

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 7, 2013

MEMORANDUM TO: Mr. Mike Mills, PE
Division 7 Engineer

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

SUBJECT: Guilford County, Greensboro Western Loop from
Bryan Blvd to Lawndale Dr, Federal Aid No. STP-
NHF 124(1); WBS No. 34820.1.1,
TIP U-2524 C&D.

A handwritten signature in blue ink, appearing to read "E. J. Fuchs".

Please find attached the USACE Section 404 Individual Permit and the NCDWQ Water Quality Certification for the above-referenced project. All environmental permits have been received for the construction of Section C of this project.

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

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<http://www.ncdot.gov/doh/preconstruct/pe/neu/permit.html>.

Cc:

Mr. Randy Garriss, P.E. State Contract Officer
Mr. Jerry Parker, Division Environ. Officer
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Mr. Art McMillan, P.E., Hydraulics
Mr. Tom Koch, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Eric Midkiff, P.E., PDEA Central Unit
Mr. Clarence Coleman, FHWA
Mr. Chris Militscher, EPA
Ms. Beth Harmon, EEP
Mr. Phillip Ayscue, Office of Inspector General

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE: NCDOT.GOV

LOCATION:
CENTURY CENTER, BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

PROJECT COMMITMENTS

TIP Project Nos. U-2524C and U-2524D
Greensboro Western Loop from North of SR 2176 (Bryan Boulevard)
to SR 2303 (Lawndale Drive)
Guilford County
Federal Aid Project STP-NHF-124(1)
WBS Element 34820.1.2

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Project Development and Environmental Analysis Unit/ Human Environment Section

Noise abatement measures which will continue to be considered throughout the design process include berms, alignment shifts and noise barriers. A detailed noise barrier evaluation will be performed during final design to determine the type and location of cost-effective noise abatement measures.

NOTE: The design noise report was completed for U-2524C and U-2524D in August 2007. This report did not include any proposed noise barriers within the U-2524C project limits. This report included proposed noise barriers north and south of the Greensboro Western Loop between Old Battleground Road and Lawndale Drive within the U-2524D project limits. Three new noise barriers were recommended after a review of the 2007 report. A new noise barrier was recommended in the southeast quadrant of the Battleground Avenue / Greensboro Western Urban Loop interchange. A new section of noise barrier was recommended for the area between the two previously-recommended barrier sections located north of the proposed Greensboro Western Urban Loop. A new noise barrier was recommended in the southeast quadrant of the Greensboro Western Urban Loop / Lawndale Drive interchange.

Response to NOTE: A detailed noise evaluation, performed in compliance with applicable provisions in the 2011 NCDOT Traffic Noise Abatement Policy, was recently completed for both U-2524C and U-2524D. One noise barrier was recommended for construction within the U-2524C project limits that was not previously recommended. This barrier is located along the south side of the proposed Greensboro Western Urban Loop alignment, immediately west of Drawbridge Parkway.

A PM_{2.5} hot-spot analysis report is currently underway for projects U-2524C and U-2524D. Approval of this report from the Federal Highway Administration is needed and public comments are required. NCDOT will secure the final Project Level conformity determination for PM_{2.5} and PM 10 hot spot requirements no later than prior to letting the project to construction.

Response: A PM_{2.5} Qualitative Hot-Spot Analysis report was completed for projects U-2524C and U-2524D in May 2011. The Federal Highway Administration accepted this report on May

12, 2011, and public comments were solicited in September and October 2011. NCDOT secured the final Project Level conformity determination for PM2.5 and PM10 hot spot requirements on October 7, 2011 (public comment due date).

Location & Survey Unit

Geodetic survey control monuments will be located during design and the U.S. Coastal and Geodetic Survey and North Carolina Geodetic Survey will be notified of their location.

NOTE: Standard commitment.

Roadside Environmental Unit, Division Construction, Project Development and Environmental Analysis Unit/Natural Environment Section, Hydraulics Unit

The NCDOT "Best Management Practices for Protection of Surface Waters" will be implemented where practicable to control highway runoff and minimize wetland impacts.

NOTE: Standard commitment.

Roadside Environmental Unit

During design, consideration will be given to planting trees as landscaping within the right-of-way, particularly at interchanges.

NOTE: The landscaping plans will be developed and implemented following construction.

Geotechnical Unit

Any underground storage tanks discovered during construction will be reported to the North Carolina Division of Environmental Management.

NOTE: If further studies indicate right of way needs to be acquired from any properties with UST's, preliminary site assessments for soil and groundwater contamination will need to be performed prior to right of way purchase.

Response to Note: There are no known sites of concern located within the U-2524C project limits.

**Project Development and Environmental Analysis Unit/Natural Environment Section,
Hydraulics Unit**

The final designs will be coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state and local floodway regulations. Stream channel modifications will be coordinated with appropriate review agencies. State-of-the-art stream relocation techniques will be used where practicable.

NOTE: Standard commitment.

The project will be developed in conformance with federal and state floodplain regulations.

NOTE: Standard commitment.

Issues related to dam relocation or possible stream restoration for Oka T. Hester Park will be coordinated with the City of Greensboro.

NOTE: The Oka T. Hester Park is not located within the U-2524C or U-2524D project limits.

Project Development and Environmental Analysis Unit/Natural Environment Section

A final wetland mitigation plan will be coordinated with the U.S. Army Corps of Engineers and other concerned review agencies as part of the permit application. The wetland mitigation plan will be implemented and the site will be preserved in perpetuity.

NOTE: Standard permit requirement.

Project Development and Environmental Analysis Unit, Roadway Design Unit

The North Carolina Department of Transportation will continue to work with the Airport Authority during project design to minimize impact on the Piedmont Triad International Airport's access and planned expansion to the east.

NOTE: The Piedmont Triad International Airport is outside of the U-2524C and D project limits.

The maintenance of existing and proposed bicycle routes or greenways by grade separation and route modification will be coordinated with the City of Greensboro Department of Transportation during project design and the Guilford County Parks and Recreation Department.

NOTE: There are no bicycle routes or greenways within the U-2524C project limits. An ADA-compliant grade separation is proposed at the intersection of Old Battleground Road and the Greensboro Urban Loop to accommodate an existing bicycle and pedestrian trail as requested by the City of Greensboro.

The 4-lane structure on Horsepen Creek Road that will accommodate the proposed City of Greensboro's Horsepen Creek Road widening project is currently being designed and will be incorporated into the Loop construction plans. Any impacts associated with this revised design will be noted in the construction consultation or next Federal action for this project.

Response: The most recent design plans show no additional impacts.

Project Development and Environmental Analysis Unit, Roadway Design Unit, Hydraulics Unit

A more detailed study of wetland and floodplain impacts at Horsepen Creek will be prepared during final design. Horsepen Creek floodplain and associated wetlands will be bridged as deemed necessary.

NOTE: Two 4,200-foot long bridges for the Loop plus ramp bridging will be constructed to accommodate the Greensboro Urban Loop at the Battleground Avenue interchange to avoid impacts to Horsepen Creek and its tributaries and wetlands.

Division 7

During right of way acquisition, NCDOT will compensate the City of Greensboro the sum of \$15,000 for additional engineering fees incurred by the city due to the redesign of the proposed Carolyn S. Allen Park. A municipal agreement will be executed for this expenditure. During the final design process, every effort will be made to avoid impacts to the Park. If impacts cannot be avoided during the final design process, a 4(f) evaluation may be necessary.

Response: The most recent design plans show no impacts to the park. Division 7 will request that the City of Greensboro provide an invoice detailing the actual fees incurred by the City due to the redesign of the proposed Carolyn S. Allen Park, and Division 7 will handle the reimbursement.

COMMITMENTS FROM PERMITTING

Division 7, Natural Environment Section, and Hydraulics Unit

This permit only authorizes work on Section C of TIP U-2524. Construction on Section D of TIP U-2524 shall not commence until final design has been completed for this section, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (the Corps).

When final design plans are completed for U-2524D, a modification to the 401 Water Quality Certification shall be submitted with two copies and fees to the NC Division of Water Quality.

U-2524C and U-2524D Permit Greensheet

July 2013

Page 4 of 5

Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. No construction activities that impact any wetlands, streams, surface waters, or buffers located in U-2524D shall begin until after the permittee applies for, and receives a written modification of the 401 Water Quality Certification from the NC Division of Water Quality.

Division 7, Roadside Environmental Unit, and Hydraulics Unit

Cleared wetland areas shall be re-vegetated with a wetland seed mix or a mix of native woody species. Fescue grass or any invasive species such as Lespedeza, shall not be used within the wetland areas.

Any modifications to this 401 Water Quality Certification that propose additional stream impacts or increased impervious surface requiring additional stormwater management may be subject to the Jordan Water Supply Nutrient Strategy [15A NCAC02B .0267]. NCDOT shall coordinate with NCDWQ prior to submitting a modification request to determine the applicability of the Jordan Water Supply Nutrient Strategy. This condition does not apply to major modifications for additional sections of the project that were covered under the Finding of No Significant Impact or approved in the Avoidance and Minimization stage of the project.

NCDOT shall design, construct, and operate and maintain hazardous spill catch basins (HSCBs) at stream crossings within the WS III; CA watershed. The HSCBs shall be located at Station numbers -L-380+38, -L-387+14, -L-398+53, -L-408+98, and -L-412+09. At Station number -L-419+61, a hazardous spill basin is not required due to the need for blasting in close proximity to the Colonial Gas Pipeline.

NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000. Please note the extra protections for the sensitive watersheds.

A turbidity curtain will be installed in the stream for the crossing of Horsepen Creek if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank. This condition can be waived with prior approval from NCDWQ.

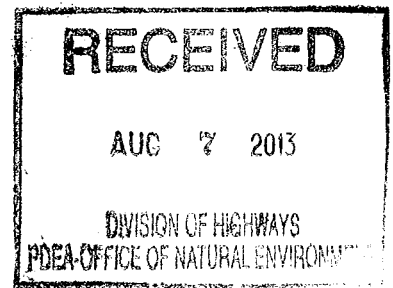
For the 438 linear feet of streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

August 1, 2013



Regulatory Division/1200A

Action ID: SAW-2001-21125

Dr. Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
NC Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe, PhD.:

In accordance with your written request of April 2013, and the ensuing administrative record, enclosed is a copy of a Department of the Army (DA) Permit to authorize the following: 1) Permanent placement of fill material into 7,717 linear feet of jurisdictional stream channel and 6.13 acres of adjacent riparian wetlands and, 2) Temporary placement of fill material into 438 linear feet of jurisdictional stream channel and 0.80 acre adjacent wetlands. These impacts are associated with the construction of a 4.8 mile, six-lane divided facility on new location, identified as U-2524CD. The project site is located is located from north of SR 2176 (Bryan Boulevard) to SR 2303 (Lawndale Drive) in Greensboro, Guilford County, North Carolina.

Any deviation in the authorized work will likely require modification of this permit. If a change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notified you that your permit has been 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, 2018.
- 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.

You should address all questions regarding this authorization to Mr. Andrew Williams in the Raleigh Regulatory Field Office, telephone number (919) 554-4884, extension 26.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our web-site at <http://per2.nwp.usace.army.mil/survey.html> and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office.

Sincerely,



for Steven A. Baker
Colonel, U.S. Army
District Commander

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. Pete Benjamin
U.S. Fish and Wildlife Service
Raleigh Ecological Service Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Fritz Rohde
Habitat Conservation Division – Atlantic Branch
101 Pivers Island Road
Beaufort, North Carolina 28516

Mr. William Cox
Wetlands and Marine Regulatory Section
U.S. Environmental Protection Agency – Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8931

Mr. Doug Huggett
Division Coastal Management
N.C. Department of Environment
And Natural Resources
400Commerce Avenue
Morehead City, North Carolina 28557

Dr. Pace Wilber
Habitat Conservation Division – Atlantic Branch
NOAA Fisheries Service
219 Fort Johnston Road
Charleston, South Carolina 29412

Mr. Tony Able
Wetlands Regulatory Section
U.S. Environmental Protection Agency – Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

DEPARTMENT OF THE ARMY PERMIT

Permittee: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ATTN: DR. GREGORY J. THORPE, PH.D

Permit No: SAW-2001-21125

Issuing Office: USAED, WILMINGTON

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 the office acting under the authority of the commanding officer.

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

Project Description: The project, identified as U-2524CD, consists of the construction of a 4.8 mile, six-lane divided facility on new location. U-2524CD begins north of SR 2176 (Bryan Boulevard) and terminates at SR 2303 (Lawndale Drive) in Greensboro, Guilford County, North Carolina. Total permanent impacts for the construction of this project are 7,717 linear feet of jurisdictional stream channel, and 6.13 acres of adjacent wetlands. Total temporary impacts for the construction of this project are 438 linear feet of jurisdictional stream channel and 0.80 acre of adjacent wetlands. All impacts are within the Cape Fear River basin (Hydrologic Categorical Unit 03030002). **THIS IS A PHASED PERMIT AUTHORIZATION: This permit only authorizes work on Section C of TIP U-2524.** Construction on Section D of TIP U-2524 shall not commence until final design has been completed for this section, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (the Corps).

In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

Project Location: The project, identified as U-2524CD is located from north of SR 2176 (Bryan Boulevard) to SR 2303 (Lawndale Drive) in Greensboro, Guilford County, North Carolina. Section C of this project begins immediately north of SR 2176 (Bryan Boulevard) and terminates immediately east of US220 (Battleground Avenue) and Section D begins immediately east of Battleground Avenue and ends at SR 2303 (Lawndale Drive). Coordinates (in decimal degrees) for the site are 36.1377° N, -79.8616° W (NAD83/WGS84). The site a portion of Horsepen Creek, fifteen (15) unnamed tributaries to Horsepen Creek, a portion of Richland Creek, five (5) unnamed tributaries to Richland Creek, and fifteen (15) adjacent wetland areas in the Cape Fear River Basin (8-Digit Cataloging Unit 03030002).

Permit Conditions:

General Conditions:

- 1. The time Limit for completing the work authorized ends on December 31, 2018.** 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 Conditions 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 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.
- 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 33CFR 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 measure 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.

E. F. Luck for 2
(PERMITTEE) NORTH CAROLINA DEPARTMENT
OF TRANSPORTATION
ATTN: DR. GREGORY J. THORPE, PH.D

July 25, 2013
(DATE)

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

Steven A. Baker
for (DISTRICT Engineer) STEVEN A. BAKER, COLONEL

1 August 2013
(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)

SPECIAL CONDITIONS
ACTION ID. SAW-2001-21125
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION U-2524CD

WORK LIMITS

1. CONSTRUCTION PLANS: All work authorized by this permit must be performed in strict compliance with the attached plans for U-2524C dated March 4, 2013 (sheets, 3-6, 11-18, 21,22, 23,24, 27-36), April 12, 2013 (sheets 9,10, 19, 20, 25,26), and May 22, 2013 (sheets 1, 2, 7, 8, 22A, 22B, 39) and with the attached plans for U-2524D dated March 4, 2013 (sheets 1-13) and for the Utility Permit Drawings dated March 4, 2013 (sheets 1-6), which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

The North Carolina Division of Water Quality (DWQ) permit/certification number 3965 was issued for this project on July 2, 2013. Special conditions were issued associated with this water quality permit/certification and a copy of these conditions is attached. These referenced conditions are hereby incorporated as special conditions of this permit.

2.UNAUTHORIZED DREDGE OR FILL: 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. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

3. MAINTAIN CIRCULATION AND FLOW OF WATERS: 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 waters or wetlands or to reduce the reach of waters or wetlands.

4. DEVIATION FROM PERMITTED PLANS: 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..

5. PRECONSTRUCTION MEETING: The permittee shall schedule and attend a preconstruction meeting between its representatives, the contractors representatives, and the Corps of Engineers, Raleigh 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 the terms and conditions contained with this Department of Army Permit. The permittee shall provide the USACE, Raleigh Field Office, NCDOT Project Manager, with a copy of the

SPECIAL CONDITIONS
ACTION ID. SAW-2001-21125
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION U-2524CD

final permit plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time frame when the USACE, NCDCM, and NCDWQ Project Managers can attend. The permittee shall invite the Corps, NCDCM, and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedules and participate in the required meeting.

RELATED LAWS

6. WATER CONTAMINATION: 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. 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) 733-3300 or (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

PROJECT MAINTENANCE

7. NOTIFICATION OF CONSTRUCTION COMMENCEMENT AND COMPLETION: The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

8. CLEAN FILL: 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. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act.

9. PERMIT DISTRIBUTION: 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. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

10. SILT-FENCING: The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. 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).

SPECIAL CONDITIONS
ACTION ID. SAW-2001-21125
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION U-2524CD

11. PERMIT REVOCATION: The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

12. EROSION CONTROL MEASURES IN WETLANDS: 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.

ENFORCEMENT

13. REPORTING ADDRESS: All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Raleigh Regulatory Field Office, c/o Mr. Andrew Williams, 3331 Heritage Trade Drive, Wake Forest, NC 27587, and by telephone at: 919-554-4884 extension 26. The Permittee shall reference the following permit number, SAW-2001-21125, on all submittals.

14. REPORTING VIOLATIONS OF THE CLEAN WATER ACT AND RIVERS AND HARBORS ACT: Violation of these conditions or violation of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

15. COMPLIANCE INSPECTION: A representative of the Corps of Engineers will periodically and randomly inspect the work for compliance with these conditions. Deviations from these procedures may result in an administrative financial penalty and/or directive to cease work until the problem is resolved to the satisfaction of the Corps.

UTILITY LINES

16. TEMPORARY IMPACTS RESTORATION MEASURES: Temporary discharge of excavated or fill material into wetlands and waters of the United States will be for the absolute minimum period of time necessary to accomplish the work. All authorized temporary wetland, stream, and tributary impacts will be returned to pre-disturbance grade and contour, and re-vegetated. In wetland areas where pipeline installation via trenching is authorized, wetland topsoil will be segregated from the underlying subsoil, and the top 6 to 12 inches of the trench will be backfilled with topsoil from the trench.

17. The permittee shall submit to the U.S. Army Corps of Engineers, Wilmington District as-built surveys of each of the authorized jurisdictional crossings associated with the utility line installation. The permittee must submit the surveys within 30 days of construction completion of the subject utilities.

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18. Cleared wetland areas shall be re-vegetated with a wetland seed mix or a mix of native woody species. Fescue grass or any invasive species such as Lespedeza, shall not be used within the wetland areas.

19. Prior to construction within any jurisdictional areas, the permittee must correctly install silt fencing (with or without safety fencing) parallel with the utility line corridor, on both sides of the jurisdictional crossing. This barrier is to serve both as an erosion control measure and a visual identifier of the limits of construction within any jurisdictional area. The permittee must maintain the fencing, at minimum, until the wetlands have re-vegetated and stabilized.

20. PHASE PERMITS: This permit only authorizes work on Section C of TIP U-2524. Construction on Section D of TIP U-2524 shall not commence until final design has been completed for this section, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (the Corps).

21. CULVERTS:

A. Unless otherwise requested in the applicant's application and depicted on the approved work plans, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter and less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert.

B. Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

22. SEDIMENT EROSION CONTROL:

A. During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

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B. No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit.

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

D. 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.

23. TEMPORARY FILLS: Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

24. BORROW AND WASTE:

A. To ensure that all borrow and waste activities occur on high ground and do not result in 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 provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

B. To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent waters and wetlands, 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 provide the Corps of Engineers with appropriate maps indicating the

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locations of proposed borrow or waste sites as soon as such information is available. The permittee will coordinate with the Corps of Engineers before approving any borrow or waste sites that are within 400 feet of any stream or wetland. All jurisdictional wetland delineations on borrow and waste areas shall be verified by the Corps of Engineers and shown on the approved reclamation plans. The permittee shall ensure that all such areas comply with the Special Condition 4 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 documentation will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with Special Condition 4. All information will be available to the Corps of Engineers upon request. The permittee 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.

25. MITIGATION: In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
Project Name: NCDOT/U-2524CD/Division 7

Action ID: SAW-2001-21125
County: Guilford

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Ecosystem Enhancement Program (NCEEP), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor must verify that the mitigation requirements shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. Once the form is signed, the Sponsor must update the appropriate ledger and provide a copy of the signed form to the Permittee and to the USACE Bank/In-Lieu Fee Program Manager. The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements:

Permitted Impacts Requiring Mitigation* **8-digit HUC and Basin:** 03030002, Cape Fear River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
7,717	0	0	6.13	0	0	0

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: **8-digit HUC and Basin:** 03030002, Cape Fear River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
14,758	0	0	10.53	0	0	0

Mitigation Site Debited: North Carolina Ecosystem Enhancement Program (NCEEP)

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCEEP, list NCEEP. If the NCEEP acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCEEP), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

Signature of Sponsor's Authorized Representative

Date of Signature

**USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2**

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions: None

This form is not valid unless signed by the mitigation Sponsor and USACE Project Manager. For questions regarding this form or any of the conditions of the permit authorization, contact the Project Manager at the address below.

USACE Project Manager: Andy Williams
USACE Field Office: Raleigh Regulatory Field Office
US Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

Email: Andrew.e.williams2@usace.army.mil



Digitally signed by WILLIAMS.ANDREW.E.1244561655
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI,
ou=USA, cn=WILLIAMS.ANDREW.E.1244561655
Date: 2013.07.19 16:04:44 -04'00'

USACE Project Manager Signature

July 19, 2013

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

**Applicant: North Carolina Department of Transportation
Dr. Gregory J. Thorpe, Ph.D**

File Number: SAW-2001-21125

Date: July 25, 2013

Attached is:

See Section below

☒ INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)

A

☐ PROFFERED PERMIT (Standard Permit or Letter of permission)

B

☐ PERMIT DENIAL

C

☐ APPROVED JURISDICTIONAL DETERMINATION

D

☐ PRELIMINARY JURISDICTIONAL DETERMINATION

E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,
Attn: Andrew Williams
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Attn: Andrew Williams, 69 Darlington Avenue, Wilmington, North Carolina 28403

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele,
Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**



North Carolina Department of Environment and Natural Resources

Division of Water Quality

Pat McCrory
Governor

Thomas A. Reeder
Acting Director

John E. Skvarla, III
Secretary

July 2, 2013

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with
ADDITIONAL CONDITIONS for Proposed Greensboro Urban Loop from SR 2176 (Bryan Blvd.) to SR
2303 (Lawndale Dr.) in Guilford County, Federal Aid Project No. STP-NHF-124(1), State Project No.
34820.1.2, TIP U2524C and D.
NCDWQ Project No. 20130223.

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3965 issued to The North Carolina Department of Transportation
(NCDOT) dated July 2, 2013.

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

Sincerely,

Thomas A. Reeder
Acting Director

Attachments

cc: Andy Williams, US Army Corps of Engineers, Raleigh Field Office (electronic copy only)
Jerry Parker, Division 7 Environmental Officer (electronic copy only)
Chris Militscher, Environmental Protection Agency (electronic copy only)
Travis Wilson, NC Wildlife Resources Commission (electronic copy only)
Beth Harmon, Ecosystem Enhancement Program (electronic copy only)
DWQ WSRO Amy Euliss

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6488
Internet: www.ncwaterquality.org

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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 (NCDWQ) Regulations in 15 NCAC 2H. This certification authorizes the NCDOT to impact 6.13 acres of jurisdictional wetlands in the C section and 0 acres of jurisdictional wetlands in the D section, and 3471 linear feet of jurisdictional streams in the C section and 4684 linear feet of jurisdictional streams in the D section in Guilford County. The project shall be constructed pursuant to the application dated received March 3, 2013 with additional information dated received April 12, 2013 and May 29, 2013. The authorized impacts are as described below:

U-2524C: Stream Impacts in the Cape Fear River Basin

Site (stream id-jd packet)	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)	Stream Impacts Requiring Mitigation (linear ft)
1 (SA)			396	13	409	396
2 (SA)			32	14	46	32
2 (SB)			24		24	0
3 (SC)			348	20	368	348
3A (SD)			30		30	0
4 (SE)			361	46	407	361
5 (SF)			725	40	765	725
5A (SG)			115		115	0
6 (SH)	60	15			75	0
7 (SI)			238	10	248	238
7A (SJ)			57		57	0
8 (SL)			425	20	445	425
10 (SM)			16	0	16	0
13 (SP)			264	20	284	264
13 (SO)			22		22	0
HC1 (SO)				40	40	0
HC2 (SO)				20	20	0
HC3 (SO)				20	20	0
HC4 (SO)				20	20	0
HC5 (SO)				20	20	0
II		40			40	0
TOTAL	60	55	3053	303	3471	2789

Total Stream Impact for U2524C Project: 3471 linear feet

U2524D: Stream Impacts in the Cape Fear River Basin

Site (Stream id)	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)	Stream Impacts Requiring Mitigation (linear ft)
1 (16S)			393	10	403	393
2 (17S)			919	10	929	919
3 (17S)			1488	10	1498	1488
4 (17S)			35		35	35
4 (19S)			1218	20	1238	1218
5 (20S)			141	10	151	0
6 (21S)			311	10	321	311
7 (not id'ed)			99	10	109	0
TOTAL	0	0	4604	80	4684	4364

Total Stream Impact for U-2524D Project: 4684 linear feet

U-2524C: Wetland Impacts in the Cape Fear River Basin

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
1	0.10			0.02		0.12	0.12
7	0.01					0.01	0.01
9				0.02		0.02	0.02
10A		0.01		0.01		0.02	0.01
11				0.19		0.19	0.19
12	2.57			0.36		2.93	2.93
13	1.24		0.34	0.64		2.22	2.22
14	0.11					0.11	0.11
W1				0.20		0.20	0.20
W2		0.79				0.79	0.00
W3				0.12		0.12	0.12
W4				0.01		0.01	0.01
U1*				0.14		0.14	0.14
U2*				0.04		0.04	0.04
U3*				0.01		0.01	0.01
Total	4.03	0.80	0.34	1.76	0.00	6.93	6.13

*U1, U2 and U3 are utility impacts

Total Wetland Impact for U-2524C Project: 6.93 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear 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 March 3, 2013 with additional information dated received April 12, 2013 and May 29, 2013. Should your project change, you are required to notify the NCDWQ 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.

Condition(s) of Certification:

Project Specific Conditions

1. When final design plans are completed for U2524 Section D, a modification to the 401 Water Quality Certification shall be submitted with two copies and fees to the NC Division of Water Quality. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. No construction activities that impact any wetlands, streams, surface waters, or buffers located in U2524 Section D shall begin until after the permittee applies for, and receives a written modification of the 401 Water Quality Certification from the NC Division of Water Quality.
2. Any modifications to this 401 Water Quality Certification that propose additional stream impacts or increased impervious surface requiring additional stormwater management may be subject to the Jordan Water Supply Nutrient Strategy [15A NCAC02B .0267]. NCDOT shall coordinate with NCDWQ prior to submitting a modification request to determine the applicability of the Jordan Water Supply Nutrient Strategy. This condition does not apply to major modifications for additional sections of the project that were covered under the Finding of No Significant Impact or approved in the Avoidance and Minimization stage of the project.
3. NCDOT shall design, construct, and operate and maintain hazardous spill catch basins (HSCBs) at stream crossings within the WS III; CA watershed. The HSCBs shall be located at Station numbers -L-380+38, -L-387+14, -L-398+53, -L-408+98, and -L-412+09. **At sta. no. -L- 419+61, a hazardous spill basin is not required due to the need for blasting in close proximity to the Colonial Gas Pipeline.**
4. Compensatory mitigation for 7153 linear feet of impact to streams, including 2739 linear feet for U2524C and 4364 linear feet for U2524D, is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams 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 May 17, 2013 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
5. Compensatory mitigation for impacts to 6.13 acres riparian 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 May 17, 2013 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with EEP's Mitigation Banking Instrument signed July 28, 2010.
6. NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000. Please note the extra protections for the sensitive watersheds.
7. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWQ staff shall be invited to the pre-construction meeting.
8. A turbidity curtain will be installed in the stream for the crossing of Horsepen Creek if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank. This condition can be waived with prior approval from DWQ.
9. Two copies of the final construction drawings shall be furnished to NCDWQ Central Office prior to the pre-construction meeting. The permittee shall provide written verification that the final construction drawings comply with the permit drawings contained in the application dated March 3, 2013 with additional information dated received April 12, 2013 and May 29, 2013. Any deviations from the approved drawings are not authorized unless approved by the NC Division of Water Quality.
10. Channel relocations shall be completed and stabilized, and approved on site by NCDOT Environmental staff or DWQ, prior to diverting water into the new channel. Stream banks shall be matted with coir-fiber matting, unless rip rap is approved with this certification. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. Also, additional 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. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills.
11. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

12. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.
13. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*.
14. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ first.
15. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly.
16. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water.
17. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
18. 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.
19. For the 438 linear feet of streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.
20. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species.
21. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.

General Project Conditions:

22. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams 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 NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.
23. 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.
24. 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.
25. 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.
26. 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.
27. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
28. Prior to commencing ground disturbing activities, an acceptable monitoring and mitigation plan for the presence of sulfide-bearing rock must be approved by DWQ.
29. 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.

30. 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.
31. 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.
32. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
33. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
34. 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 NCDWQ 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, NCDWQ may reevaluate and modify this certification.
35. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.
36. A copy of this Water Quality Certification shall be maintained 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.
37. 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.
38. 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.
39. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.
40. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.
41. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.
42. 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.
43. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.
44. 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.

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 you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center

This the 2nd day of July 2013

DIVISION OF WATER QUALITY



Thomas A. Reeder
Acting Director

WQC No. 3965

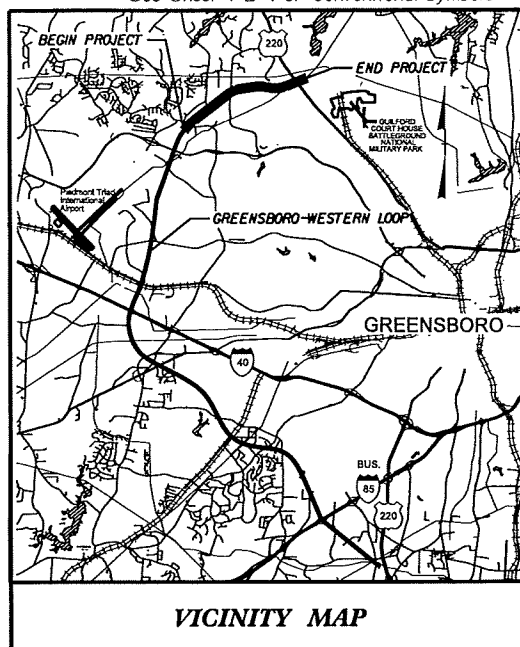
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\$\$\$\$\$USERNAME\$\$\$\$\$

TIP PROJECT: U-2524C

CONTRACT: C203197

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



VICINITY MAP

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

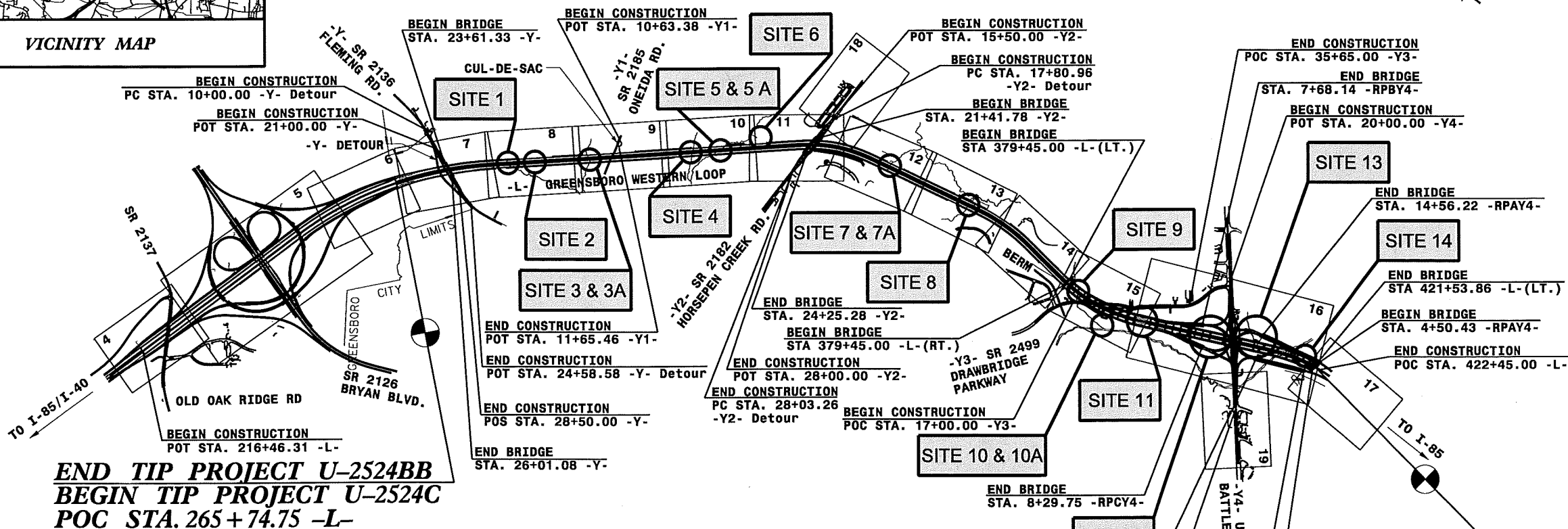
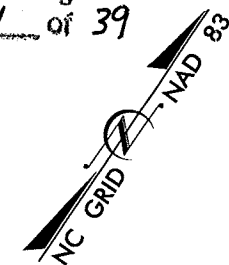
GUILFORD COUNTY

LOCATION: GREENSBORO-WESTERN LOOP FROM NORTH OF SR 2176
(BRYAN BOULEVARD) TO US 220 (BATTLEGROUND AVENUE).

TYPE OF WORK: GRADING, PAVING, CULVERTS, DRAINAGE,
STRUCTURES, SIGNING, ITS, TRAFFIC SIGNAL
AND RETAINING WALLS.

WETLAND & STREAM IMPACTS

Permit Drawing
Rev Sheet 1 of 39
5/20/13

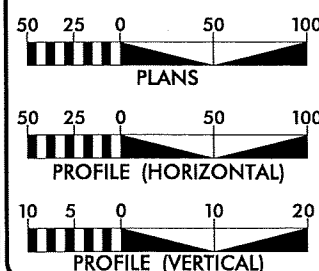


NOTES:
THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF GREENSBORO

END TIP PROJECT U-2524BB
BEGIN TIP PROJECT U-2524C
POC STA. 265+74.75 -L-

END TIP PROJECT U-2524C
POC STA 421+69.00 -L-

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 35,113
ADT 2035 = 46,200
DHV = 11 %
D = 55 %
T = 9 % *
V = 70 MPH
CLASSIFICATION: FREEWAY
4% TTST DUAL 5%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2524C = 2.158 MILES
LENGTH STRUCTURES TIP PROJECT U-2524C = 0.795 MILES
TOTAL LENGTH OF TIP PROJECT U-2524C = 2.953 MILES

PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA
FOR THE
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 23, 2011

LETTING DATE:
SEPTEMBER 17, 2013

EDWARD S. ROBBINS, P.E.
PROJECT ENGINEER

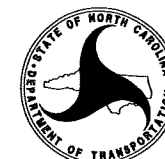
DAVID GARRETT
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN
ENGINEER

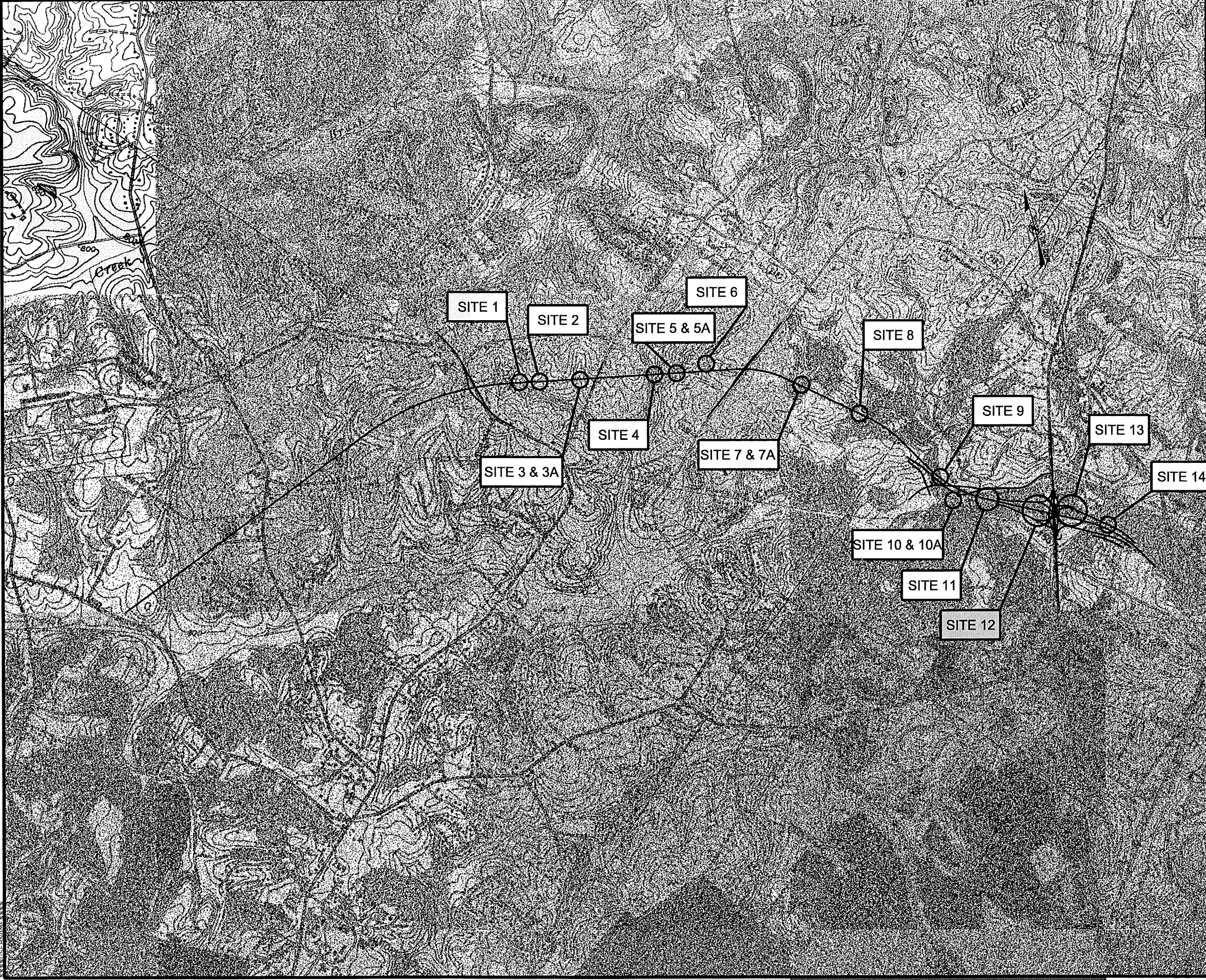
SIGNATURE: _____ P.E.

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION



5/14/09

I:\2451 RM
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PROJECT REFERENCE NO.	SHEET NO.
U-2524C	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWINGS
Rev SHEET 2 OF 39

5/20/13

8/17/99

REVISIONS

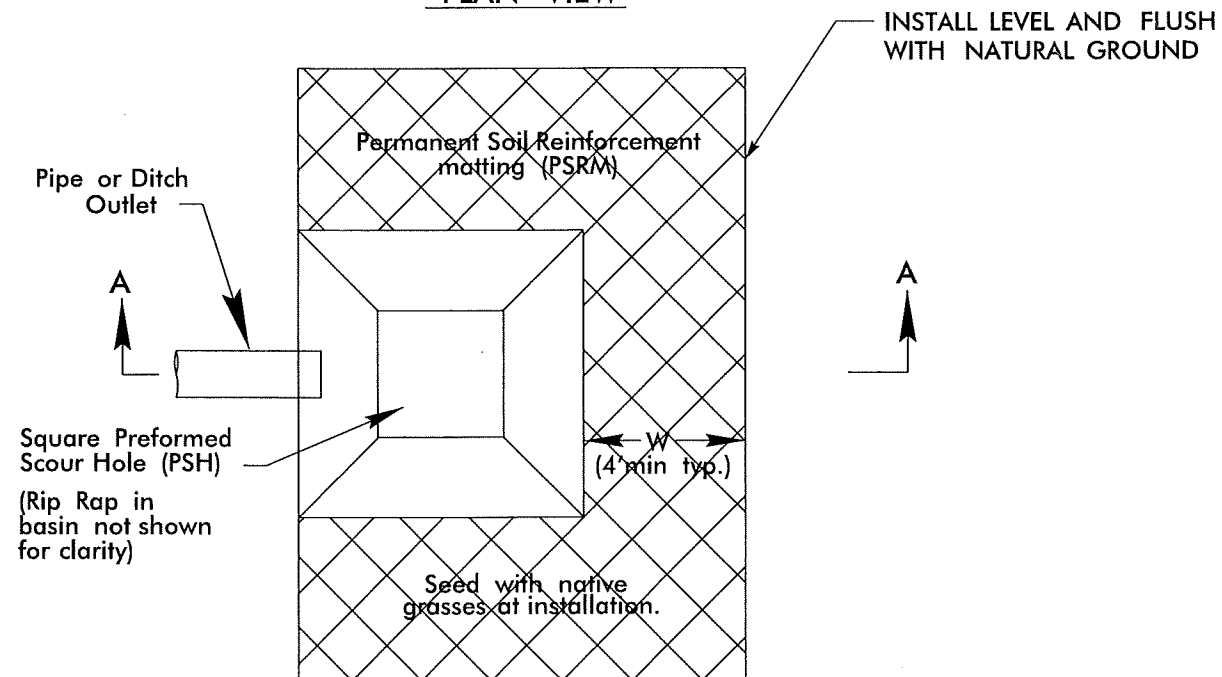
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PREFORMED SCOUR HOLE

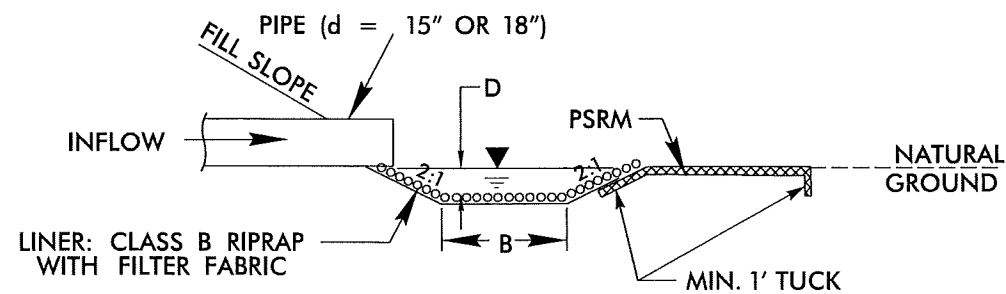
*NOT TO SCALE

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U-2524C	2-AA
RW SHEET NO.	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
PERMIT DRAWINGS SHEET 3 OF 39	

PLAN VIEW



SECTION A-A



8/17/99

PLANS PREPARED BY
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
U-2524C	8

RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWINGS
SHEET 5 OF 39

REVISIONS

MATCH LINE -L- STA 281+00 SEE SHEET 7

MATCH LINE -L- STA 295+00 SEE SHEET 9

SITE 1

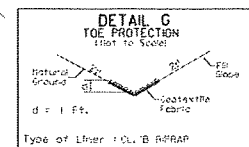
SITE 2

SCALE
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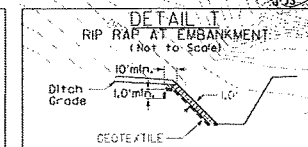
LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 22 & 23 FOR -L- PROFILE
SEE GEOTECHNICAL REPORT FOR BURIED LANDFILL. SEE SHEET GR-18 THRU GR-43



-L- 282+75 TO 283+75 LT.
-L- 283+95 TO 286+25 LT.
-L- 288+00 TO 291+00 LT.
-L- 283+00 TO 287+15 RT.

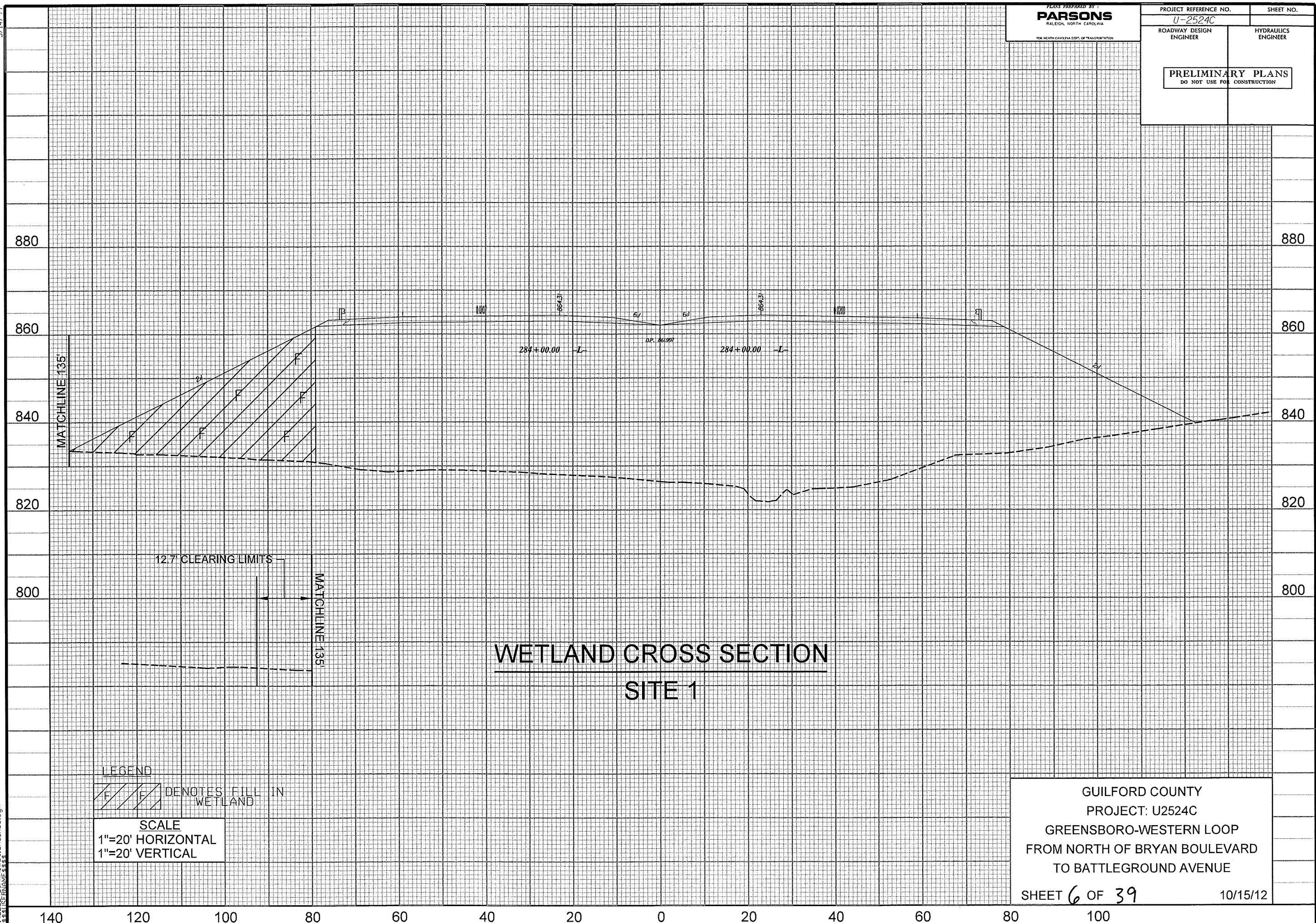


-L- STA. 287+03 TO 287+30 (RT)

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U-2524C			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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8/17/99

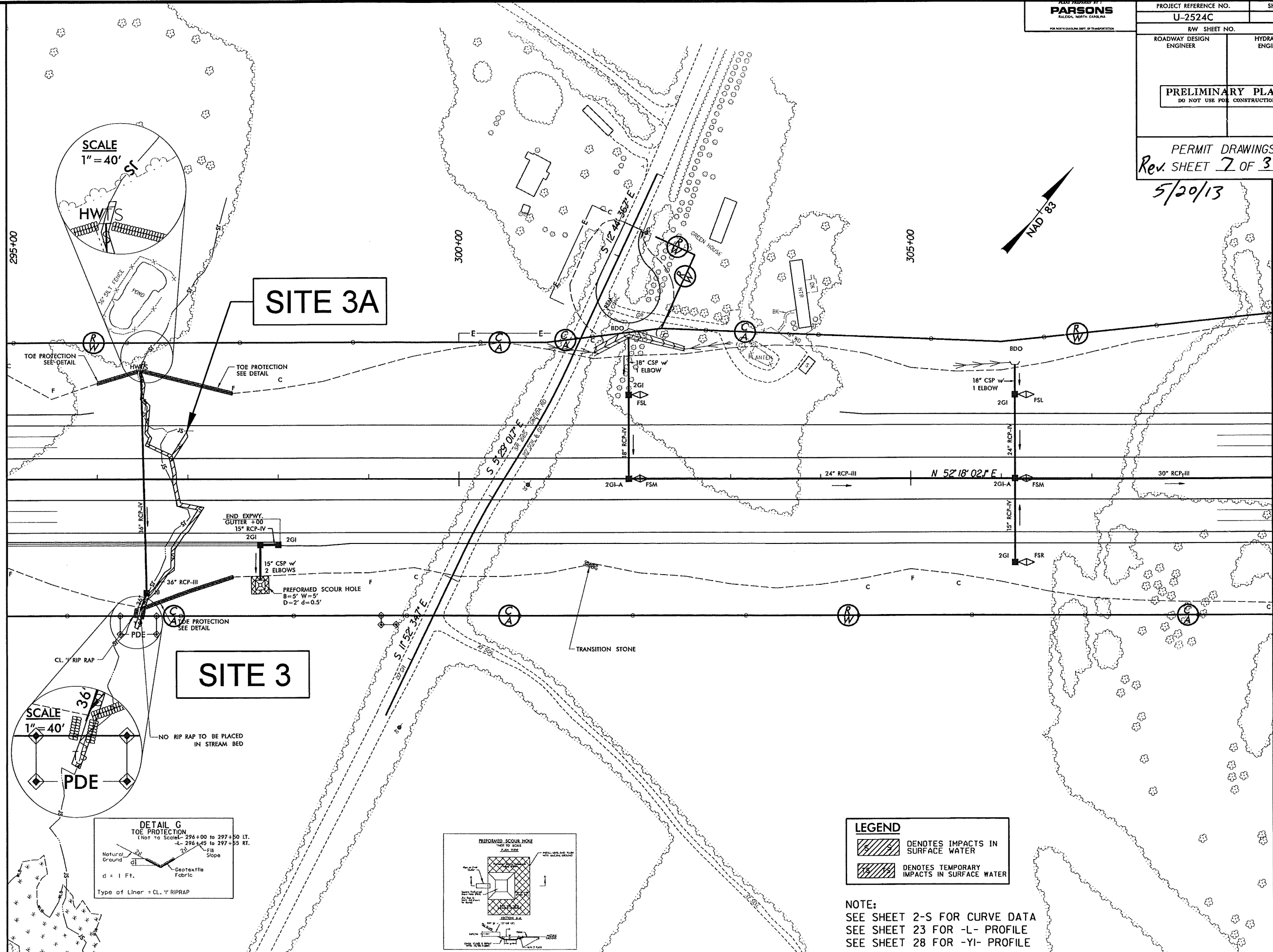
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PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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PERMIT DRAWINGS Rev. SHEET <u>7</u> OF <u>39</u>			

MATCH LINE -L- STA 295+00 SEE SHEET 8

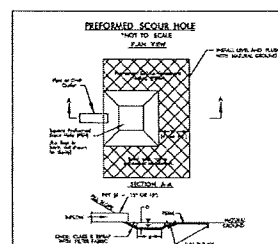
MATCH LINE -L- STA 309+00 SEE SHEET 10



SCALE
1" = 40'

SCALE
1" = 40'

DETAIL C
TOE PROTECTION
(Not to Scale - 296+00 to 297+50 LT.
-L- 296+45 to 297+55 RT.)
Natural Ground
d = 1 Ft.
Geotextile Fabric
Type of Liner = CL, Y RIPRAP



LEGEND	
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 28 FOR -YI- PROFILE

8/17/99

10/02/05 AV
U2524C.RDY_PSH.099B.dgn
U2524C.RDY_PSH.099B.dgn

PARSONS
RALPH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.
U-2524C		9
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

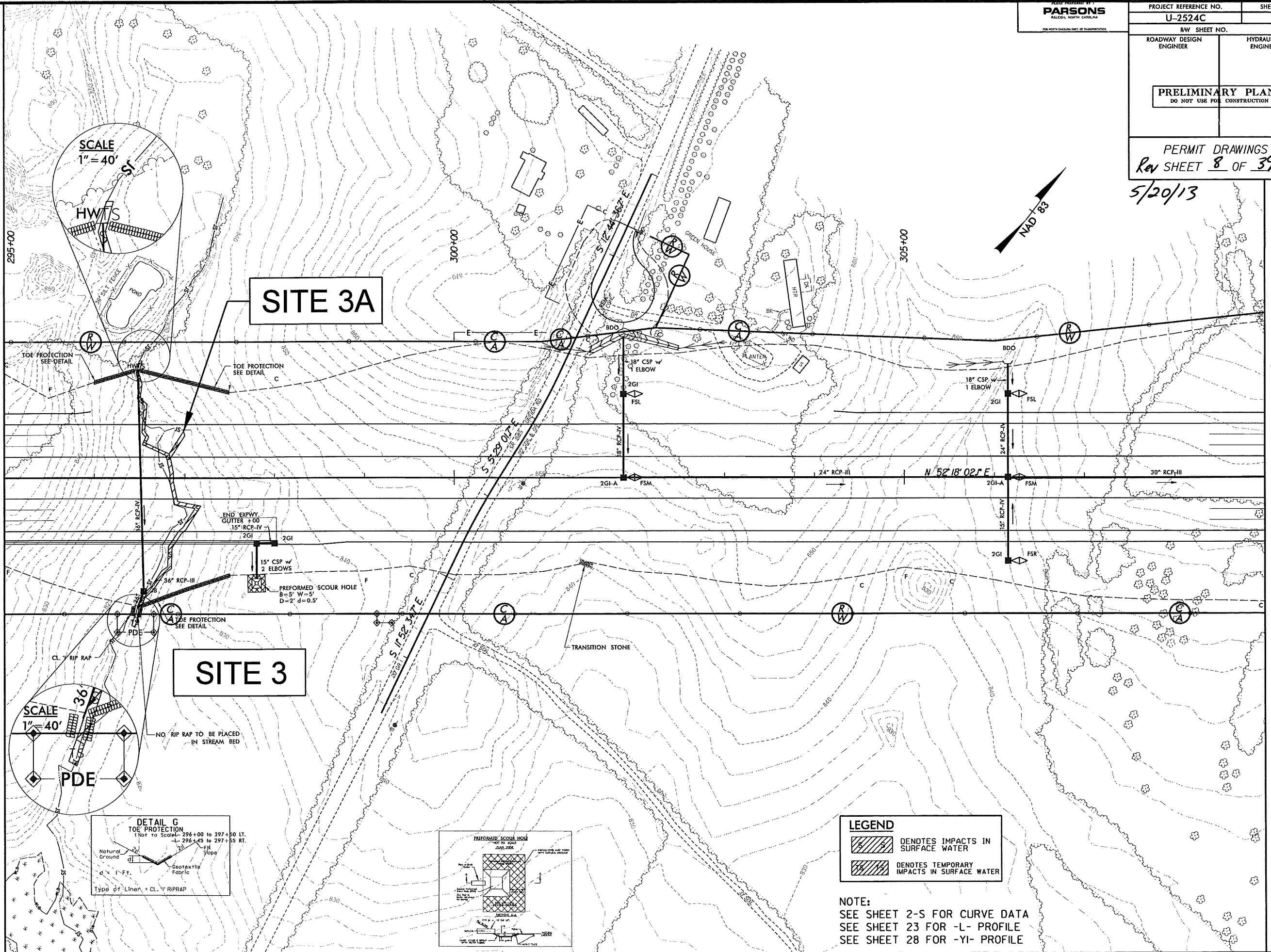
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
Rev SHEET 8 OF 39

5/20/13

MATCH LINE -L- STA 295+00 SEE SHEET 8

MATCH LINE -L- STA 309+00 SEE SHEET 10



LEGEND	
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 28 FOR -YI- PROFILE

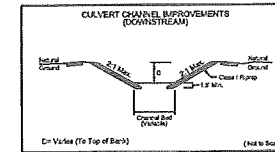
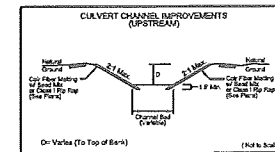
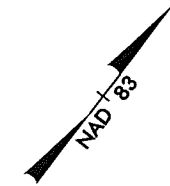
8/17/99

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PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.
U-2524C		10
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
<div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div>		
PERMIT DRAWINGS		
Rev. SHEET <u>9</u> OF <u>39</u>		

4/12/13



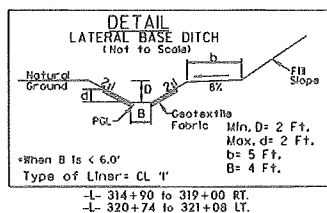
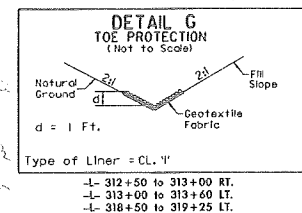
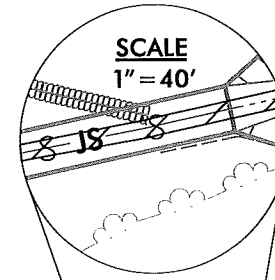
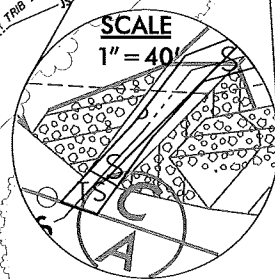
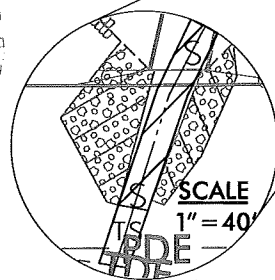
MATCH LINE -L- STA 309+00 SEE SHEET 9

SITE 4

SITE 5

SITE 5A

MATCH LINE -L- STA 323+00 SEE SHEET 11



LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-W FOR RETAINING WALL ENVELOPE
SEE SHEET 23 & 24 FOR -L- PROFILE

8/17/99

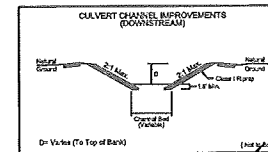
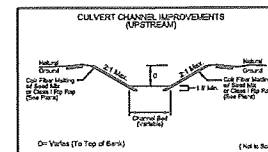
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PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 10
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

PERMIT DRAWINGS
Rev. SHEET 10 OF 39

4/12/13



MATCH LINE -L- STA 309+00 SEE SHEET 9

MATCH LINE -L- STA 323+00 SEE SHEET 11

SITE 4

SITE 5

SITE 5A

NAD 83

SCALE
1" = 40'

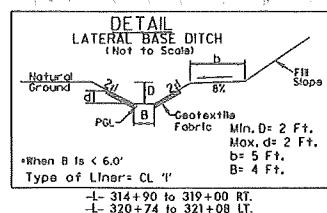
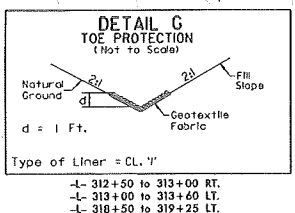
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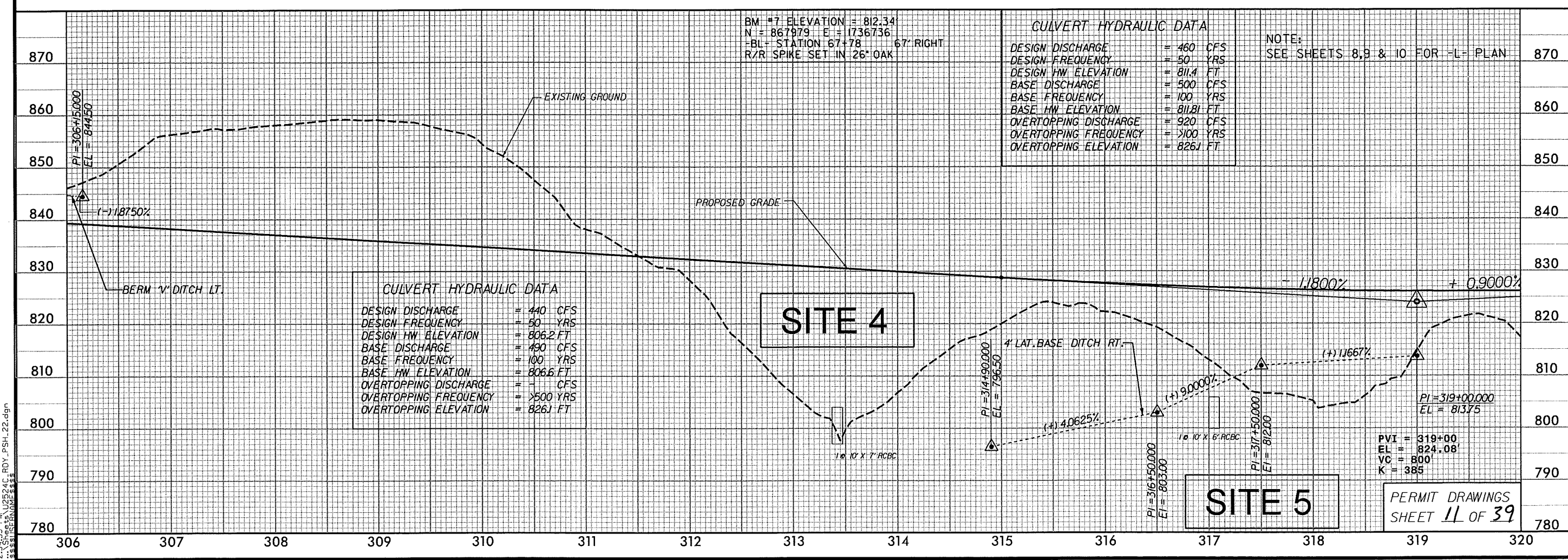
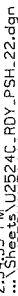
SCALE
1" = 40'

LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-W FOR RETAINING WALL ENVELOPE
SEE SHEET 23 & 24 FOR -L- PROFILE





5/14/99

PLANS PREPARED BY
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

840

830

820

810

800

790

840

830

820

810

800

790

CL STA. 313+41.80
PROP. 1 @ 10' X 7' RCBC
GP ELEV. = 830.66
SKEW = 103°

3:1 (NORMAL)

2:1 (NORMAL)

PROPOSED 100 YEAR
W.S. ELEV. = 806.6
PROPOSED 50 YEAR
W.S. ELEV. = 806.2

N.W.S. ELEV. = 800.2

PROPOSED OUTLET
ELEV. = 799.09
(BURIED 1 FT.)

NATURAL GROUND ALONG
CL CULVERT

ELEV. 796.9

S = 1.5716%
1' HIGH CONCRETE BAFFLES AT
25' CENTERS (SEE CSR)

EXISTING LEFT TOP OF BANK
EXISTING RIGHT TOP OF BANK

PROPOSED INLET
ELEV. = 794.50
(BURIED 1 FT.)

PROFILE ALONG STRUCTURE SITE 4

SCALE
1"=50' HORIZONTAL
1"=10' VERTICAL

GUILFORD COUNTY
PROJECT: U2524C
GREENSBORO-WESTERN LOOP
FROM NORTH OF BRYAN BOULEVARD
TO BATTLEGROUND AVENUE

SHEET 12 OF 39

02/01/13

200

150

100

50

0

50

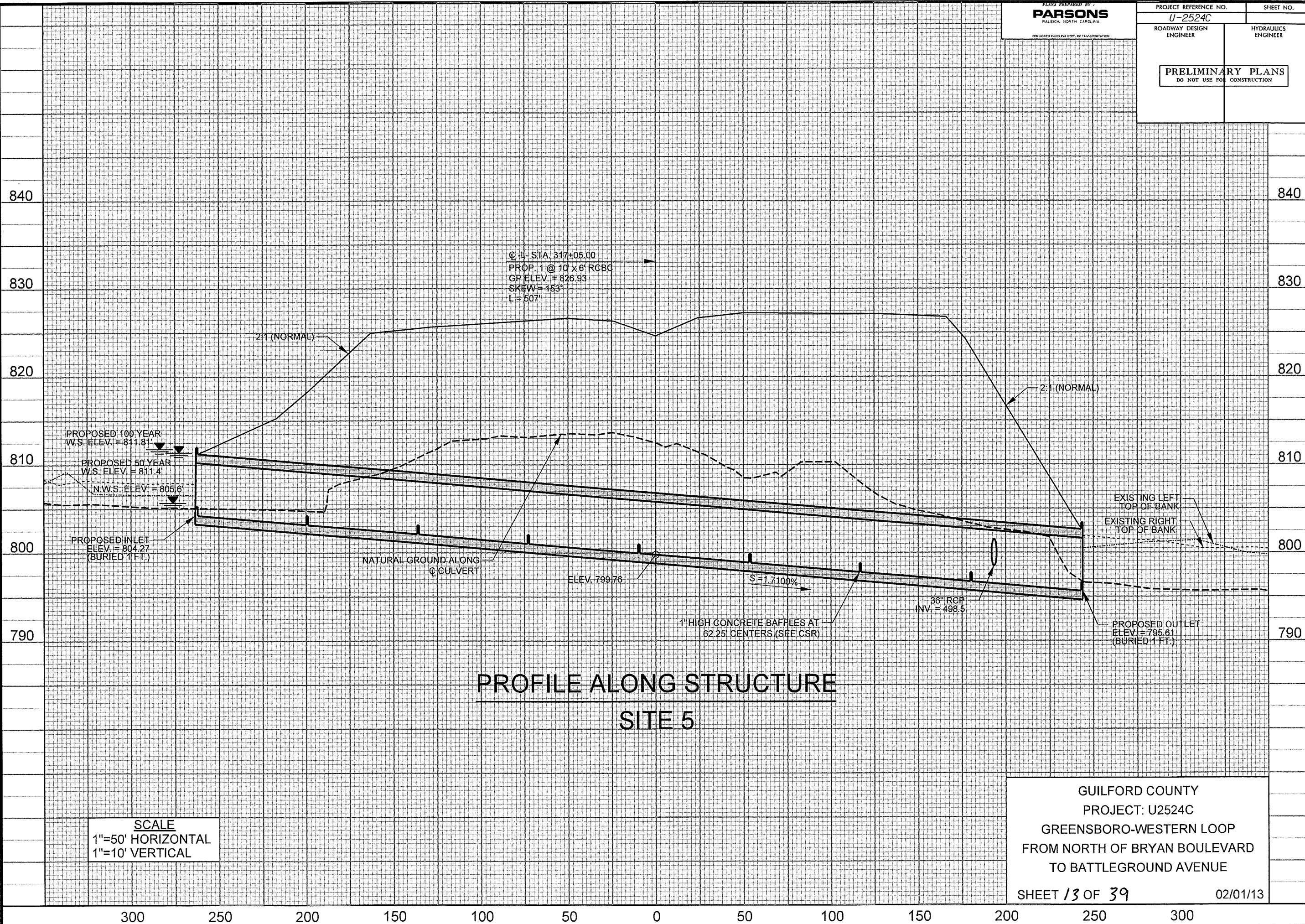
100

150

200

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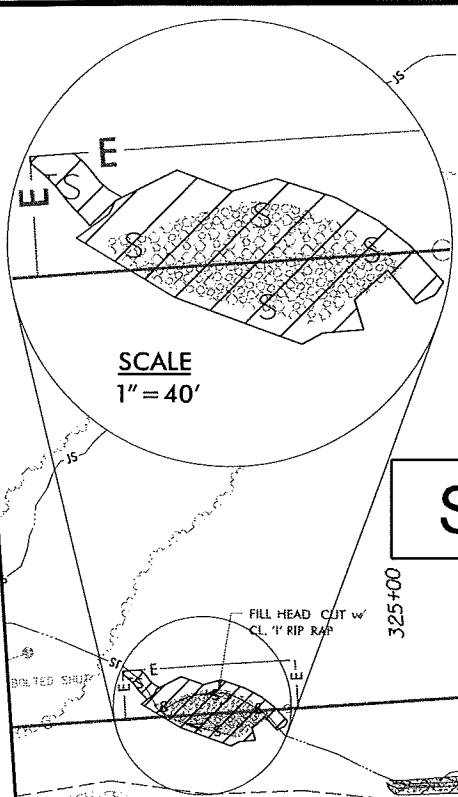


8/17/99

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 11
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
PERMIT DRAWINGS SHEET 14 OF 39		

MATCH LINE -L- STA 323+00 SEE SHEET 10



SITE 6

NAD 83

MATCH LINE -Y2- STA 19+00

SEE SHEET 18

MATCH LINE -L- STA 337+00 SEE SHEET 12

LEGEND	
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-S OR CURVE DATA
SEE SHEET 2-X FOR RETAINING WALL ENVELOPE
SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 29 FOR -Y2- PROFILE
SEE SHEET 2-U FOR -Y2- DETOUR PLAN
SEE SHEET 35 FOR -Y2- DETOUR PROFILE

REVISIONS

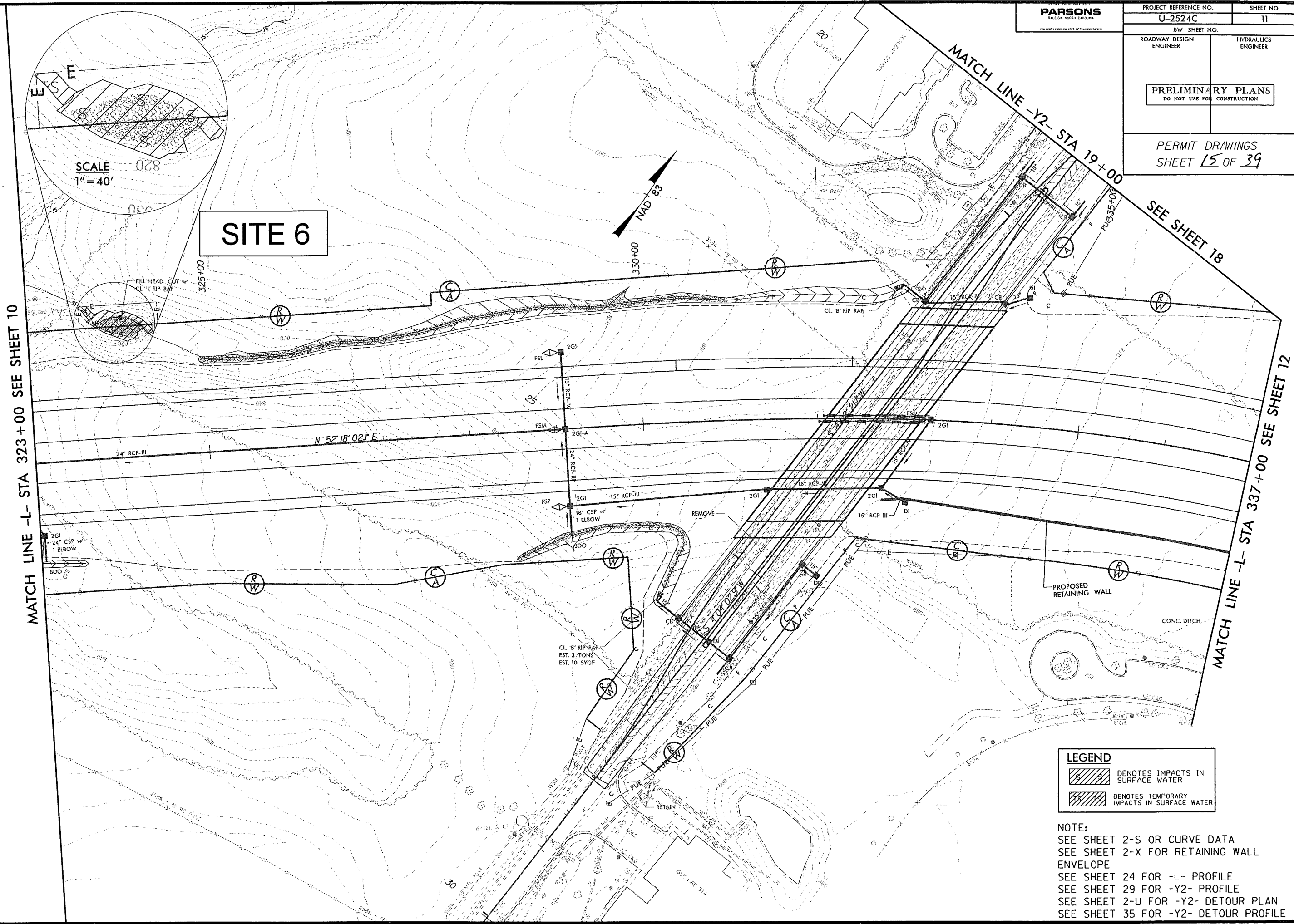
2:30:03 PM U2524C.RDY_PSH_11A.dgn
3:43:51 PM U2524C.RDY_PSH_11A.dgn

8/17/99

PROJECT PREPARED BY
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 11
RAW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

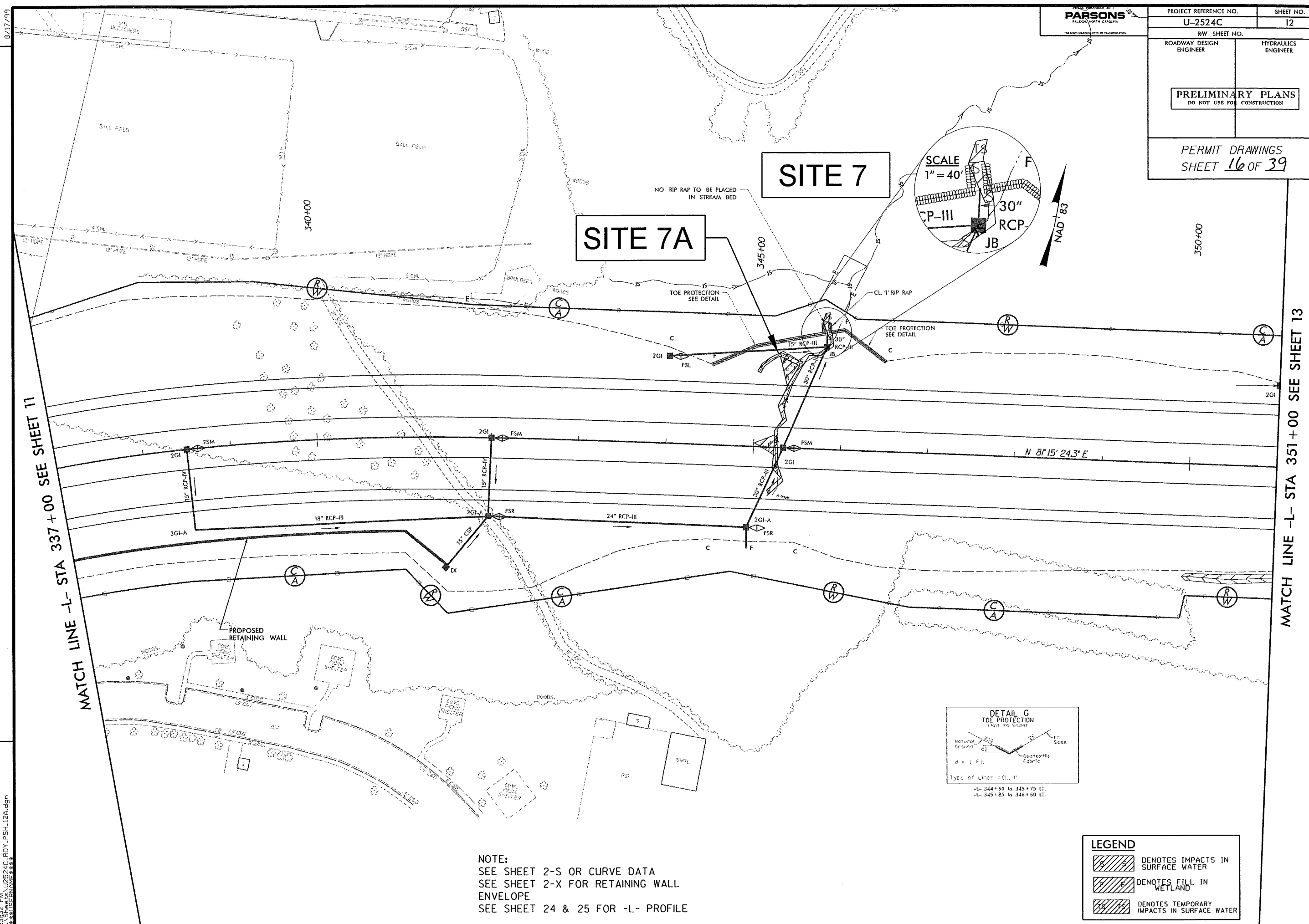
PERMIT DRAWINGS
SHEET 15 OF 39



REVISIONS




2:19:19 PM U:\2524C\RDY_PSH_11B.dgn
33:31:03 PM 8/17/99

PERMIT DRAWINGS
SHEET 16 OF 39



NOTE:
SEE SHEET 2-S OR CURVE DATA
SEE SHEET 2-X FOR RETAINING WALL
ENVELOPE
SEE SHEET 24 & 25 FOR -L- PROFILE

LEGEND

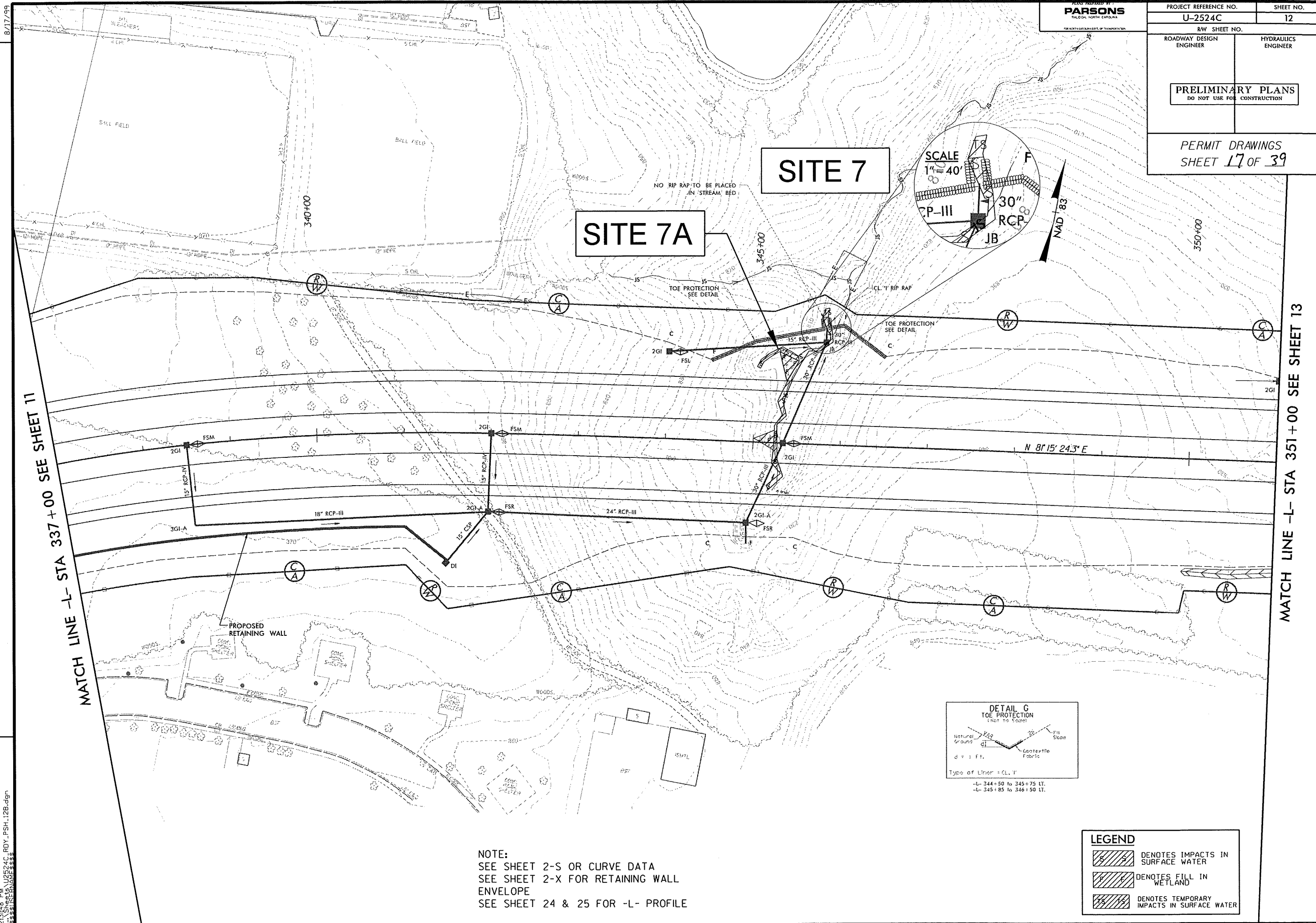
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES FILL IN WETLAND
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

2:31:32 PM
...\\Sheets\\U2524C_RDY_PSH_12A.dgn

8/17/99

PARSONS
SALEGA, NORTH CAROLINA
FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 12
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
PERMIT DRAWINGS SHEET 17 OF 39		



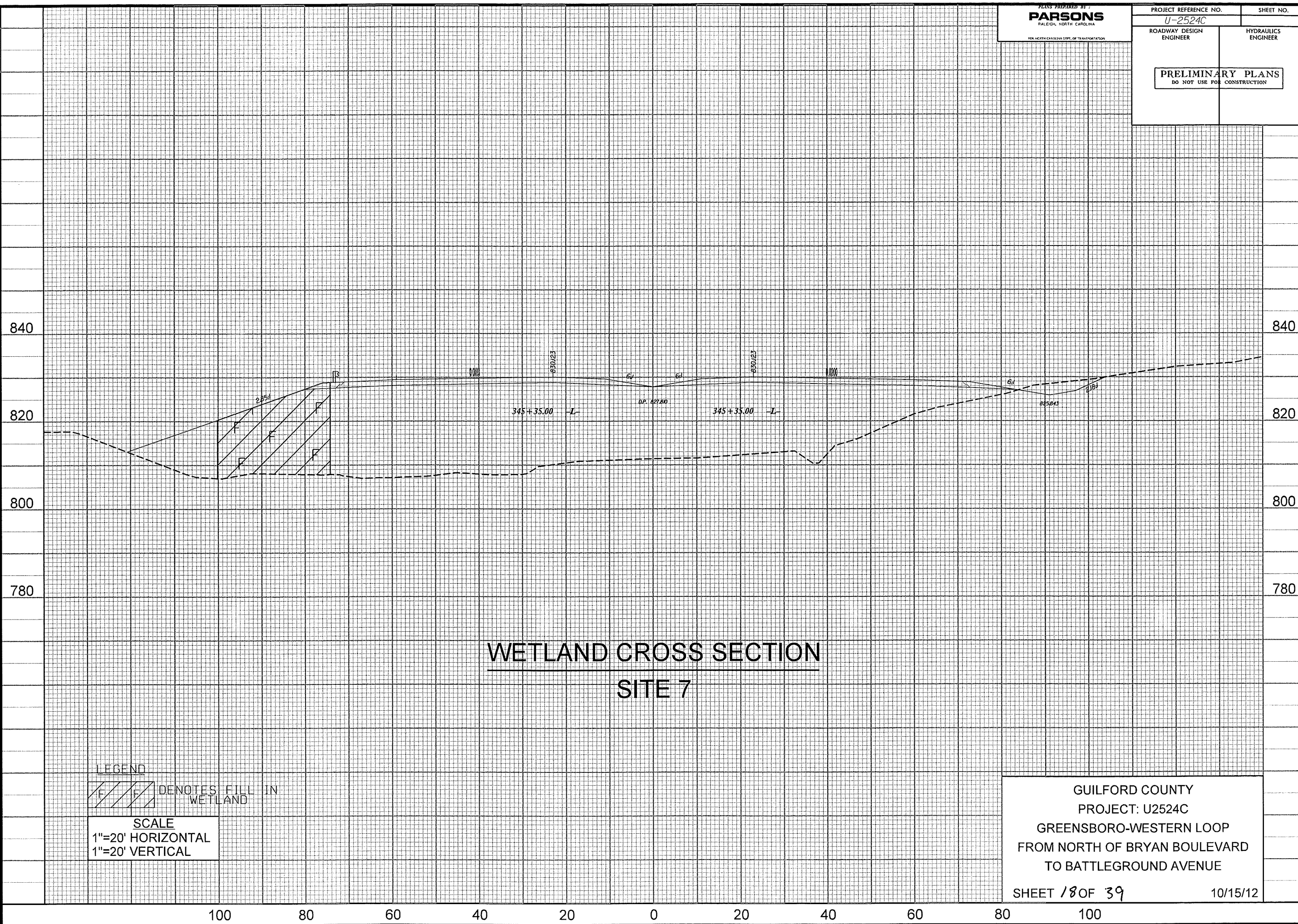
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33:33:33 PM U-2524C RDY_PSH_12B.dgn

MATCH LINE -L- STA 351+00 SEE SHEET 13

9:19:41 AM
\\U2524C-PRM-Wetland-XSC.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-2524C	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



8/17/99

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
U-2524C	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
4/12/13 Rev. SHEET 19 OF 39

NAD 83

SITE 8

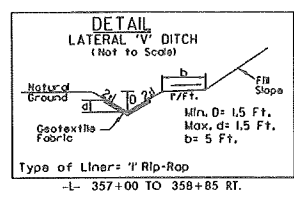
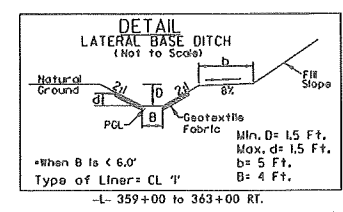
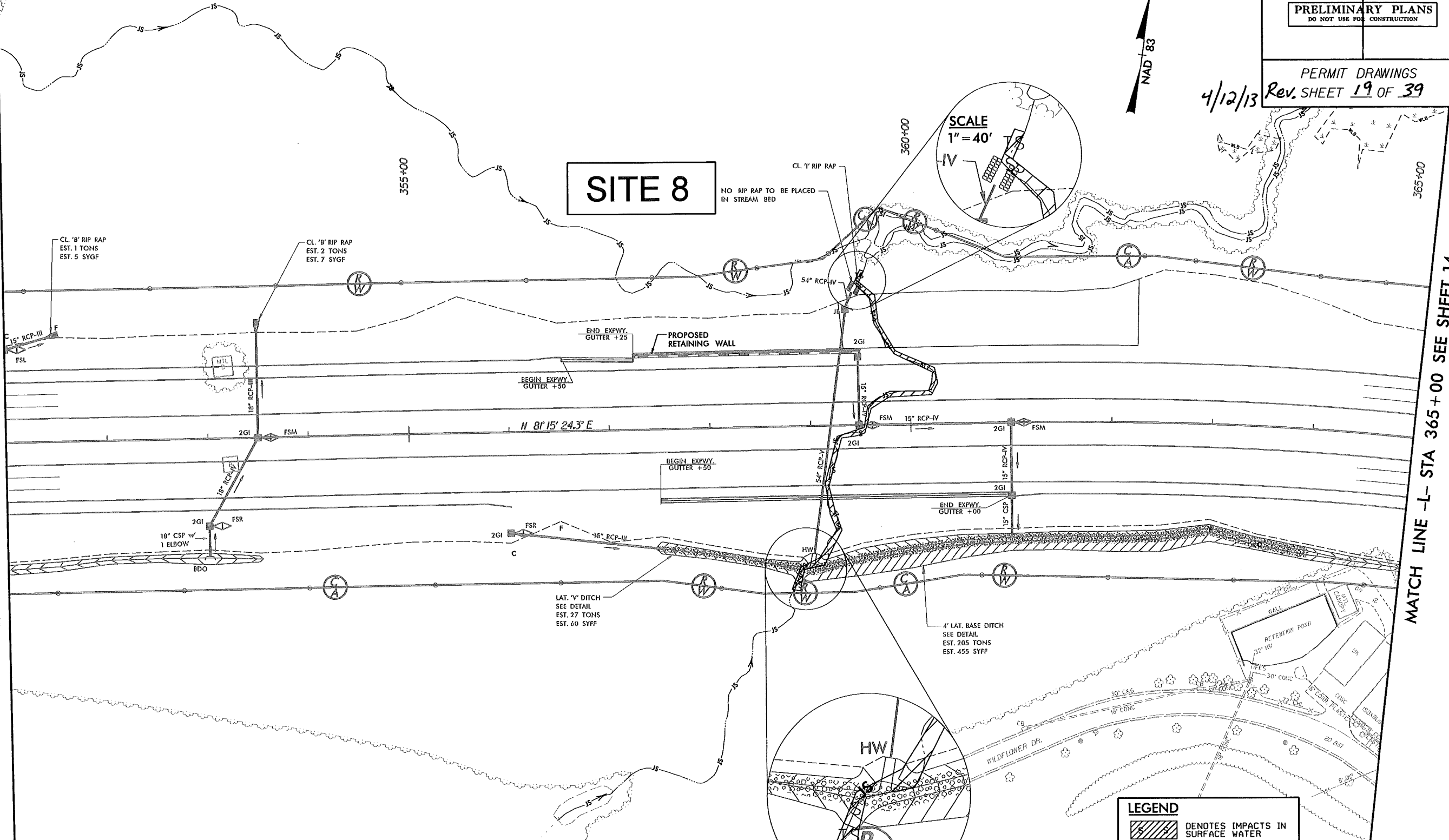
SCALE
1" = 40'

MATCH LINE -L- STA 351+00 SEE SHEET 12

MATCH LINE -L- STA 365+00 SEE SHEET 14

REVISIONS

5:40:08 PM U-2524C-RDY_PSH-13A.dgn
C:\P\PROJECTS\U-2524C\RDY_PSH-13A.dgn



LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 2-W FOR RETAINING WALL ENVELOPE
SEE SHEET 25 FOR -L- PROFILE

8/17/99

5:40:28 PM U2524C.RDY_PSH-13B.dgn
\\SSS\USE\ENGINEERS

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C	SHEET NO. 13
RDW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWINGS
Rev SHEET 200F 39

4/13/13

NAD 83

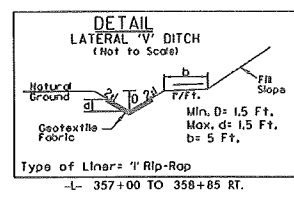
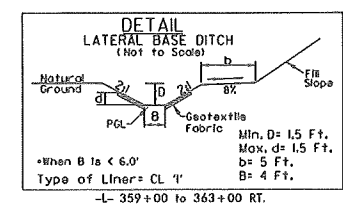
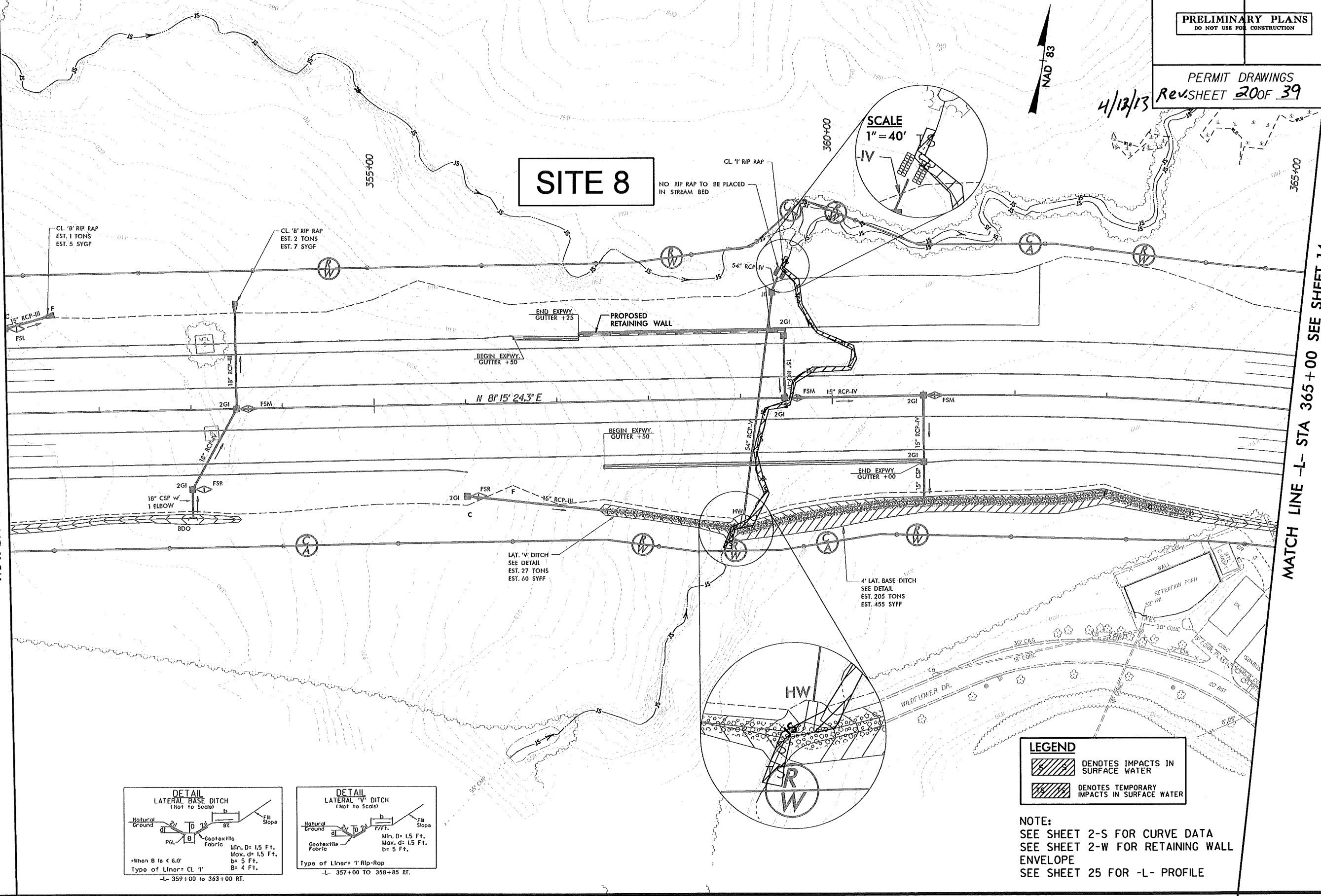
MATCH LINE -L- STA 351+00 SEE SHEET 12

MATCH LINE -L- STA 365+00 SEE SHEET 14

SITE 8

SCALE
1" = 40'

NO RIP RAP TO BE PLACED
IN STREAM BED

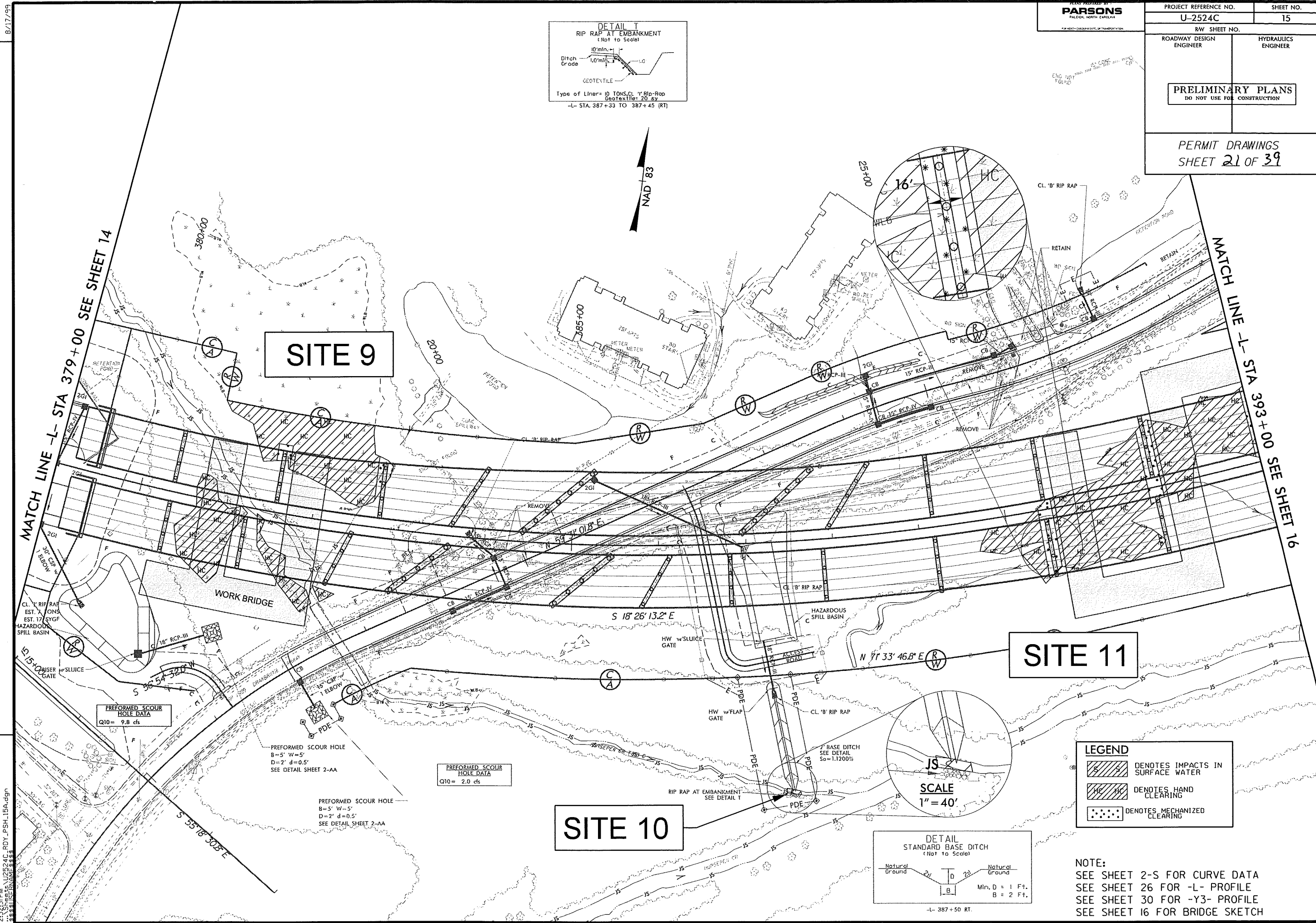
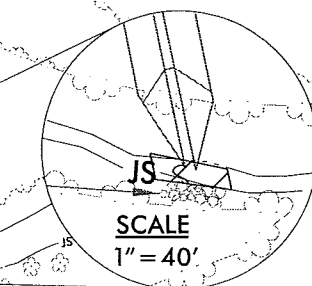
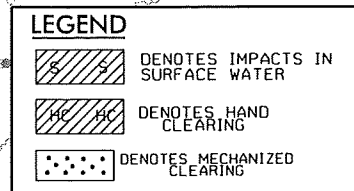
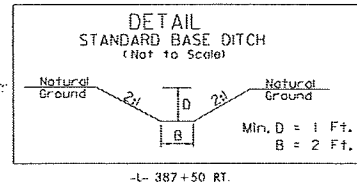


LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 2-W FOR RETAINING WALL
ENVELOPE
SEE SHEET 25 FOR -L- PROFILE

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 30 FOR -Y3- PROFILE
SEE SHEET 16 FOR BRIDGE SKETCH



8/17/99

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

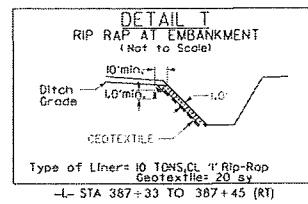
PROJECT REFERENCE NO.
U-2524C

SHEET NO.
15

RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 22 OF 39



NAD 83

SITE 9

SITE 11

SITE 10

MATCH LINE -L- STA 379+00 SEE SHEET 14

MATCH LINE -L- STA 393+00 SEE SHEET 16

CL 1' RIP RAP
EST. 7 TONS
EST. 17 SYGF
HAZARDOUS
SPILL BASIN

WORK BRIDGE

PREFORMED SCOUR
HOLE DATA
Q10 = 9.8 cfs

PREFORMED SCOUR HOLE
B = 5' W = 5'
D = 2' d = 0.5'
SEE DETAIL SHEET 2-AA

PREFORMED SCOUR
HOLE DATA
Q10 = 2.0 cfs

PREFORMED SCOUR HOLE
B = 5' W = 5'
D = 2' d = 0.5'
SEE DETAIL SHEET 2-AA

S 18° 26' 13.2" E

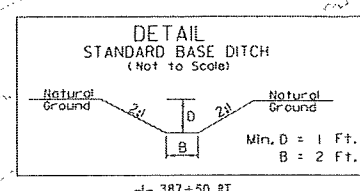
N 71° 33' 46.8" E

S 55° 18' 50.8" E

LEGEND

- IMPACTS IN SURFACE WATER
- HAND CLEARING
- MECHANIZED CLEARING

SCALE
1" = 40'



NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 30 FOR -Y3- PROFILE
SEE SHEET 16 FOR BRIDGE SKETCH

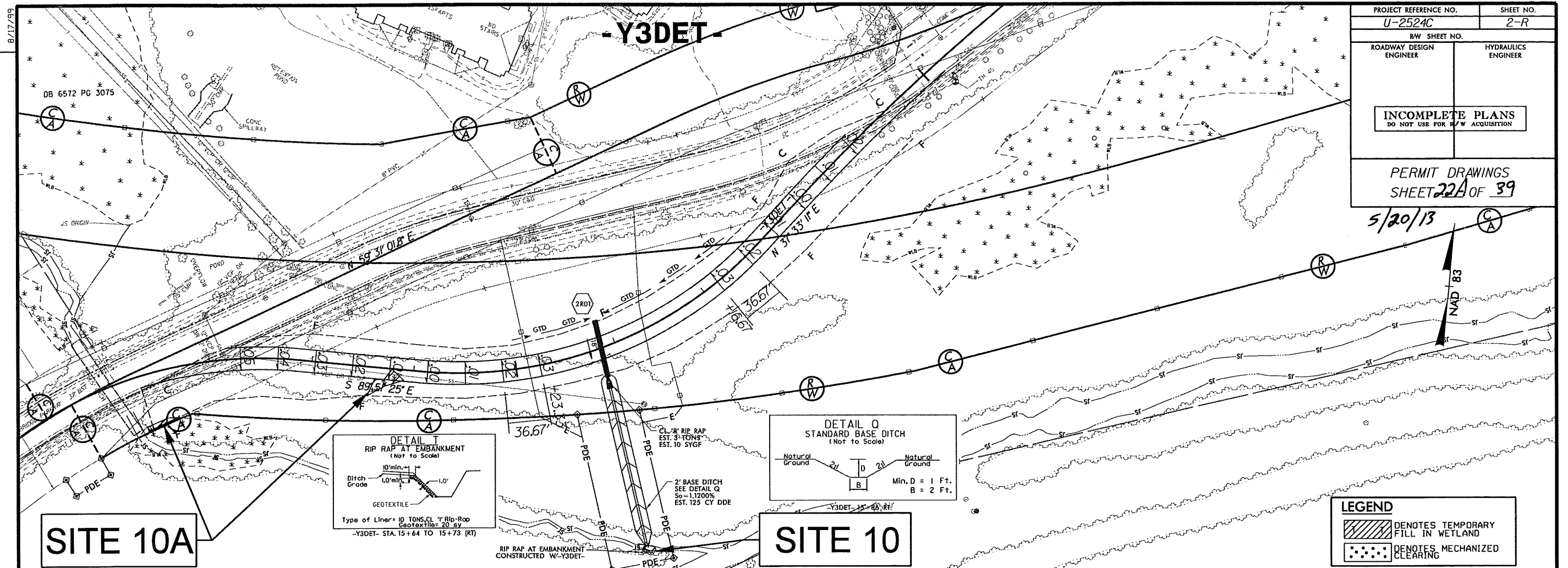
REVISIONS

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25/08/99 15:55:55

8/17/99

I:\2657.DWG RDY FSH 02-RA.dgn
24/02/2013 10:53:53

REVISIONS



PROJECT REFERENCE NO. U-2524C		SHEET NO. 2-R	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
PERMIT DRAWINGS SHEET 22A OF 39			

5/20/13

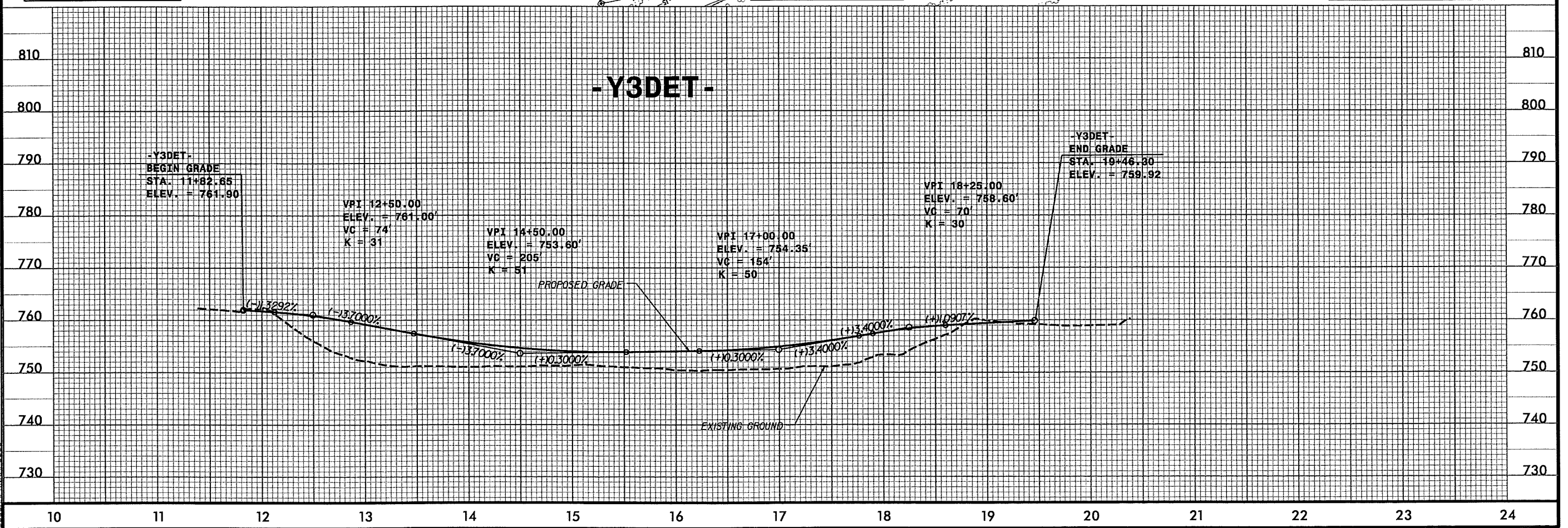
NAD 83

SITE 10A

SITE 10

LEGEND

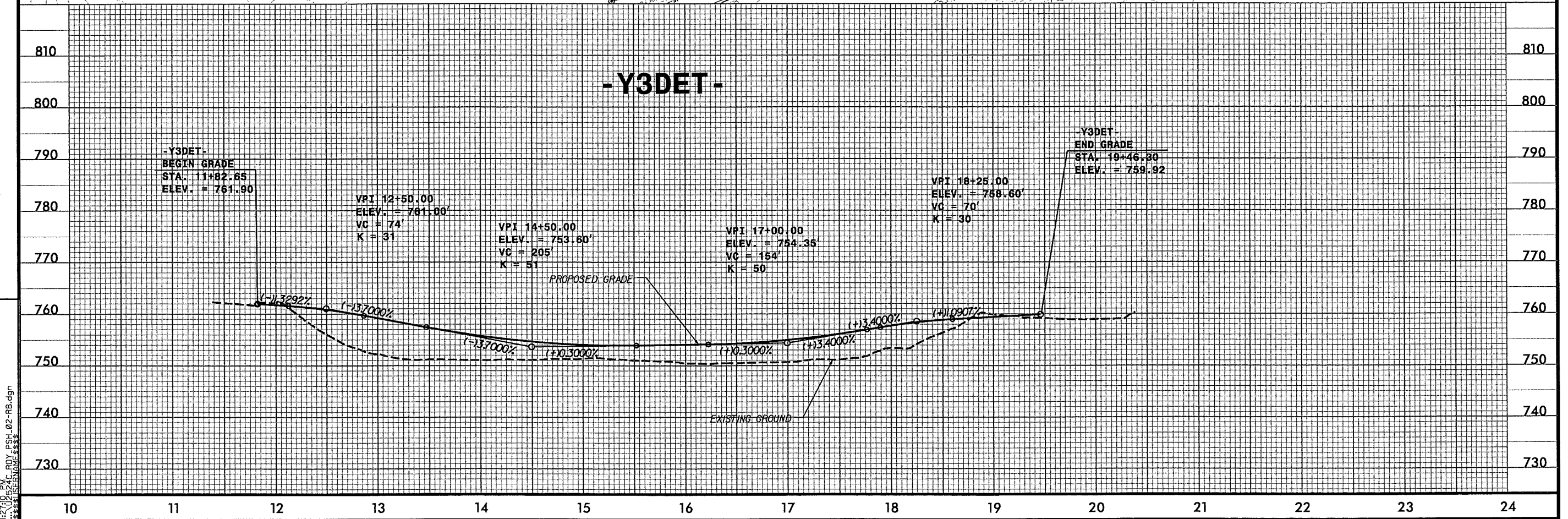
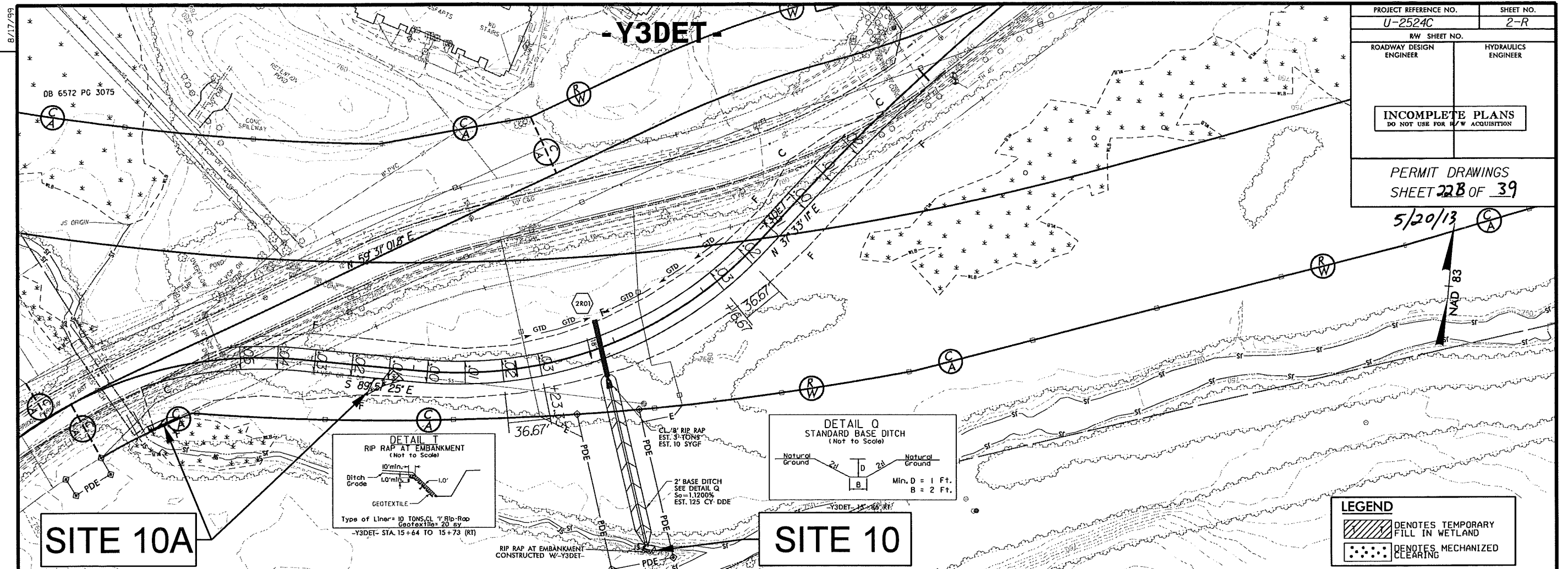
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES MECHANIZED CLEARING



8/17/99

1:27:10 PM C:\P01\PSH-02-RB.dgn
USER: JESSIE

REVISIONS



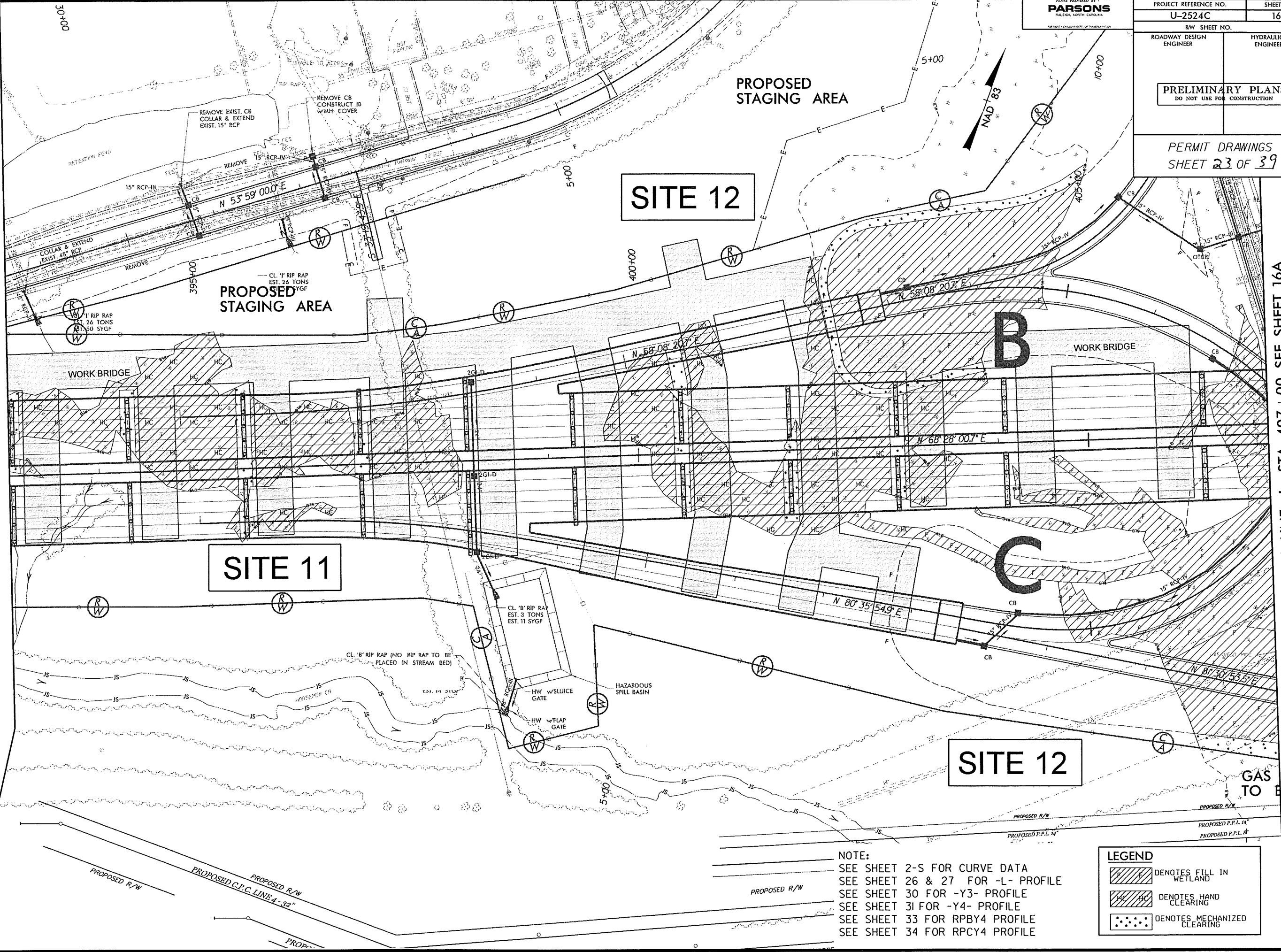
8/17/99

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 16A
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
PERMIT DRAWINGS SHEET 23 OF 39		

MATCH LINE -L- STA 393+00 SEE SHEET 15

MATCH LINE -L- STA 407+00 SEE SHEET 16A



REVISIONS

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24/08/99 10:00:00
24/08/99 10:00:00

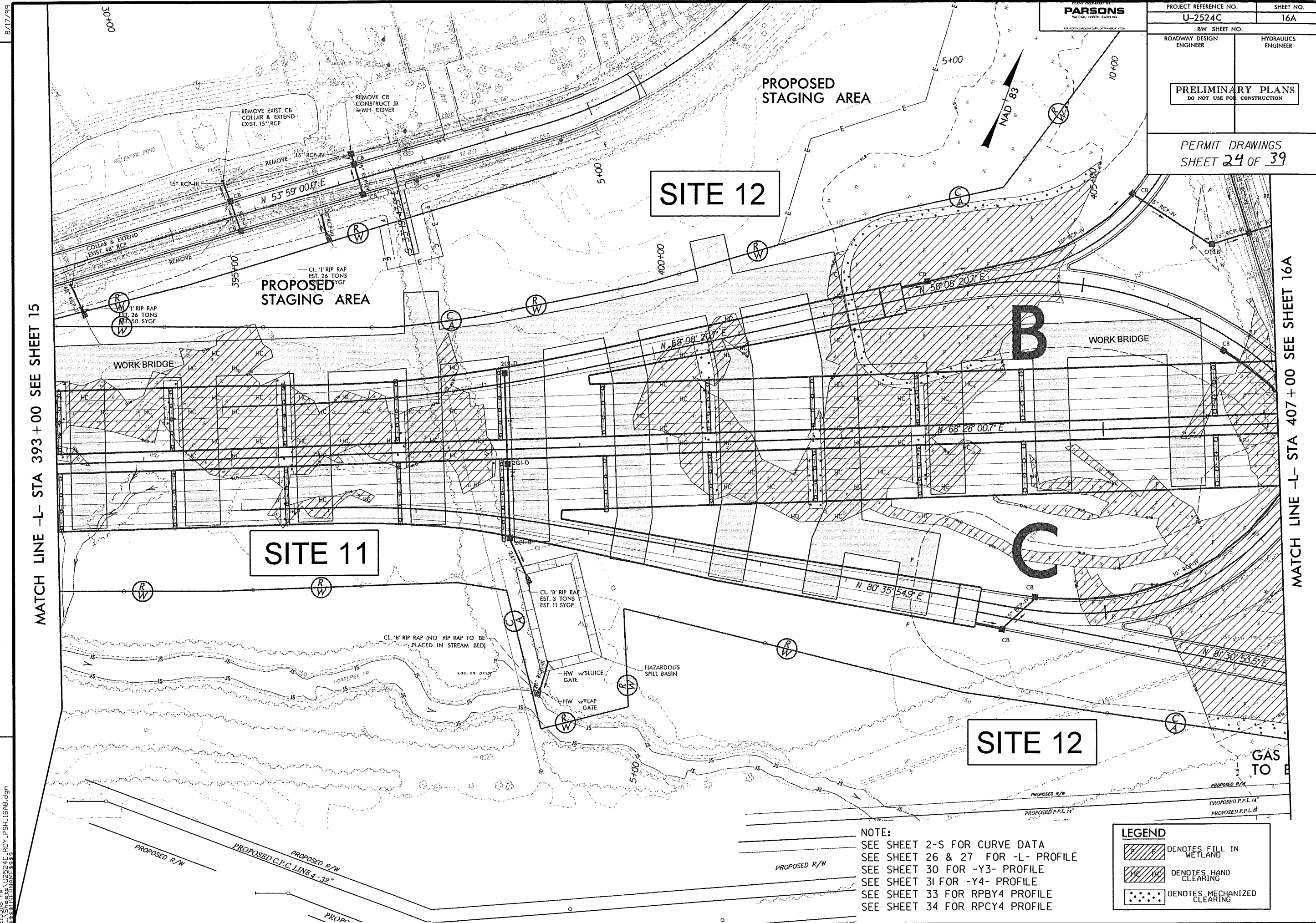
NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 26 & 27 FOR -L- PROFILE
SEE SHEET 30 FOR -Y3- PROFILE
SEE SHEET 31 FOR -Y4- PROFILE
SEE SHEET 33 FOR RPY4 PROFILE
SEE SHEET 34 FOR RPCY4 PROFILE

LEGEND	
	DENOTES FILL IN WETLAND
	DENOTES HAND CLEARING
	DENOTES MECHANIZED CLEARING

PERMIT DRAWINGS
SHEET 24 OF 39




MATCH LINE -L- STA 393+00 SEE SHEET 15

MATCH LINE -L- STA 407+00 SEE SHEET 16A



NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 26 & 27 FOR -L- PROFILE
SEE SHEET 30 FOR -Y3- PROFILE
SEE SHEET 31 FOR -Y4- PROFILE
SEE SHEET 33 FOR RPB4 PROFILE
SEE SHEET 34 FOR RPC4 PROFILE

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES HAND CLEARING
	DENOTES MECHANIZED CLEARING

3:33:18 PM U2524C-ROY_PSH_16AB.dgn
 5 Sheets
 \$\$\$USE NAME\$\$\$

8/17/99

5:40:47 PM
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SSS\JL\JL\SSS

PARSONS
RALEIGH, NORTH CAROLINA
FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 16B	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWINGS
Rev. SHEET 25 OF 39

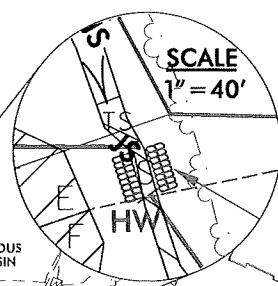
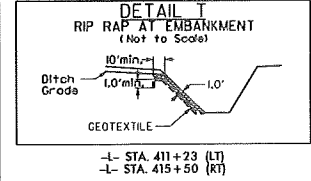
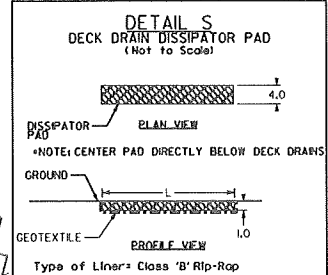
4/9/2/13

SITE 13

SITE 14

SITE 13

SITE 12



MATCH LINE -L- STA 407+00 SEE SHEET 16A

MATCH LINE -L- STA 421+00 SEE SHEET 17

LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES HAND CLEARING

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 26 & 27 FOR -L- PROFILE
SEE SHEET 31 FOR -Y4- PROFILE
SEE SHEET 32 FOR RPAY4 PROFILE
SEE SHEET 34 FOR RPCY4 PROFILE
SEE SHEET 35 FOR RPDY4 PROFILE
SEE SHEET 36 FOR SPAY4, SPCY4 & SPDY4 PROFILE

REVISIONS

8/17/99

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3/11/2000 10:00:00 AM

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
U-2524C	16B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
Rev. SHEET 26 OF 39

4/13/13

SITE 13

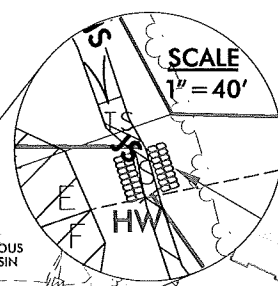
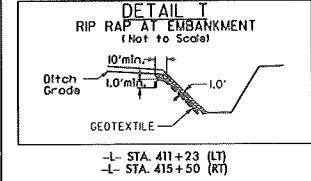
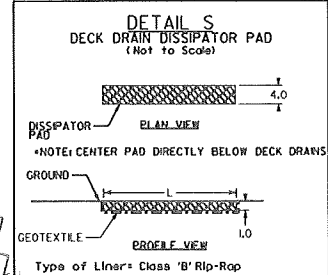
SITE 14

SITE 13

SITE 12

MATCH LINE -L- STA 407+00 SEE SHEET 16A

MATCH LINE -L- STA 421+00 SEE SHEET 17



LEGEND

	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
	DENOTES EXCAVATION IN WETLAND
	DENOTES HAND CLEARING

NOTE:
SEE SHEET 2-S FOR CURVE DATA
SEE SHEET 26 & 27 FOR -L- PROFILE
SEE SHEET 31 FOR -Y4- PROFILE
SEE SHEET 32 FOR RPAY4 PROFILE
SEE SHEET 34 FOR RPCY4 PROFILE
SEE SHEET 35 FOR RPDY4 PROFILE
SEE SHEET 36 FOR SPAY4, SPCY4
& SPDY4 PROFILE

REVISIONS

8/17/99

REVISIONS

MATCH LINE -Y4- STA 35+00 SEE SHEET 16

SITE 12

40+00

45+00

NAD 83

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 19
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
<div style="border: 1px solid black; padding: 10px; text-align: center;">PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION</div>		
<i>PERMIT DRAWINGS</i> <i>SHEET 27 OF 39</i>		

LEGEND
DENOTES FILL IN
WETLAND

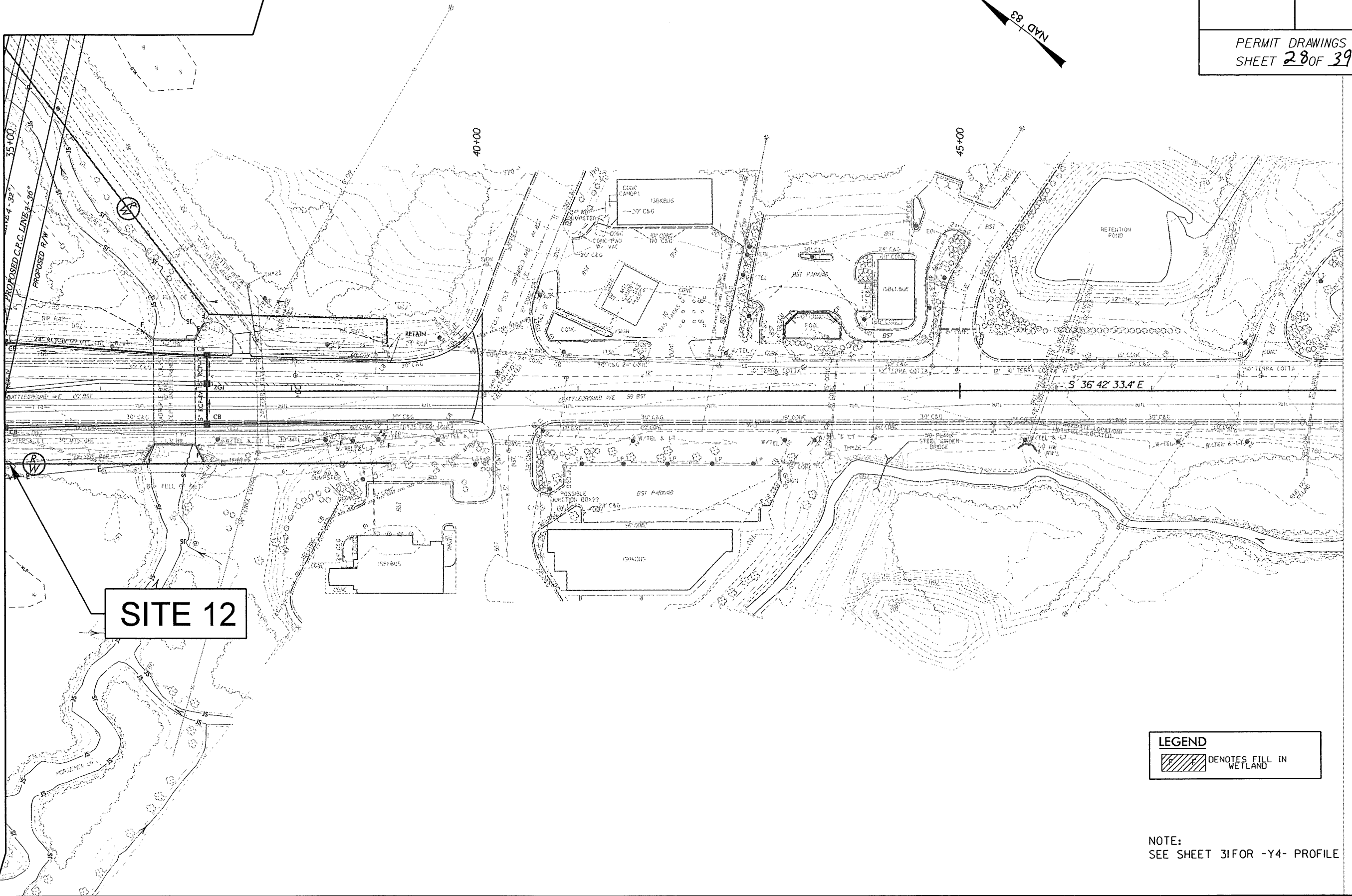
NOTE:
SEE SHEET 31 FOR -Y4- PROFILE

2:34:08 PM U:\PER24C.RDY.PSH.19A.dgn
25/08/99 10:00:00

8/17/99

REVISIONS

MATCH LINE -Y4- STA 35+00 SEE SHEET 16



SITE 12

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 19
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
PERMIT DRAWINGS SHEET 28 OF 39		

LEGEND
DENOTES FILL IN
WETLAND

NOTE:
SEE SHEET 31 FOR -Y4- PROFILE

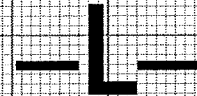
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5/28/99

BM #8 ELEVATION = 766.96'
N = 868350 E = 1742398
BL STATION 131+68 1,285' RIGHT
R/R SPIKE SET IN 20" PINE

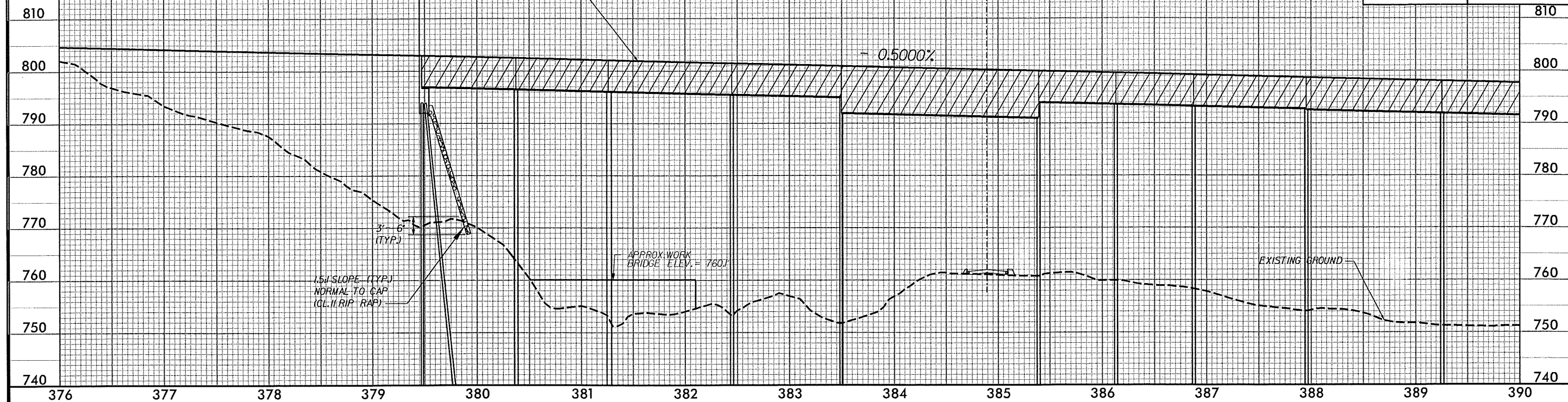
STA 379+45 -L-
BEGIN BRIDGE

SITE 9



Y3 DRAWBRIDGE PKWY. (SR 2499)

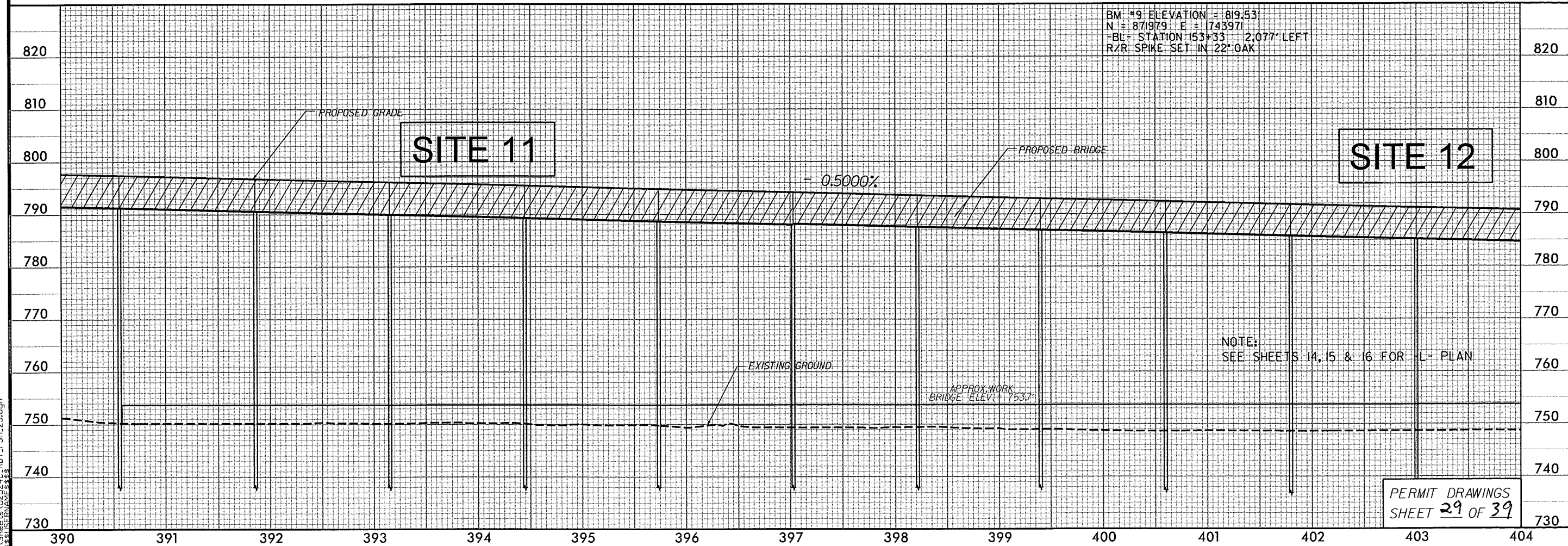
PROJECT REFERENCE NO.		SHEET NO.	
U-2524C		26	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



BM #9 ELEVATION = 819.53
N = 871979 E = 743971
BL STATION 153+33 2,077' LEFT
R/R SPIKE SET IN 22" OAK

SITE 11

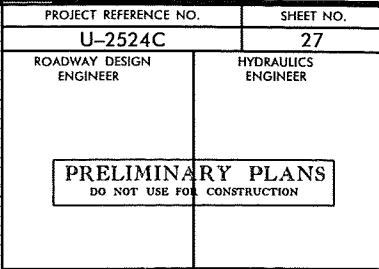
SITE 12



PERMIT DRAWINGS
SHEET 29 OF 39

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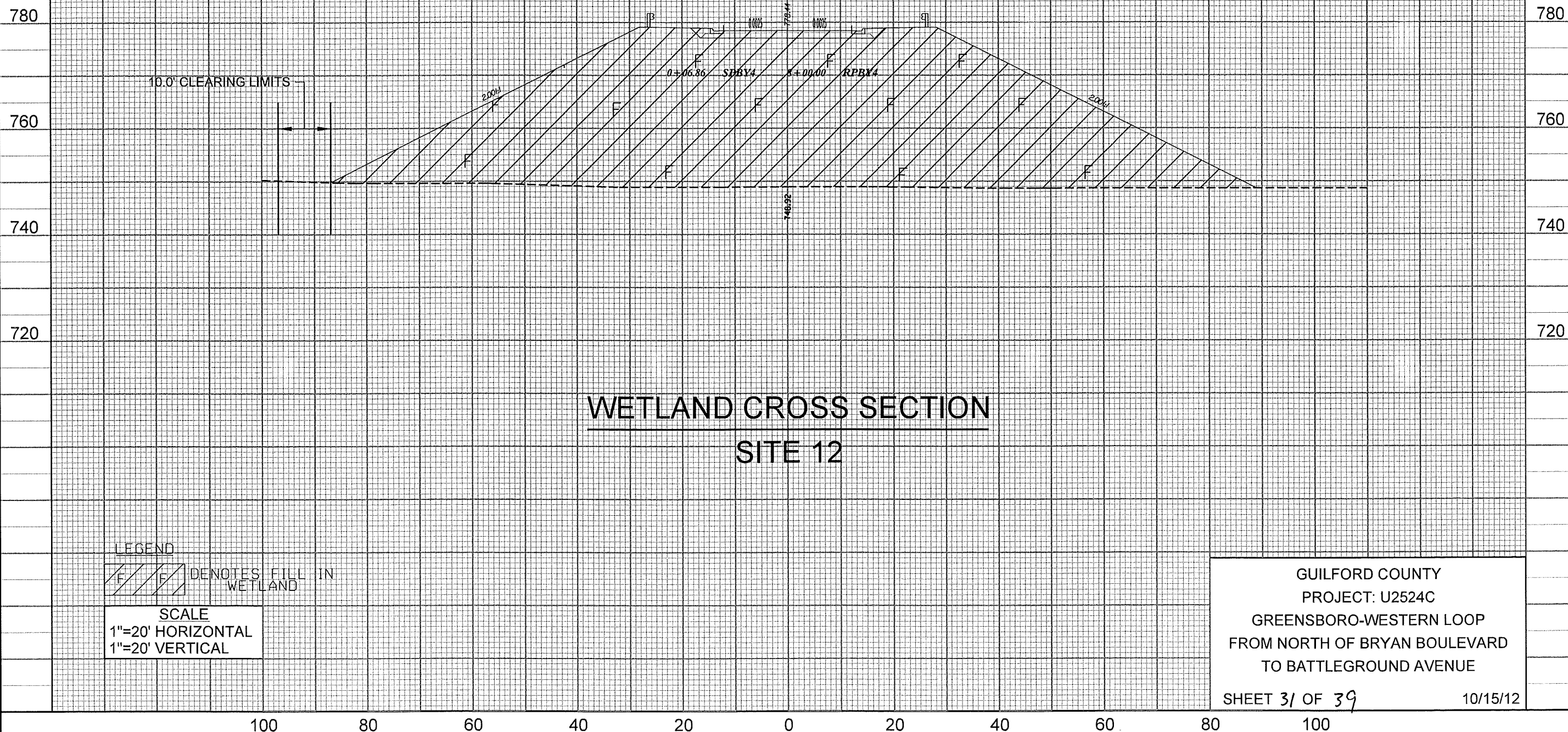
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5/14/99

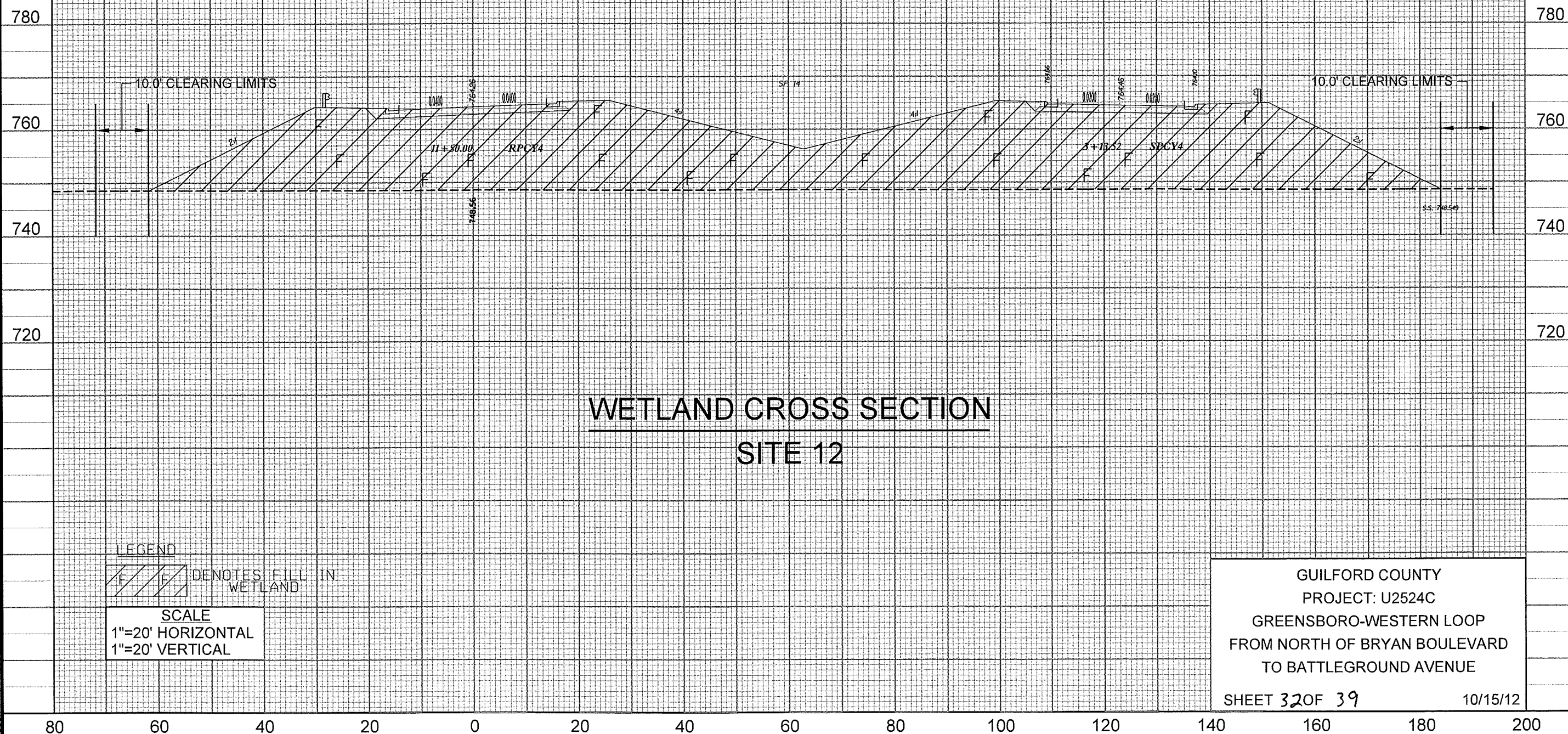
PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		



9:19:36 AM
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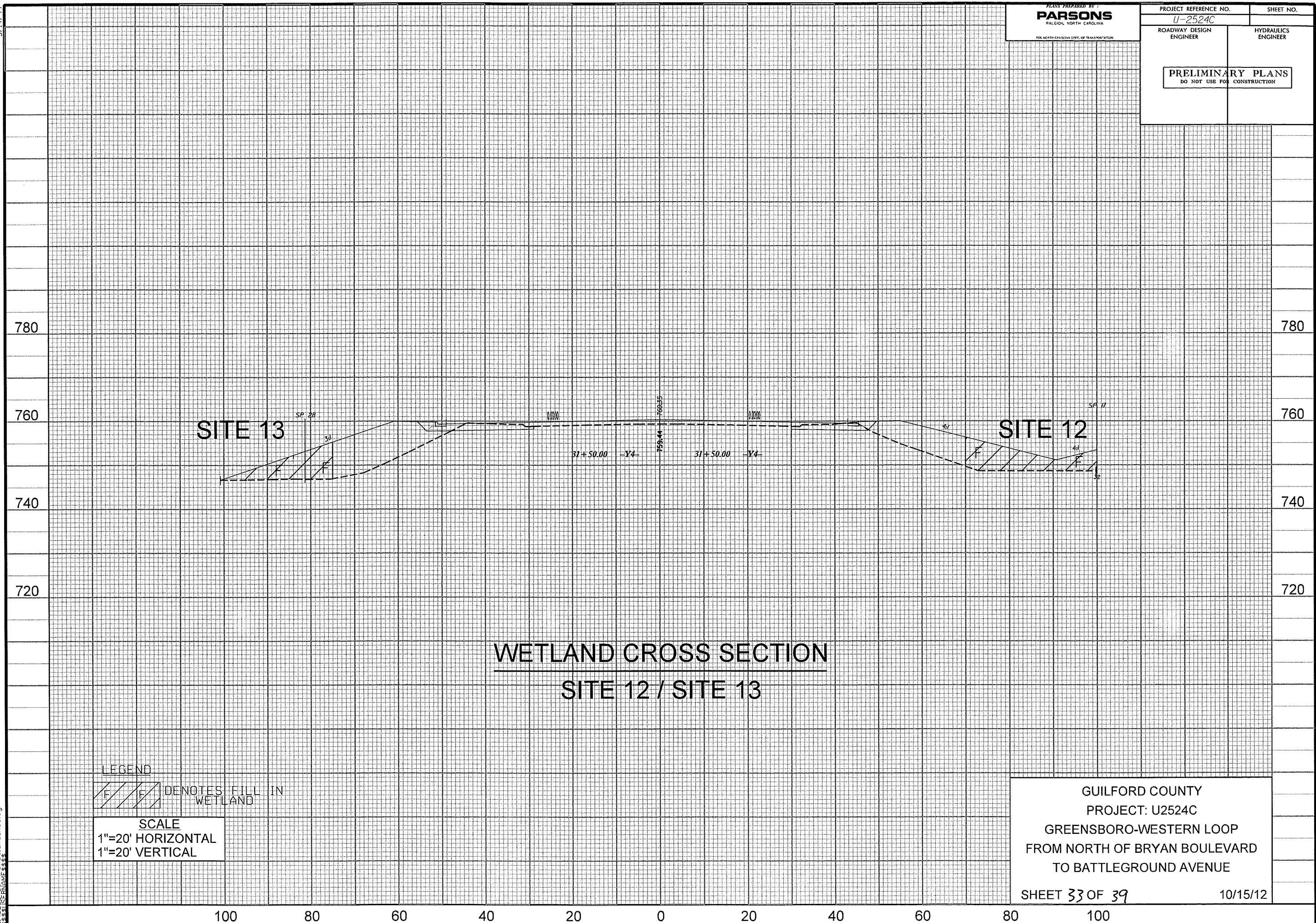
DO NOT USE FOR CONSTRUCTION



5/14/99

PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.
U-2524C		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		



LEGEND
F F DENOTES FILL IN WETLAND
SCALE
1"=20' HORIZONTAL
1"=20' VERTICAL

GUILFORD COUNTY
PROJECT: U2524C
GREENSBORO-WESTERN LOOP
FROM NORTH OF BRYAN BOULEVARD
TO BATTLEGROUND AVENUE
SHEET 33 OF 39
10/15/12

9:19:33 AM DPM Wetland.XSC.dgn
33/34/10/15/12

5/14/99

PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

780

780

760

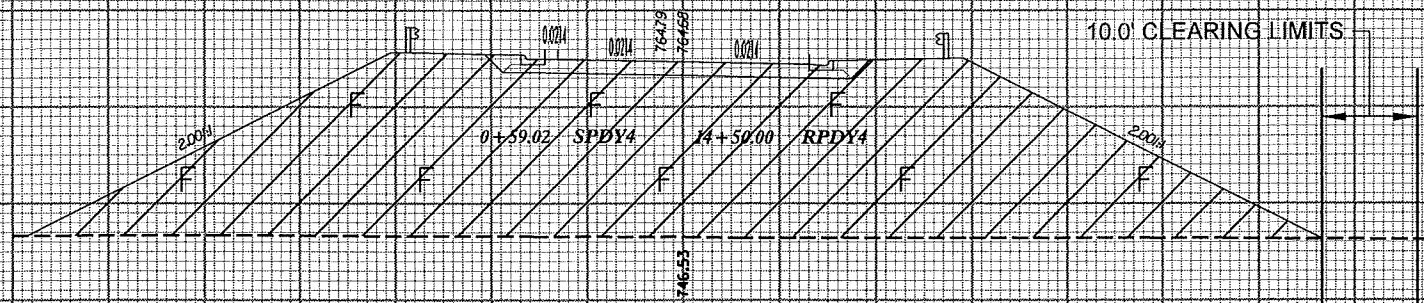
760

740

740

720

720



WETLAND CROSS SECTION SITE 13

LEGEND

 DENOTES FILL IN
WETLAND

SCALE

1"=20' HORIZONTAL
1"=20' VERTICAL

GUILFORD COUNTY
PROJECT: U2524C
GREENSBORO-WESTERN LOOP
FROM NORTH OF BRYAN BOULEVARD
TO BATTLEGROUND AVENUE

SHEET 34 OF 39

10/15/12

100

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PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA

PROJECT REFERENCE NO. _____

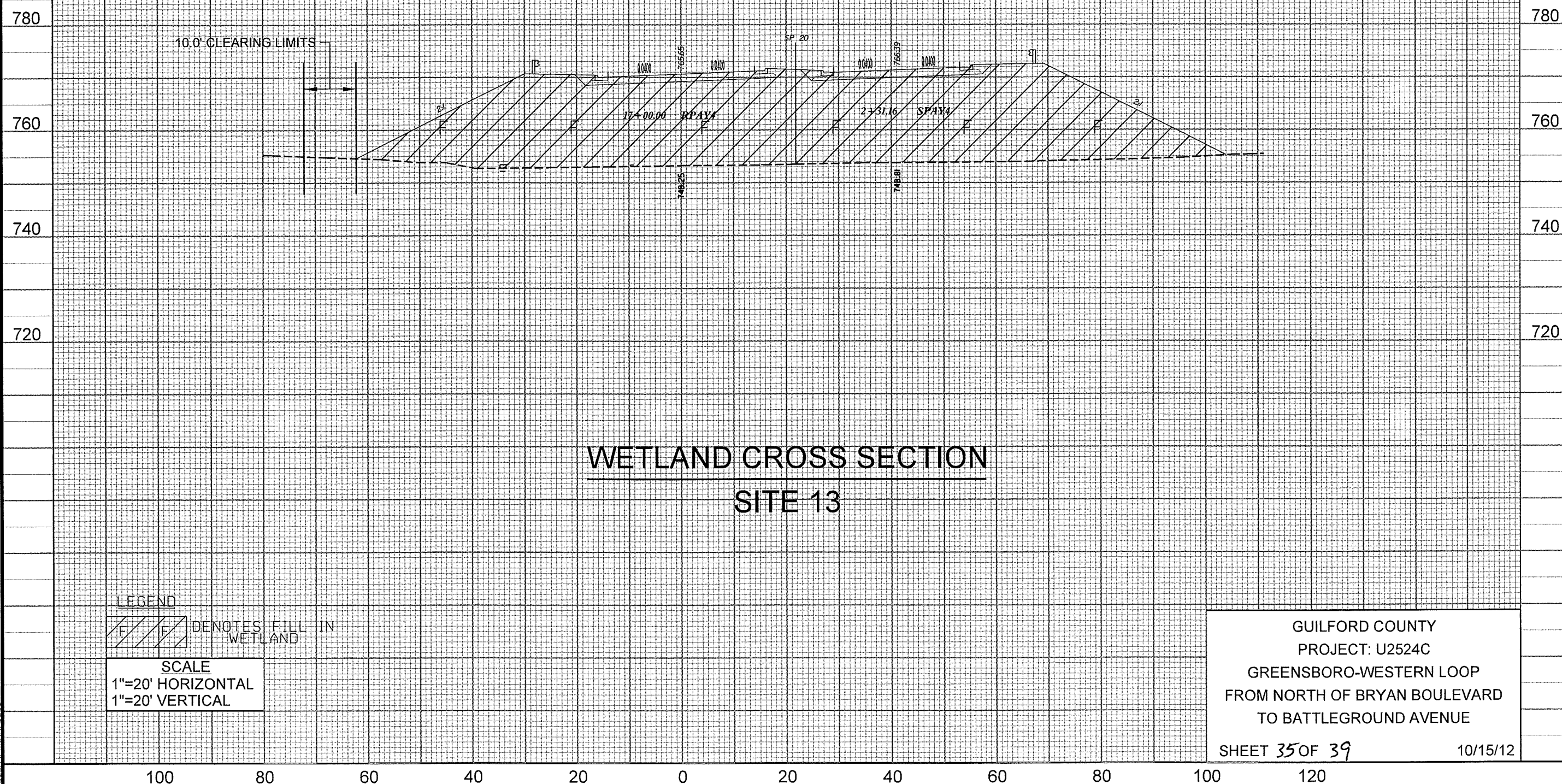
U-2524C

SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



10.0' CLEARING LIMITS

SP 20

174 00 00

RPAY

 2731.16

SPAY4

WETLAND CROSS SECTION

SITE 13

LEGEND



DENOTES FILL IN WETLAND

SCALE

1"=20' HORIZONTAL
1"=20' VERTICAL

GUILFORD COUNTY
PROJECT: U2524C
GREENSBORO-WESTERN LOOP
FROM NORTH OF BRYAN BOULEVARD
TO BATTLEGROUND AVENUE

SHEET 35 OF 39

10/15/12

5/14/99

PLANS PREPARED BY
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. <i>U-2524C</i>		SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

780

780

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760

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WETLAND CROSS SECTION SITE 13

LEGEND

 DENOTES EXCAVATION
IN WETLAND

SCALE

1"=20' HORIZONTAL
1"=20' VERTICAL

GUILFORD COUNTY
PROJECT: U2524C
GREENSBORO-WESTERN LOOP
FROM NORTH OF BRYAN BOULEVARD
TO BATTLEGROUND AVENUE

SHEET 36 OF 39

10/15/12

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C:\Users\psm\OneDrive\Documents\Projects\U2524C\Drawings\Wetland.XSC.dgn

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
7	LONELL MITCHELL	3528 LEWISTON RD. GREENSBORO, NC 27410
8	HUGH THOMAS MITCHELL, JR	4518 HAVENWOOD DR. GREENSBORO, NC 27407
9	WILLIAM H. SMITH	2011 KARLINGDALE DR. GREENSBORO, NC 27455
10	DAVID H. GRIFFIN, SR.	2022 SHIMMER DR. JAMESTOWN, NC 27282
12	THELMA S. BURRITT	1412 FLEMING RD. GREENSBORO, NC 27410
13	CORAL JAMES JUDD	5525 DOBSON RD. GREENSBORO, NC 27410
18	RUTH P. JESSUP	3600 LEWISTON RD. GREENSBORO, NC 27410
19	GERALD C. PARKER	212 W. FRIENDLY AVE. GREENSBORO, NC 27401
20	JEROME MORRISON CAIN	PO BOX 1057 LINCOLN, MT 59639
21	C.A.P. STANLEY	2855 HORSE PEN CREEK RD. GREENSBORO, NC 27410
30	JEAN LINDSAY BERRY	C/O FRED BERRY GREENSBORO, NC 27402
31	NCDOT	PO BOX 14996 GREENSBORO, NC 27415
34	MISSION BATTLEGROUND PARK DST	433 E. LAS COLINAS BLVD SUITE 980 IRVING, TX 75039
35	CITY OF GREENSBORO	PO BOX 3136 GREENSBORO, NC 27402
37	NCDOT	PO BOX 14996 GREENSBORO, NC 27415
38	CITY OF GREENSBORO	PO BOX 3136 GREENSBORO, NC 27402
39	BVF KENSINGTON LIMITED PARTNERSHIP	ONE BEACON ST. BOSTON, MA 02108
41	CITY OF GREENSBORO	PO BOX 3136 GREENSBORO, NC 27402

GUILFORD COUNTY
PROJECT: U2524C
GREENSBORO-WESTERN LOOP
FROM NORTH OF BRYAN BOULEVARD
TO BATTLEGROUND AVENUE

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS HIGHWAY BLDG - PO BOX 25201 RALEIGH, NORTH CAROLINA 27611	Subject:	Bridge Impacts		Project:	U-2524C
				Guilford	County
	Prepared by:	DSS	Date:	8/28/12	Station:
	Checked by:	WKF	Date:	10/4/2012	Str. #:
					407+73.35
					1
Printed On: 10/4/2012					

Proposed Bridges

(New Location, there are no existing bridges)

The new structure is unsimilar dual structures with 30 spans each. Total Length is 4,194' **Right Lane** and 4,204' **Left Lane**. The superstructure is 72" and 74" prestressed girders, and steel plate girders with 108" webs. The substructure is end bents on piles with post and beam bents on 4'-0" and 5'-0" drilled shafts. **Ramp "A"** is 9 spans with Total Length of 1,006' using 72" prestressed girder superstructure, end bents on piles and post and beam bents on 4'-0" drilled shafts. **Ramp "B"** is 3 spans with Total Length of 332'-10" using 72" prestressed girders, end bent on piles and post and beam bents on 3'-6" drilled shafts. **Ramp "C"** is 4 spans with Total Length of 413' using 72" prestressed girders, end bent on piles and post and beam bents on 3'-6" drilled shafts. **Ramp "D"** is 8 spans with Total Length of 844'-3" using 54" and 72" prestressed girders, end bents on piles and post and beam bents on 3'-6" drilled shafts.

Impact of Bents:

Left Lane:

# of Shafts	95	@ Shaft Diam. =	48	in.
# of Shafts	41	@ Shaft Diam. =	60	in.

$$\text{Area} = \# \text{Bents} * \# \text{Shafts} * \pi (\text{Diam.}/2)^2 = 287833 \text{ in}^2 \quad 0.05 \text{ acres}$$

Permit Drawing
Sheet 38 of 39

Right Lane:

# of Shafts	87	@ Shaft Diam. =	48	in.
# of Shafts	41	@ Shaft Diam. =	60	in.

$$\text{Area} = \# \text{Bents} * \# \text{Shafts} * \pi (\text{Diam.}/2)^2 = 273356 \text{ in}^2 \quad 0.04 \text{ acres}$$

Ramp "A"

# of Shafts	26	@ Shaft Diam. =	48	in.
-------------	----	-----------------	----	-----

$$\text{Area} = \# \text{Bents} * \# \text{Shafts} * \pi (\text{Diam.}/2)^2 = 47048 \text{ in}^2 \quad < 0.01 \text{ acres}$$

Ramp "B"

# of Shafts	9	@ Shaft Diam. =	42	in.
-------------	---	-----------------	----	-----

$$\text{Area} = \# \text{Bents} * \# \text{Shafts} * \pi (\text{Diam.}/2)^2 = 12469 \text{ in}^2 \quad < 0.01 \text{ acres}$$

Ramp "C"

# of Shafts	12	@ Shaft Diam. =	42	in.
-------------	----	-----------------	----	-----

$$\text{Area} = \# \text{Bents} * \# \text{Shafts} * \pi (\text{Diam.}/2)^2 = 16625 \text{ in}^2 \quad < 0.01 \text{ acres}$$

Ramp "D"

# of Shafts	26	@ Shaft Diam. =	42	in.
-------------	----	-----------------	----	-----

$$\text{Area} = \# \text{Bents} * \# \text{Shafts} * \pi (\text{Diam.}/2)^2 = 36022 \text{ in}^2 \quad < 0.01 \text{ acres}$$

$$\text{Total Area} = 673353 \text{ in}^2 \quad 0.11 \text{ acres for all permanent bents.}$$

A temporary workbridge is needed to construct the middle span of the proposed structure. See the attached general drawing for location.

Impact of Temporary Workbridge over Wetlands:

Temp. Bridge Length	7250	ft.
---------------------	------	-----

# Bents	241	Pile Diam.	30	in.
# of Piles/Bent	5			

$$\text{Area} = \# \text{Bents} * \# \text{Piles} * \pi * \text{Pile Dia.}^2 / 4 = 851764 \text{ in}^2 \quad 0.14 \text{ acres for all temporary bents.}$$

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	-L- 283+36 TO 286+34	48" RCP	0.10	-	-	0.02	-	0.03	0.01	385	13	-
	-L- 286+11 TO 286+22	Bank Stabilization	-	-	-	-	-	-	-	11	-	-
2	-L- 287+09 TO 287+21	30" RCP	-	-	-	-	-	0.01	0.01	13	14	-
	-L- 287+00 TO 287+30	Bank Stabilization	-	-	-	-	-	-	-	11	-	-
	-L- 287+11 TO 287+17	Bank Stabilization	-	-	-	-	-	-	-	32	-	-
3	-L- 296+40 TO 297+18	36" RCP	-	-	-	-	-	0.03	0.01	338	20	-
	-L- 296+44 TO 296+52	Bank Stabilization	-	-	-	-	-	-	-	10	-	-
3A	-L- 296+82 TO 297+00	Roadway	-	-	-	-	-	0.01	-	30	-	-
4	-L- 312+90 TO 313+91	1 @ 10' x 7' RCBC	-	-	-	-	-	0.06	0.01	331	46	-
	-L- 312+95 TO 313+13	Bank Stabilization	-	-	-	-	-	-	-	30	-	-
5	-L- 314+67 TO 321+11	1 @ 10' x 6' RCBC	-	-	-	-	-	0.10	0.01	688	40	-
	-L- 314+72 TO 315+05	Bank Stabilization	-	-	-	-	-	-	-	37	-	-
5A	-L- 320+86 TO 321+95	Roadway	-	-	-	-	-	0.01	-	90	-	-
	-L- 320+78 TO 321+04	Bank Stabilization	-	-	-	-	-	-	-	25	-	-
6	-L- 323+60 TO 324+44	-	-	-	-	-	-	0.04	0.01	60	15	-
7	-L- 345+01 TO 345+88	30" RCP	0.01	-	-	-	-	0.03	0.01	227	10	-
	-L- 345+74 TO 345+85	Bank Stabilization	-	-	-	-	-	-	-	11	-	-
7A	-L- 345+02 TO 345+49	Roadway	-	-	-	-	-	0.01	-	57	-	-
8	-L- 358+77 TO 360+29	54" RCP	-	-	-	-	-	0.05	0.01	412	20	-
	-L- 359+46 TO 359+57	Bank Stabilization	-	-	-	-	-	-	-	13	-	-
9	-L- 380+47 TO 382+86	Bridge	-	-	-	0.02	0.40	-	-	-	-	-
10	-L- 387+31 TO 387+46	Bank Stabilization	-	-	-	-	-	0.01	-	16	-	-
10A	-Y3DET- 11+23 TO 13+92	Temporary Detour	-	0.01	-	0.01	-	-	-	-	-	-
11	-L- 389+65 TO 398+04	Bridge	-	-	-	0.19	1.44	-	-	-	-	-
12	-L- 399+62 TO 408+51	Bridge & Roadway	2.57	-	-	0.36	0.96	-	-	-	-	-
13	-L- 407+72 TO 415+79	Hazardous Spill Basins, Bridge, Roadway & 66" RCP	1.24	-	0.34	0.64	1.58	0.03	0.01	204	20	-
	-L- 409+67 TO 409+73	Bank Stabilization	-	-	-	-	-	-	-	12	-	-
	-L- 410+77 TO 410+89	Bank Stabilization	-	-	-	-	-	-	-	12	-	-
	-L- 411+08 TO 411+42	Bank Stabilization	-	-	-	-	-	-	-	36	-	-
	-L- 414+83 TO 415+16	Bank Stabilization	-	-	-	-	-	-	-	22	-	-
14	-L- 419+09 TO 420+79	Bridge	0.11	-	-	-	-	-	-	-	-	-
TOTALS:			4.03	0.01	0.34	1.24	4.38	0.42	0.09	3113	198	-

Notes: Permanent Wetland Impacts from bridge construction = 0.11 acres
Temporary Wetland Impacts from work bridge construction = 0.14 acres
See Sheet 38 of 39 for a detailed breakdown of the proposed bridge construction impacts.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

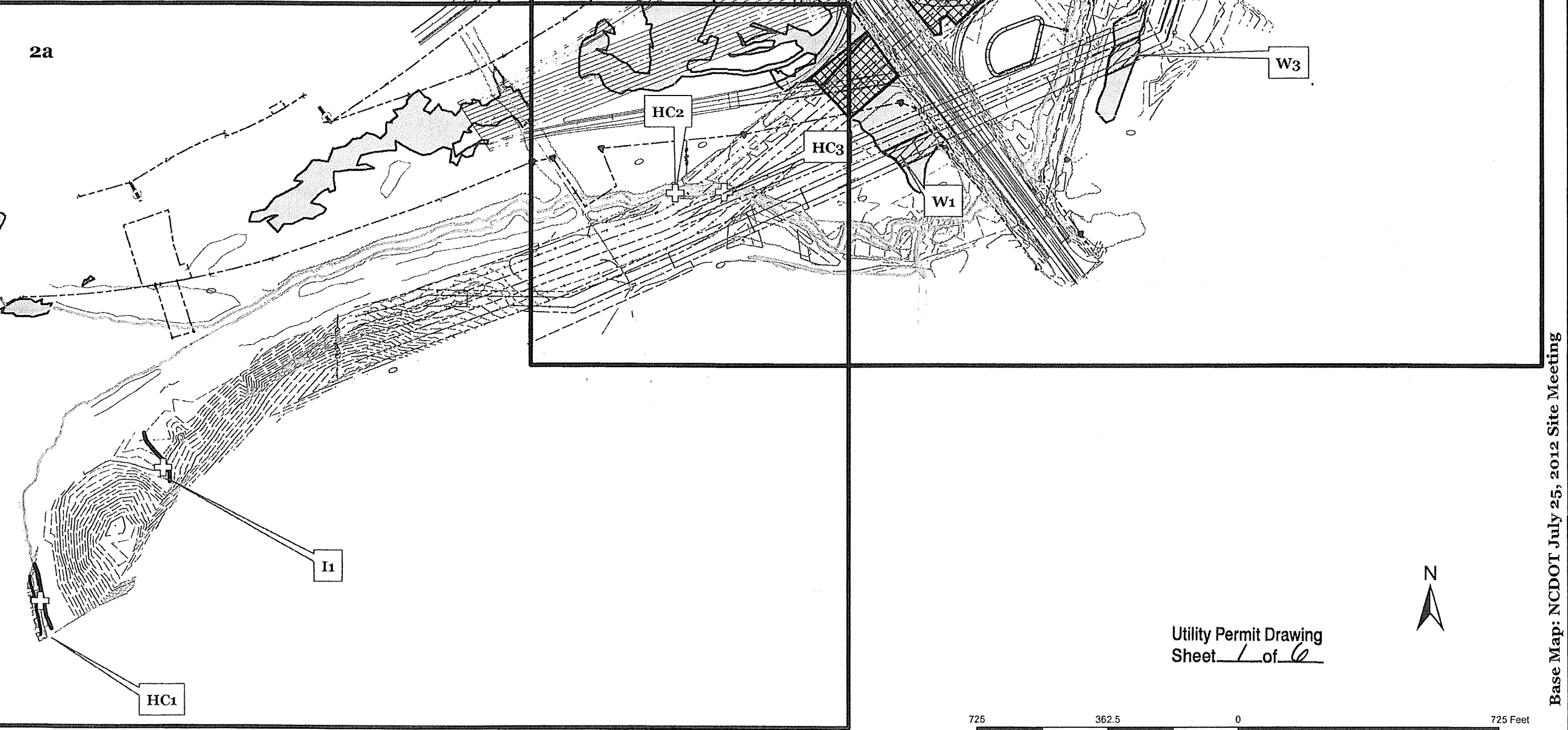
GUILFORD COUNTY
U-2524C

Rev SHEET 39 OF 39
5/20/13

5/15/2013

Legend

- ⊕ Stream Impact Location
- Stream
- ▨ Wetlands -NCDOT Permanent Impacts
- ▩ Wetlands - NCDOT Delineation
- ▧ Wetland - CPC Temporary Excavation
- ▦ Wetlands - CPC Mechanized Clearing



Base Map: NCDOT July 25, 2012 Site Meeting

Colonial Pipeline Company
Lines 3 and 4 Relocation
Western Urban Loop
Guilford County, NC

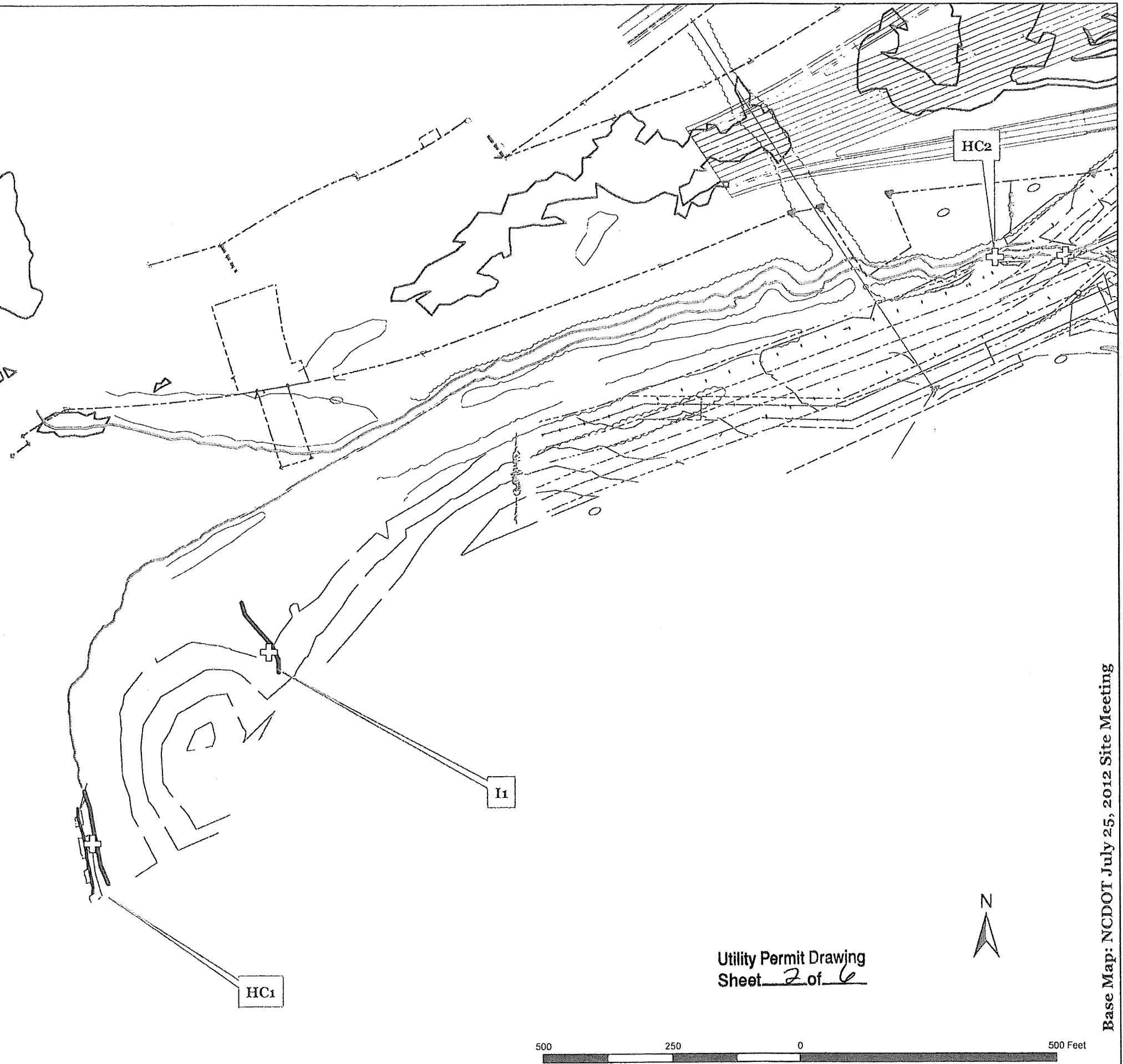


Wetland & Ecological Consultants, LLC
Woodstock, Georgia

Figure 2
Detailed Site Drawing
WEC Project No. 02-041901

Legend

-  Stream Impact Location
-  Stream
-  Wetlands - NCDOT Permanent Impacts
-  Wetlands - NCDOT Delineation
-  Wetland - CPC Temporary Excavation
-  Wetlands - CPC Mechanized Clearing



Utility Permit Drawing
Sheet 2 of 6

Base Map: NCDOT July 25, 2012 Site Meeting

Colonial Pipeline Company
Lines 3 and 4 Relocation
Western Urban Loop
Guilford County, NC

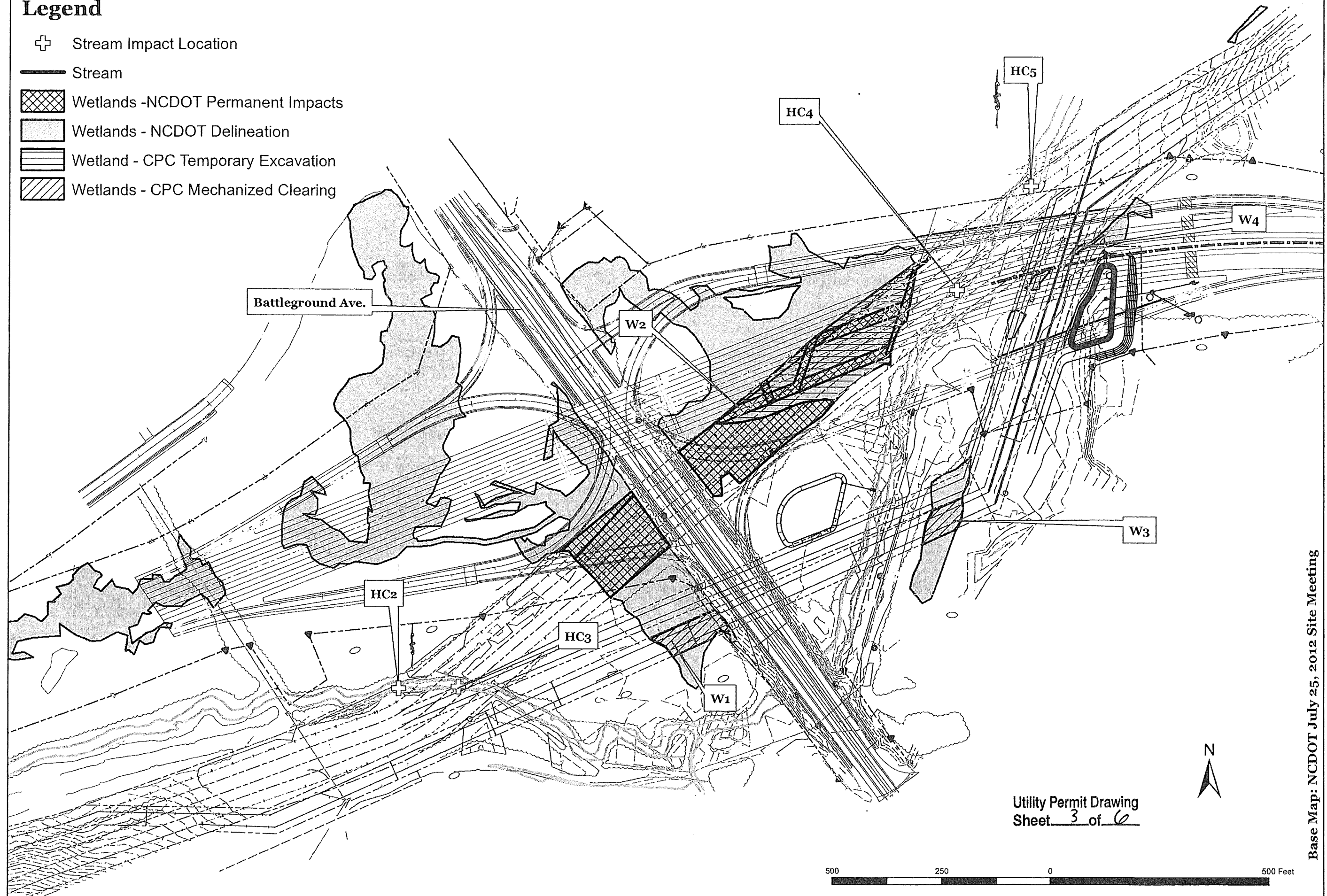


Wetland & Ecological Consultants, LLC
Woodstock, Georgia

Figure 2a
Detailed Site Drawing
WEC Project No. 02-041901

Legend

-  Stream Impact Location
-  Stream
-  Wetlands - NCDOT Permanent Impacts
-  Wetlands - NCDOT Delineation
-  Wetland - CPC Temporary Excavation
-  Wetlands - CPC Mechanized Clearing



Utility Permit Drawing
Sheet 3 of 6

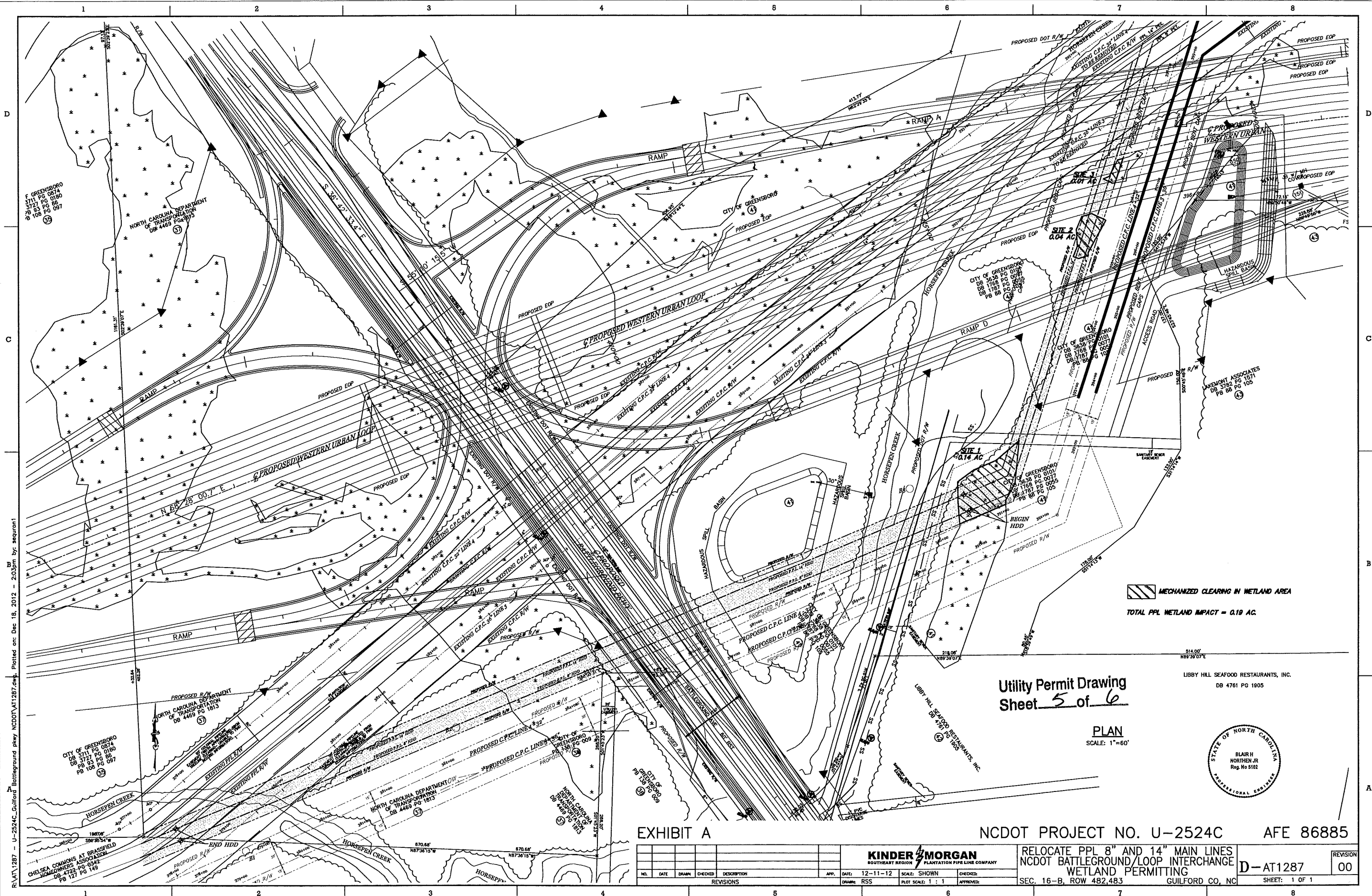
Base Map: NCDOT July 25, 2012 Site Meeting

Colonial Pipeline Company
Lines 3 and 4 Relocation
Western Urban Loop
Guilford County, NC



Wetland & Ecological Consultants, LLC
Woodstock, Georgia

Figure 2b
Detailed Site Drawing
WEC Project No. 02-041901



R:\AT\287 - U-2524C_Battleground pkwy NCDOT\AT1287.dwg, Plotted on: Dec 18, 2012 - 2:03pm by: sequon1

EXHIBIT A

NCDOT PROJECT NO. U-2524C AFE 86885

					<div>KINDER MORGAN</div> <div>SOUTHEAST REGION PLANTATION PIPE LINE COMPANY</div>					RELOCATE PPL 8" AND 14" MAIN LINES NCDOT BATTLEGROUND/LOOP INTERCHANGE WETLAND PERMITTING					D-AT1287		REVISION 00		
NO. DATE DRAWN CHECKED DESCRIPTION APP.					DATE 12-11-12 SCALE: SHOWN CHECKED					SEC. 16-B, ROW 482,483					SHEET: 1 OF 1				
DRAWN: RSS PLOT SCALE: 1 : 1 APPROVED:										GUILFORD CO, NC									
REVIEWS																			
5					6					7					8				

RELOCATE PPL 8" AND 14" MAIN LINES NCDOT BATTLEGROUNDS/LOOP INTERCHANGE WETLAND PERMITTING SEC. 16-B, ROW 482.483 GUILFORD CO, NC

D-AT1287 00 SHEET: 1 OF 1

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	-L- 413+82 TO 415+18	PPL Petro. ROW & WS	-	-	-	0.14	-	-	-	-	-	-
2	-L- 416+90 TO 417+53	PPL Petro. ROW	-	-	-	0.04	-	-	-	-	-	-
3	-L- 417+65 TO 418+01	PPL Petro. ROW	-	-	-	0.01	-	-	-	-	-	-
TOTALS:			0	0	0	0.19	0	0	0	0	0	0

Notes:

Utility Permit Drawing
Sheet 6 of 6

PLANTATION PIPE LINE COMPANY
14" and 8" Liquid Petroleum Pipeline Relocation
for NCDOT Project U2524-C
Guilford County, N.C.

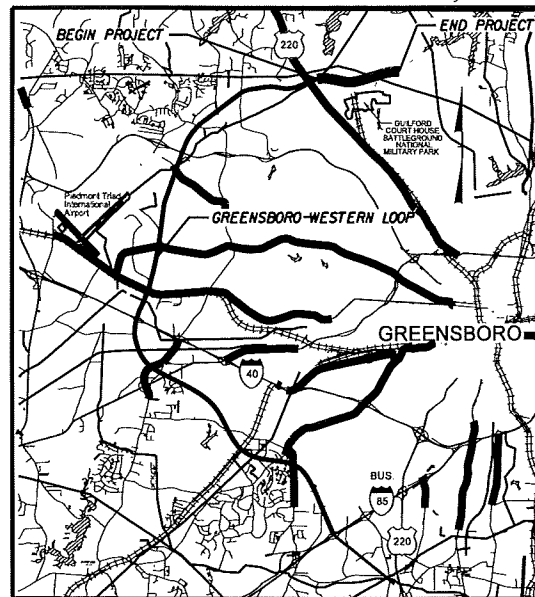
BHN

12/17/2012

04/08/99

TIP PROJECT: U-2524D

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

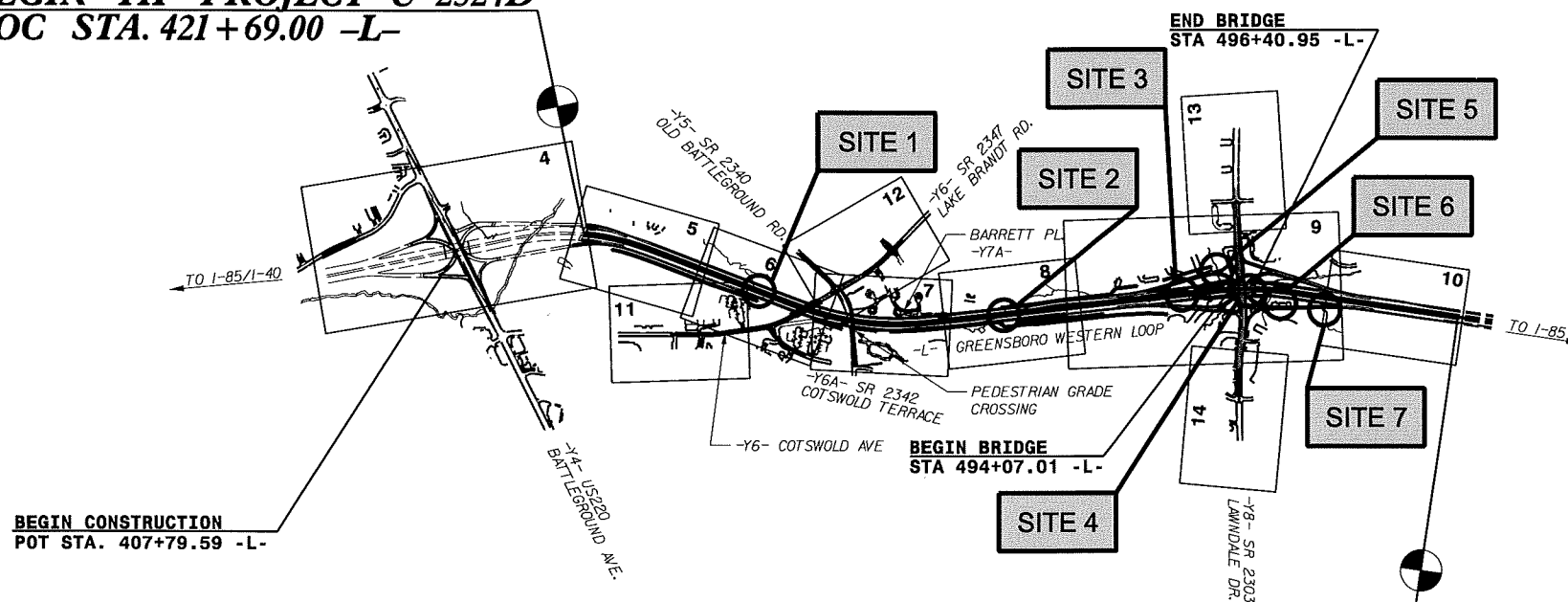
GUILFORD COUNTY

LOCATION: GREENSBORO-WESTERN LOOP FROM US 220
(BATTLEGROUND AVENUE) TO SR 2303 (LAWNDALE DRIVE).

TYPE OF WORK: GRADING, PAVING, CULVERTS, DRAINAGE,
STRUCTURES, SIGNING, ITS, TRAFFIC SIGNAL
AND RETAINING WALLS.

PRELIMINARY WETLAND & STREAM IMPACTS

BEGIN TIP PROJECT U-2524D
POC STA. 421+69.00 -L-



Permit Drawing
Sheet 1 of 13

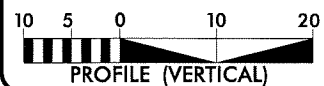
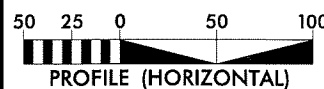


END TIP PROJECT U-2524D
POT STA 519+00.00 -L-

NOTES:
THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF GREENSBORO.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 41,985
ADT 2028 = 71,908
DHV = 10 %
D = 60 %
T = 15 % *
V = 70 MPH
5% TTST DUAL 10%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2524D = 1.799 MILES
LENGTH STRUCTURES TIP PROJECT U-2524D = 0.044 MILES
TOTAL LENGTH OF TIP PROJECT U-2524D = 1.843 MILES

PLANS PREPARED BY:
PARSONS
RALPH, NORTH CAROLINA
FOR THE
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 23, 2011

LETTING DATE:
POST YEAR

EDWARD S. ROBBINS, P.E.
PROJECT ENGINEER

DAVID GARRETT
PROJECT DESIGN ENGINEER

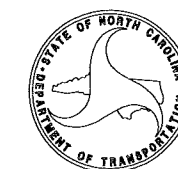
HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

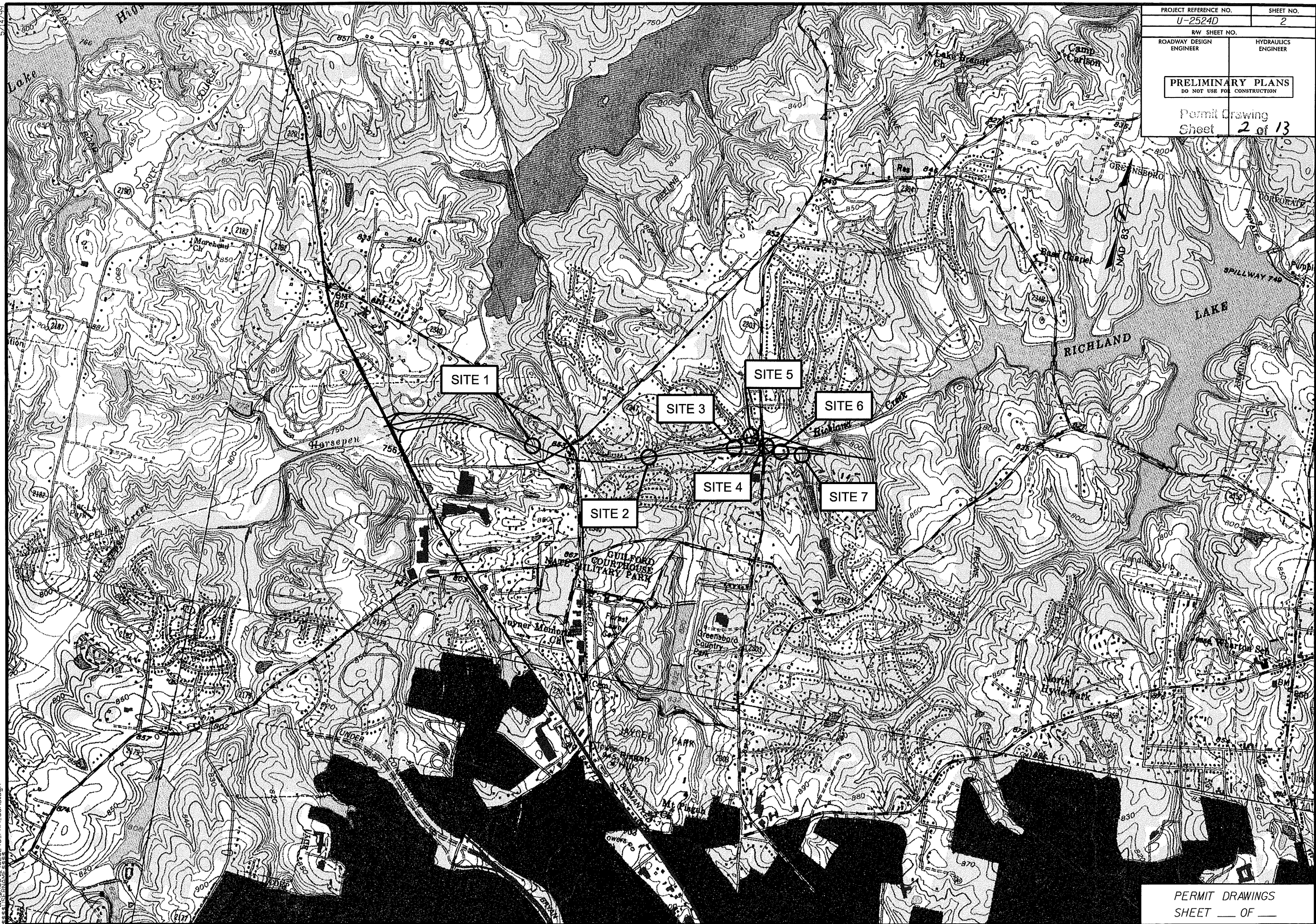


STATE HIGHWAY DESIGN ENGINEER

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\$\$\$\$\$USERNAME\$\$\$\$\$

CONTRACT:

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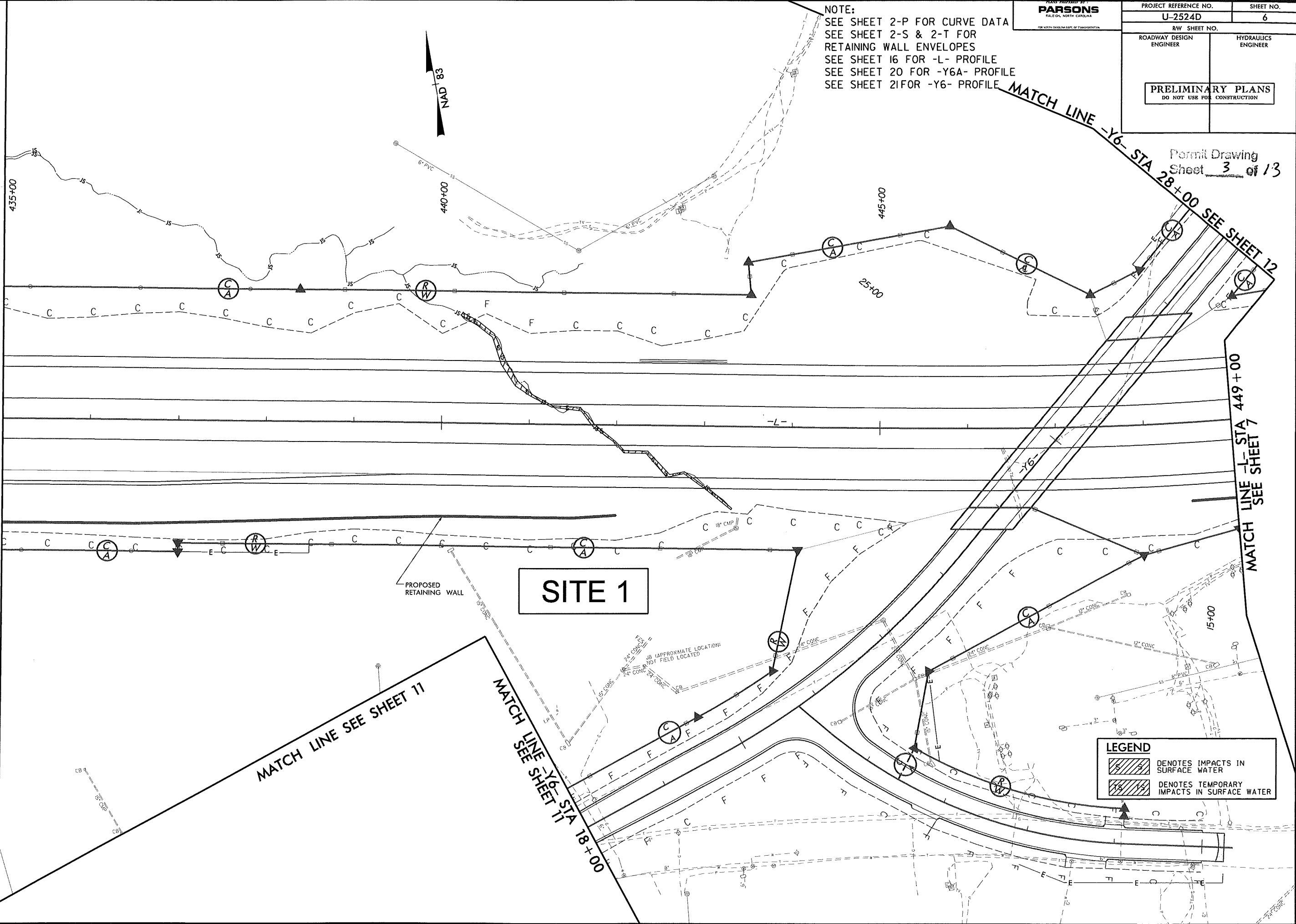
PROJECT REFERENCE NO. U-2524D		SHEET NO. 2	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Permit Drawing Sheet 2 of 13			

8/17/99

REVISIONS

2:03:42 PM
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U2524D_R0Y_PSH_06A.dgn

MATCH LINE -L- STA 435+00 SEE SHEET 5



NOTE:
SEE SHEET 2-P FOR CURVE DATA
SEE SHEET 2-S & 2-T FOR
RETAINING WALL ENVELOPES
SEE SHEET 16 FOR -L- PROFILE
SEE SHEET 20 FOR -Y6A- PROFILE
SEE SHEET 21 FOR -Y6- PROFILE

PARSONS
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.	
U-2524D		6	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div>			

Permit Drawing
Sheet 3 of 13

MATCH LINE -Y6- STA 28+00 SEE SHEET 12

MATCH LINE -L- STA 449+00 SEE SHEET 7

SITE 1

MATCH LINE SEE SHEET 11

MATCH LINE -Y6- STA 18+00 SEE SHEET 11

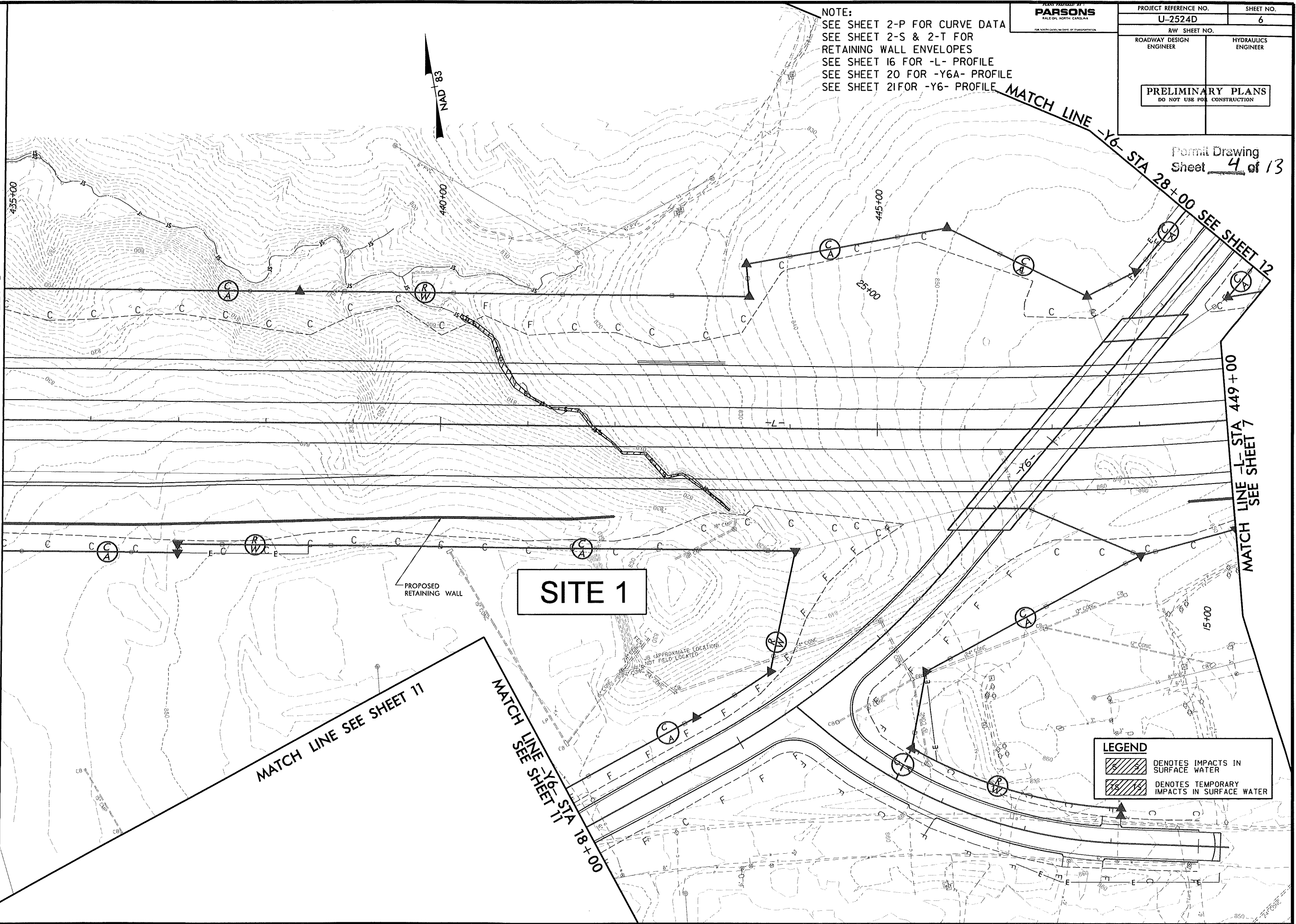
LEGEND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

8/17/99

REVISIONS

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MATCH LINE -L- STA 435+00 SEE SHEET 5



NOTE:
SEE SHEET 2-P FOR CURVE DATA
SEE SHEET 2-S & 2-T FOR
RETAINING WALL ENVELOPES
SEE SHEET 16 FOR -L- PROFILE
SEE SHEET 20 FOR -Y6A- PROFILE
SEE SHEET 21 FOR -Y6- PROFILE

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.	
U-2524D		6	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div>			

Permit Drawing
Sheet 4 of 13

LEGEND	
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

8/17/99

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.

U-2524D

SHEET NO.

7

R/W SHEET NO.

ROADWAY DESIGN
ENGINEER

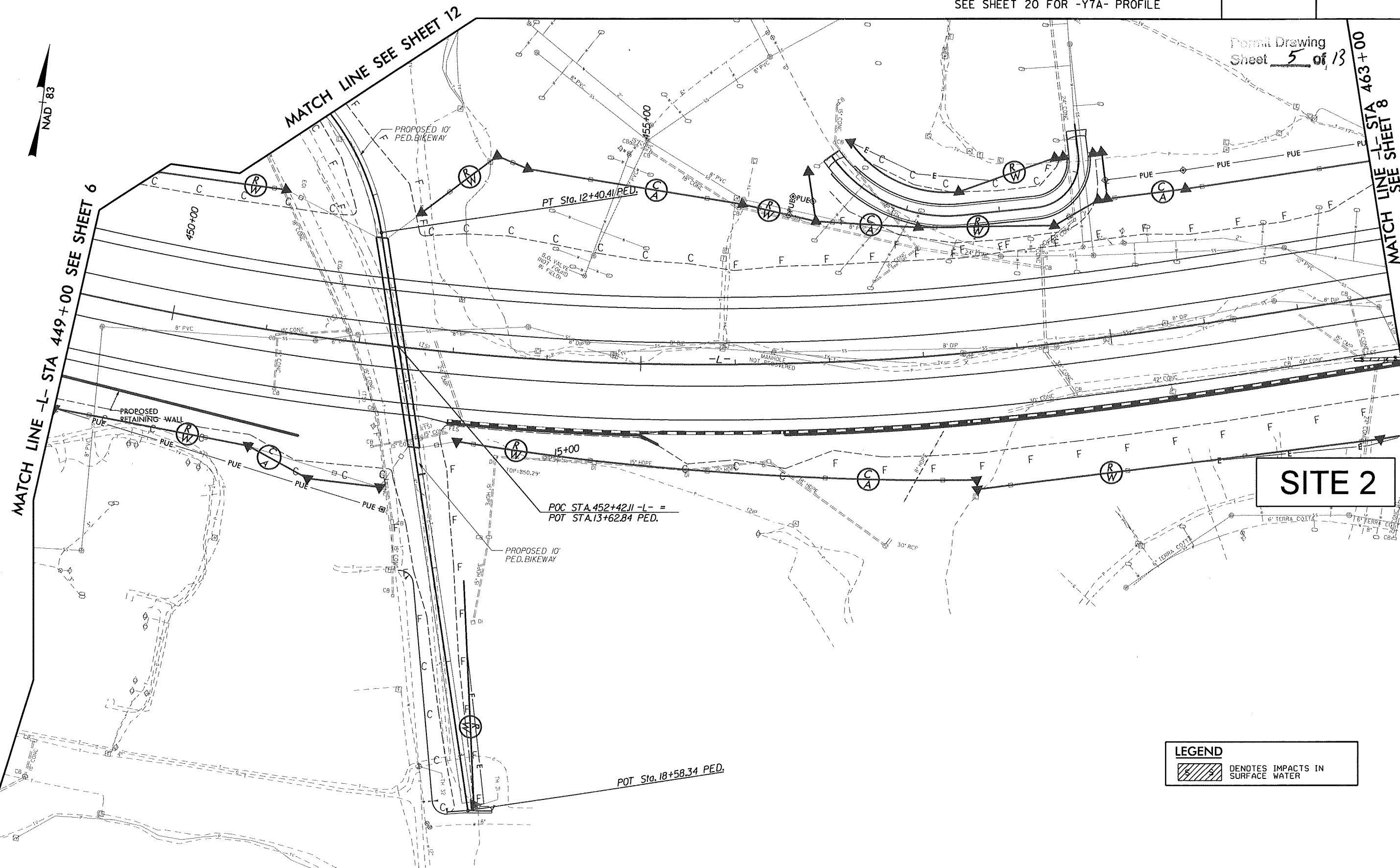
HYDRAULICS
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTE:

SEE SHEET 2-P FOR CURVE DATA
SEE SHEET 2-T & 2-X FOR RETAINING
WALL ENVELOPES
SEE SHEET 2-Y FOR NOISE WALL ENVELOPE
SEE SHEET 16 & 17 FOR -L- PROFILE
SEE SHEET 20 FOR PED. PROFILE
SEE SHEET 20 FOR -Y7A- PROFILE

Permit Drawing
Sheet 5 of 13



REVISIONS

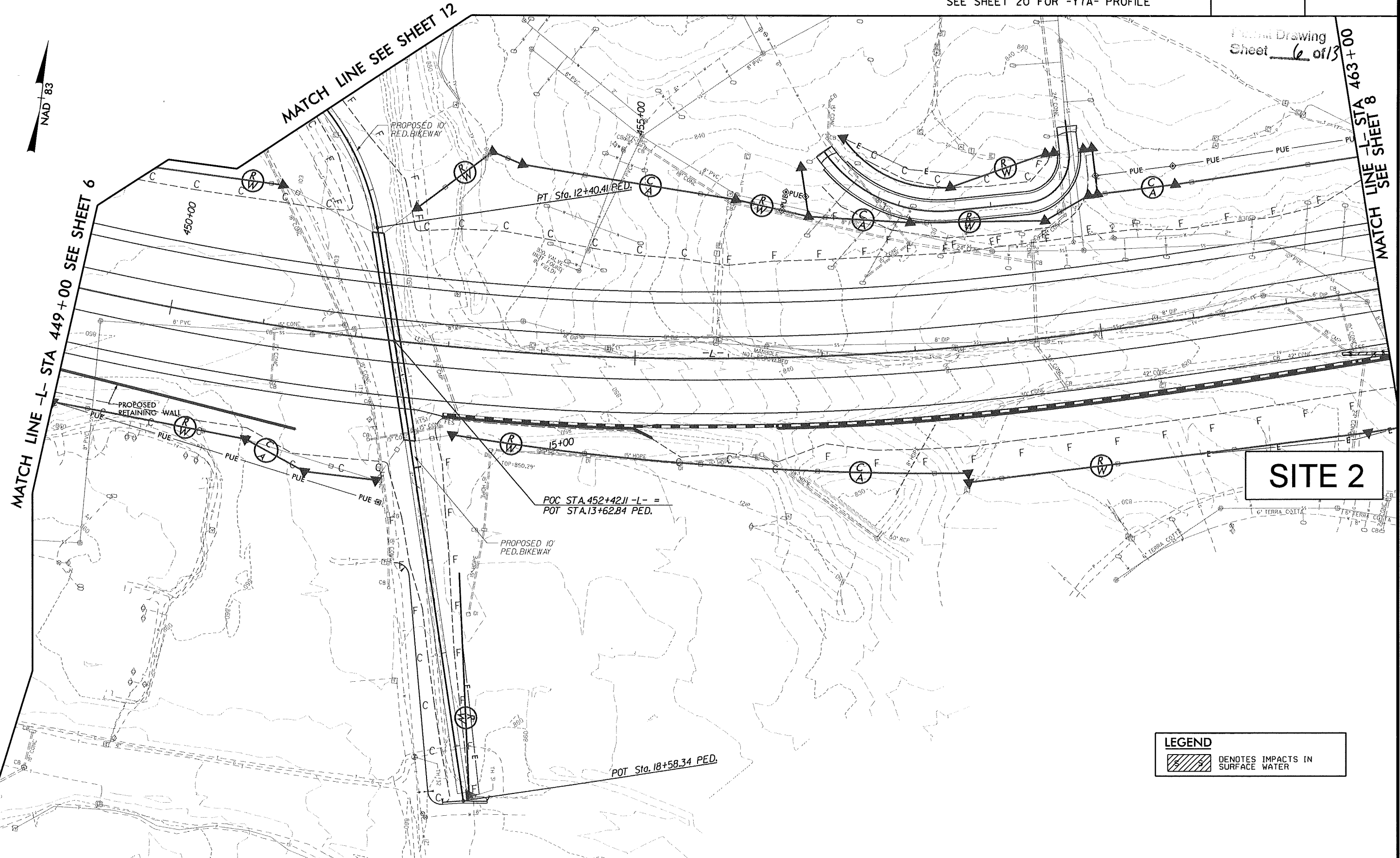
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8/17/99

PARSONS
RALEIGH, NORTH CAROLINA
150 WEST H. CAROLINA, 3RD FLOOR

PROJECT REFERENCE NO.		SHEET NO.
U-2524D		7
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

NOTE:
SEE SHEET 2-P FOR CURVE DATA
SEE SHEET 2-T & 2-X FOR RETAINING WALL ENVELOPES
SEE SHEET 2-Y FOR NOISE WALL ENVELOPE
SEE SHEET 16 & 17 FOR -L- PROFILE
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SEE SHEET 20 FOR -Y7A- PROFILE



8/17/99

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RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.

U-2524D

SHEET NO.

8

R/W SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 7 of 13

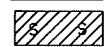
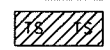
MATCH LINE -L- STA 463+00 SEE SHEET 7

MATCH LINE -L- STA 477+00 SEE SHEET 9

SITE 2

NAD 83

LEGEND

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 17 FOR -L- PROFILE
SEE SHEET 2-U FOR RETAINING WALL ENVELOPE
SEE SHEET 2-Y, 2-Z & 2-BB FOR NOISE
WALL ENVELOPES

REVISIONS

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8/17/99

REVISIONS

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RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.
U-2524D		8
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

Permit Drawing
Sheet 8 of 13

MATCH LINE -L- STA 463+00 SEE SHEET 7

SITE 2

MATCH LINE -L- STA 477+00 SEE SHEET 9

LEGEND	
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 17 FOR -L- PROFILE
SEE SHEET 2-U FOR RETAINING WALL ENVELOPE
SEE SHEET 2-Y, 2-Z & 2-BB FOR NOISE
WALL ENVELOPES

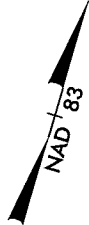
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8/17/99

PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.
U-2524D		9A
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

Permit Drawing
Sheet 9 of 13
Drawing
Sheet of



MATCH LINE -L- STA 477 + 00 SEE SHEET 8

MATCH LINE -L- STA 491 + 00 SEE SHEET 9B

SITE 3

SITE 3

LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-P FOR CURVE DATA
SEE SHEET 2-U, 2-V & 2-W FOR
RETAINING WALL ENVELOPES
SEE SHEET 2-Z, 2-AA, 2-BB & 2-CC FOR
NOISE WALL ENVELOPES
SEE SHEET 17 & 18 FOR -L- PROFILE
SEE SHEET 27 FOR RPB8 PROFILE
SEE SHEET 28 FOR RPC8 PROFILE


REVISIONS

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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 3

MATCH LINE -L- STA 491+00 SEE SHEET 9B

 DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
SEE SHEET 2-P FOR CURVE DATA
SEE SHEET 2-U, 2-V & 2-W FOR
RETAINING WALL ENVELOPES
SEE SHEET 2-Z, 2-AA, 2-BB & 2-CC FOR
NOISE WALL ENVELOPES
SEE SHEET 17 & 18 FOR -L- PROFILE
SEE SHEET 27 FOR RPBY8 PROFILE
SEE SHEET 28 FOR RPCY8 PROFILE

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2524D	9B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<div style="border: 1px solid black; padding: 10px; text-align: center;"> PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION </div>	

SITE 5

SITE 4

SITE 3



SITE 6

SITE 4

SITE 7

NOTE:
SEE SHEET 2-P FOR CURVE DATA
SEE SHEET 2-U, 2-V & 2-W FOR
RETAINING WALL ENVELOPES
SEE SHEET 2-Z, 2-AA, 2-BB & 2-CC FOR
NOISE WALL ENVELOPES
SEE SHEET 17 & 18 FOR -L- PROFILE
SEE SHEET 22 FOR -Y8- PROFILE
SEE SHEET 26 FOR RPAY8 PROFILE
SEE SHEET 27 FOR RPBY8 PROFILE
SEE SHEET 28 FOR RPCY8 PROFILE
SEE SHEET 29 FOR RPDY8 PROFILE
SEE SHEET 30 FOR SPAY8 PROFILE
SEE SHEET 30 FOR SPBY8 PROFILE
SEE SHEET 30 FOR SPCY8 PROFILE
SEE SHEET 30 FOR SPDY8 PROFILE

LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCH LINE -L- STA 491+00 SEE SHEET 9A

MATCH LINE - L- STA 505 + 00 SEE SHEET 10



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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 7

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SEE SHEET 26 FOR RPY8 PROFILE
SEE SHEET 27 FOR RPY8 PROFILE
SEE SHEET 28 FOR RPC8 PROFILE
SEE SHEET 29 FOR RPD8 PROFILE
SEE SHEET 30 FOR SPAY8 PROFILE
SEE SHEET 30 FOR SPBY8 PROFILE
SEE SHEET 30 FOR SPC8 PROFILE
SEE SHEET 30 FOR SPD8 PROFILE
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LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCH LINE -L- STA 505+00 SEE SHEET 10

REVISIONS

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WETLAND PERMIT IMPACT SUMMARY	
WETLAND IMPACTS	SURFACE WATER IMPACTS

Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 440+21 TO 443+32	Pipe Culvert / Roadway	-	-	-	-	-	0.03	0.01	393	10	-
2	-L- 462+50 TO 471+08	Pipe Culvert / Roadway	-	-	-	-	-	0.09	0.01	919	10	-
3	-L- 478+07 TO 494+57	Box Culvert / Roadway	-	-	-	-	-	0.19	0.01	1488	10	-
4	-L- 492+19 TO 503+69	Box Culvert / Roadway	-	-	-	-	-	0.30	0.01	1253	20	-
5	-L- 492+69 TO 493+02	Box Culvert / Roadway	-	-	-	-	-	0.02	0.01	141	10	-
6	-L- 497+67 TO 499+12	Pipe Culvert / Roadway	-	-	-	-	-	0.03	0.01	311	10	-
7	-L- 504+11 TO 504+90	Box Culvert / Roadway	-	-	-	-	-	0.03	0.01	99	10	-
TOTALS:			-	-	-	-	-	0.69	0.07	4604	80	-

PRELIMINARY

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
U-2524D