



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

February 26, 2013
Revised April 12, 2013

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. Andy Williams
NCDOT Coordinator

SUBJECT: **Application for Section 404 Individual Permit and Section 401 Individual Water Quality Certification** for the proposed Greensboro Western Loop from north of SR 2176 (Bryan Boulevard) to SR 2303 (Lawndale Drive), Guilford County, Division 7. Federal Aid Project No. STP-NHF-124(1), WBS Element No. 34820.1.2, TIP No. U-2524C and D.

Debit \$570.00 from WBS Element No. 34820.1.2

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to construct a section of the Greensboro Western Loop from north of SR 2176 (Bryan Boulevard) to SR 2303 (Lawndale Drive) in Greensboro, for a total of 4.8 miles. The project involves constructing a six-lane divided facility on new location.

In addition to this cover letter, the application package consists of an ENG Form 4345, North Carolina Ecosystem Enhancement Program (NCEEP) acceptance letter, Interagency Hydraulic Design Review meeting minutes for U-2524C (Concurrence Points 4B and 4C), Stormwater Management Plan, permit drawings, and half-size roadway plan sheets.

PROJECT SCHEDULE

For construction purposes, the remaining Greensboro Western Loop project has been broken down into two sections, C and D. Sections A and B were permitted separately and completed in 2008. Table 1 reflects the project breakdown and section termini.

Table 1. Description of Project Sections for Construction Purposes

Section	Project Termini	Let Date
U-2524A & B	North of I-85 to North of 2176 (10 miles)	Complete (July 3, 2008)
U-2524C	North of SR 2176 to US 220 (3.0 miles)	September 17, 2013
U-2524D	US 220 to SR 2303 (1.8 miles)	October 18, 2016

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
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LOCATION:
CENTURY CENTER, BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Within the U-2524C construction footprint, 16 streams and 17 wetlands were identified. Eight streams were identified within the U-2524D construction footprint. Jurisdictional areas were initially verified by USACE Regulatory Specialist Jean Manuel on December 10, 2001 and re-verified by USACE Regulatory Specialist Todd Tugwell on March 30, 2006. No jurisdictional determination (JD) was received from USACE for either field visits. Jurisdictional features were last re-verified by USACE Regulatory Specialist Andy Williams and NCDWQ representative Amy Euliss on July 25, 2012 for U-2524C only. A request packet for the final JD for U-2524C was submitted to the USACE on September 4, 2012. No written JD was received from the USACE for the re-verification.

IMPACTS TO WATERS OF THE UNITED STATES

U-2524C

This project lies within the Piedmont Physiographic Province in the Cape Fear River Basin [Hydrologic Unit Code (HUC) 03030002]. Jurisdictional features within the U-2524C construction footprint that will be impacted include 13 unnamed tributaries (UT) to Horsepen Creek [NCDWQ Classification WS-III; NSW; NCDWQ Index No. 16-11-5-(0.5)], Horsepen Creek and 1 UT to Horsepen Creek [NCDWQ Classification WS-III; NSW, CA; NCDWQ Index No. 16-11-5-(2)] and 15 riparian wetlands.

U-2524D

Jurisdictional features within the U-2524D construction footprint that will be impacted include one UT to Horsepen Creek [NCDWQ Classification WS-III; NSW, CA; NCDWQ Index No. 16-11-5-(2)], Richland Creek, and five UTs to Richland Creek [NCDWQ Classification WS-III; NSW; NCDWQ Index No 16-11-7-(1)]. No wetlands were located within the U-2524D footprint based upon field verification from 2006.

There are no designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply II (WS-II) waters within 1.0 mile of the project area. All streams within the project area and within a mile of the project area are listed on the 2012 303(d) Final List of Impaired Waters of North Carolina due to impaired ecological/biological integrity.

Surface Waters

U-2524C (Revised April 12, 2013)

Total surface water impacts for U-2524C are **3,120** linear feet of permanent stream impacts and **358** linear feet of temporary stream impacts. Tables 2-3 list the site number, reference number, stream name, amount of permanent and temporary impacts, and amount of mitigation required.

Utilities

A total of 160 linear feet of temporary stream impact will occur due to stream access and utility line removal (Colonial Pipe Line) for Section U-2524C. These impacts will involve trenching the stream banks and replacing to natural grade. Utility impacts for Section U-2524D will be evaluated during the permit modification process.

Table 3. U-2524C Surface Water Impacts (Final) Revised April 12, 2012

Permit Site No.	Impact Type	Permanent Impact Length (ft)	Impacts requiring NCDWQ mitigation (ft)	Impacts requiring USACE mitigation (ft)¹	Temporary Impact Length (ft)
1	48" RCP	385	385	385	13
	Bank Stabilization	11	11	0 ²	
2	30" RCP	13	0 ³	13	14
	Bank Stabilization	32 11	32 ⁴ 0 ³	0 ² 0 ²	
3	36" RCP	345	345	345	20
	Bank Stabilization	10	10	0 ²	
3A	36" RCP	30	30	30	
4	10' x 7' RCBC	331	331	331	46
	Bank Stabilization	30	30	0 ²	
5	10' x 6' RCBC	688	688	688	40
	Bank Stabilization	37	37	0 ²	
5A	Fill	90	0 ³	90	
	Bank Stabilization	25	0 ³	0 ²	
6	Fill	60	0 ⁵	0 ⁵	15
7	30" RCP	227	227	227	10
	Bank Stabilization	11	11	0 ²	
7A	15" RCP	57	0 ³	57	
8	54" RCP	412	412	412	20
	Bank Stabilization	13	13	0 ²	
10	Bank Stabilization	16	0 ³	0 ²	
13	Bridge, Roadway	204	204	204	20
	Bank Stabilization	60 22	60 ⁶ 0 ³	0 ² 0 ²	

Permit Site No.	Impact Type	Permanent Impact Length (ft)	Impacts requiring NCDWQ mitigation (ft)	Impacts requiring USACE mitigation (ft) ¹	Temporary Impact Length (ft)
HC1	Utilities				40
HC2	Utilities				20
HC3	Utilities				20
HC4	Utilities				20
HC5	Utilities				20
11 ⁷	Utilities				40
Totals		<i>3,120</i>	<i>2,826</i>	<i>2,782</i>	<i>358</i>

¹Determined from USACE during verification site visit on July 25, 2012. ²Mitigation for bank stabilization not required by USACE. ³Mitigation not required by NCDWQ (less than 150 linear feet of stream). ⁴Same stream as Site 1; different stream than stream with 11 feet of bank stabilization. ⁵Stream deemed unimportant by the USACE requiring no mitigation by USACE and NCDWQ. ⁶Different stream than stream with 22 feet of bank stabilization. ⁷Stream identified by Colonial Pipe Lines and not field verified by NCDOT, USACE, or NCDWQ since it was outside of NCDOT project area limits during field verification process. Revised numbers are in bold and italicized.

U-2524D

Total preliminary surface water impacts for U-2524D are 4,604 linear feet of permanent stream impacts and 80 linear feet of temporary stream impacts. Table 4 below lists the permit site number, reference number, stream name, and amount of preliminary permanent and temporary impacts.

Table 4. U-2524D Surface Water Descriptions and Impacts (Preliminary)

Permit Site No.	Stream ID in CP 4A Packet	Stream Name	Classification	Permanent Impact (ft)	Temporary Impact (ft)
1	16S	UT to Horsepen Creek	Perennial	393	10
2	17S	UT to Richland Creek	Perennial	919	10
3	17S	UT to Richland Creek	Perennial	1,488	10
4	17S	UT to Richland Creek	Perennial	35 ¹	
4	19S	Richland Creek	Perennial	1218	20
5	20S	UT to Richland Creek	Perennial	141 ¹	10
6	21S	UT to Richland Creek	Perennial	311	10
7	Not Identified	UT to Richland Creek	Perennial	99 ¹	10
Total Impacts				4,604	80

¹Mitigation not required by NCDWQ (less than 150 linear feet of stream). NCDWQ mitigation for remaining streams are assumed at 1:1 and USACE mitigation for all streams assumed at 2:1 until final field reverification is made.

- Impacts from steep cross pipe slopes (discharging into jurisdictional wetlands or streams) have been reduced with the use of junction boxes, flat exit pipe slopes, and non-buried upstream inverts;
- Five hazardous spill basins (one for stormwater treatment as well) will be utilized for receiving waters classified as Critical Area;
- Pre-formed scour holes will be constructed at four locations: -L- 287+50, :-L- 297+80, : -L- 381+05, and :-L- 382+34;
- Elimination and/or reduction of permanent wetland impacts at Permit Sites 9, 11, 12, and 13 due to bridging;
- Elimination and/or reduction of permanent stream impacts at Permit Sites 9 and 13 due to bridging;
- A 1.5:1 fill slope with rock plating will be used at Permit Site 8 to avoid stream impacts.

For additional avoidance/minimization for U-2524C see attached Stormwater Management Plan. Despite these best efforts of NCDOT, permitted stream impacts (7,688 linear feet) for U-2524C/U-2524D did increase from the impacts reported in the FEIS (6,833 linear feet). This increase is mainly due to new streams and additional jurisdictional stream sections to the FEIS listed streams found within the project area that were not calculated in the FEIS. Overall, wetland impacts significantly decreased from 16.6 acres reported in the FEIS to 6.12 acres recorded in this permit application mainly due to bridging.

Compensatory Mitigation

U-2524C

Compensatory mitigation requirements for stream and wetland impacts are summarized in Table 6. The U-2524C section will permanently impact a total of 3,084 feet of warm water streams. There are 242 feet of bank stabilization and 60 feet of an intermittent stream that do not require mitigation by the USACE, resulting in 2,782 feet of stream impacts requiring USACE 2:1 mitigation. Mitigation requirements for U-2524C by NCDWQ is **2,826** feet at 1:1. The USACE requirement exceeds the NCDWQ requirement and will be provided by NCEEP. NCEEP will also provide mitigation for the 6.12 acres of permanent riparian wetland impacts resulting from roadway fill, excavation, and mechanized clearing.

Table 6. U-2524C Required Compensatory Mitigation Summary (Final)

	Stream Impacts in Length (ft)	Riparian Wetland Impacts (ac)
Required USACE Mitigation	2,782 @ 2:1	4.39 @ 2:1 1.73 @ 1:1
Total USACE Mitigation	5,564	10.51
Required NCDWQ Mitigation	2,826 at 1:1	6.12 @ 1:1
Total NCDWQ Mitigation	2,826	6.12

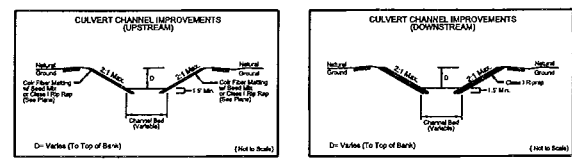
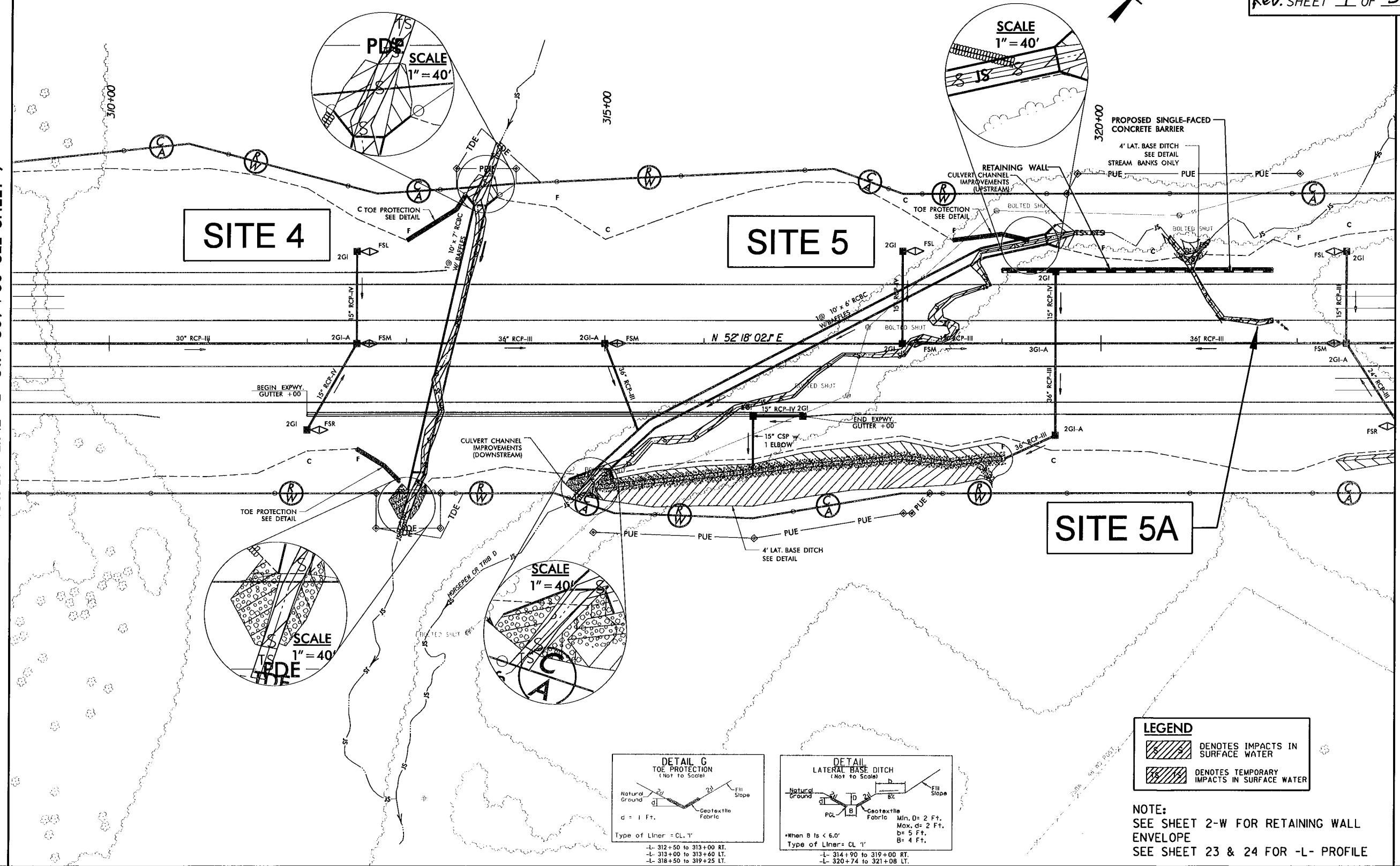
Revised numbers are italicized.

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REVISIONS

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



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

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

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

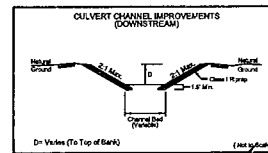
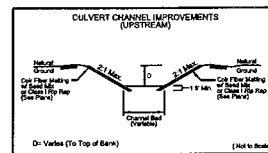
NOTE:
SEE SHEET 2-W FOR RETAINING WALL ENVELOPE
SEE SHEET 23 & 24 FOR -L- PROFILE

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

8/17/99

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	
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PERMIT DRAWINGS <i>Rev. SHEET 10 OF 39</i>		



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

SITE 4

SITE 5

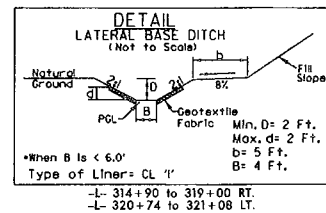
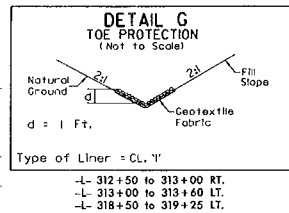
SITE 5A

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



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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 19 OF 39

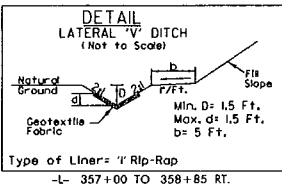
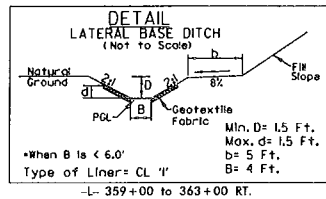
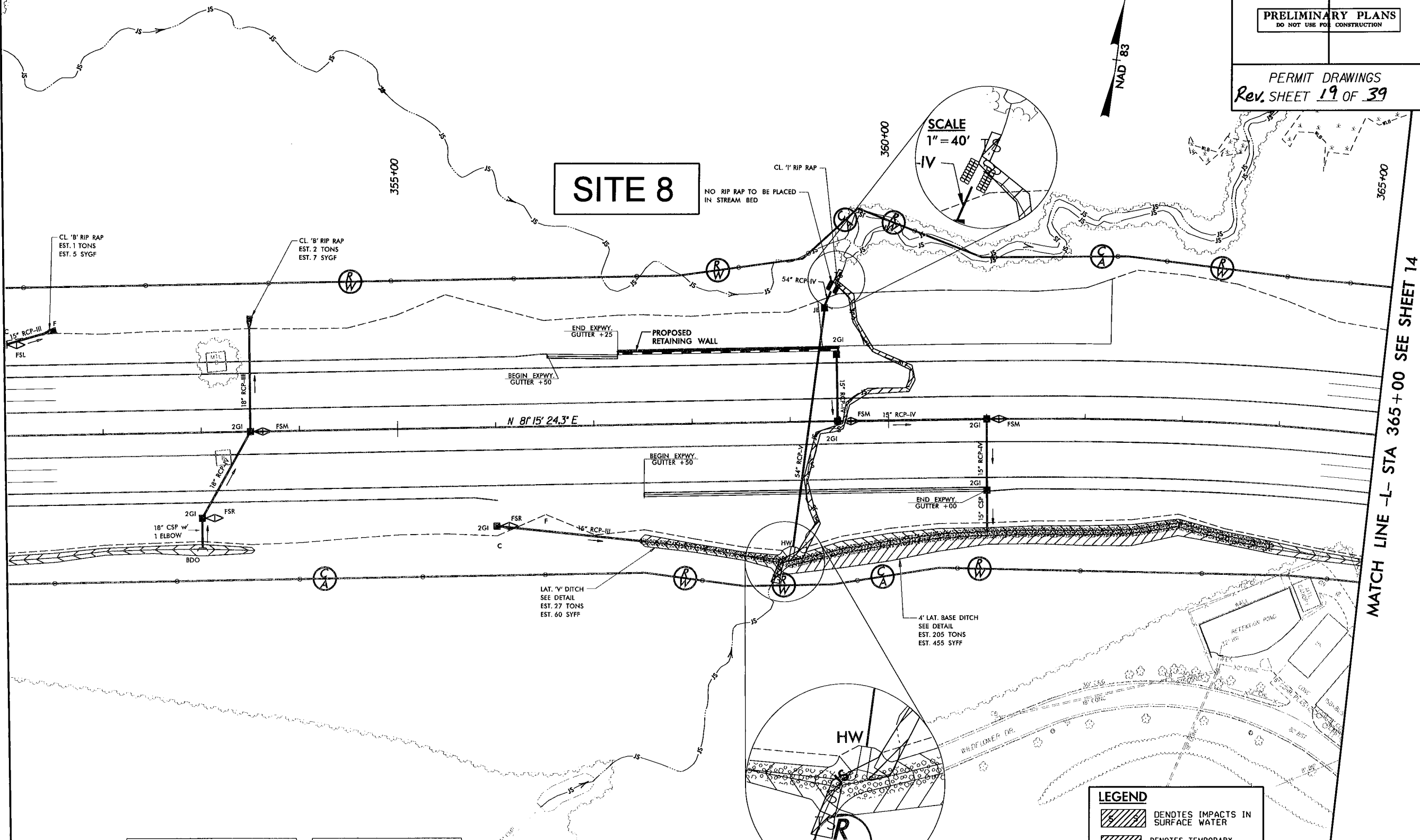
NAD 83

SITE 8

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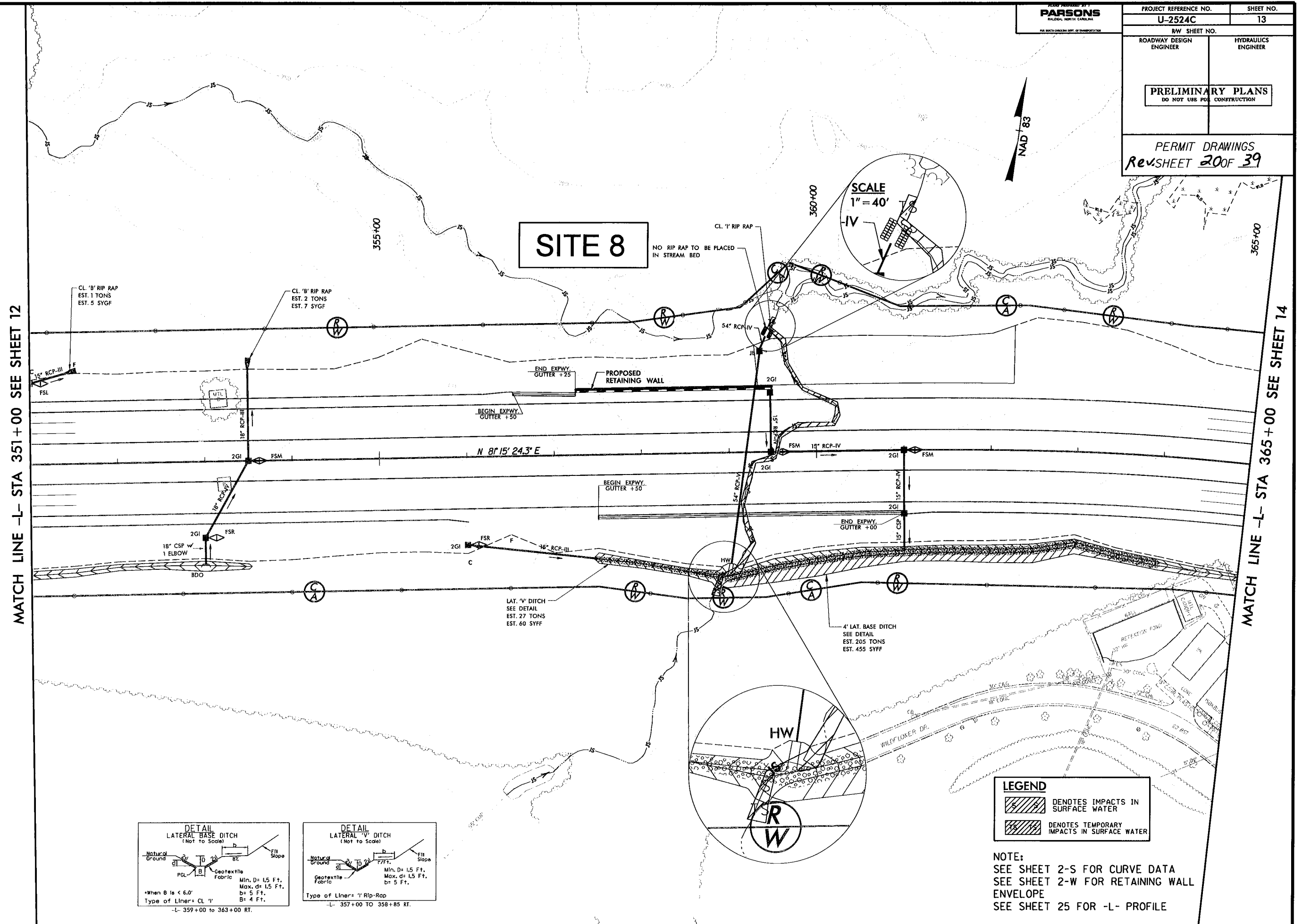
MATCH LINE -L- STA 351+00 SEE SHEET 12

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



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



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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 25 OF 39	

SITE 13

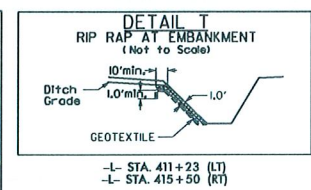
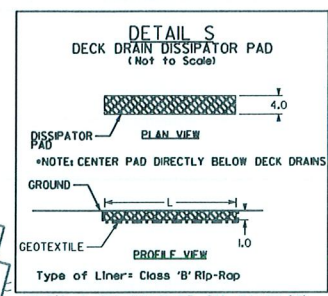
SITE 14

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

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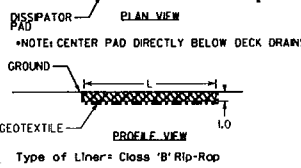
PARSONS
RALEIGH, NORTH CAROLINA
FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO. U-2524C		SHEET NO. 16B	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
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<p>PERMIT DRAWINGS</p> <p>Rev. SHEET 26 OF 39</p>			

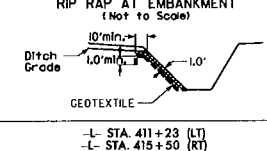
SITE 13

SCALE
1" = 40'

DETAIL S
DECK DRAIN DISSIPATOR PAD
(Not to Scale)



DETAIL T
RIP RAP AT EMBANKMENT
(Not to Scale)



SITE 14

SITE 13

SITE 12

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 RPY4 PROFILE
SEE SHEET 34 FOR RPY4 PROFILE
SEE SHEET 35 FOR RPY4 PROFILE
SEE SHEET 36 FOR SPAY4, SPCY4 & SPDY4 PROFILE

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

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

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	345	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	-	-
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	-	0.34	1.23	4.38	0.42	0.09	3120	198	-

Notes: Permanent Wetland Impacts from bridge construction = 0.11 acres
Temporary Wetland Impacts from work bridge construction = 0.14 acres
See Sheet ____ of ____ 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

4/9/2013