportation

Permit No. SAW-1998-01941; Tip # R-2502

Issuing Office CESAW-RG-L

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: Directly discharge dredged and/or fill material into Drowning Creek associated wetlands to facilitate the construction of US 1, Transportation Improvement Project (TIP) R-2502, State Project Numbers 6.589009T, in Richmond and Moore Counties.

Project Location: In the Lumber and Yadkin River basins, beginning at SR 1001 (Marston Road) in Richmond County (Latitude 34.99 N, Longitude 79.58 W) and continuing to the existing multi-lane facility north of the Moore County Line (Latitude 35.06, Longitude 79.49) in Moore County, North Carolina.

Permit Conditions:

SEE ATTACHED SPECIAL CONDITIONS

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2011**. 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 ATTACHED SPECIAL CONDITIONS

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).
  - (x) 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.





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

Coleen H. Sullins, Director  
Division of Water Quality

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Mar 26 2008

MAR 31 2008  
REGULATORY  
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Dr. Gregory J. Thorpe, PhD., Manager  
Project Development and Environmental Analysis  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina, 27699-1548

**Subject: Correction to 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with Additional Conditions for the Proposed Widening of US 1 from SR 1528 in Richmond County to Existing Multi-Lanes North of the Moore County Line, State Project No. 6.589009T, TIP No. R-2502B, WBS No. 34438.1.1, DWQ No. 07-1823, WQC No. 3732**

Dear Dr. Thorpe:

This letter is a correction to the Water Quality Certification (WQC) issued for the above referenced project on February 28, 2008. This letter should be attached to the existing WQC for the referenced project and is valid solely for conditions addressing State Stormwater Permit requirements as identified below:

1. Stormwater control measures, which satisfy State Stormwater Permit requirements, are necessary for this project for Drowning Creek and its tributaries due to its North Carolina stream classification as a High Quality Water (HQW). To the extent practical, the project has provided stormwater control measures which satisfy the requirements of the State Stormwater Permit rules and regulations in 15A NCAC 2H.1000. This stormwater management plan is approved only with respect to the nature and volume of stormwater described in the application and other supporting data. The control measures provided are:
  - Hazardous spill basin to be constructed at Station -L-413 (approximately) Left
  - Hazardous spill basin to be constructed at Station -L-424+39 Left
  - Hazardous spill basin to be constructed at Station -L- 448+00 Left
  - Hazardous spill basin to be constructed at Station -L-448+00 Right
2. The runoff from all built-upon area within the permitted Drowning Creek drainage area of this project must be directed into the permitted stormwater control system.
3. Filling in of any of the stormwater control systems associated with the permitted transportation facility is strictly prohibited.
4. In the event that the stormwater facilities fail to perform satisfactorily, including the creation of nuisance conditions, NCDOT is responsible for taking immediate corrective action, including those as may be required by this Division, such as construction of additional or replacement stormwater management systems.

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

One  
North Carolina  
*Naturally*

5. Records of maintenance activities for the stormwater control measures must be kept and made available upon request to authorized personnel of DWQ. The records must indicate the date, activity, name of person performing the work and what actions were taken.

All the authorized activities and conditions of the certification associated with the original Water Quality Certification dated February 28, 2008, still apply except where superceded by this certification.

Should your project change, you must notify the DWQ and submit a new application for a WQC modification. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7).

If you do not accept any of the conditions of this certification, you may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. To ask for a hearing, send a written petition that conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. This certification and its conditions are final and binding unless you ask for a hearing.

This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Polly Lespinasse at (704) 663-1699.

Sincerely,



Coleen H. Sullins, P.E.

Attachment

cc: Richard Spencer, US Army Corps of Engineers, Wilmington Office  
Ken Averitte, DWQ Fayetteville Regional Office  
Chris Militscher, Environmental Protection Agency  
Kathy Matthews, Environmental Protection Agency  
Travis Wilson, NC Wildlife Resources Commission  
James Pflaum, PDEA NCDOT  
Polly Lespinasse, DWQ Mooresville Regional Office  
File Copy



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

Coleen H. Sullins, Director  
Division of Water Quality

February 28, 2008

**RECEIVED**

MAR - 5 2008

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

**Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for the Proposed Widening of US 1 from SR 1528 in Richmond County to Existing Multi-Lanes North of the Moore County Line, State Project No. 6.589009T, TIP No.R-2502B, WBS No. 34438.1.1, DWQ No. 07-1823**

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3732 issued to The North Carolina Department of Transportation (NCDOT) dated February 28, 2008.

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

Sincerely,

for Coleen H. Sullins  
Director

Attachments

cc: Richard Spencer, US Army Corps of Engineers, Wilmington Office  
Ken Averitte, DWQ Fayetteville Regional Office  
Chris Militscher, Environmental Protection Agency  
Travis Wilson, NC Wildlife Resources Commission  
William Gilmore, Ecosystem Enhancement Program  
Polly Lespinasse, DWQ Mooresville Regional Office  
James Pflaum, PDEA, NCDOT  
File Copy

**401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act 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. This certification authorizes the NCDOT to permanently impact 5.18 acres and to temporarily impact 3.33 acres of wetlands in Richmond and Moore Counties. The project shall be constructed pursuant to the application received October 30, 2007. The authorized impacts are as described below:

**Table 1 - Riverine Wetland Impacts in the Lumber River Basin**

Site #	Station	Permanently Impacted (acres)	Temporarily Impacted (acres)	Wetland Type	Wetland Code	Wetland Category	Wetland Acres
Site #1,	Station 394+82 to 395+73	0.04				0.02	0.23 Utility Relocation
Site #2,	Station 411+98 to 414+00	0.09				0.09	0.43 Utility Relocation
Site #3,	Station 414+51 to 424+07	0.62				0.21	1.27 Utility Relocation
Site #4,	Station 418+26 to 423+95	0.39				0.10	0.49
Site #5,	Station 426+56 to 432+28	1.13				0.14	1.27
Site #6,	Station 427+54 to 432+25	0.03				0.09	0.12
Site #7,	Station 436+25 to 447+51	1.19				0.28	1.47



Site #8, Station 436+24 to 447+01	0.50			0.26			0.76
Site #9, Station 432+17 to 435+37					1.40		1.40
<b>Total</b>	<b>3.99</b>			<b>1.19</b>	<b>3.33</b>		<b>8.51</b>

**Total Riverine Wetland Impacts for Project: 8.51 acres**

**Total Riverine Wetland Impacts Requiring Mitigation: 5.18 acres**

The application provides adequate assurance that the discharge of fill material into the waters of the Lumber 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 dated received October 30, 2007. 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 any additional wetland 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 Storm Water, 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. Four (4) hazardous spill basins must be constructed and maintained as depicted on the plans, specifically at Permit Sites 3, 7 and 8 and south of Permit Site 5.
2. The bridge over Drowning Creek shall capture all storm water and direct it to a hazardous spill basin(s). For projects impacting waters classified by the North Carolina Environmental Management Commission as High Quality Waters (HQW), storm water shall be directed to vegetated buffer areas, grass-lined ditches or other means appropriate to the site for the purpose of pre-treating storm water runoff prior to discharging to into streams. Mowing of existing vegetated buffers is strongly discouraged.
3. NCDOT shall use *Design Standards in Sensitive Watersheds* [15A NCAC 4B.0124(a)-(e)] for the portion of the project north of SR 1004 (Bostick Road). However, due to the size of the project, NCDOT shall not be required to meet 15A NCAC 4B.0124(a) regarding the maximum amount of

uncovered acres. Temporary cover (wheat, millet or similar annual grain) or permanent herbaceous cover should be planted on all bare soil within 15 working days of ground disturbing activities to provide long-term erosion control. Erosion control matting should be used in conjunction with appropriate seeding on disturbed soils in steep slope and riparian areas. Steep slopes are defined as those slopes graded at an angle which cannot retain vegetative cover. Matting shall be secured in place with staples or wherever possible, live stakes of native trees. Straw mulch and tall fescue shall not be used in riparian areas.

4. In accordance with commitments made in your application, all clearing of vegetation for the purpose of relocating utility lines within jurisdictional wetlands shall be performed without the use of mechanized equipment.
5. Strict adherence to the most recent version of the NCDOT's Best Management Practices for Bridge Demolition and Removal, approved by the US Army Corps of Engineers, is a condition of this 401 Water Quality Certification.
6. The post-construction removal of the temporary work bridge at Drowning Creek must return the site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native, wetland, woody species, consistent with those species removed (e.g., *Taxodium* spp.)
7. Due to the possibility that compaction and/or other site alterations might prevent the temporary wetland impact areas from re-attaining jurisdictional wetland status, the permittee shall provide an annual update on the wetland areas at Permit Sites 1, 2, 3 and 9. The annual update will consist of photographs and a brief report on the progress of these temporarily impacted areas re-attaining wetland jurisdictional status. Three (3) years after project completion, the permittee shall schedule an agency field meeting with the DWQ to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional status. If, at the end of three (3) years, the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, DWQ shall determine if compensatory wetland mitigation will be required.
8. In accordance with commitments made in your application, the use of turbidity curtains during in-stream work shall be studied during the development of erosion control plans for the project. Curtains shall be used if it is determined that conditions within Drowning Creek warrant their effective use.
9. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, with the exception of Permit Site 1. The slopes at Permit Site 1 shall be no flatter than 4:1.
10. Compensatory mitigation for 5.18 acres of impacts to riverine wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP) and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated October 9, 2007, that they will assume responsibility for satisfying the federal Clean Water Act 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.
11. 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.

12. 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.
13. During construction of the project, no staging of equipment, of any kind, is permitted in waters of the U.S. or protected riparian buffers.
14. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and surface waters. 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.
15. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams should be restored to natural geomorphic conditions.
16. 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 the 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.
17. 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.
18. 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.
19. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this Certification.
20. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
21. Native riparian vegetation must be re-established within the construction limits of the project by the end of the growing season following completion of construction.
22. 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 be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.
23. 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 water 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.
24. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.
25. A copy of this Water Quality Certification shall be posted on 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.
26. Upon completion of the project, 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. 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), that State or Federal law is being violated, or that further conditions are necessary to assure compliance, DWQ may re-evaluate and modify this certification.

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 28th day of February 2008

DIVISION OF WATER QUALITY

A handwritten signature in black ink, appearing to read 'B. L. H.', written in a cursive style.

Coleen H. Sullins  
Director

WQC No. 3732

**SPECIAL CONDITIONS (Action ID. 1998-01941, US 1, Transportation  
Improvements Project R-2502)**

1. Failure to institute and carry out the details of the following special conditions below will result in a directive to cease all ongoing and permitted work within waters of the United States, including wetlands, associated with the permitted project, or such other remedies and/or fines as the U.S. Army Corps of Engineers District Commander or his authorized representatives may seek.
2. All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands.
3. The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Mr. Richard Spencer, Wilmington Regulatory Field Office, 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 meetings in order to provide that individual with ample opportunity to schedule and participate in the required meetings. One copy of the final half-size construction drawings shall be furnished to the Corps of Engineers, Mr. Richard Spencer, Wilmington Regulatory Field Office prior to the pre-construction meeting.
4. The permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Mr. Richard Spencer, Wilmington Regulatory Field Office prior to any active construction in waters or wetlands.
5. 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 and any authorized modifications. Copies of this permit and any modifications authorized by the USACE shall be available for review at the construction site at all times. All violations, including non-compliance of these conditions, of the authorized permit shall be reported to the District Engineer within 24 hours of the violation.

6. Compensatory mitigation for the unavoidable impacts to 5.18 acres of riparian wetlands associated with the proposed project shall be provided by the North Carolina Ecosystem Enhancement Program (NCEEP) within the Lumber River Basin (Cataloging Unit 03040203). The EEP will provide 10.36 acres of riparian wetland credits in the Southern Piedmont Eco-Region, pursuant to Section X of Amendment Number 2 to the Memorandum of Agreement (MOA) signed 8 March 2007. 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.

7. Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no excavation from, waste disposal into, or degradation of, 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. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

8. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area.

9. To ensure that all borrow and waste activities occur on high ground and do not result in loss or the degradation of adjacent wetlands and streams, 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 (#7) 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 (#7). All information will be available to the Corps of Engineers upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

10. The permittee shall comply with the conditions specified in the water quality certification, No. 3732, issued by the North Carolina Division of Water Quality on 28 February 2008 and the additional conditions issued by the North Carolina Division of Water Quality on 26 March 2008.

11. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to, upstream or downstream of the structures. Riprap armoring of streams at culvert outlets shall be minimized above the ordinary high water elevation in favor of bioengineering techniques such as bank sloping, erosion control matting and revegetation with deep-rooted, woody plants.

12. The permittee shall use 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" to assure compliance with the appropriate turbidity water quality standard. 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 assure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

13. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

14. The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

15. The permittee shall install barrier fencing or other acceptable forms of barrier around all wetlands that are not to be disturbed to make them readily visible and prevent construction equipment from inadvertently entering and disturbing the wetland areas that are to remain undisturbed.

16. All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. No equipment staging or storage of construction material will occur in wetlands. Hydro-seeding equipment will not be discharged or washed out into any surface waters or wetlands. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.



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

18. The permittee shall 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.

19. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

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

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

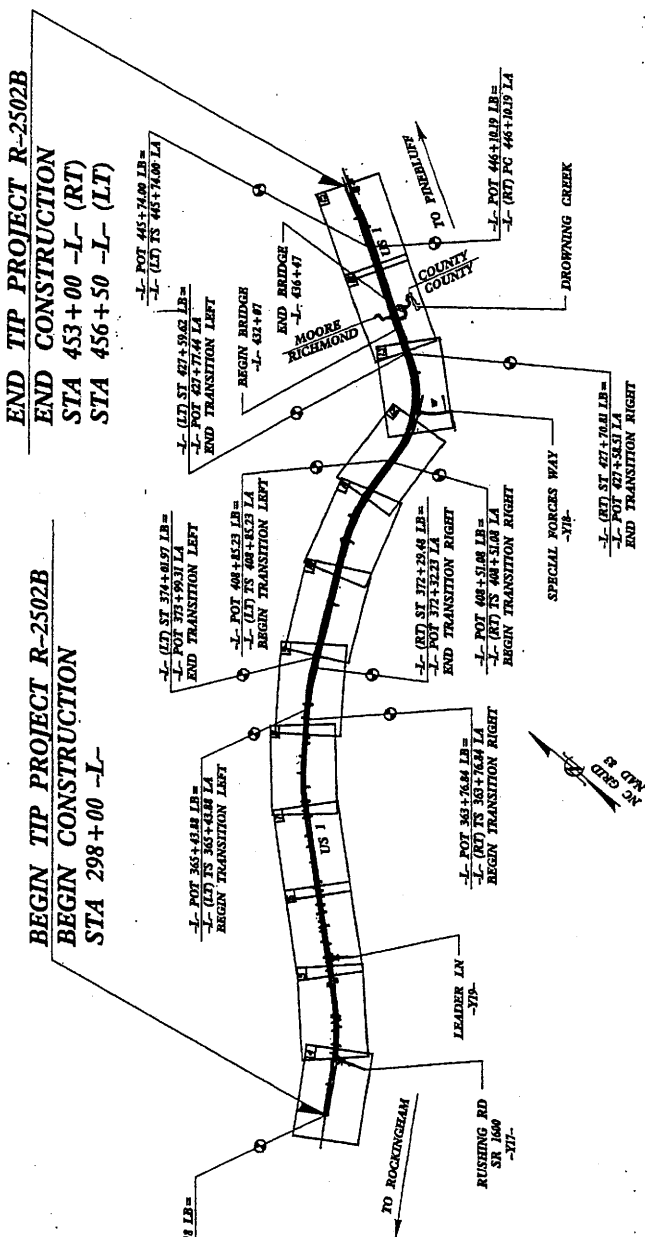
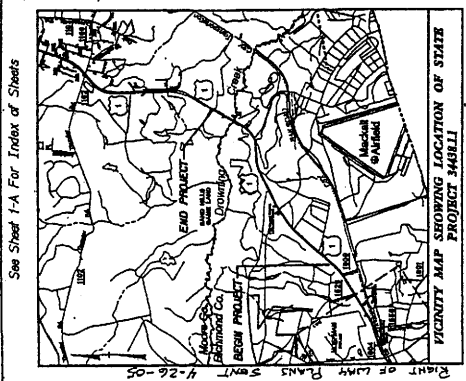
- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future Federal activities initiated on behalf of the general public.
- c. Damages to other permitted or un-permitted activities or structures caused by the authorized activity.
- d. Design and construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**RICHMOND/MOORE COUNTIES**

LOCATION: US 1 FROM NORTH OF SR 1528 JUST NORTH OF  
HOFFMAN TO THE EXISTING DIVIDED FACILITY NORTH OF  
THE RICHMOND COUNTY LINE  
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

DATE	NO. SHEETS	PROJECT NO.	DATE
N.C. R-2502B	1		
3449811	PE		
3449811	ROW		



PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

Prepared in the Office of  
**HSMMA**  
1385 MAYLE RD. SUITE 303  
RALEIGH, NC 27609

RIGHT OF WAY DATE:  
APRIL 15, 2005

LETTING DATE:  
SEPTEMBER 18, 2007

H. ROY CURRIN, PE  
PROJECT MANAGER

PROJECT DESIGN ENGINEER

THIS IS PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS

METHOD OF CLEARING - METHOD III

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2502B = 2.919 MILES  
LENGTH STRUCTURE TIP PROJECT R-2502B = 0.083 MILES  
TOTAL LENGTH TIP PROJECT R-2502B = 3.002 MILES

DESIGN DATA

ADT 2006 = 10,900  
ADT 2025 = 17,200

DHV = 11 %  
D = 60 %  
T = 10 %  
V = 60 MPH

\* TTST 5% DUAL 5%  
FUNC CLASS - ARTERIAL

GRAPHIC SCALES

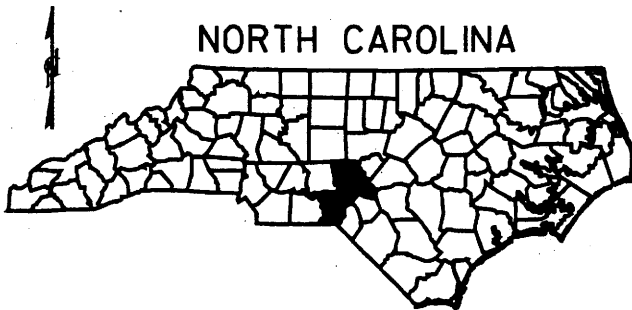
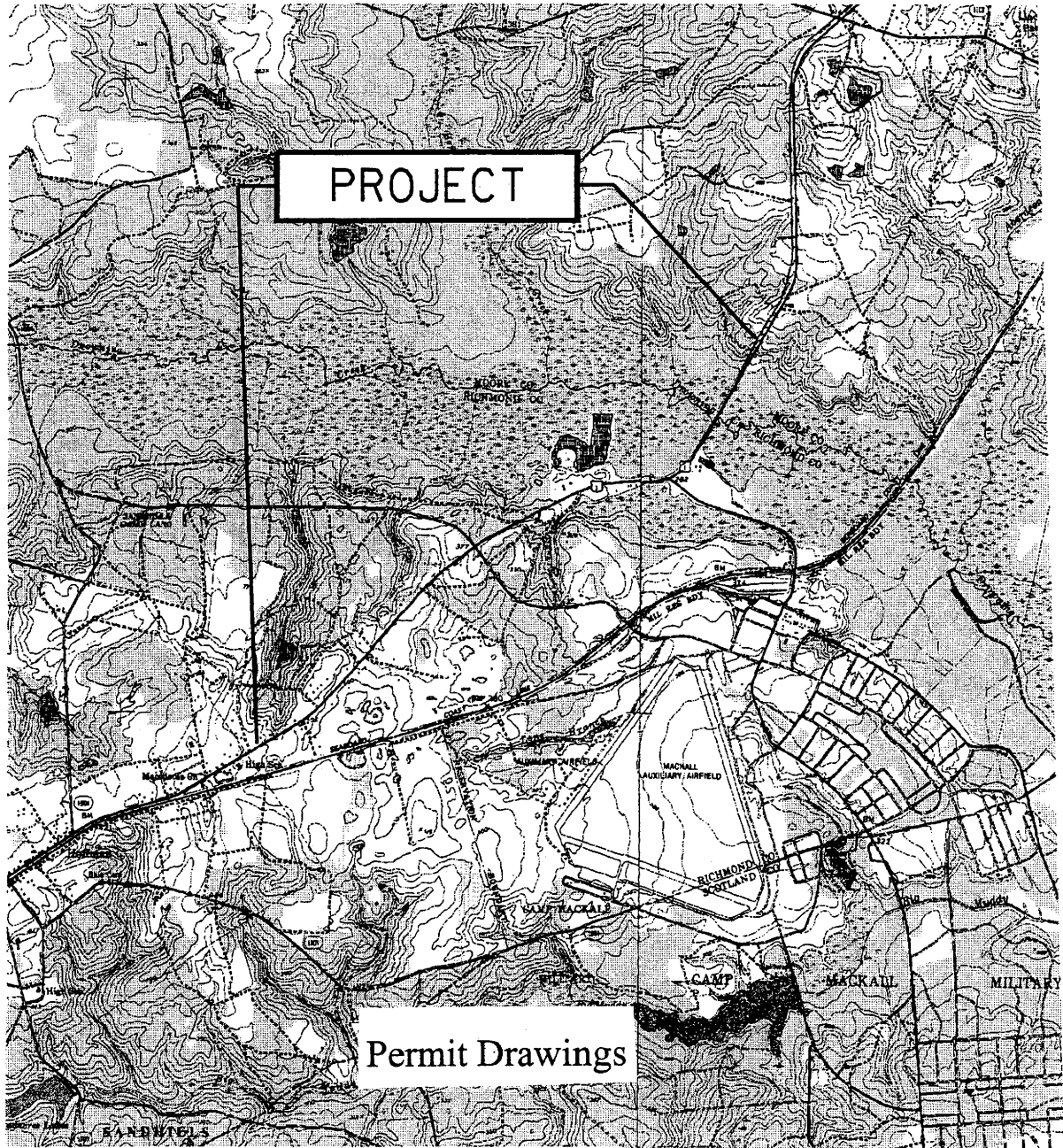
PLANS: 1" = 50'

PROFILE (HORIZONTAL): 1" = 50'

PROFILE (VERTICAL): 1" = 20'

CONTRACT: TIP PROJECT: R-2502B

# VICINITY MAP



## NCDOT

DIVISION OF HIGHWAYS  
RICHMOND/ MOORE COUNTIES

PROJECT: 34438.L1 (R-2602B)

WIDENING OF US 1

FROM NORTH OF SR 1428 TO  
THE EXISTING DIVIDED FACILITY  
NORTH OF THE RICHMOND  
COUNTY LINE

SHEET 1 OF 15 06/24/2007

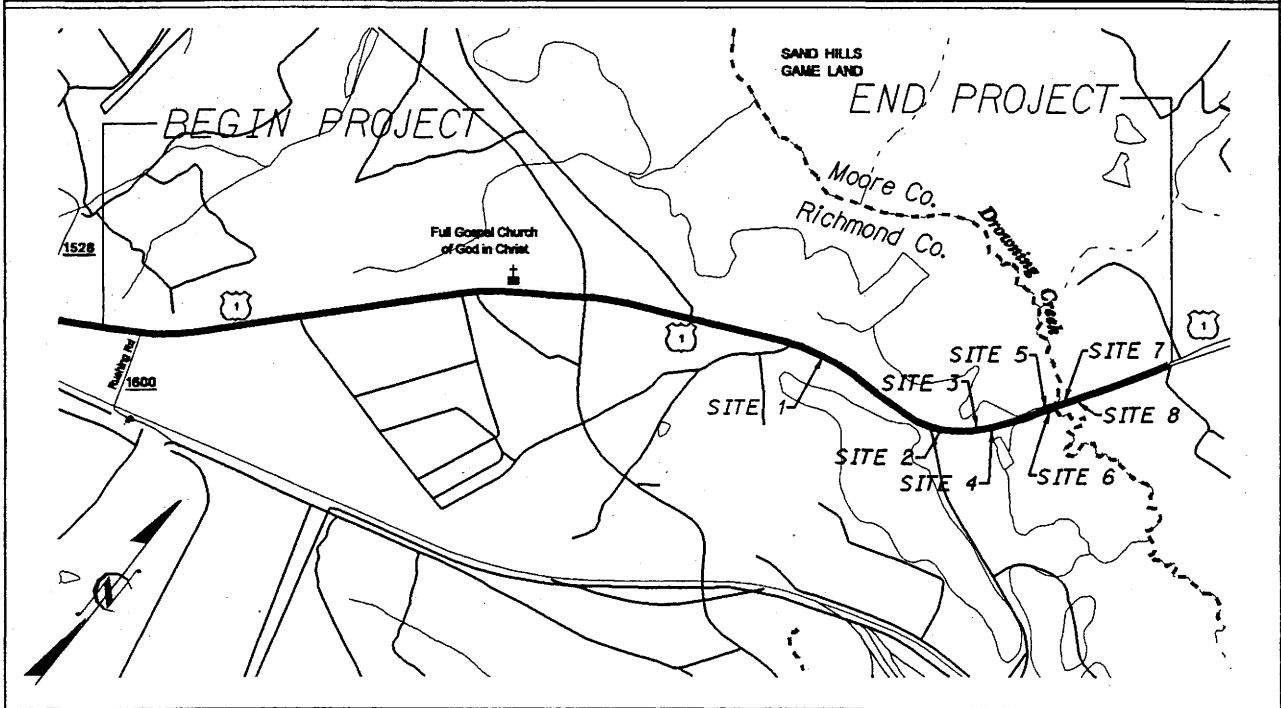
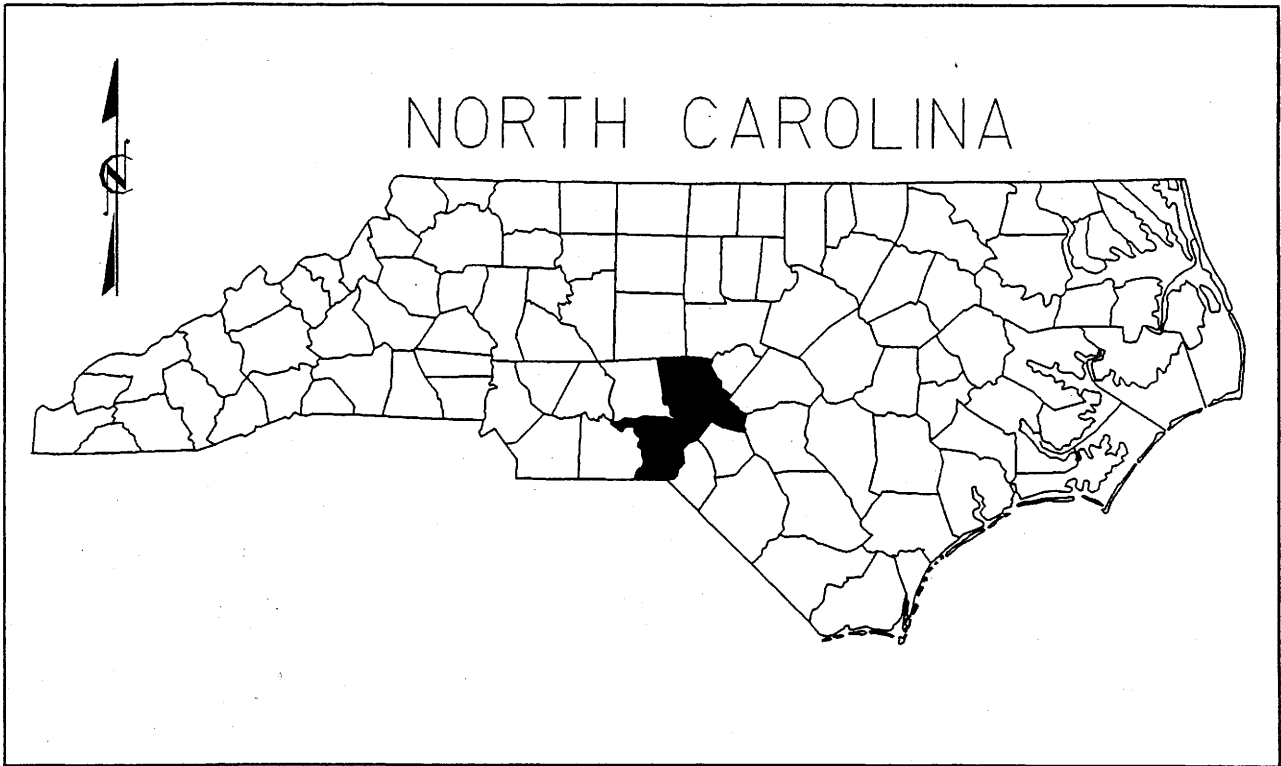
# PROPERTY OWNERS

## NAME AND ADDRESS

<b>OWNERS NAME</b>	<b>ADDRESS</b>
<b>Shirley Ann Tyner</b>	<b>P. O. Box 52 Hoffman, NC 28347</b>
<b>Bewater, Inc.</b>	<b>P.O. Box 188 Mt. Gilead, NC 27306</b>
<b>James E. Pugh</b>	<b>125 Applocross Road Pinehurst, NC 28374</b>
<b>Roaves Landscaping and Design, Inc.</b>	<b>P.O. Box 1178 Pinebluff, NC 28373</b>
<b>Robert McLeod</b>	<b>265 North Ridge Street Southern Pines, NC 28387</b>
<b>Gordon Matthews</b>	<b>277 Thunder Road Pinebluff, NC 28373</b>

### NCDOT

DIVISION OF HIGHWAYS  
 RICHMOND/MOORE COUNTIES  
 PROJECT: 4438.1.1 (R-2502B)  
 WIDENING OF US 1  
 FROM NORTH OF SR 1528 TO  
 THE EXISTING DIVIDED FACILITY  
 NORTH OF THE RICHMOND  
 COUNTY LINE



# SITE MAP

**NCDOT**  
DIVISION OF HIGHWAYS  
RICHMOND/ MOORE COUNTIES  
PROJECT: 34438.1.1 (R-2502B)  
WIDENING OF US 1  
FROM NORTH OF SR 1528 TO  
THE EXISTING DIVIDED FACILITY  
NORTH OF THE RICHMOND  
COUNTY LINE

WETLAND PERMIT IMPACT SUMMARY															
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS								
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Hand Clearing (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)			
1	394+82 To 396+73		0.04					0.02							
2	411+98 To 414+00		0.09					0.09							
3	414+51 To 424+07		0.62					0.21							
4	418+26 To 423+95		0.39					0.10							
5	426+56 To 432+28		1.13					0.14							
6	427+54 To 432+25		0.03					0.09							
7	436+25 To 447+51		1.19					0.28							
8	436+24 To 447+01		0.50					0.26							
9	432+17 to 435+37	Bridge (440 ft x 36 ft dual's)							1.40						
TOTALS:			3.99	0.00	0.00	1.40	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RICHMOND/MOORE COUNTIES  
 PROJECT 34438.1.1 (R-2502B)  
 WIDENING OF US 1 FROM NORTH OF  
 SR1528 TO EXISTING DIVIDED FACILITY  
 NORTH ON THE RICHMOND CO. LINE

SHEET **4** OF **16**  
 06/04/07

PROJECT REFERENCE NO. **R-25028** SHEET NO. **11**

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**WYTHEVILLE ENGINEERING**  
1001 W. 10th Street, Raleigh, NC 27609

**H. S. M. V.**  
ARCHITECTS - ENGINEERS - PLANNERS  
1005 HANCOCK DRIVE, SUITE 301, RALEIGH, NC 27609

PERMIT DRAWING  
Sheet 5 of 16

**ENGLISH**

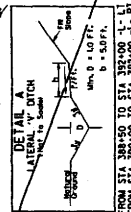
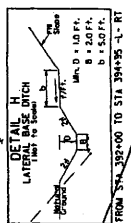
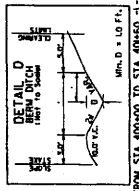
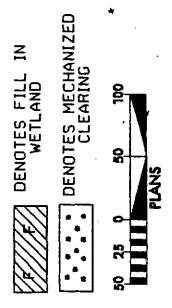
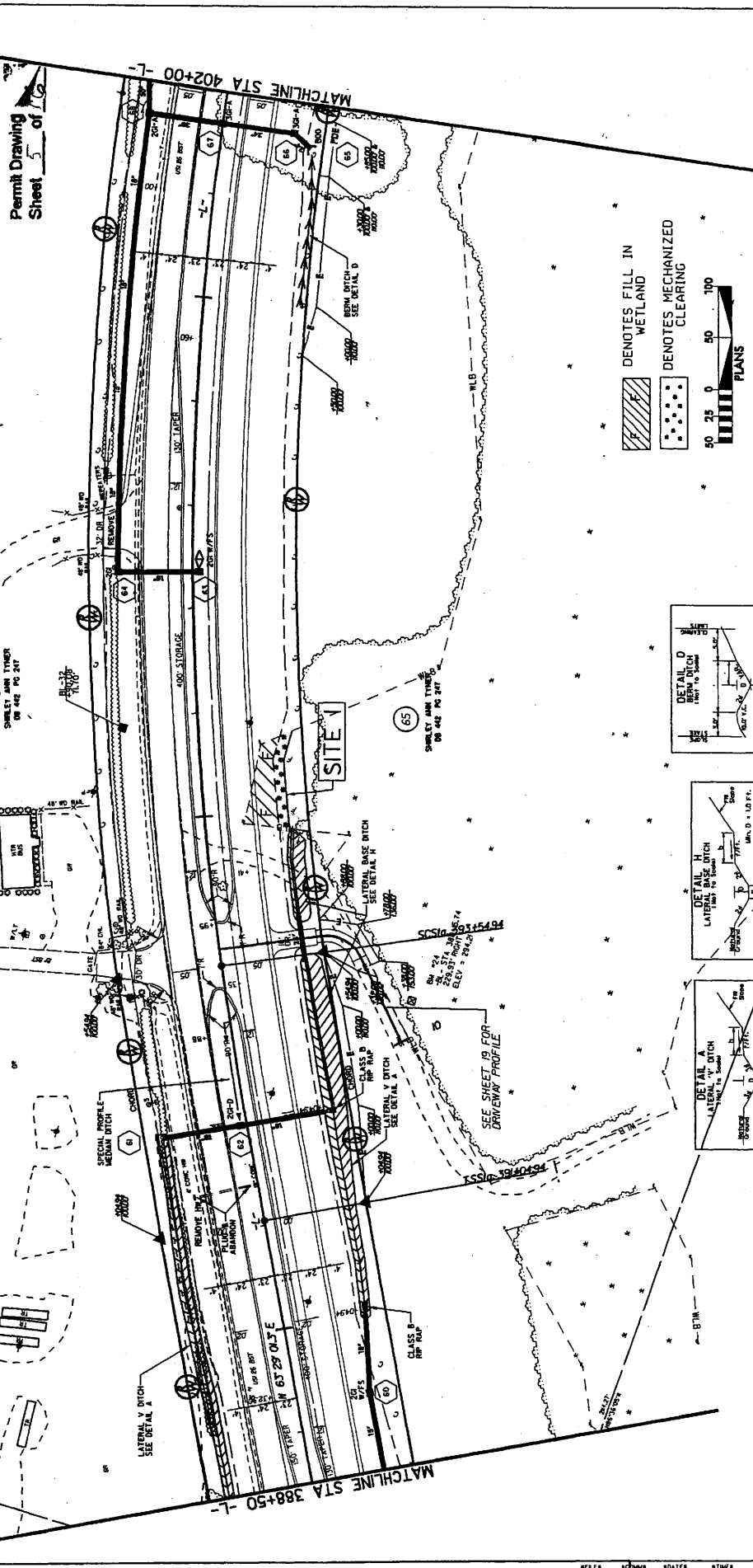
**1-1 CURVE**  
 P.C. STA 392+71.62 P.T. STA 398+51.76  
 Δ = 22° 03' 30" Δ = 16' 43" 38.9 (RT)  
 LS = 250.00 L = 7.53 38.7  
 LT = 166.68 L = 968.74  
 ST = 83.35 P = 99.02  
 e = .05

**1-1 CURVE**  
 P.C. STA 404+27.02 P.T. STA 410+07.16  
 Δ = 22° 03' 30" Δ = 16' 43" 38.9 (RT)  
 LS = 250.00 L = 7.53 38.7  
 LT = 166.68 L = 968.74  
 ST = 83.35 P = 99.02  
 e = .05

NC GRID  
MAD 83

1/4" = 10' SCALE

1/4" = 10' SCALE



SEE SHEET 19 FOR 1-1 PROFILE

FROM STA 400+00 TO STA 404+60 1-1 RT

FROM STA 392+00 TO STA 394+35 1-1 RT

FROM STA 384+50 TO STA 392+00 1-1 L  
 FROM STA 384+00 TO STA 392+00 1-1 RT

PROJECT REFERENCE NO. R-2022B  
 SHEET NO. 11  
 ROADWAY DESIGN ENGINEER  
 HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
 NO INT. OR CONSTRUCTION

**WHEELER CONSULTANTS**  
 TRANSPORTATION ENGINEERING - ARCHITECTURAL DESIGN  
 CONSULTING ENGINEERS - SURVEYING - CONSTRUCTION ADMINISTRATION  
 1305 HAYWARD DR., SUITE 303, RALEIGH, NC 27609  
 TEL: 919-873-8800 FAX: 919-873-8802

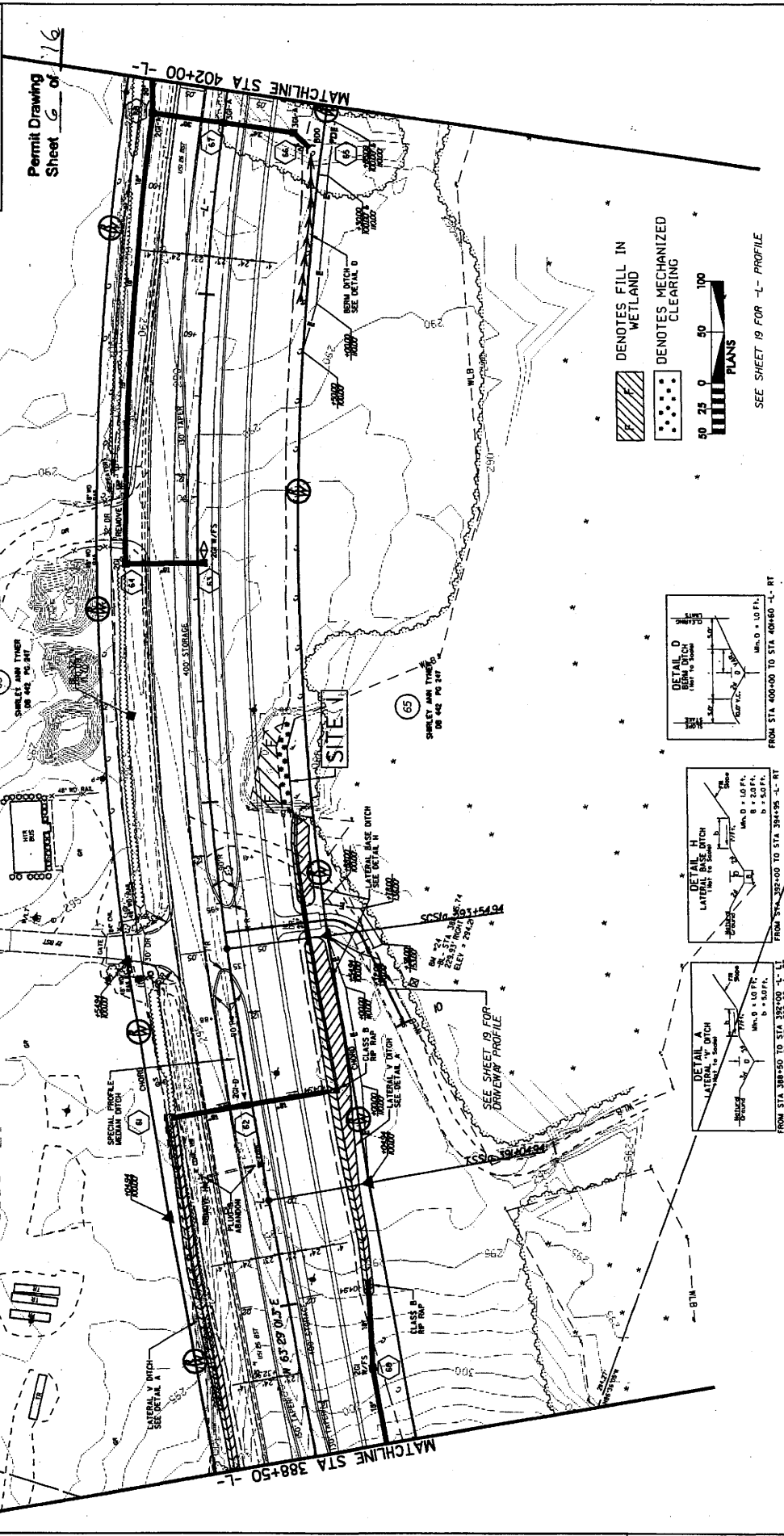
**ENGLISH**

**L-CURVE**  
 PIS STA 392+71.62 PI STA 399+53.76 PIS STA 404+27.02  
 Δ = 19° 43' 36.97 (HT) Δ = 22° 03.5' Δ = 22° 03.5'  
 D = 493.7307 D = 493.7307 D = 493.7307  
 L = 120.64 L = 120.64 L = 120.64  
 T = 498.82 T = 498.82 T = 498.82  
 S = 31.35 S = 31.35 S = 31.35  
 R = 31025.00 R = 31025.00 R = 31025.00

NC GRID  
 MAD 83

1/8" = 80'  
 1" = 160'

PERMIT DRAWING  
 Sheet 6 of 16

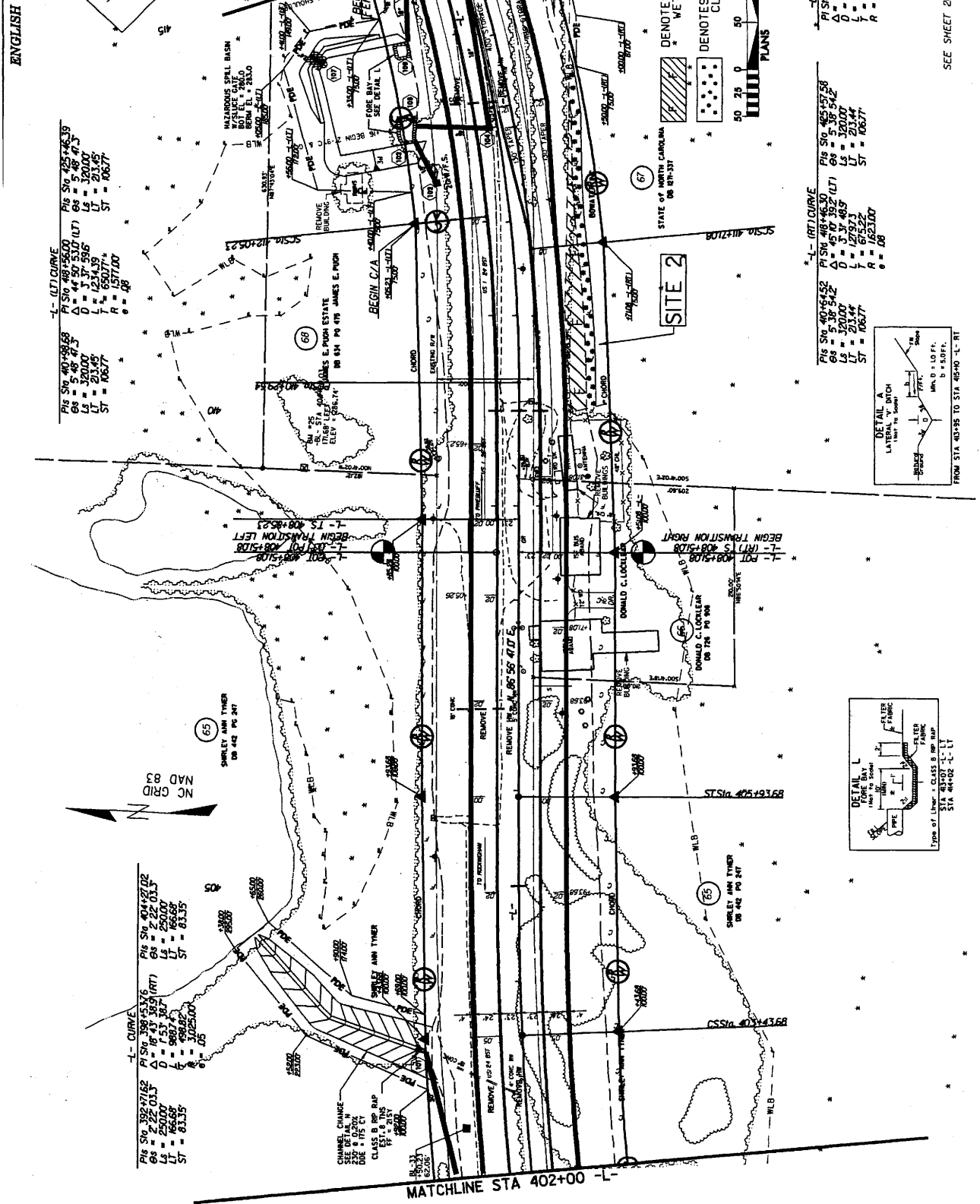




PROJECT NUMBER NO. R-2502B SHEET NO. 12  
 DRAWING TITLE NO. HYDRAULIC ENGINEER  
 PRELIMINARY PLANS  
 NO. NOT FOR CONSTRUCTION

TRANSPORTATION PLANNING - ENGINEERING  
 CONSULTING ENGINEERS - ARCHITECTS  
 CONSULTING ENGINEERS

Permit Drawing  
 Sheet 3 of 16  
 SITE 3

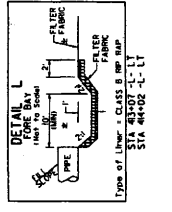
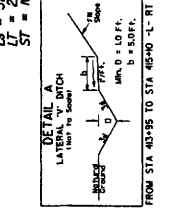


-L- (LT) CURVE  
 PIS Sta 407+98.69 PIS Sta 425+46.39  
 GS = 5.48 47.3 Δ = 44.50 53.0 (LT) GS = 5.48 47.3  
 LS = 320.00 D = 3.37 9.6 Ls = 320.00  
 LT = 23.44 T = 65.07 9.6 ST = 106.77  
 R = 1571.00 e = .48

-L- CURVE  
 PIS Sta 399+71.62 PIS Sta 401+27.02  
 GS = 2.22 03.3 Δ = 46.43 38.9 (RT) GS = 2.22 03.3  
 LS = 250.00 D = 7.53 38.7 Ls = 250.00  
 LT = 16.68 T = 9.88 7.4 ST = 81.35  
 R = 698.28 e = .05

-L- (RT) CURVE  
 PIS Sta 401+64.52 PIS Sta 408+51.08  
 GS = 5.38 54.2 Δ = 47.67 59.2 (LT) GS = 5.38 54.2  
 LS = 320.00 D = 3.37 9.6 Ls = 320.00  
 LT = 23.44 T = 65.07 9.6 ST = 106.77  
 R = 1571.00 e = .48

-L- CURVE  
 PIS Sta 409+98.69 PIS Sta 425+46.39  
 GS = 5.48 47.3 Δ = 44.50 53.0 (LT) GS = 5.48 47.3  
 LS = 320.00 D = 3.37 9.6 Ls = 320.00  
 LT = 23.44 T = 65.07 9.6 ST = 106.77  
 R = 1571.00 e = .48



SEE SHEET 20 FOR L- PROFILE

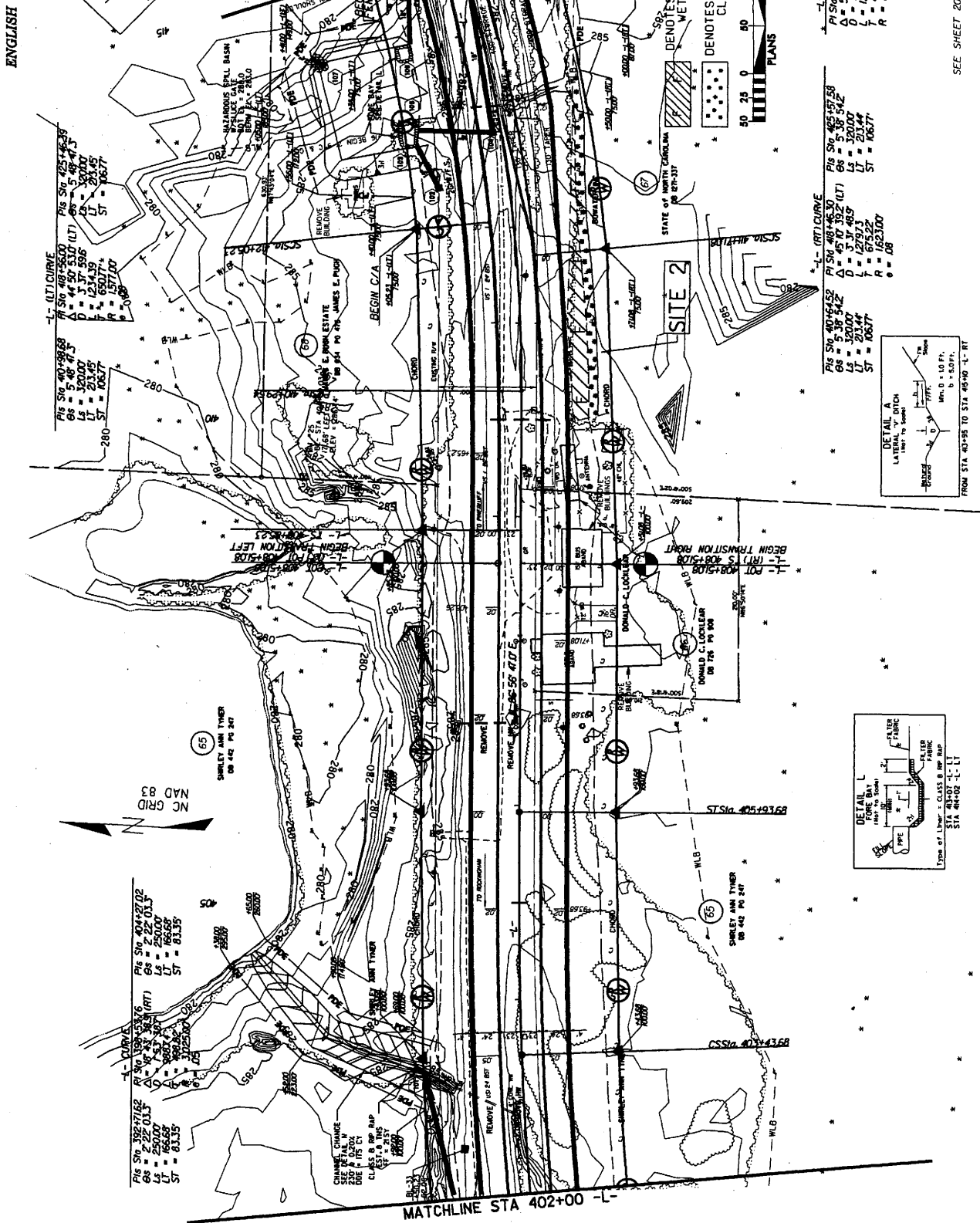
PROJECT REFERENCE NO. R-2502B SHEET NO. 12

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS  
NO SET FOR CONSTRUCTION

PERMIT DRAWING  
Sheet 2 of 16  
SITE 3

FOR THE DISTRICT OF COLUMBIA  
DEPARTMENT OF TRANSPORTATION - METROPOLITAN AREA  
DISTRICT ENGINEER - DESIGN - CONTRACTOR OBSERVATION



LT CURVE  
 PIS STA 400+98.68 PIS STA 425+46.39  
 Δ = 44° 50' 53.0" (LT) Δ = 5° 49' 41.3"  
 L = 234.00' L = 50.00'  
 E = 134.74' E = 3.74'  
 S = 650.71' S = 157.00'  
 ST = 1062.7' ST = 166.7'

CHANGELINE  
 PIS STA 392+71.62 PIS STA 404+27.02  
 Δ = 4° 33' 38.1" (RT) Δ = 2° 22' 03.5"  
 L = 200.00' L = 250.00'  
 E = 100.00' E = 81.35'  
 S = 372.50' S = 212.50'  
 ST = 613.5' ST = 81.35'

SHIRLEY ANN TYNER  
 DB 442 PG 247  
 NAD 83  
 65

SHIRLEY ANN TYNER  
 DB 442 PG 247  
 65

SHIRLEY ANN TYNER  
 DB 442 PG 247  
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SHIRLEY ANN TYNER  
 DB 442 PG 247  
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SHIRLEY ANN TYNER  
 DB 442 PG 247  
 65

REVISIONS

R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCELS 67 & 68, B.M.

R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.65 & ADDED DIVE/EAR ON PARCEL NO.66.(B.M.)

8/17/79

SEE SHEET 20 FOR -L- PROFILE







PROJECT REFERENCE NO. R-2502B  
 SHEET NO. 14  
 ROADWAY DESIGN ENGINEER  
 PRELIMINARY PLANS  
 DO NOT USE FOR CONSTRUCTION

**H S M M**  
 ARCHITECTS - ENGINEERS - PLANNERS  
 1305 NAVARRO DR. SUITE 303 RALEIGH, NC 27609

Permit Drawing  
 Sheet 7.2 of 16

MATCHLINE STA 442+50 -L- 185

ENGLISH

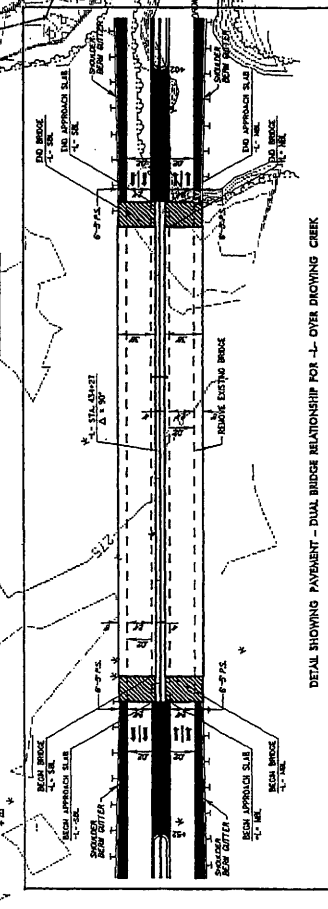
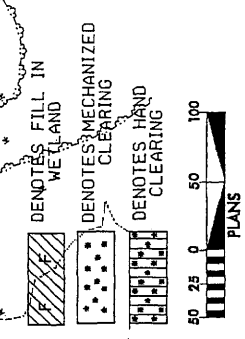
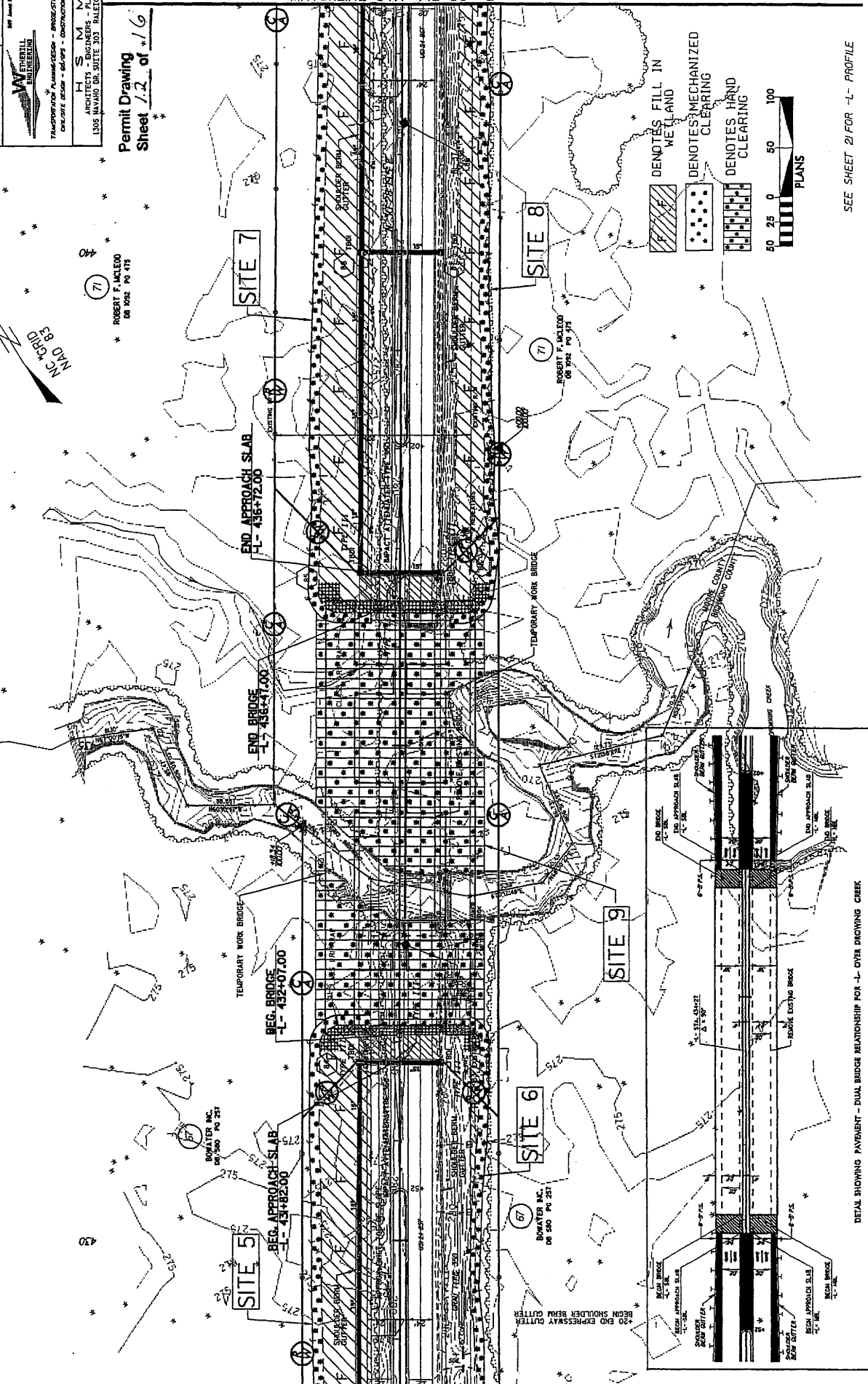


ROBERT F. MCLEOD  
 DE 9052 PG 475

ROBERT F. MCLEOD  
 DE 580 PG 257

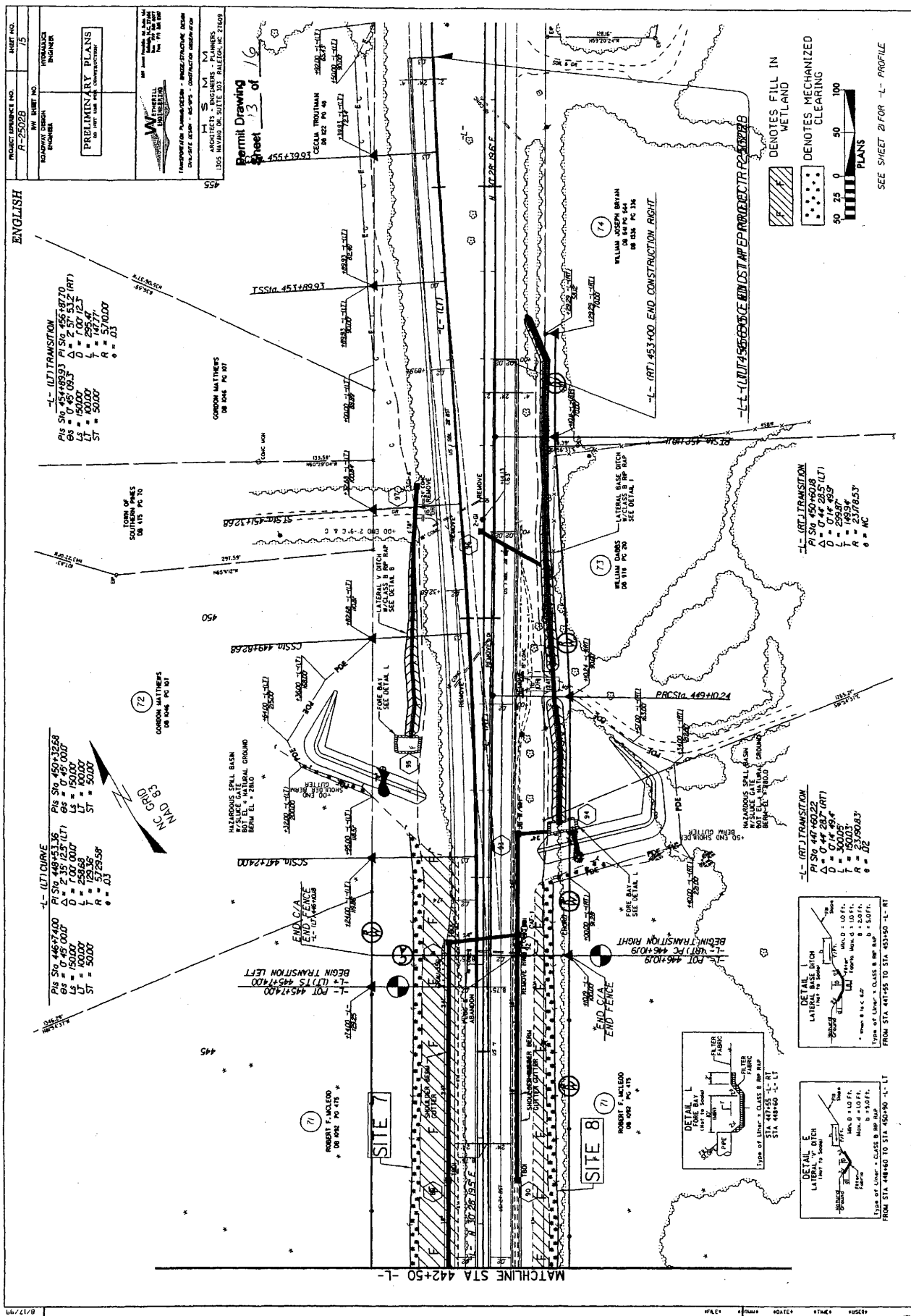
MOORE COUNTY  
 RICHMOND COUNTY

MATCHLINE STA 428+50 -L-



DETAIL SHOWING PAVEMENT - DUAL BRIDGE RELATIONSHIP FOR -L- OVER DRAINING CREEK

SEE SHEET 21 FOR -L- PROFILE



PROJECT REFERENCE NO. R-25028	SHEET NO. 15
ROADWAY DESIGN ENGINEER	INTEGRATION ENGINEER
PRELIMINARY PLANS FOR CONSTRUCTION	
INSPECTOR: PROFESSIONAL ENGINEER CONTRACTOR: CONTRACTOR	
ARCHITECTS: M. S. M. ARCHITECTS 1005 NAVING DR. SUITE 303 BALDWIN, NC 27609	

Permit Drawing  
Sheet 13 of 16

ENGLISH

-L- (RT) TRANSITION  
 PIS STA 451+89.93 PLS STA 453+87.70  
 Δ = 7.98 0.93 Δ = 2.57 53.2 (RT)  
 L = 450.00 L = 1.07 12.7  
 T = 60.00 T = 2.95 97  
 R = 570.00 R = 570.00  
 S = 0.03 S = 0.03

-L- (RT) TRANSITION  
 PIS STA 450+40.08 PLS STA 451+28.5 (LT)  
 Δ = 0.44 28.5 (LT)  
 L = 0.44 49.9  
 T = 149.94  
 R = 23776.53  
 S = 0.00 S = 0.00

-L- (RT) TRANSITION  
 PIS STA 447+40.22 PLS STA 448+28.7 (RT)  
 Δ = 0.44 28.7 (RT)  
 L = 0.44 49.9  
 T = 149.94  
 R = 23776.53  
 S = 0.00 S = 0.00

-L- (LT) CURVE  
 PIS STA 448+74.00 PLS STA 450+32.58  
 Δ = 7.00 10.07  
 L = 259.69 L = 1.00 10.07  
 T = 29.36 T = 0.31 29.36  
 R = 0.03 R = 0.03

-L- (LT) TRANSITION  
 PIS STA 445+74.00 PLS STA 445+74.00  
 Δ = 0.00 0.00  
 L = 0.00 0.00  
 T = 0.00 0.00  
 R = 0.00 0.00

-L- (RT) TRANSITION  
 PIS STA 442+50.00 PLS STA 442+50.00  
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 T = 0.00 0.00  
 R = 0.00 0.00

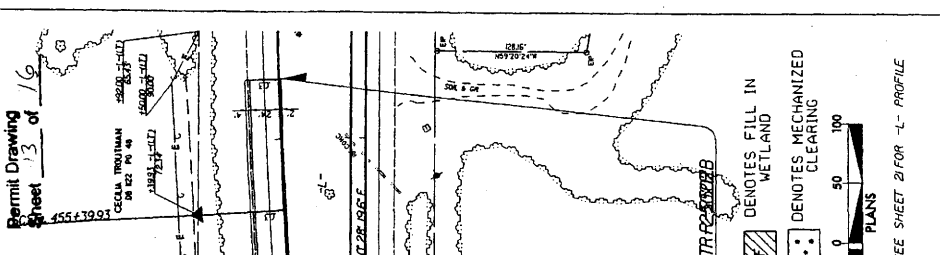
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 T = 0.00 0.00  
 R = 0.00 0.00

-L- (RT) TRANSITION  
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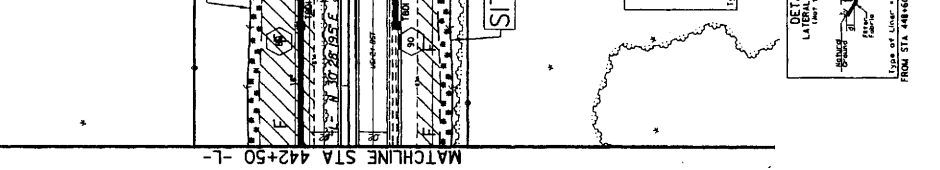
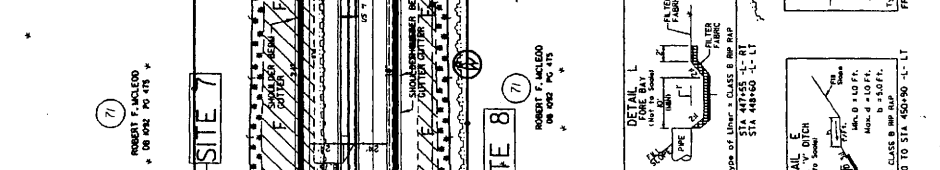
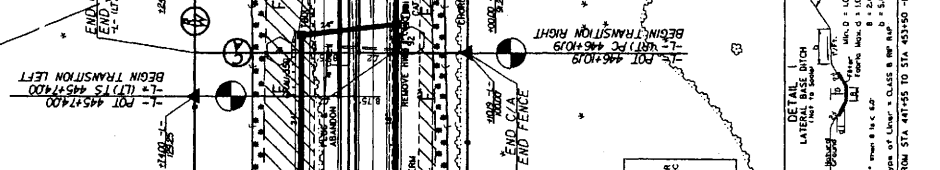
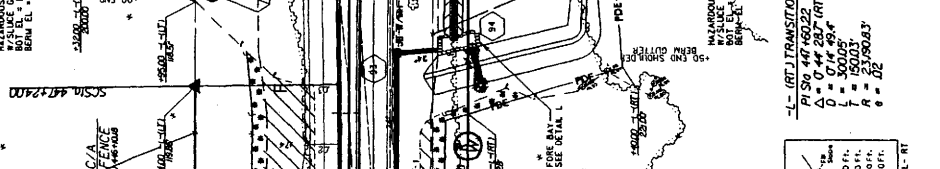
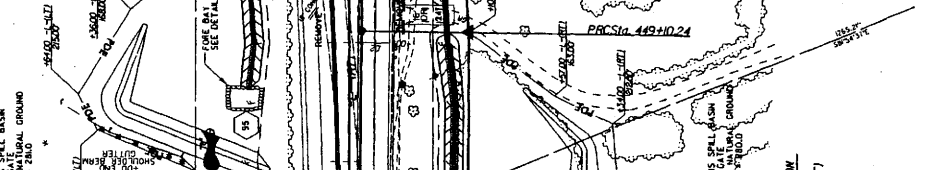
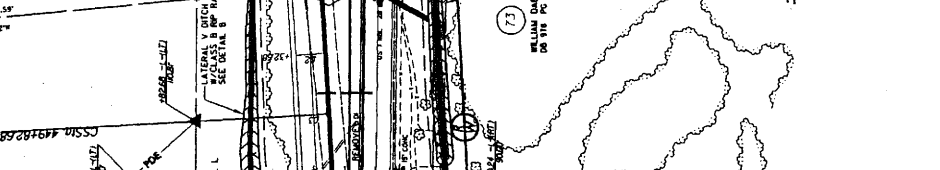
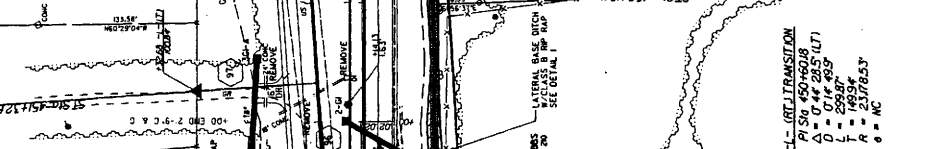
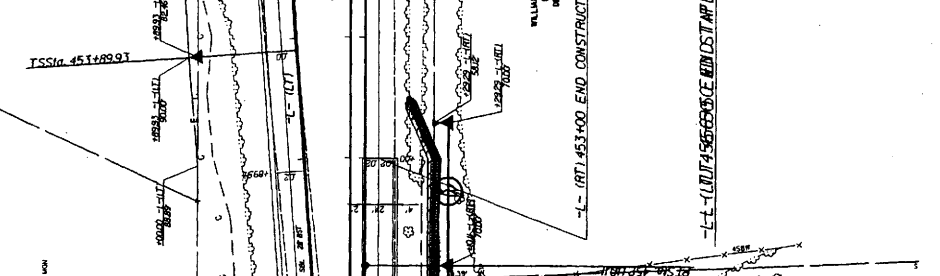
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 T = 0.00 0.00  
 R = 0.00 0.00

-L- (RT) TRANSITION  
 PIS STA 442+50.00 PLS STA 442+50.00  
 Δ = 0.00 0.00  
 L = 0.00 0.00  
 T = 0.00 0.00  
 R = 0.00 0.00

-L- (RT) TRANSITION  
 PIS STA 442+50.00 PLS STA 442+50.00  
 Δ = 0.00 0.00  
 L = 0.00 0.00  
 T = 0.00 0.00  
 R = 0.00 0.00



DENOTES FILL IN WETLAND  
 DENOTES MECHANIZED CLEARING  
 0 25 50 100  
 FEET  
 PLANS  
 SEE SHEET 2 FOR "L" PROFILE

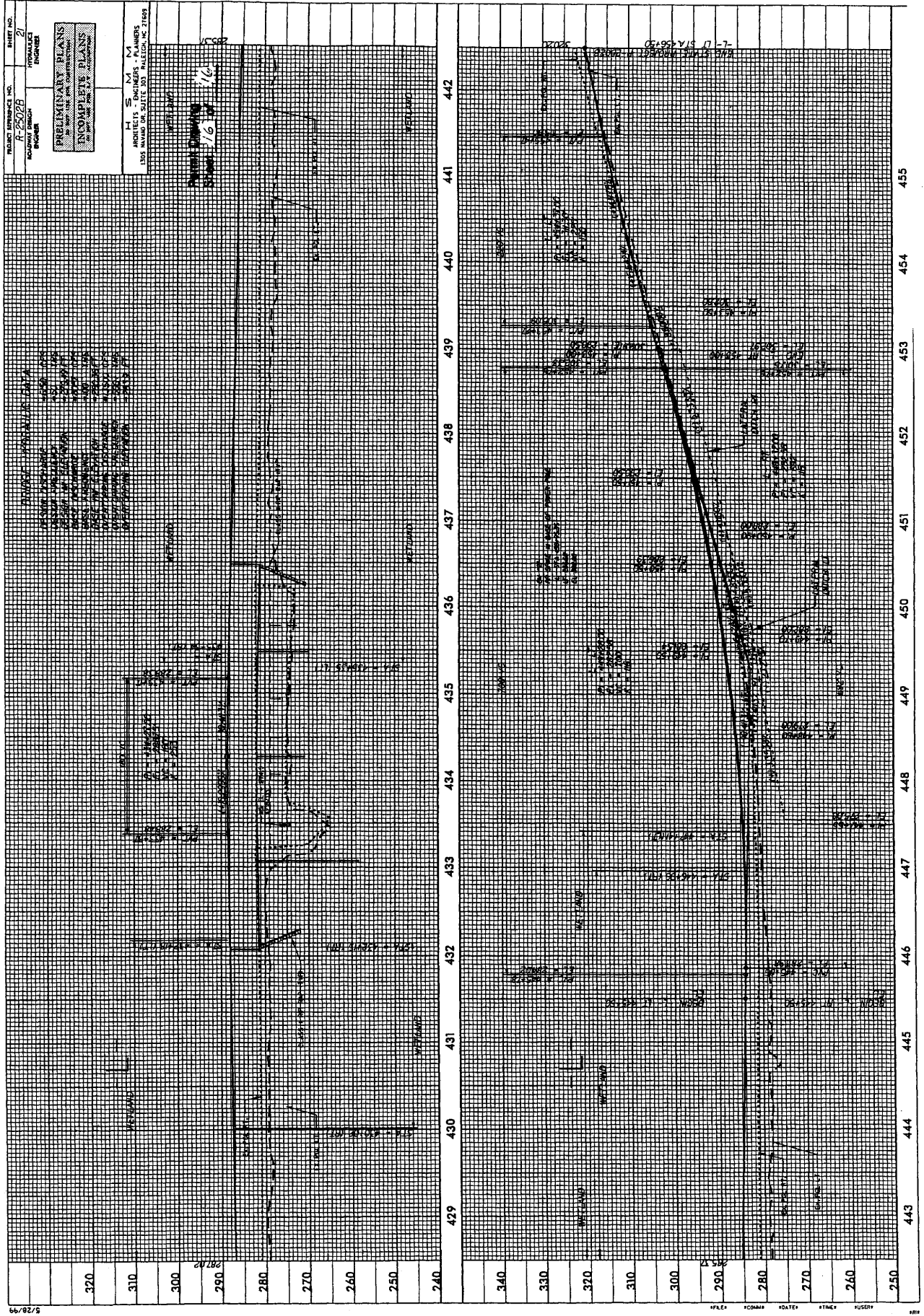


R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCELS 71/3 & 74. ADDED PARCEL NO. 75. B.M.  
 REVISIONS



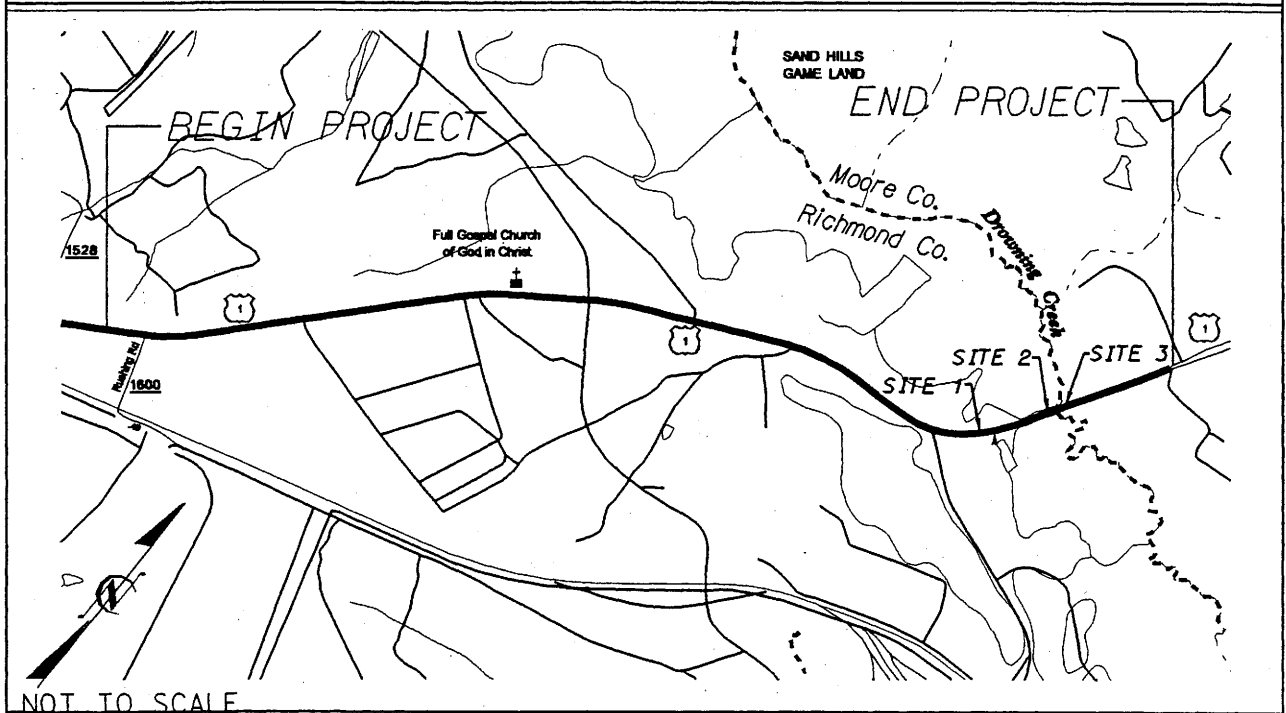
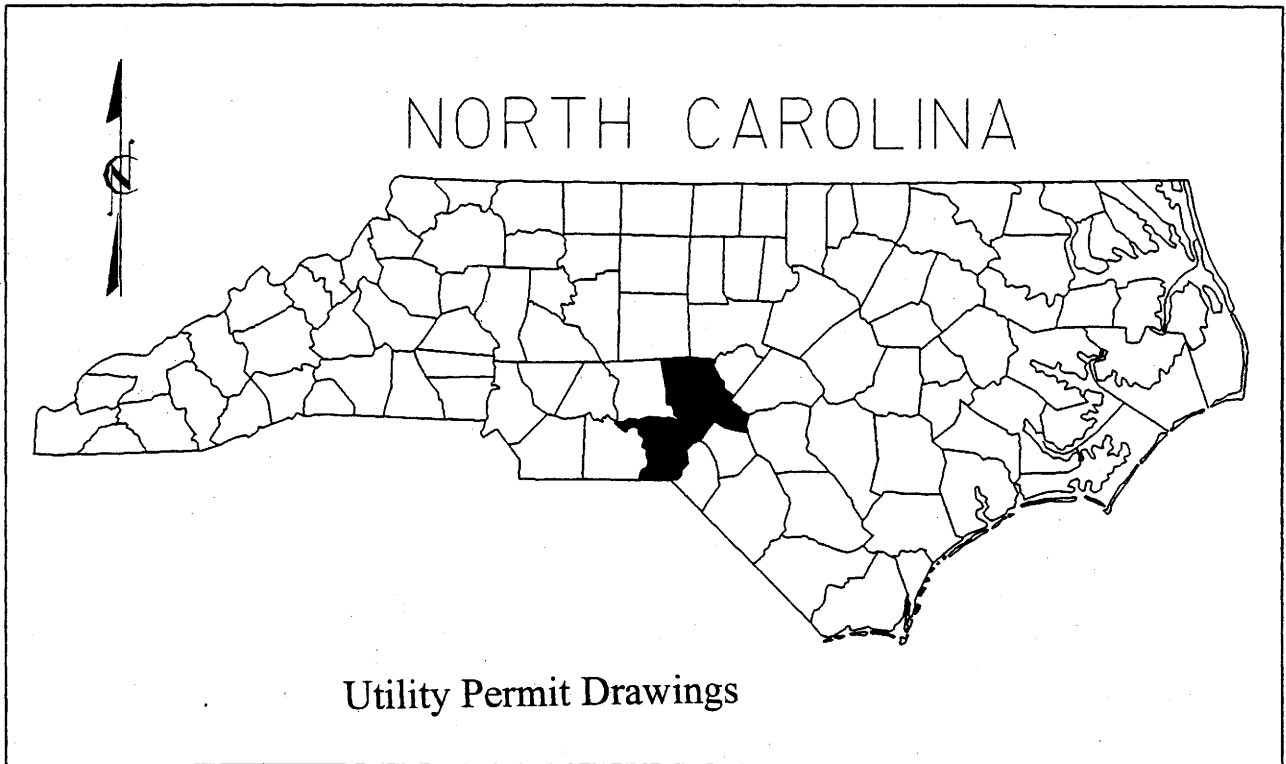






5/28/99

FILED ECOMA KORTE HINES HUSBY



SITE  
MAP

**NCDOT**  
 DIVISION OF HIGHWAYS  
 RICHMOND/ MOORE COUNTIES  
 PROJECT: 34438.11 (R-2502B)  
 WIDENING OF US 1  
 FROM NORTH OF SR 1528 TO  
 THE EXISTING DIVIDED FACILITY  
 NORTH OF THE RICHMOND  
 COUNTY LINE



PROJECT REFERENCE NO. R-28028 SHEET NO. 4 OF 7

UTILITIES BY OTHERS

NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

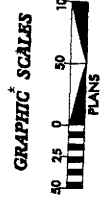
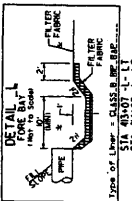
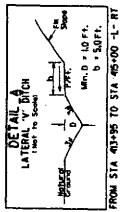
Permit Drawing Sheet 3 of 6

-L- (L) CURVE  
 PI STA 407+98.63  
 Δ = 54° 47' 35"  
 D = 320.00'  
 L = 1234.35'  
 LT = 234.45'  
 ST = 1067.77'  
 R = 1377.00'  
 BRG STA 407+98.63  
 Δ = 54° 47' 35"  
 D = 320.00'  
 L = 1234.35'  
 LT = 234.45'  
 ST = 1067.77'  
 R = 1377.00'

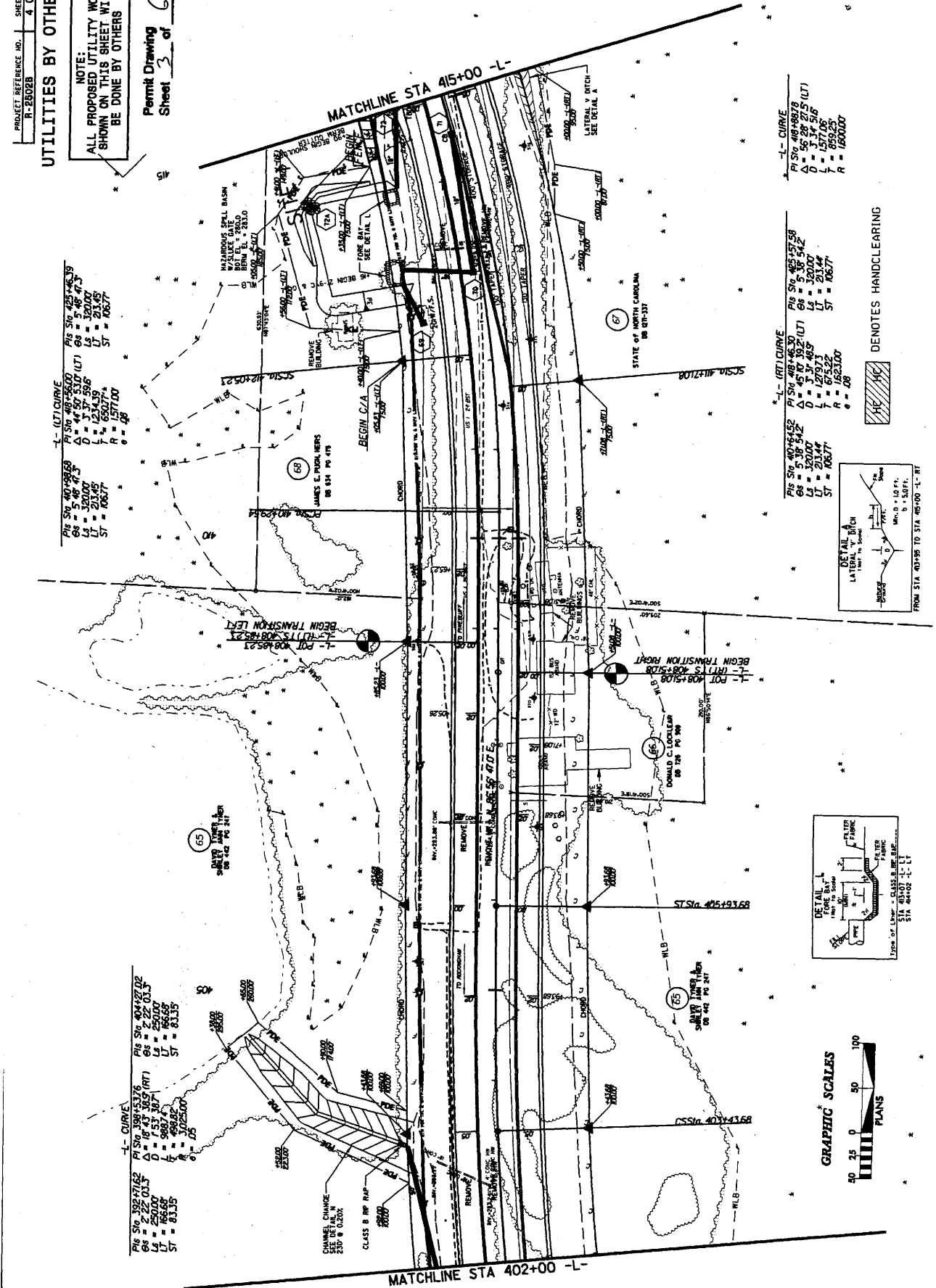
-L- CURVE  
 PI STA 392+71.62  
 Δ = 16° 43' 10.3 (RT)  
 D = 153.347'  
 L = 989.74'  
 LT = 166.68'  
 ST = 81.35'  
 R = 250.00'  
 BRG STA 392+71.62  
 Δ = 16° 43' 10.3 (RT)  
 D = 153.347'  
 L = 989.74'  
 LT = 166.68'  
 ST = 81.35'  
 R = 250.00'

-L- (RT) CURVE  
 PI STA 408+88.78  
 Δ = 56° 28' 27.5 (LT)  
 D = 374.516'  
 L = 1669.36'  
 LT = 166.68'  
 ST = 1600.00'  
 R = 1600.00'

-L- (RT) CURVE  
 PI STA 407+61.52  
 Δ = 51° 17' 18.2 (LT)  
 D = 320.00'  
 L = 1279.73'  
 LT = 234.45'  
 ST = 1067.77'  
 R = 1377.00'



DENOTES HANDCLEARING



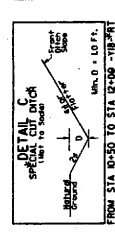
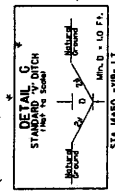
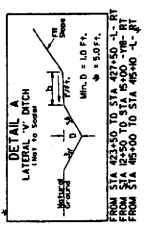
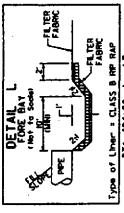
PROJECT REFERENCE NO. R-2802B SHEET NO. 5 OF 7

UTILITIES BY OTHERS

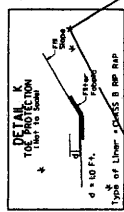
NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

Permit Drawing Sheet 1 of 6

**L-CURVE**  
 PI STA 489878  
 $\Delta = 50.29$  (LT)  
 $D = 157.08$   
 $L = 659.25$   
 $R = 1600.00$



**L-(LT) CURVE**  
 PI STA 489878  
 $\Delta = 44.50$  (LT)  
 $D = 3.37$  (LT)  
 $L = 203.95$   
 $R = 1571.00$



**L-RIT CURVE**  
 PI STA 489878  
 $\Delta = 5.34$  (RT)  
 $D = 23.44$   
 $L = 67.522$   
 $R = 162.00$



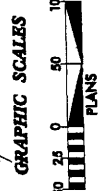
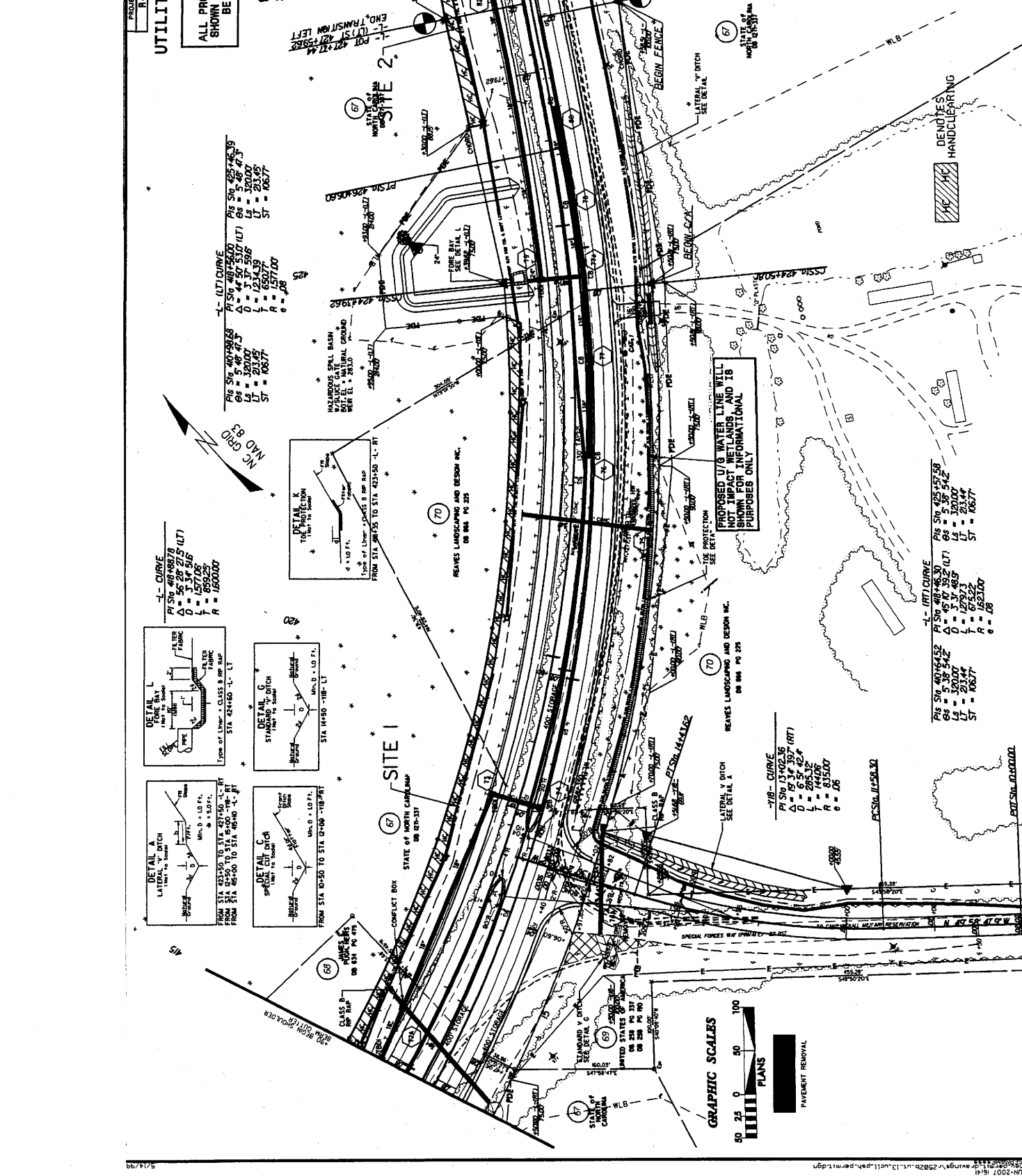
**L-CURVE**  
 PI STA 1390236  
 $\Delta = 19.54$  (RT)  
 $D = 295.32$   
 $L = 144.06$   
 $R = 835.00$   
 $e = .26$



**L-RIT CURVE**  
 PI STA 489878  
 $\Delta = 5.34$  (RT)  
 $D = 23.44$   
 $L = 67.522$   
 $R = 162.00$



**L-CURVE**  
 PI STA 489878  
 $\Delta = 5.34$  (RT)  
 $D = 23.44$   
 $L = 67.522$   
 $R = 162.00$



PROPOSED U/G WATER LINE WILL NOT IMPACT WETLANDS AND IS SHOWN FOR INFORMATIONAL PURPOSES ONLY



PROJECT REFERENCE NO. R-2602B  
SHEET NO. 8 OF 7

UTILITIES BY OTHERS

NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS

Permit Drawing 6  
Sheet 5 of 6

