



PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

May 12, 2016

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

ATTN: Mr. Dave Bailey
NCDOT Coordinator

Subject: Request for Modification to the Section 404 Individual Permit and Section 401 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.

Reference: USACE Individual Permit Action ID SAW-2001-21125, August 1, 2013.
USACE Individual Permit Modification Action ID SAW-2001-21125, March 25, 2014.
USACE Individual Permit Modification Action ID SAW-2001-21125, June 19, 2015.
USACE Individual Permit Modification Action ID SAW-2001-21125, October 7, 2015.
NCDWR Project No. 20130223, Certification No. 3965, July 2, 2013.
NCDWR Project No. 20130223_v2, Modification to Certification No. 3965, April 15, 2014.
NCDWR Project No. 20130223_v3, Modification to Certification No. 3965, June 25, 2015.
NCDWR Project No. 20130223_v4, Modification to Certification No. 3965, October 12, 2015.

Dear Sir:

The purpose of this letter is to request a modification to the United States Army Corps of Engineers (USACE) Section 404 Individual Permit and North Carolina Division of Water Resources Section 401 Certification for the above referenced project. The original permit application and the subsequent permits in 2013 (referenced above) presented final impacts for U-2524C and preliminary impacts for U-2524D. The subsequent modifications referenced above were all for activities in U-2524C. This modification request presents the final impacts for U-2524D.



State of North Carolina | Department of Transportation | PDEA-Natural Environment Section
1020 Birch Ridge Drive, 27610 | 1598 Mail Service Center | Raleigh, North Carolina 27699-1598
919-707-6000 T 919-212-5785 F

Please see the enclosed revised Division of Mitigation Services (DMS) mitigation acceptance letter (dated May 9, 2016), permit drawing review minutes (CP4C), stormwater management plan, permit drawings, utility drawings, and design plans for the above referenced project.

Summary of U-2524D Jurisdictional Impacts:

The preliminary projected impacts for U-2524D in 2013 were 4,604 linear feet of stream impacts, which did not include impacts from bank stabilization activities or temporary impacts. The final total impacts for U-2524D include 5,400 linear feet of permanent stream impacts, 166 linear feet of stream bank stabilization, and 0.08 acre of permanent wetland impacts. The primary reason these final impact numbers are higher than the preliminary numbers presented in the 2013 application is that half of Permit Site 9 and all of Sites 1, 3A, 10, 11 and 12 were omitted from the preliminary plans. This accounts for an increase of 669 linear feet of permanent stream impacts, 73 linear feet of bank stabilization and 0.08 acre of permanent wetland impacts. Furthermore, it was noted during the CP4C meeting on December 9, 2015 that the addition of walls in some areas may have led to the increase of impacts at some of the crossings. In addition to the permanent and temporary impacts listed above, there will also be 780 linear feet of loss of stream function. All impacts have been avoided and minimized to the greatest extent practicable.

Summary of U-2524D Utility Impacts:

There will be 0.02 acre (90 linear feet) of temporary stream impacts associated with the installation of 8" and 12" sanitary sewer line.

Summary of Mitigation:

Mitigation for impacts resulting from both Section C and Section D of this project will be provided by DMS. See tables 4 and 5 for a summary of the mitigable impacts resulting from each section. Total mitigable impacts for Section C include 2,812 linear feet of streams and 6.15 acre of wetlands. Total mitigable impacts for Section D include 6,084 linear feet of streams and 0.08 acre of wetland.

PROJECT SCHEDULE

The project was permitted in two phases due to project size, funding and TIP schedule. The C Section of this project let on September 17, 2013. The D Section of this project is scheduled to let on September 20, 2016.

IMPACTS TO WATERS OF THE U.S.

Tables 1 and 2 summarize the impacts to jurisdictional water resources for the final design of U-2524D. Site numbers correspond with the permit (hydraulic) drawings included in this application. The stream and wetland numbers correspond to the 2014 JD Appeals Maps. A brief description of each impact site will follow the tables.

Table 1 – U-2524D Final Wetland Impacts*

Site	Wetland ID	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Impacts Requiring Mitigation (ac)
11	WR	0.21	0.05	--	0.03	--	0.08
Total Impacts:			0.05	--	0.03	--	0.08**

* Wetland impacted is riparian

** Values are based on rounding, due to calculating totals with actual numbers to the thousandths

Table 2 – U-2524D Final Stream Impacts

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream ID ¹	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement ² (linear feet)
1	UT to Horsepen Creek (I)	SQ	Perm. Fill	--	--	--
			Bank Stabilization	15	--	--
			Temp Fill	--	<0.01	--
2	UT to Richland Creek (P)	SY	Perm. Fill	414	--	USACE & DWR
			Bank Stabilization	--	--	--
			Temp Fill	--	<0.01	--
3A	UT to Richland Creek (I)	SV	Perm. Fill	96	--	DWR*
			Bank Stabilization	--	--	--
			Temp Fill	--	--	--
3	UT to Richland Creek (I/P)	SV	Perm. Fill	996	--	USACE & DWR
			Bank Stabilization	24	--	DWR
			Temp Fill	--	<0.01	--
			Loss of Function	780	--	USACE (@0.5:1)
4	UT to Richland Creek (P)	SV	Perm. Fill	1,581	--	USACE & DWR
			Bank Stabilization	--	--	--
			Temp Fill	--	<0.01	--
5	Richland Creek (P)	Richland Creek	Perm. Fill	1,192	--	USACE & DWR
			Bank Stabilization	--	--	--
			Temp. Fill	--	0.01	--
6	UT to Richland Creek (I)	SU	Perm. Fill	158	--	USACE & DWR
			Bank Stabilization	--	--	--
			Temp. Fill	--	<0.01	--
7	UT to Richland Creek (P)	ST	Perm. Fill	291	--	USACE & DWR
			Bank Stabilization	23	--	DWR
			Temp. Fill	--	<0.01	--
8	UT to Richland Creek (P)	SS	Perm. Fill	--	--	--
			Bank Stabilization	46	--	--
			Temp. Fill	--	<0.01	--
9	UT to Richland Creek (P)	SR	Perm. Fill	388	--	USACE & DWR
			Bank Stabilization	--	--	--
			Temp. Fill	--	<0.01	--
10	Richland Creek (P)	Richland Creek	Perm. Fill	--	--	--
			Bank Stabilization	34	--	DWR
			Temp. Fill	--	<0.01	--

Table 2 Continued – U-2524D Final Stream Impacts

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream ID ¹	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement ² (linear feet)		
11	N/A (wetland only)	--	--	--	--	--		
12	UT to Richland Creek (P)	SBA	Perm. Fill	284	--	USACE & DWR		
			Bank Stabilization	24	--	DWR		
			Temp. Fill	--	<0.01	--		
Total Temporary Impacts:				--	0.04³	--		
Total Perm. Impacts (Perm. Fill + Bank Stabilization):				5,566	--	--		
Permanent Impacts Requiring DWR Mitigation:				5,505	--	--		
Permanent Impacts Requiring USACE Mitigation:				5,304	--	--		
Loss of Function Impacts Requiring USACE Mitigation:				780	--	--		
Total Impacts Requiring Mitigation:				6,084	--	†		

1 – As identified in the 2014 JD Appeals Map

2 – Mitigation for bank stabilization impacts required by DWR – not required by USACE

3 – Values are based on rounding, due to some of the individual impacts being <0.01 acre

* – USACE said no mitigation required for this site at the CP4C meeting

† – Final mitigation requirement will be up to the USACE and DWR

Permit Site 1: There will be 15 linear feet (lf) of bank stabilization to SQ to protect the outlet of a 2' base ditch. There will be <0.01 ac (15 lf) of temporary impacts associated with the installation of this bank stabilization.

Permit Site 2: The installation of a 30" reinforced concrete pipe (RCP) to carry SY under the proposed bypass will result in 414 lf of permanent stream impacts and <0.01 ac (10 lf) of temporary impacts to SY.

Permit Site 3A: The proposed bypass and the corresponding roadway slopes will result in 96 lf of impacts to the intermittent headwaters of SV. Flow from this channel will be redirected into a 4' base ditch parallel to the south side of the bypass. The USACE stated at the CP4C meeting that no mitigation would be required at this site.

Permit Site 3: Due to the proposed roadway and corresponding slopes, SV in this location will be relocated into a 4' base ditch (beginning at Site 3A). This stream will then be carried under the bypass via a 60" RCP. The ditching and piping of SV at this location will result in 996 lf of permanent impacts and <0.01 ac (10 lf) of temporary impacts. There will also be 24 lf of bank stabilization at the outlet of the 60" RCP.

There is a 780 lf portion of SV that will remain daylighted and between Site 3 and Site 4. Per e-mail from USACE (Dave Bailey) on February 29, 2016, "It is reasonable to expect a reduction in aquatic function, specifically aquatic passage, as a result of the long culvert segments proposed above and below the [780 lf] area in question." Therefore, the USACE is requiring 0.5:1 mitigation for this stretch of SV to compensate for the indirect loss of function.

Permit Site 4: As SV currently runs down the centerline of the proposed bypass in this location, it will be directed into a single-cell 8'x7' reinforced concrete box culvert (RCBC) along the north side of the bypass. This will transition into a 10'x7' culvert in the vicinity of Site 6 and then run all the way through the Lawndale Drive intersection. There will be some channel improvements at the inlet end of this culvert to better align the stream into the structure. As a result of this culvert installation, there will be 1,581 lf of permanent impacts to SV and <0.01 ac (12 lf) of temporary impacts.

Permit Site 5: A single-cell 10'x7' RCBC will be constructed to carry Richland Creek under the Lawndale Drive interchange. This culvert will eventually run parallel to the RCBC carrying SV and they will both outlet on the east side of the interchange. This culvert installation will result in 1,192 lf of permanent impacts and 0.01 ac (43 lf) of temporary impacts to Richland Creek.

Permit Site 6: Due to the location of the new interchange ramps, there will be 158 lf of permanent impacts and <0.01 ac (16 lf) of temporary impacts to SU. The flow will be carried into a short section of 10'x7' RCBC that will intersect with the RCBC from Site 4.

Permit Site 7: Due to the construction of 48" RCP to carry the flow from ST under the proposed interchange, there will be 291 lf of permanent impacts to ST. Additionally, there will be 23 lf of bank stabilization and <0.01 ac (10 lf) of temporary impacts at the inlet end due to outlet protection of ditches tying in from the east and west side of the channel.

Permit Site 8: There will be 46 lf of bank stabilization and <0.01 acre (18 lf) of temporary impacts to SS at this location to protect the outlet of a base ditch coming in from the west as well as stabilizing the west bank near the outlet of the RCBCs from Sites 4 and 5.

Permit Site 9: A single-cell 7'x8' RCBC will be constructed to carry the flow from SR under the proposed bypass. This RCBC will outlet into a channel with riprap lined banks to improve alignment and increase stability as the flow is carried to the confluence with Richland Creek. As a result of these activities, there will be 388 lf of permanent impacts and <0.01 ac (20 lf) of temporary impacts to SR.

A portion of this site as well as the remaining three permit sites were not included in the preliminary impact numbers for the D Section presented in the 2013 permit application due to the omission of two plansheets. However, the design of the project has not changed significantly since 2013.

Permit Site 10: There will be 34 lf of bank stabilization and <0.01 ac (20 lf) of temporary impacts to Richland Creek to stabilize the confluence of SR.

Permit Site 11: As a result of the new roadway slopes from the proposed bypass, there will be 0.05 acre of wetland fill and 0.03 acre of mechanized clearing in wetlands to WR.

Permit Site 12: A new 72" RCP will be installed to carry SBA under the proposed bypass. There will be 284 linear feet of permanent impacts, <0.01 acre (15 lf) of temporary impacts and 24 lf of bank stabilization to SBA associated with this activity.

U-2524D Utility Impacts:

There will be 0.02 acre (90 linear feet) of temporary impacts associated with the installation of 8" and 12" sanitary sewer line. There are five sites at which sewer line will be installed via open trench method (see Table 3 below and the attached utility drawings). It is anticipated that the trench width will be approximately 3-4' wide and the depth approximately 5' in order to achieve a minimum of 4' of cover under each creek.

Table 3 – U-2524D Utility Impacts

Site	Stream ID	Impact Type	Permanent Impact (ft)	Temporary Impact (ft)	Temporary Impact (ac)	Impacts Requiring Mitigation (ac)
U1*	SV	Open Trench	--	15	<0.01	0
U2	SV	Open Trench	--	15	<0.01	0
U3	Richland Creek	Open Trench	--	15	<0.01	0
U4	SU	Open Trench	--	15	<0.01	0
U5	ST	Open Trench	--	15	<0.01	0
U6	Richland Creek	Open Trench	--	15	<0.01	0
Total Impacts:			--	90	0.02**	0

* Site U1 overlaps with Permit Site 3

** Values are based on rounding, due to calculating totals with actual numbers to the thousandths

FEDERALLY PROTECTED SPECIES

As of March 25, 2015, the USFWS lists one federally protected species for Guilford County, small whorled pogonia. Surveys for this species were conducted on May 20, 2009 and June 11, 2014. No individuals of this species were identified in either of these surveys. The biological conclusion for this species remains "No Effect".

MITIGATION OPTIONS

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

U-2524D Avoidance and Minimization:

NCDOT has avoided and reduced impacts to wetlands and streams to the greatest extent practicable. The following is a partial list of avoidance and minimization initiatives within the D Section:

- Where practical, stormwater runoff throughout the project is being treated by grassed shoulders, grassed medians and/or grassed typical cut ditches.
- Rip-rap outlet protection has been utilized at all outfalls for energy dissipation.
- The portion of this project located within the "Critical Area" of Lake Brandt will include two hazardous spill basins.

- Open trenches will be used to install sewer lines because heavy groundwater would be encountered in areas of the proposed bore pits if installation was done by a trenchless method. This would make the pits unsafe due to the potential for sloughing off and major dewatering procedures would need to be utilized.

U-2524D Compensation:

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable as described above. Tables 1 and 2 summarize the wetland and stream impacts in the D Section of this project as well as a breakdown of the impacts requiring mitigation by the USACE and NCDWR. The D Section will permanently impact 0.08 acre of wetlands, 5,566 linear feet of streams (5,400 linear feet of permanent fill and 166 linear feet of bank stabilization), and temporarily impact 0.04 acre of streams. This Section will also result in 780 feet of loss of stream function.

Per Tables 1 and 2, the total mitigation required by the USACE is 0.08 acre of wetlands, and 5,304 lf of streams plus 780 lf due to loss of stream function. Therefore, total mitigation required for the D Section is 0.08 ac of wetlands and 6,084 lf of streams.

Compensatory mitigation for impacts from the C and D Sections of this project will be provided by DMS. Tables 4 and 5 summarize the required compensatory mitigation and ratios for each section.

Table 4 – U-2524C Required Compensatory Mitigation*

	Stream Impact Length (ft)	Riparian Wetland Impacts (ac)
Required USACE Mitigation	2,812 @ 2:1	4.42 @ 2:1 1.73 @ 1:1
Total USACE Mitigation	5,624	10.57
Required NCDWR Mitigation	2,819 @ 1:1	6.15 @ 1:1
Total NCDWR Mitigation	2,819	6.15

* This table has not changed since the last permit modification application dated September 14, 2015

Table 5 – U-2524D Required Compensatory Mitigation

	Stream Impact Length (ft)	Riparian Wetland Impacts (ac)
Required USACE Mitigation	5,304 @ 2:1 780 @ 0.5:1	0.08 @ 2:1
Total USACE Mitigation	10,998	0.16
Required NCDWR Mitigation	5,505 @ 1:1	0.08 @ 1:1
Total NCDWR Mitigation	5,505	0.08

REGULATORY APPROVALS

Section 404: Application is hereby made for a modification to the USACE Individual 404 Permit as required for the above-described activities.

Section 401: We are hereby requesting a modification to the 401 Water Quality Certification from the N. C. Division of Water Resources.

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: <http://connect.ncdot.gov/resources/Environmental>. If you have any questions or need additional information, please call Erin Cheely at (919) 707-6108.

Sincerely,



Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head

cc:

NCDOT Permit Application Standard Distribution List



PAT MCCRORY

Governor

DONALD R. VAN DER VAART

Secretary

May 9, 2016

Mr. Philip S. Harris, III, P.E., CPM
Natural Environment Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

TIP Number U-2524C/D, Greensboro – Western Loop from North of Bryan Boulevard to Lawndale Drive, Guilford County

Reference: USACE 404 Individual Permit issued August 1, 2013 (USACE Action ID 2001-21125) and modified Individual Permits issued March 25, 2014 and October 7, 2015

NCDWR 401 Water Quality Certification (WQC) issued July 2, 2013 (NCDWR ID 2013-0223) and modified 401 WQCs issued April 15, 2014 and October 12, 2015

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the additional stream mitigation for the subject project. Based on the information supplied by you on May 6 and 9, 2016, the additional stream and riparian wetland impacts are located in CU 03030002 of the Cape Fear River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Table 1 – Additional Impacts (feet / acres)

Cape Fear 03030002 CP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1 (3:1)	Zone 2 (1.5:1)
Impacts (feet/acres)	0	0	1,480.0	0.08	0	0	0	0

*NOTE: Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

These impacts and associated mitigation needs were not projected by the NCDOT in the 2016 impact data. DMS is currently providing stream and riparian wetland mitigation for the impacts associated with this project located in cataloging unit 03030002 of the Cape Fear River basin as required by the 404 and 401 permits issued in January 2014, and modifications issued in October 2014, as shown in the below table (in mitigation credits):

Mr. Harris
TIP U-2524 C / D
May 9, 2016
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Table 2 – Current Permitted Impacts and Associated Mitigation Requirements provided by DMS (based on 2015 permits) and Revised Anticipated Impacts (based on mitigation request)

Impact Type	Total Permitted Impacts (feet / acre / sq ft)	Mitigation Provided by DMS per Issued Permits (Credits)	Additional Impact (for approval)	Revised Total Impacts*
Stream	7,416.0	14,795.0	1,480.0	8,896.0
Riparian Wetland	6.15	10.57	0.08	6.23

*Some of the additional wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details. DMS will provide the amount of mitigation as determined by the regulatory agencies.

This impact and associated mitigation need were under projected by the NCDOT in the 2016 impact data. DMS will commit to implement sufficient compensatory mitigation credits to offset the additional impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. **This mitigation acceptance letter replaces the mitigation acceptance letters that was issued on February 26, May 17 and May 22, 2013, May 20, 2014, June 26 and September 21, 2015.**

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,



James B. Stanfill
Credit Management Supervisor

Cc: Mr. David Bailey, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: U-2524C / D Additional 2



(Version 2.03; Released October 2015)

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

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WBS Element:	34820.1.2	TIP No.:	U-2524D	County(ies):	Guilford		
General Project Information							
WBS Element:	34820.1.2	TIP Number:	U-2524D	Project Type:	New Location	Date:	11/11/2015
NCDOT Contact:	William (Bill) H. Elam, Jr., PE			Contractor / Designer:	HNTB / James A. Byrd, PE		
	Address:	1020 Birch Ridge Road Raleigh, NC 27610			Address:	343 E. Six Forks Road Suite 200 Raleigh, NC 27609	
	Phone:	(919) 707-6718			Phone:	(919) 424-0437	
	Email:	belam@ncdot.gov			Email:	jabyrd@hntb.com	
City/Town:	Greensboro		County(ies):	Guilford			
River Basin(s):	Cape Fear		CAMA County?	No			
Wetlands within Project Limits?	Yes						
Project Description							
Project Length (lin. miles or feet):	1.814 Miles	Surrounding Land Use:	Urban Residential				
Project Built-Upon Area (ac.)	42.7	ac.	Existing Site				
Typical Cross Section Description:	The proposed typical section for the mainline is a 6-lane divided facility consisting of 3 - 12' travel lanes with 2 - 12' paved shoulders in each direction and a 22' grassed median.			N/A			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 71,908	Year: 2028	Existing: 41,985	Year: 2008			
General Project Narrative: (Description of Minimization of Water Quality Impacts)	U-2524D is a portion of the Greensboro Western Loop from East of US 220 (Battleground Avenue) to East of SR 2303 (Lawndale Drive). The project contains 4 Reinforced Concrete Box Culverts (RCBC) conveying Richland Creek and 3 of its tributaries under the proposed project. A portion of the project is located within the "Critical Area" of Lake Brandt and will include two Hazardous Spill Basins (HSB). Where practical stormwater runoff throughout the project is being treated by grassed shoulders, grassed medians and/or grassed typical cut ditches. Rip-rap outlet protection has been utilized at all outfalls for energy dissipation. This project is located within the Jordan Lake Watershed but is exempt from the subject buffer rules per NCDWQ.						
Waterbody Information							
Surface Water Body (1):	Horsepen Creek		NCDWR Stream Index No.:	16-11-5-(2)			
NCDWR Surface Water Classification for Water Body		Primary Classification:	Water Supply III (WS-III)				
		Supplemental Classification:	Nutrient Sensitive Waters (NSW)				
Other Stream Classification:	None						
Impairments:	biological impairment						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:				Buffer Rules in Effect:	Jordan Lake		
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							



(Version 2.03; Released October 2015)

North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



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WBS Element:	34820.1.2	TIP No.:	U-2524D	County(ies):	Guilford		
Additional Waterbody Information							
Surface Water Body (2):	Richland Creek			NCDWR Stream Index No.:	16-11-7-(1)		
NCDWR Surface Water Classification for Water Body		Primary Classification:	Water Supply III (WS-III)				
		Supplemental Classification:	Nutrient Sensitive Waters (NSW)				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:				Buffer Rules in Effect:	Jordan Lake		
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)			(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)							



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.03; Released October 2015)

WBS Element: 34820.1.2

TIP No.: U-2524D

County(ies): Guilford

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Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
5	-L- 424+72 RT 36.139072 / -79.856674	(1)Horsepen Creek	0.0	6.0	6.0	0.5	53	215	2.76%	1.5	1.8	1.9	1.9	No	No
5	-L- 427+00 RT 36.139041 / -79.855934	(1)Horsepen Creek	0.0	6.0	6.0	0.9	86	388	2.32%	2.5	1.9	3.2	2.0	No	No
5	-L- 431+00 RT 36.138870 / -79.854621	(1)Horsepen Creek	0.0	6.0	6.0	0.8	81	348	2.32%	2.4	1.9	3.0	2.0	No	No
5	-L- 434+60 RT 36.138691 / -79.853422	(1)Horsepen Creek	0.0	6.0	6.0	1.5	154	753	2.32%	4.1	2.1	5.3	2.3	No	No
5	-L- 427+13 LT 36.139588 / -79.855811	(1)Horsepen Creek	0.0	6.0	6.0	0.7	72	375	2.32%	1.6	1.7	2.0	1.8	No	No
5	-L- 431+00 LT 36.139393 / -79.854502	(1)Horsepen Creek	0.0	6.0	6.0	1.3	132	360	2.32%	3.3	2.0	4.2	2.2	No	No
5	-L- 422+00 M 36.139347 / -79.857586	(1)Horsepen Creek	0.0	6.0	4.0	0.5	49	187	0.50%	1.7	1.0	2.1	1.1	No	No
5	-L- 424+00 M 36.139369 / -79.856908	(1)Horsepen Creek	0.0	6.0	4.0	0.7	69	288	1.55%	2.4	1.7	3.0	1.8	No	No
5	-L- 427+00 M 36.139323 / -79.855895	(1)Horsepen Creek	0.0	6.0	5.0	0.8	77	388	2.32%	2.5	1.9	3.2	2.1	No	No
5	-L- 431+00 M 36.139149 / -79.854558	(1)Horsepen Creek	0.0	6.0	6.0	0.4	40	348	2.32%	1.2	1.6	1.5	1.7	No	No
5	-L- 434+60 M 36.138970 / -79.853359	(1)Horsepen Creek	0.0	6.0	6.0	0.8	77	728	2.32%	2.1	1.8	2.6	1.9	No	No
6	-L- 442+25 RT 36.138346 / -79.850865	(1)Horsepen Creek	0.0	6.0	6.0	0.2	21	75	2.32%	0.6	1.3	0.8	1.4	No	No
6	-L- 443+50 RT 36.138272 / -79.850453	(1)Horsepen Creek	0.0	4.0	4.0	0.1	10	50	0.30%	0.3	0.6	0.4	0.6	No	No
6	-L- 444+00 RT 36.138248 / -79.850285	(1)Horsepen Creek	0.0	6.0	6.0	0.3	34	180	2.32%	0.8	1.4	1.0	1.5	No	No
6	-L- 442+00 M 36.138602 / -79.850894	(1)Horsepen Creek	0.0	6.0	6.0	0.2	21	188	2.32%	0.6	1.3	0.8	1.4	No	No
6	-L- 444+00 M 36.138503 / -79.850229	(1)Horsepen Creek	0.0	6.0	6.0	0.6	56	240	2.32%	1.9	1.8	2.4	1.9	No	No
6	-L- 448+21 M 36.138318 / -79.848821	(1)Horsepen Creek	0.0	4.0	6.0	0.7	73	336	2.32%	2.4	2.0	3.1	2.1	No	No
7	-L- 451+70 M 36.138263 / -79.847644	(1)Horsepen Creek	0.0	4.0	6.0	0.7	69	315	1.00%	2.3	1.4	2.9	1.5	No	No
7	-L- 458+00 M 36.138444 / -79.845524	(2)Richland Creek	0.0	4.0	6.0	0.8	79	315	1.15%	2.6	1.5	3.3	1.6	No	No

Additional Comments



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.03; Released October 2015)

WBS Element: 34820.1.2

TIP No.: U-2524D

County(ies): Guilford

Page 4 of 6

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
7	-L- 461+50 M 36.138689 / -79.844378	(2)Richland Creek	0.0	6.0	6.0	0.7	71	336	2.07%	2.3	1.8	2.9	1.9	No	No
8	-L- 476+50 RT 36.139631 / -79.839421	(2)Richland Creek	0.0	6.0	6.0	1.2	122	597	2.07%	3.6	2.0	4.6	2.1	No	No
8	-L- 467+00 M 36.139128 / -79.842596	(2)Richland Creek	0.0	6.0	6.0	0.7	67	539	2.07%	1.9	1.7	2.4	1.8	No	No
8	-L- 470+37 M 36.139396 / -79.841505	(2)Richland Creek	0.0	6.0	6.0	0.3	34	324	2.07%	1.0	1.4	1.2	1.5	No	No
8	-L- 473+50 M 36.139647 / -79.840490	(2)Richland Creek	0.0	6.0	6.0	0.3	33	297	2.07%	0.9	1.4	1.2	1.5	No	No
8	-L- 476+50 M 36.139886 / -79.839518	(2)Richland Creek	0.0	6.0	6.0	0.3	33	284	2.07%	0.9	1.4	1.2	1.5	No	No
9	-L- 480+50 RT 36.139933 / -79.838120	(2)Richland Creek	0.0	6.0	6.0	0.9	89	387	2.01%	2.6	1.8	3.3	1.9	No	No
9	-RPCY8- 1+95 RT 36.140151 / -79.837136	(2)Richland Creek	0.0	6.0	6.0	0.8	80	288	2.26%	2.2	1.8	2.9	2.0	No	No
9	-RPBY8- 10+68 LT 36.141769 / -79.834663	(2)Richland Creek	0.0	4.0	3.0	0.8	80	518	1.78%	1.7	1.8	2.2	1.9	No	No
9	-L- 480+50 M 36.140206 / -79.838221	(2)Richland Creek	0.0	6.0	6.0	0.4	42	387	2.07%	1.2	1.5	1.5	1.6	No	No
9	-L- 483+75 M 36.140467 / -79.837165	(2)Richland Creek	0.0	6.0	6.0	0.3	32	313	1.20%	0.9	1.2	1.2	1.2	No	No
9	-L- 483+77 M 36.140467 / -79.837165	(2)Richland Creek	0.0	6.0	6.0	0.6	62	577	1.86%	1.8	1.4	2.3	1.5	No	No
9	-L- 489+65 M 36.140936 / -79.835257	(2)Richland Creek	0.0	6.0	6.0	0.2	24	125	1.70%	0.7	1.2	0.9	1.3	No	No
9	-L- 491+00 M 36.141044 / -79.834819	(2)Richland Creek	0.0	6.0	6.0	0.8	75	250	1.37%	2.6	1.6	3.3	1.7	No	No
9	-L- 499+30 M 36.141498 / -79.832072	(2)Richland Creek	0.0	6.0	6.0	0.8	75	265	1.36%	2.3	1.5	2.9	1.6	No	No
9	-L- 501+00 M 36.141525 / -79.831497	(2)Richland Creek	0.0	6.0	6.0	0.3	32	158	1.92%	1.0	1.4	1.2	1.5	No	No
9	-L- 478+50 LT 36.140362 / -79.838998	(2)Richland Creek	0.0	3.0	3.0	0.4	44	50	0.50%	1.7	1.1	2.2	1.2	No	No
10	-L- 509+19 RT 36.141323 / -79.828707	(2)Richland Creek	0.0	6.0	6.0	0.8	76	119	0.33%	2.0	0.9	2.5	0.9	No	No
10	-L- 509+21 RT 36.141323 / -79.828707	(2)Richland Creek	0.0	6.0	6.0	0.8	78	215	1.08%	2.0	1.4	2.6	1.4	No	No

Additional Comments



North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.03; Released October 2015)



WBS Element: 34820.1.2

TIP No.: U-2524D

County(ies): Guilford

Page 5 of 6

Swales

Additional Comments



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

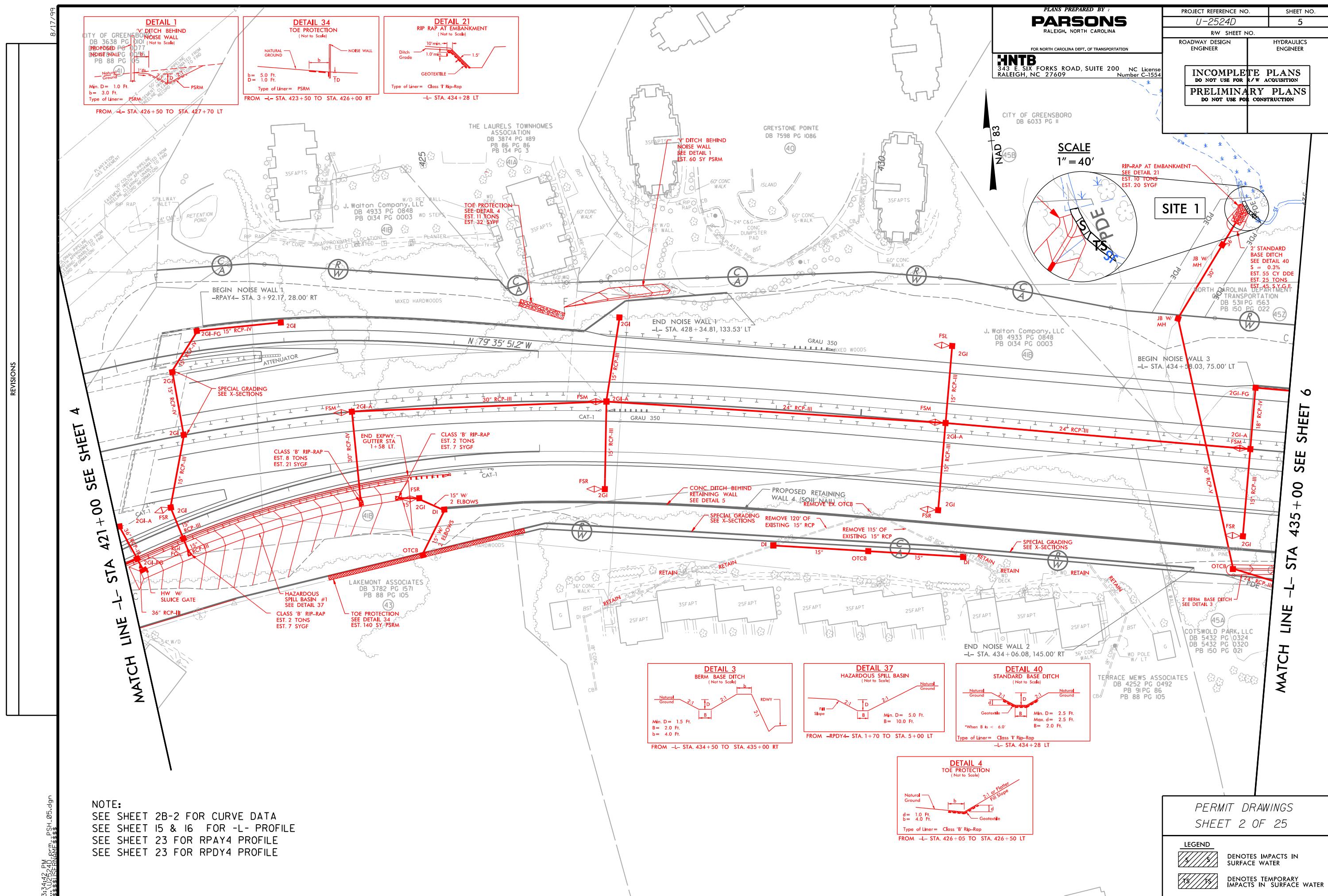
(Version 2.03; Released October 2015)



WBS Element: 34820.1.2 **TIP No.:** U-2524D **County(ies):** Guilford **Page** 6 **of** 6

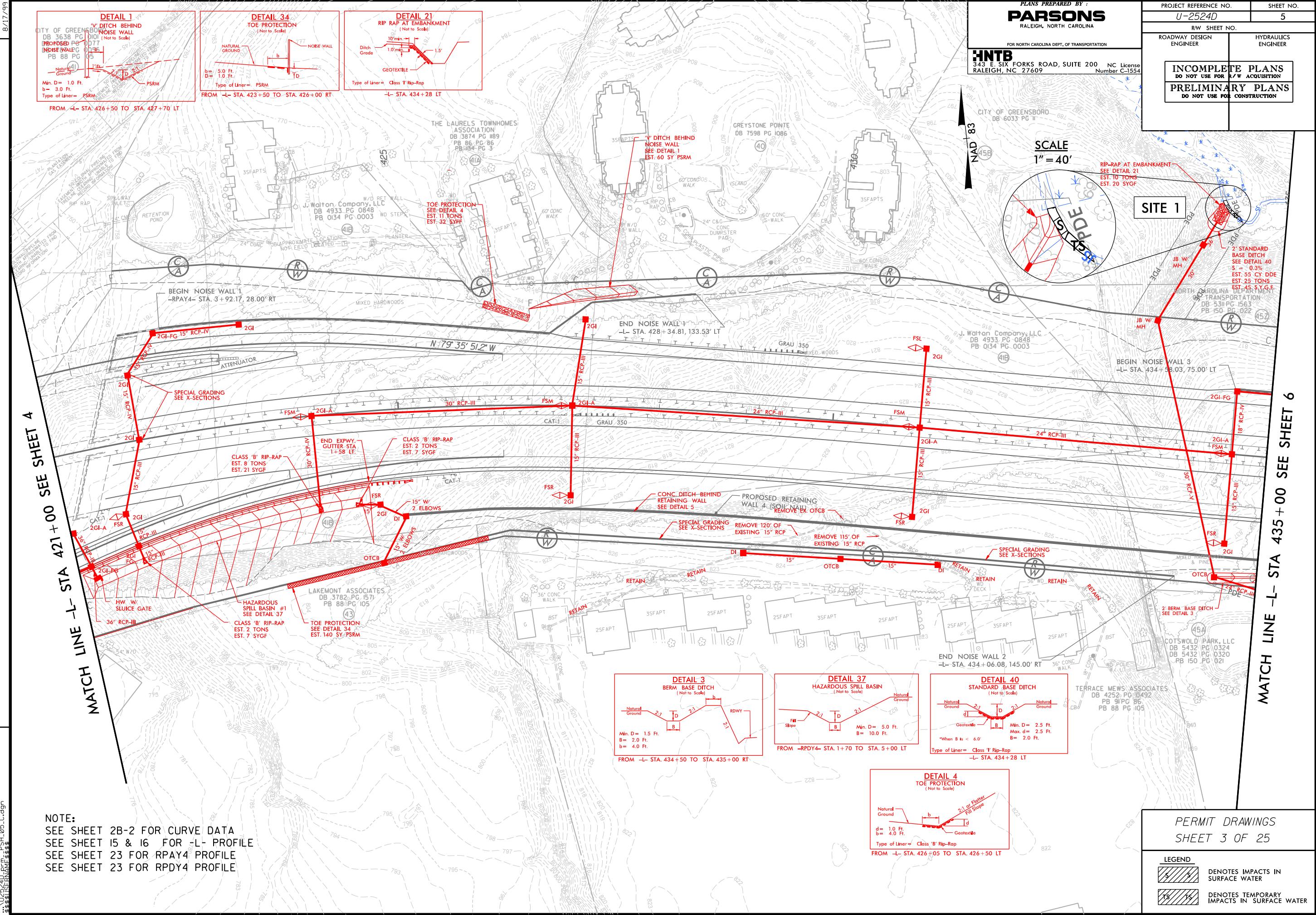
*Hazardous spill basins are pollution prevention measures designed for spill containment rather than stormwater treatment. Under Required / Minimum Treatment and Treatment Achieved, provide the minimum required volume and the actual HSB volume, respectively. Refer to the NCDOT Stormwater Best Management Practices Toolbox (2014) for design guidance.

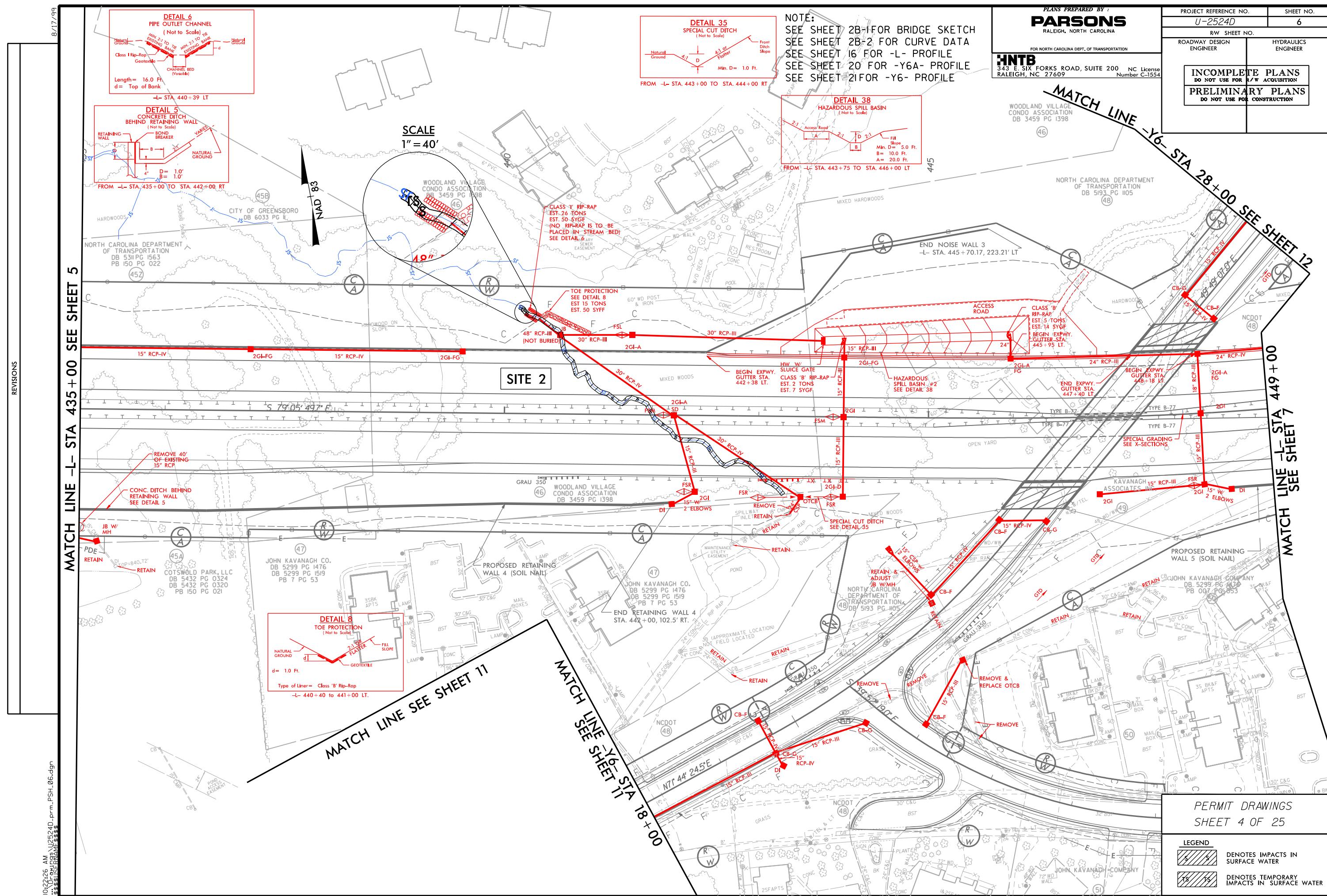
Additional Comments

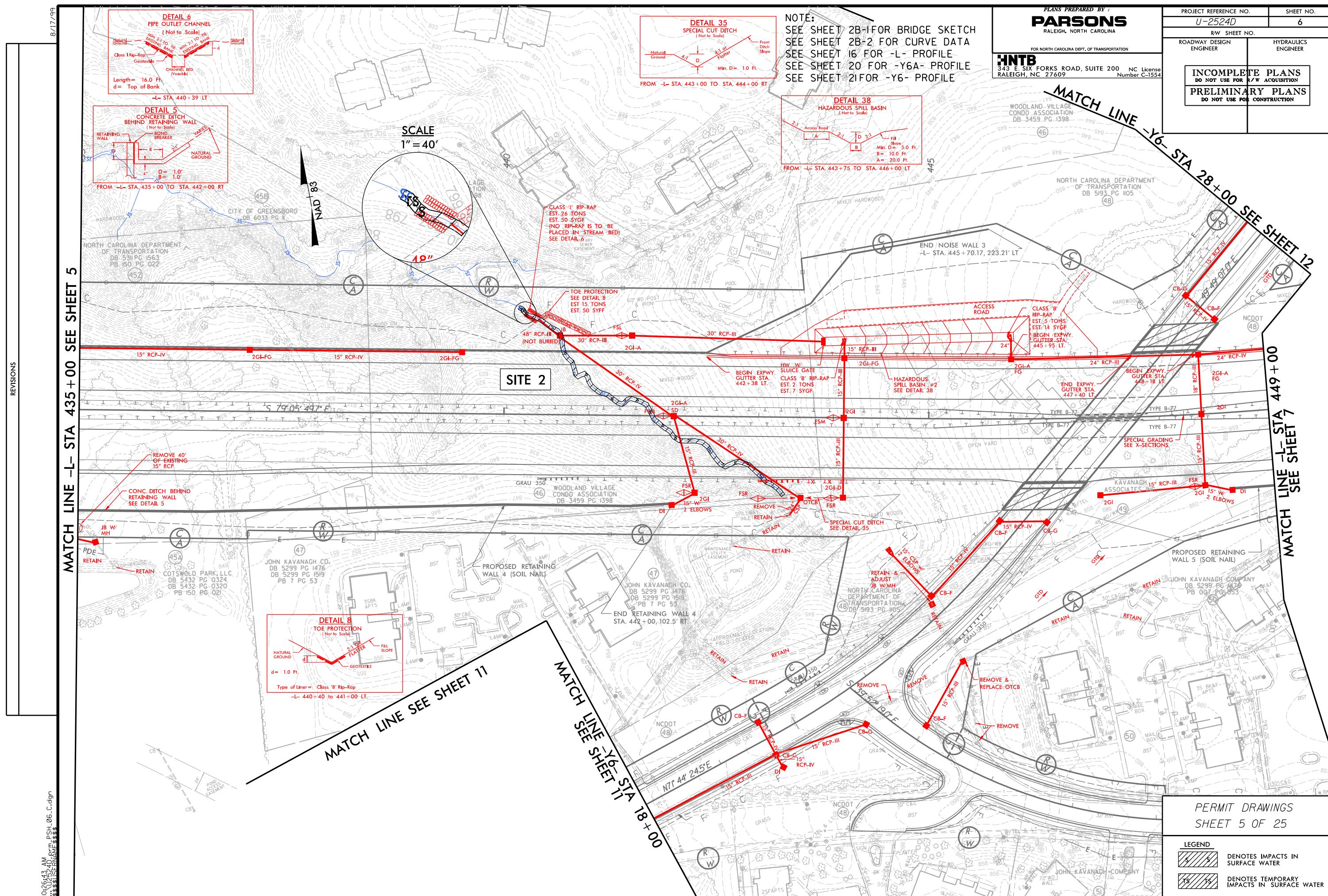


REVISIONS

4:06:40 PM 8/22/2011 PSH-05-C.dwg





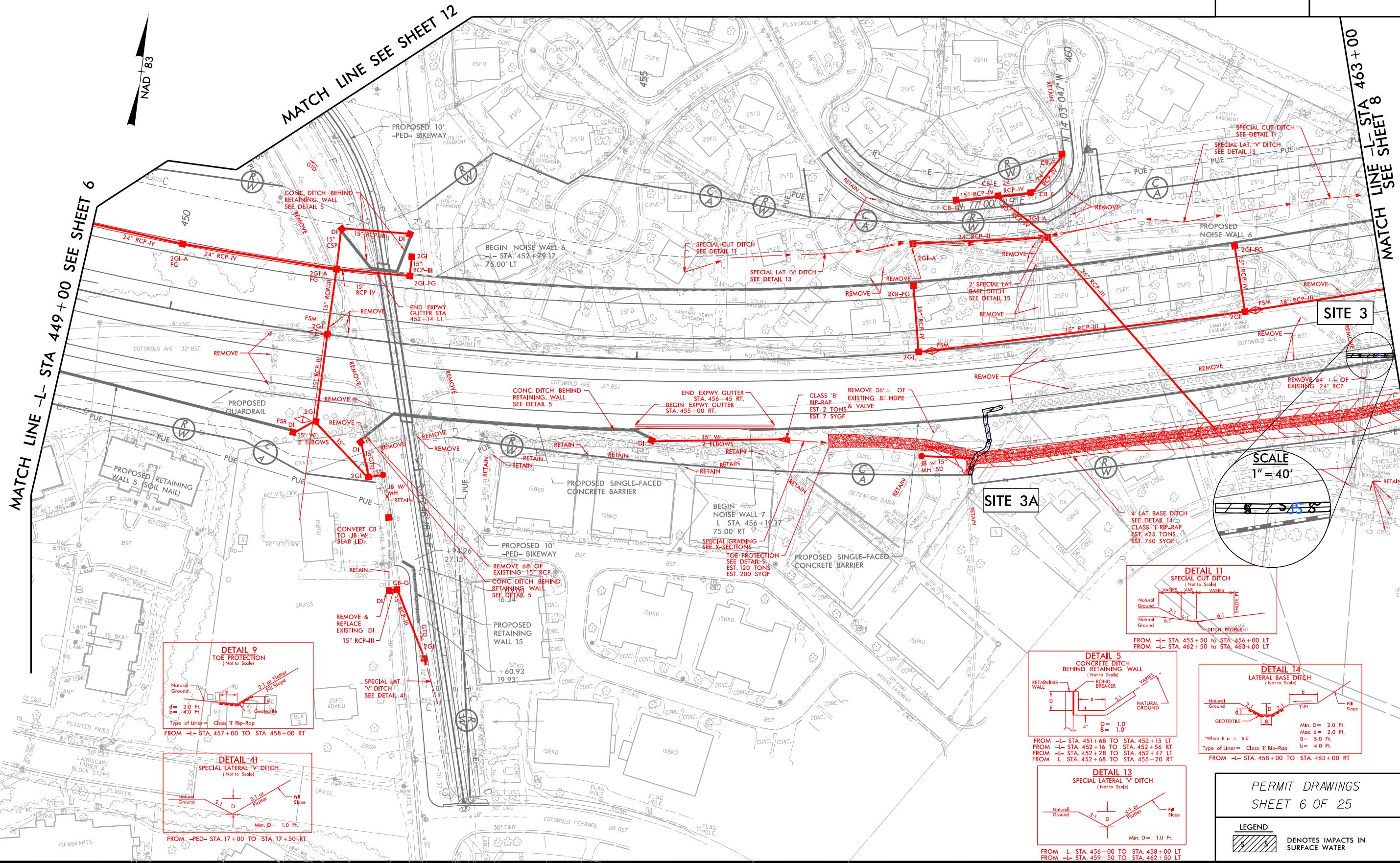


NOTE:
 SEE SHEET 2B-1 FOR BRIDGE SKETCH
 SEE SHEET 2B-2 FOR CURVE DATA
 SEE SHEET 16 & 17 FOR -L- PROFILE
 SEE SHEET 20 FOR PED. PROFILE
 SEE SHEET 20 FOR -Y7A- PROFILE

PLANS PREPARED BY:
PARSONS
 RALEIGH, NORTH CAROLINA

FOR NORTH CAROLINA DEPT. OF TRANSPORTATION
HNTB
 343 E. SIX FORKS ROAD, SUITE 200 NC License
 RALEIGH, NC 27609 Number C-1554

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



NOTE:
SEE SHEET 2B-1 FOR BRIDGE SKETCH
SEE SHEET 2B-2 FOR CURVE DATA
SEE SHEET 16 & 17 FOR -L- PROFILE
SEE SHEET 20 FOR PED. PROFILE
SEE SHEET 20 FOR -Y7A- PROFILE

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA

The image shows the HNTB logo, which consists of the letters "HNTB" in a bold, black, sans-serif font inside a dark rectangular box. To the right of the logo, the text "FOR NORTH CAROLINA DEPT. OF TRANSPORTATION" is written in a smaller, all-caps, black font. Below this, the company's address "343 E. SIX FORKS ROAD, SUITE 200" and city "RALEIGH, NC 27609" are listed in a black font. To the right of the address, "NC License Number C-1554" is written in a smaller black font.

PROJECT REFERENCE NO.		SHEET NO.
<u>U-2524D</u>		7
R/W SHEET NO.		
RROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

REVISEONS

MATCH LINE -L- STA 449 +00 SEE SHEET

MATCH LINE SEE SHEET 1

~~WATCH LINE SEE~~ L- SHEET 8 450

PERMIT DRAWINGS
SHEET 7 OF 25

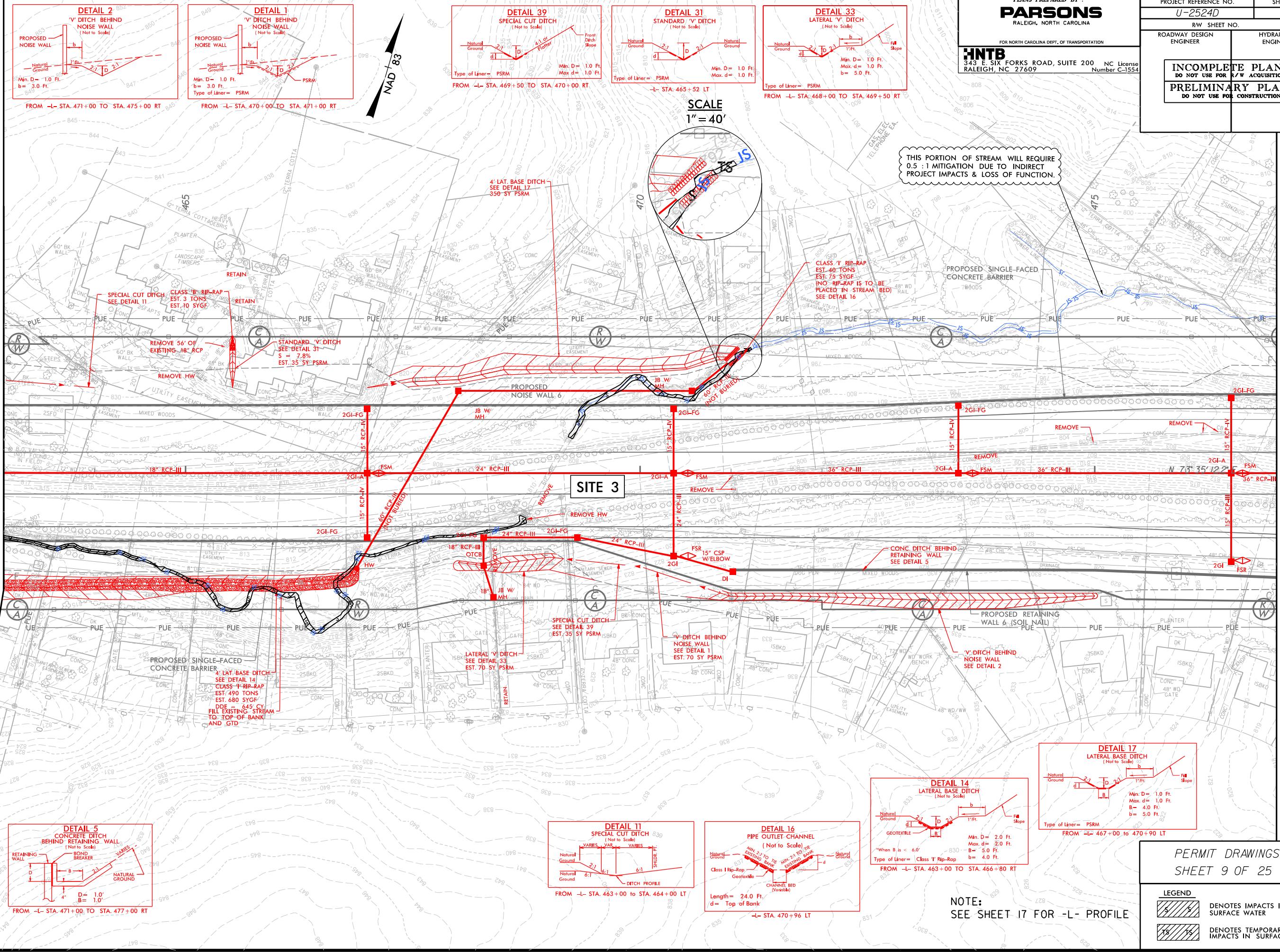
LEGEND

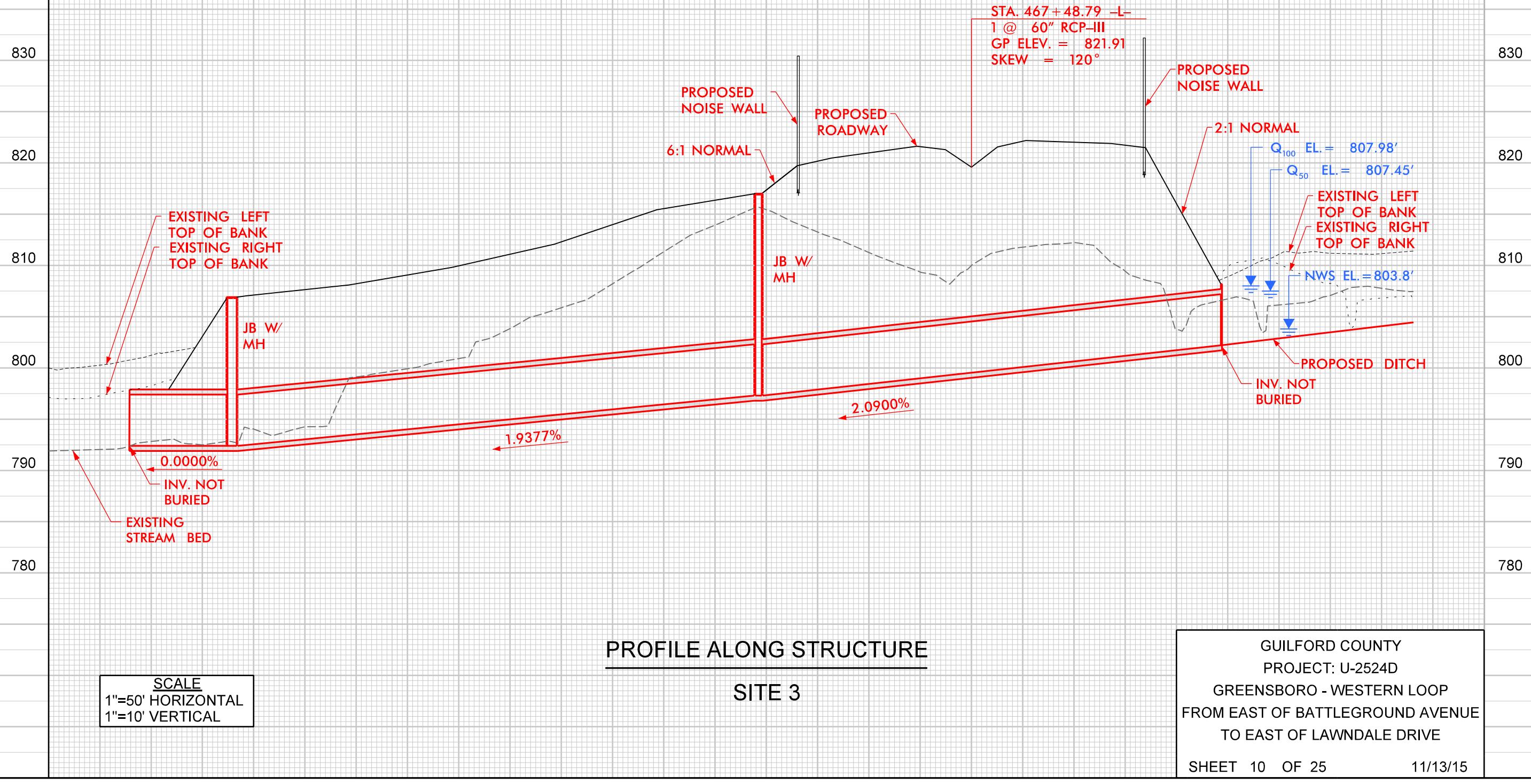
	DENOTES IMPACTS IN SURFACE WATER
--	-------------------------------------

REVISIONS

8:34:02 AM - PSH-08.C.dwg

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





THIS PORTION OF STREAM WILL REQUIRE
0.5 : 1 MITIGATION DUE TO INDIRECT
PROJECT IMPACTS & LOSS OF FUNCTION.

NAD + 83
RT
FPL Slope

The map shows a section of Six Forks Road with several houses labeled. A red dashed line indicates the proposed alignment of a 'BASE DITCH BEHIND NOISE WA'. A red box highlights the area where the ditch would be located, with the text 'SEE DETAIL 37' and 'DDE = 175 CY'. The map also includes labels for 'ISFAPTS' and 'NC License Number C-1554'.

R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

SEE SHEET 8

49
WICHINE STA 477+00 SEL J.I.E.L.

WATCH LINE -

A scale drawing of a river cross-section showing culvert channel improvements upstream. The drawing includes labels for 'SCALE 1" = 40', 'CULVERT CHANNEL IMPROVEMENTS (UPSTREAM)', 'SEE DETAIL 25 CLASS I RIP-RAP', 'EST 55 TONS EST 55 SYGF', and 'SINGLE FACED'. A red circle highlights the 'CULVERT CHANNEL IMPROVEMENTS' area.

This architectural cross-section diagram illustrates a bridge deck's longitudinal profile. The vertical axis on the left is labeled '480'. Key features include a central pier labeled 'CB' at the top, and various concrete sections labeled along the deck: 'CONC', '36° CONC', '48° CONC', '60° CONC', 'C&G', 'BST', and 'SSTS'. The diagram also shows a dashed line representing a lower level or foundation.

The diagram shows a detailed view of a building's foundation and surrounding concrete structures. Labels include 'CONC', '18'2SF & BK1P15', '36° CONC', '60° CONC', '36° CONC', '30° C&G', 'PUE', 'PUE', 'PUE', 'bst', and '60° PUE'. A red callout box highlights a specific area with the text 'SPECIAL CUT DITCH w/HINGE SEE DETAIL 20'.

REMO

PUE

R

15

7GI RCP-III

III-18

18

The site plan shows a building footprint with a red boundary labeled 'FSL' (Front Setback Line). A red arrow points to the left side of the building footprint. Another red boundary labeled 'FSR' (Front Setback Rule) runs parallel to the FSL. A red arrow points to the right side of the building footprint. A red line labeled 'SANITARY SEWER EASEMENT' runs through the property. The letters 'BST' are located at the top right of the building footprint. The letters 'T 9B' are located at the bottom right.

REVISED

DETAIL 19
LATERAL BASE DITCH
(Not to Scale)

b = 5.0 Ft.

Min. D = 3.0 Ft.

b = 5.0 Ft.

1'-0" FT.

2'-0" FT.

2'-0" FT.

Natural Ground

FROM -RPAY8- STA. 6 + 42 TO STA. 8 +

The diagram illustrates a road profile. A vertical red line labeled "TCH w/HINGE Scale" is at the top. Below it, a horizontal red line represents the ground level. A diagonal red line slopes downward from the TCH line to the ground level, labeled "Front Ditch Slope". A dashed red line labeled "4:1 or Flutter" extends from the TCH line down to the ground level. A dimension line below the ground level indicates a minimum depth of "Min. D = 1.0 Ft". The distance between the TCH line and the start of the ditch slope is labeled "TO STA. 485 +00 LT". To the right, a vertical red line labeled "LAT" is shown above a horizontal red line labeled "Natural Ground". A curved red line connects the two vertical lines. A dimension line below the "Natural Ground" line indicates a distance of "FROM - STA. 476 FROM RDPDZ STA. 485".

DETAIL 24

ERAL 'V' DITCH
(Not to Scale)

Min. D. = 1.0 Ft.
b = 5.0 Ft.

Slope

Natural Ground

DETAIL 25

CULVERT CHANNEL IMPROVEMENTS (UPSTREAM)

The diagram illustrates the upstream approach of a culvert channel improvement. It shows a cross-section with the following components from left to right:

- Class 'I' Rip-Rap**: A layer of riprap at the surface.
- Natural Ground**: The original ground surface.
- Geotextile Fabric**: A layer of geotextile fabric placed between the riprap and the backfill.
- D**: A vertical dimension line indicating the height of the backfill.
- 1:1 or Flatter**: The slope of the backfill material.
- Channel Bed (Variable)**: The bottom of the channel, which has a variable width indicated by a bracket.
- 1:1 or Flatter**: The slope of the backfill material on the opposite side of the channel bed.
- Natural Ground**: The original ground surface.
- Class 'I' Rip-Rap**: A layer of riprap at the surface.
- Geotextile Fabric**: A layer of geotextile fabric placed between the riprap and the backfill.

D = Varies (In Top of Bank)

PERMIT DRAWINGS
SHEET 11 OF 25

LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

THIS PORTION OF STREAM WILL REQUIRE
0.5 : 1 MITIGATION DUE TO INDIRECT
PROJECT IMPACTS & LOSS OF FUNCTION.

Site plan showing proposed noise wall locations and ditch dimensions. The plan includes a 'PROPOSED NOISE WALL' and a 'NOISE WALL' labeled '(Not to Scale)'. A 'Natural Ground' line is shown. A vertical 'V' DITCH BEHIND NOISE WALL is indicated with dimensions: Min. D = 1.0 Ft., b = 3.0 Ft., and Type of Liner = PSRM. The ditch is 1' 6" deep. A horizontal distance of 505' is marked between the noise walls. A red dashed line labeled 'PSRM' extends from the noise wall towards the right.

DETAIL 13
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground (802) 2.1' D 4.1' of Flatter (802)

Min. D = 1.0

FROM RPCYB- STA. 0 + 95 TO STA. 1 + 95

PLANS PREPARED BY :
PARSONS
RALEIGH, NORTH CAROLINA

FOR NORTH CAROLINA DEPT. OF TRANSPORTATION

PROJECT REFERENCE NO.		SHEET NO.
<u>U-2524D</u>		<u>9</u>
RW SHEET NO.		
ADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

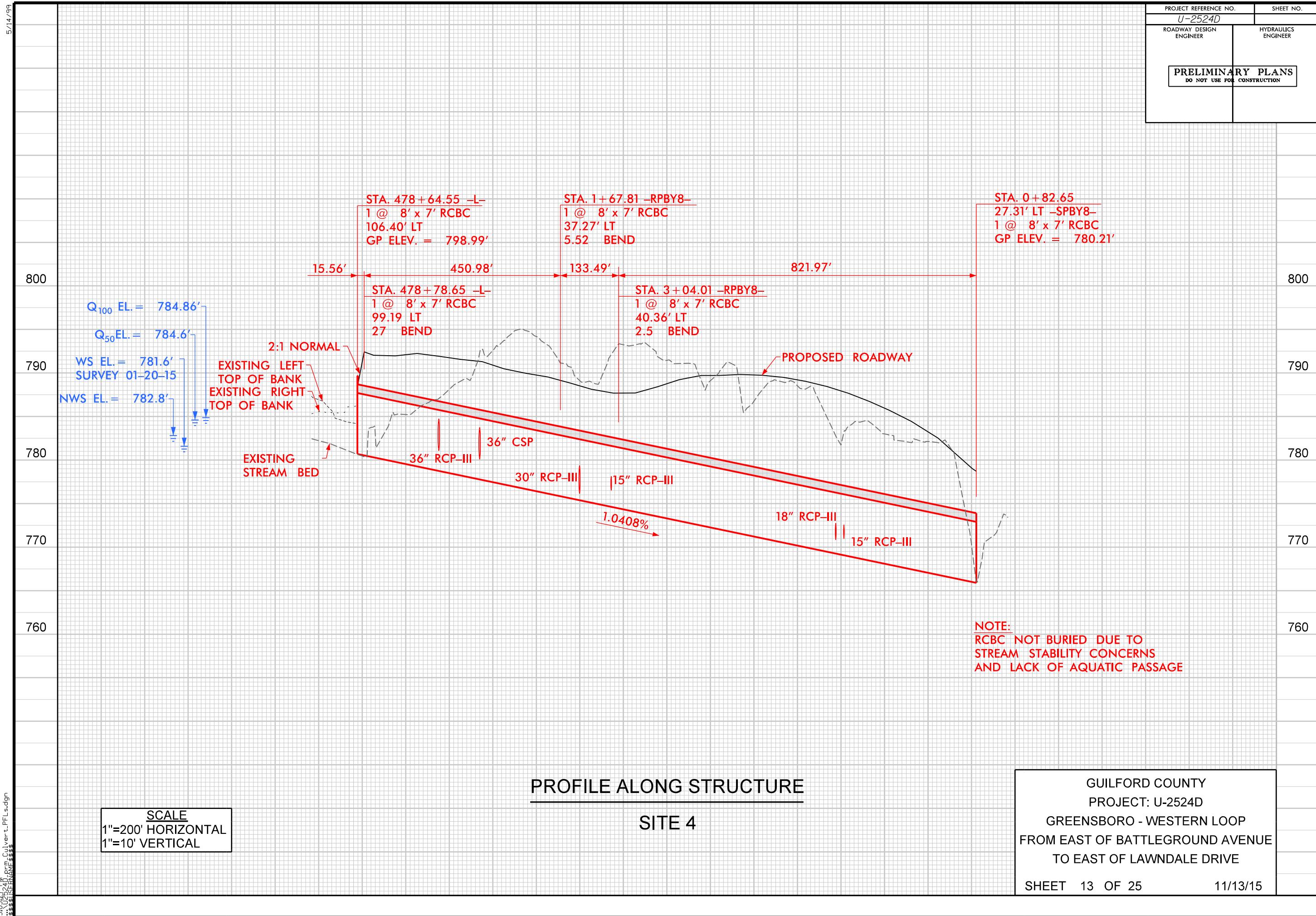
101 : 00 SEE SHEET 9B

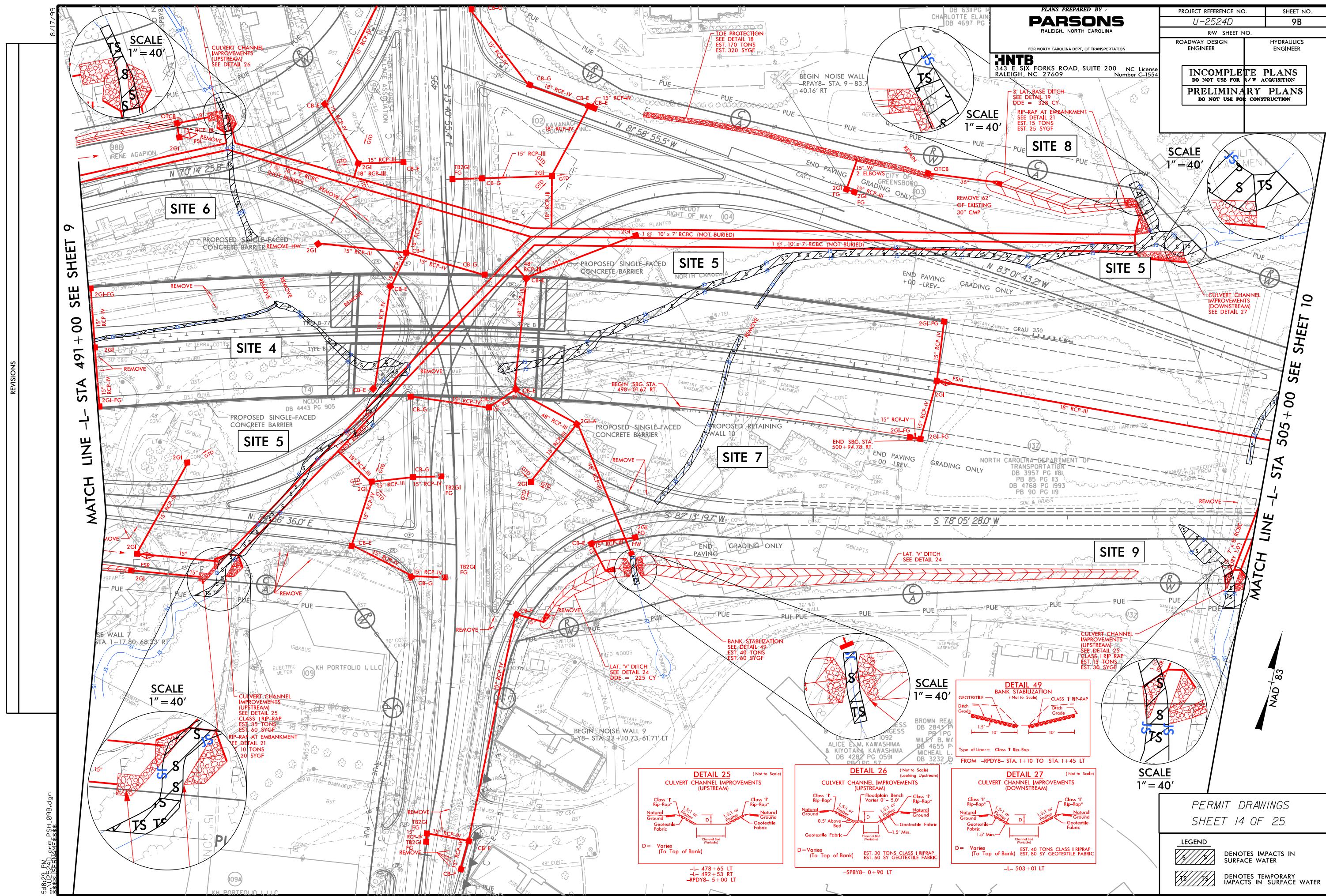
REVISED

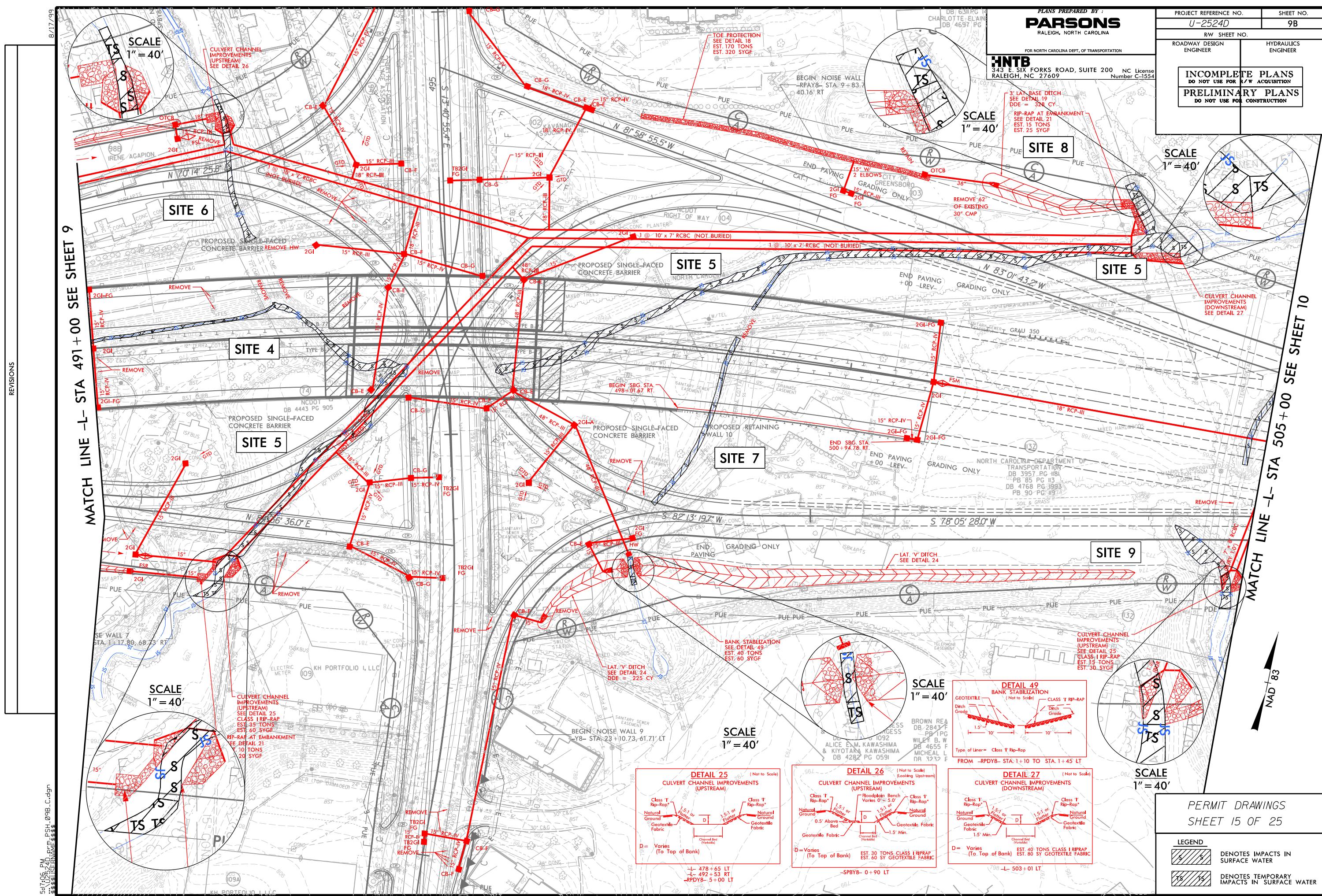
PERMIT DRAWINGS
SHEET 12 OF 25

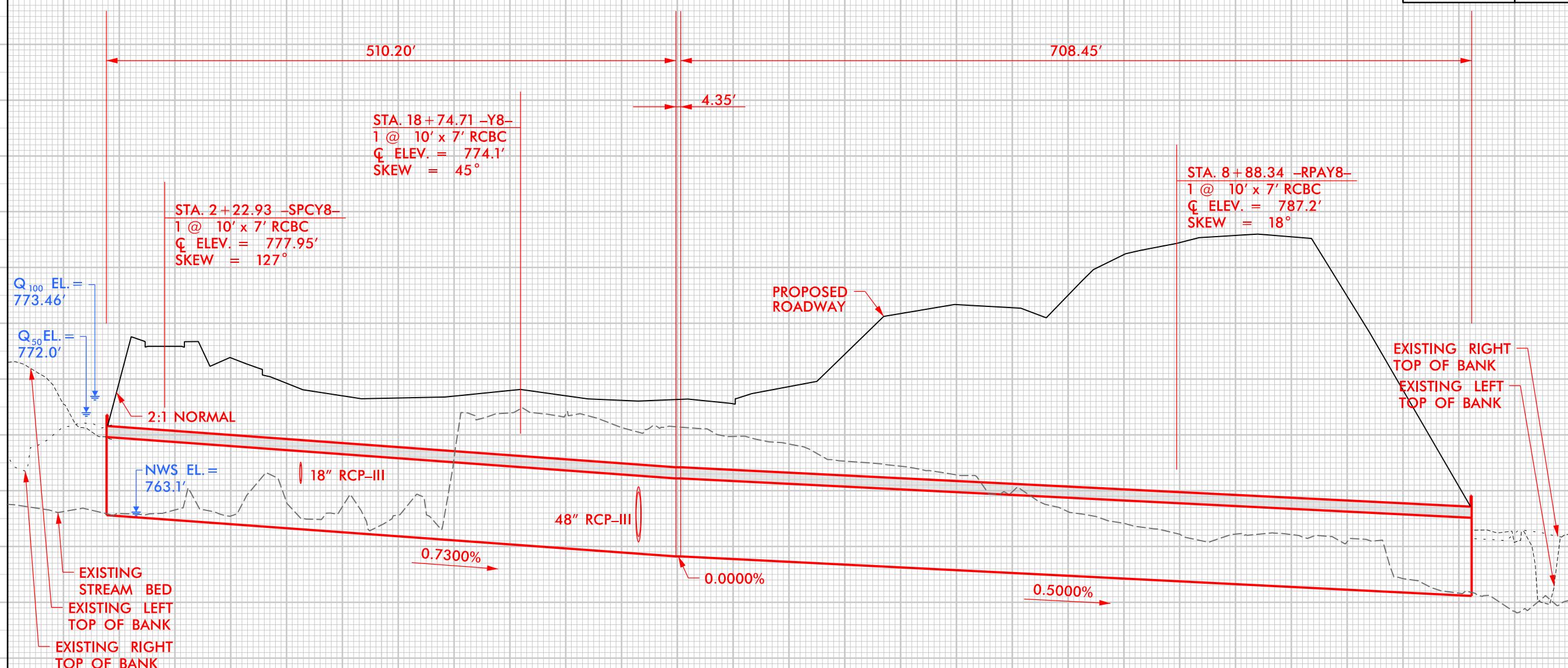
LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER









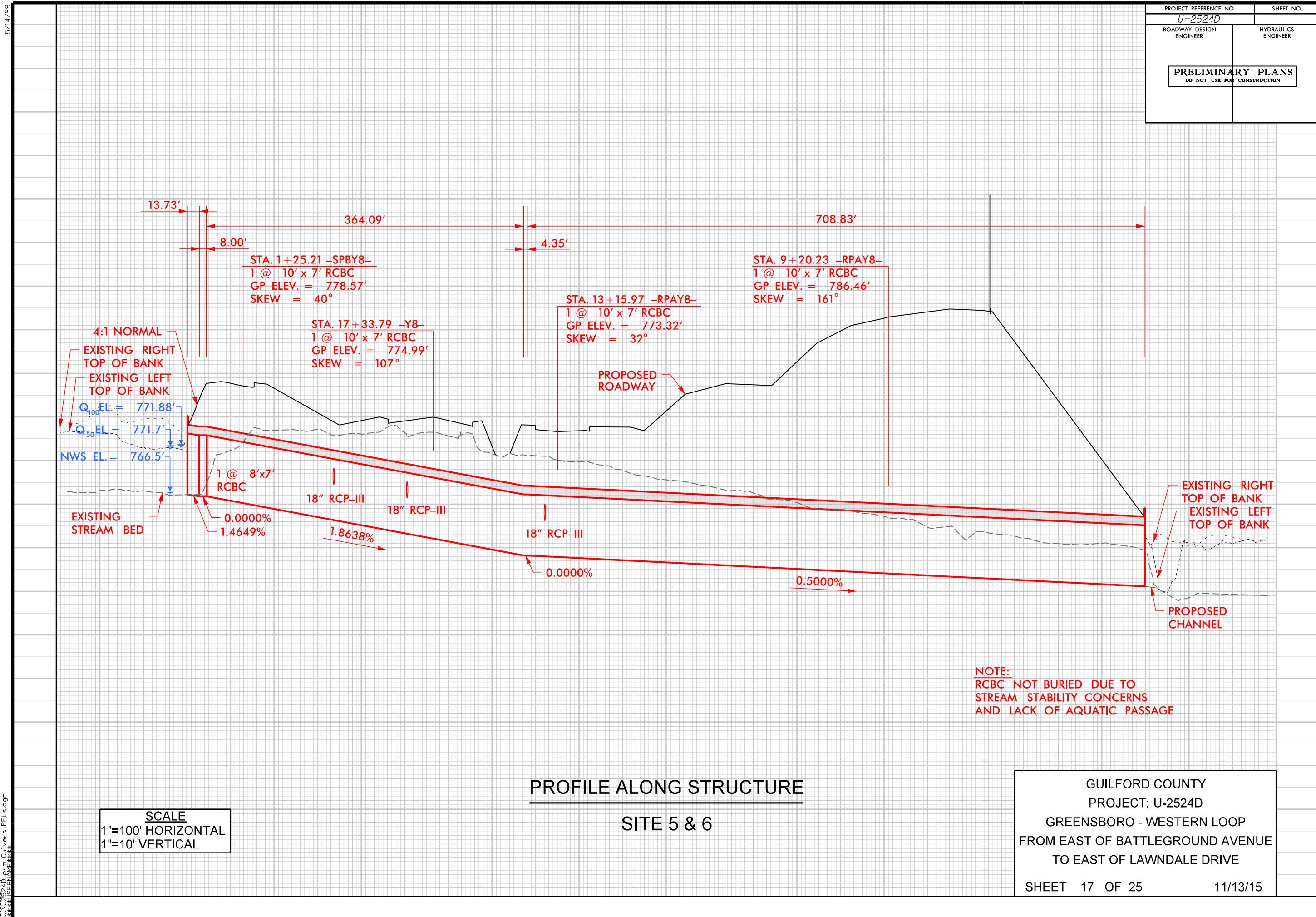
PROFILE ALONG STRUCTURE

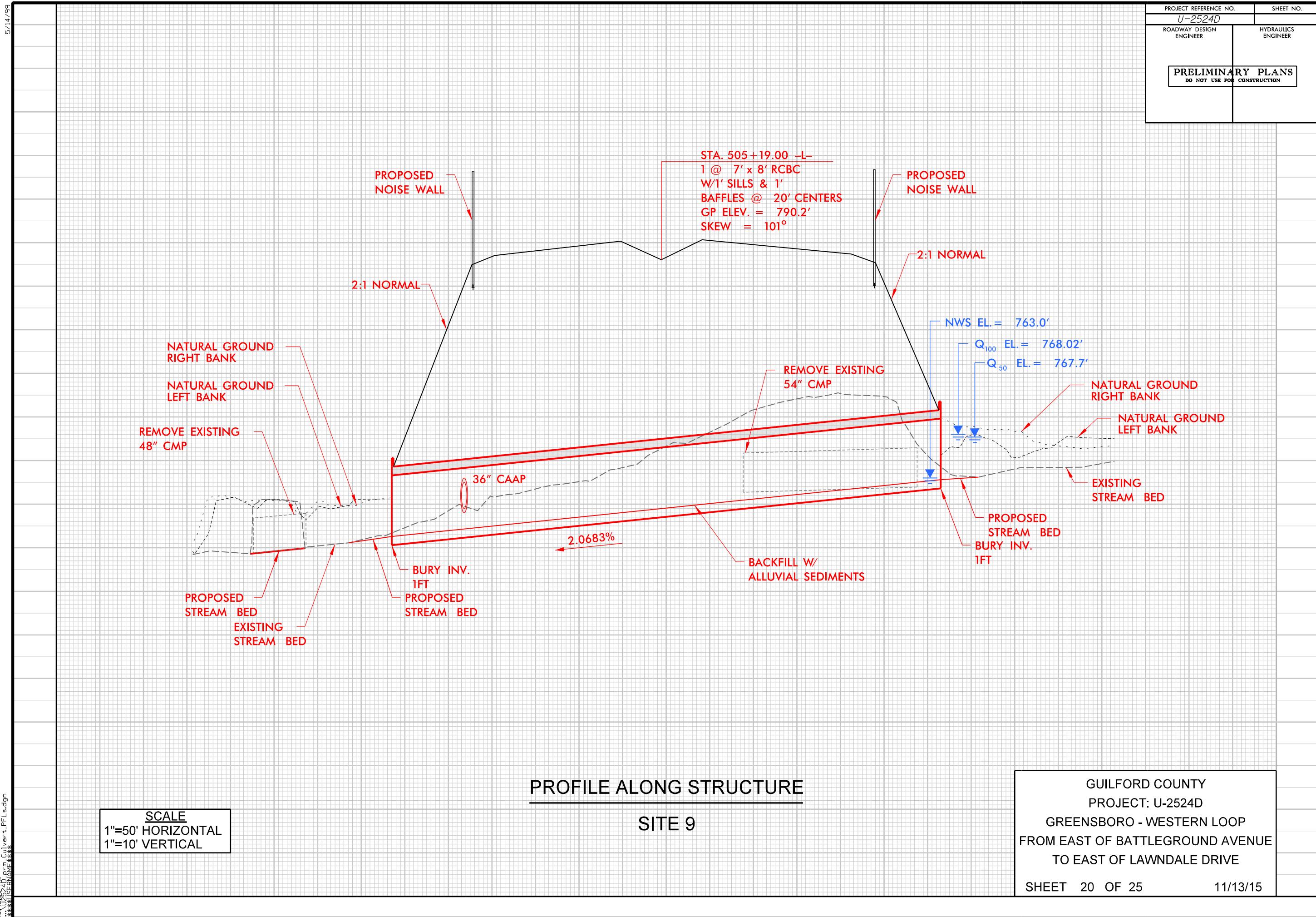
SITE 5

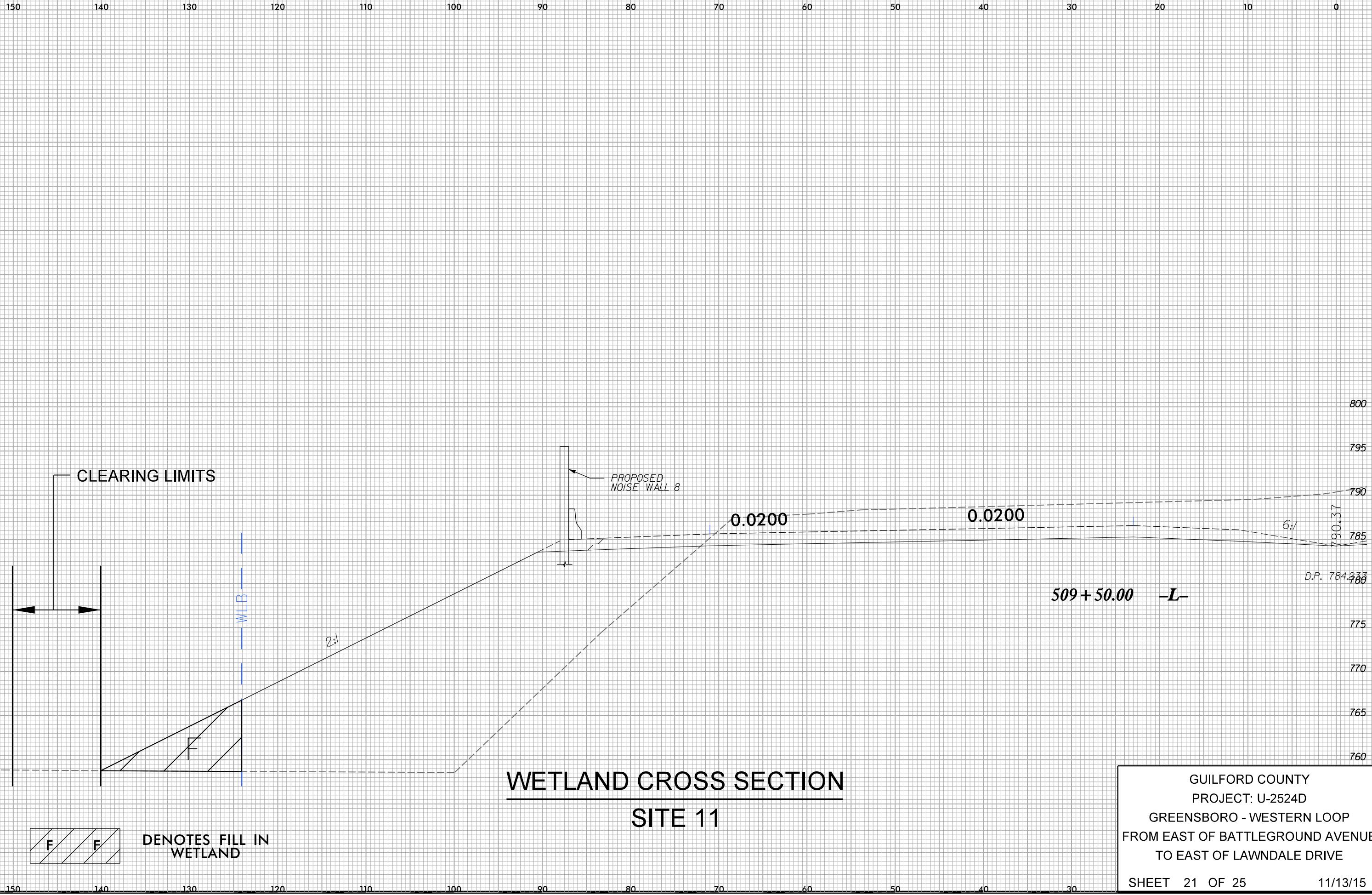
NOTE:
RCBC NOT BURIED DUE TO
STREAM STABILITY CONCERN
AND LACK OF AQUATIC PASSAGE

SCALE
1"=100' HORIZONTAL
1"=10' VERTICAL

GUILFORD COUNTY
PROJECT: U-2524D
GREENSBORO - WESTERN LOOP
FROM EAST OF BATTLEGROUND AVENUE
TO EAST OF LAWNDALE DRIVE







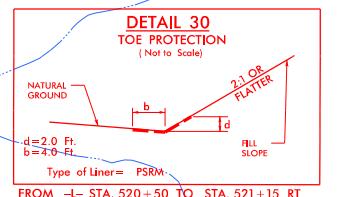
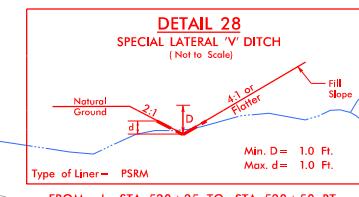
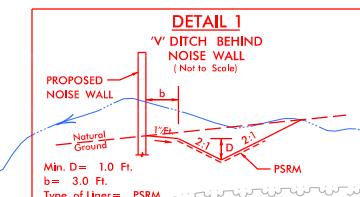
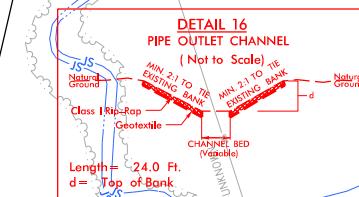
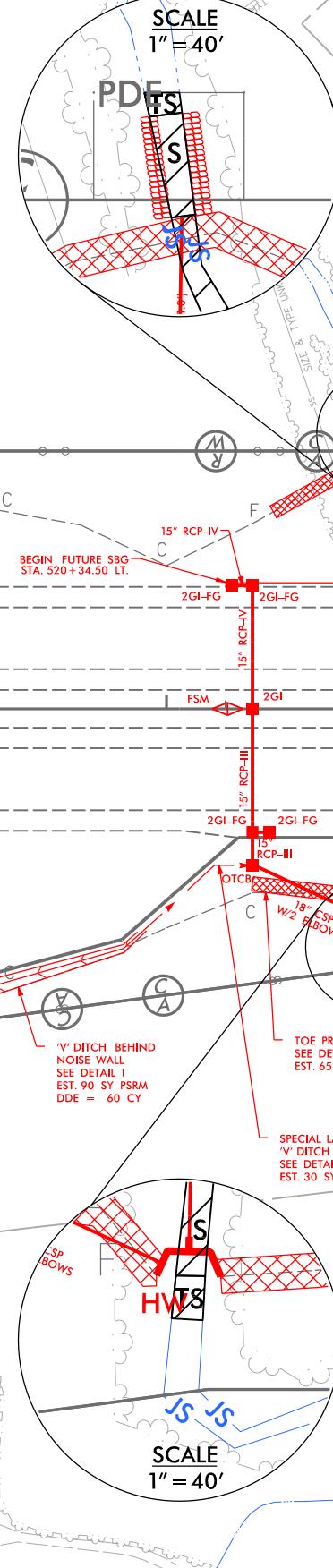
REVISIONS

8-3234 AM PMSH-10A.dwg

8/17/98

MATCH LINE -L- STA 519 + 00 SEE SHEET 10

NAD 83



PERMIT DRAWINGS
SHEET 22 OF 25

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

NOTE:
SEE SHEET 19 FOR -L- PROFILE

PLANS PREPARED BY:
PARSONS
RALEIGH, NORTH CAROLINA

FOR NORTH CAROLINA DEPT. OF TRANSPORTATION
HNTB
343 E. SIX FORKS ROAD, SUITE 200 NC License Number C-1554
RALEIGH, NC 27609

PROJECT REFERENCE NO. U-2524D	SHEET NO. 10A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

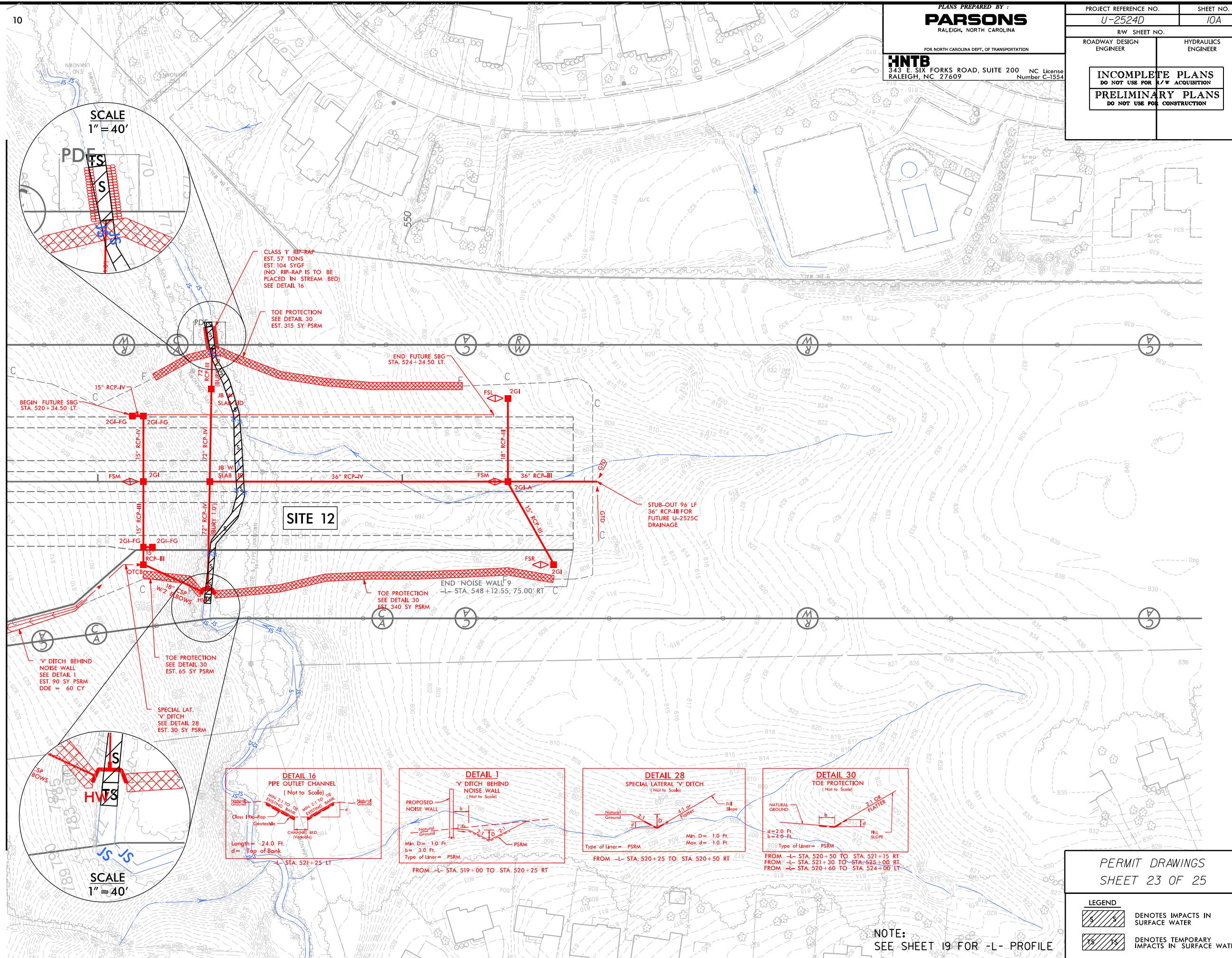
8/17/99

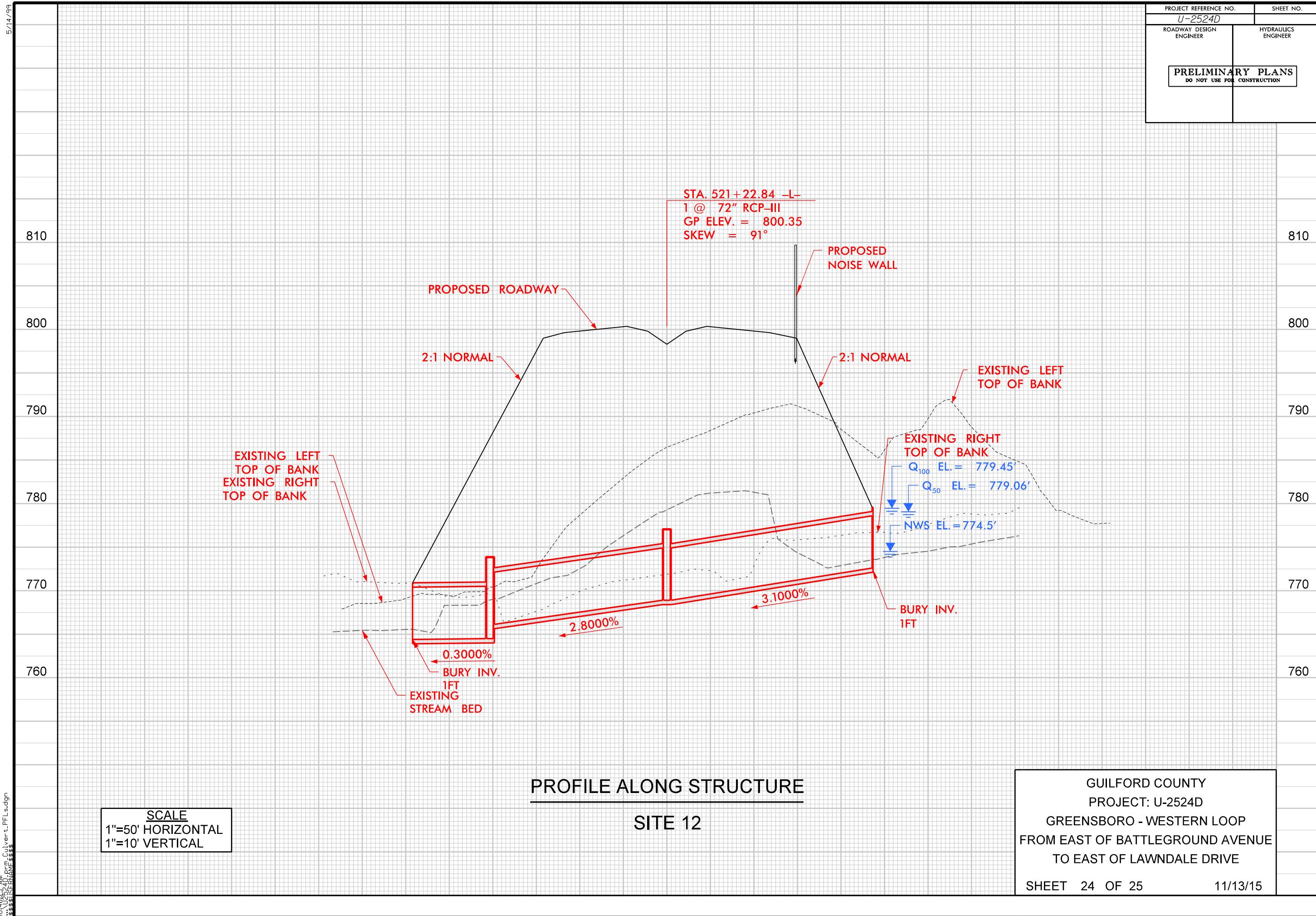
MATCH LINE -L- STA 519+00 SEE SHEET 10

NAD 83

REVISIONS

11:34:30 AM 24/05/2010 PSH_10A_C.dgn





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)
1	-L- 434+26 - 434+49	Bank Stabilization						< 0.01	< 0.01	15	15
2	-L- 440+16 - 443+31	48" / 30" RCP						0.05	< 0.01	414	10
3A	-L- 458+38 - 458+84	4' Base Ditch						< 0.01		96	
3	-L- 462+49 - 471+23	4' Base Ditch / 60" RCP						0.09		996	
		Bank Stabilization						< 0.01	< 0.01	24	10
4	-L- 478+25 - 494+65	1 @ 8' X 7' RCBC						0.15	< 0.01	1581	12
5	-L- 491+99 - 503+80	1 @ 10' X 7' / 2 @ 10' X 7' RCBC						0.27	0.01	1192	43
6	-L- 492+63 - 493+02	1 @ 10' X 7' RCBC						0.02	< 0.01	158	16
7	-L- 497+58 - 499+12	48" RCP						0.04		291	
		Bank Stabilization						< 0.01	< 0.01	23	10
8	-L- 502+83 - 503+29	Bank Stabilization						0.01	< 0.01	46	18
9	-L- 504+11 - 505+91	1 @ 7' X 8' RCBC						0.07	< 0.01	388	20
10	-L- 505+41 - 505+96	Bank Stabilization						0.01	< 0.01	34	20
11	-L- 508+61 - 510+08	Roadway Fill	0.05			0.03					
12	-L- 521+16 - 521+61	72"RCP						0.05	< 0.01	284	10
		Bank Stabilization						< 0.01	< 0.01	24	5
TOTALS*:			0.05			0.03		0.77	0.04	5566	189
											0

*Rounded totals are sum of actual impacts

NOTES:

- 780 LF OF STREAM BETWEEN SITES 3 & 4 WILL REQUIRE 0.5 : 1 MITIGATION DUE TO INDIRECT PROJECT IMPACTS & LOSS OF FUNCTION.

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

11/13/15

Guilford

U-2524D

34820.1.2

Utility Sheet 1 of 4

UTILITY CONSTRUCTION PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS 
6415 OLD PLANK RD., HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

REVISIONS

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8/17/99

MATCH LINE -Y8- STA 14+00 SEE SHEET UC-13

**SITE 4: -L- STA. 492+66.24, 273' LT.
PROP. - 12" SAN. GRAVITY SEWER (TRENCH WIDTH 3 FT)
TEMPORARY IMPACTS TO SURFACE WATER < 0.01 AC
TEMPORARY IMPACTS TO EXISTING CHANNEL = 15 LF**

**SITE 3: -L- STA. 492+27.14, 295' RT.
PROP. - 8" SAN. GRAVITY SEWER (TRENCH WIDTH 3 FT)
TEMPORARY IMPACTS TO SURFACE WATER < 0.01 ACRE
TEMPORARY IMPACTS TO EXISTING CHANNEL = 15 FT**

**SITE 5: -L- STA. 497+75.22, 306' RT.
PROP. - 12" SAN. GRAVITY SEWER (TRENCH WIDTH
TEMPORARY IMPACTS TO SURFACE WATER < 0.01
TEMPORARY IMPACTS TO EXISTING CHANNEL = 15'**

PROJECT REFERENCE NO. U-2524D **SHEET NO.** UC-9A

DESIGNED BY: DMP **DRAWN BY:** DMP **CHECKED BY:** DMP **APPROVED BY:**

REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 **UTILITY CONSTRUCTION PLANS ONLY**

UTILITY CONSTRUCTION

**SITE 4: -L STA. 492+66.24, 273' LT.
PROP. - 12' SAN. GRAVITY SEWER (TRENCH WIDTH 3 FT.)
TEMPORARY IMPACTS TO SURFACE WATER < 0.01 AC
TEMPORARY IMPACTS TO EXISTING CHANNEL = 15 L.F.**

**SITE 5: -L STA. 497+75.22, 306' LT.
PROP. - 12' SAN. GRAVITY SEWER (TRENCH WIDTH 3 FT.)
TEMPORARY IMPACTS TO SURFACE WATER < 0.01 AC
TEMPORARY IMPACTS TO EXISTING CHANNEL = 15 L.F.**

**SITE 6: -L STA. 503+79.45, 218' LT.
PROP. - 12' SAN. GRAVITY SEWER (TRENCH WIDTH 3 FT.)
TEMPORARY IMPACTS TO SURFACE WATER < 0.01 AC
TEMPORARY IMPACTS TO EXISTING CHANNEL = 15 L.F.**

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D

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MATCH LINE -Y8- STA 14+00 SEE SHEET UC-13

MATCH LINE -L STA 491+00 SEE SHEET UC-10

MATCH LINE -L STA 497+00 SEE SHEET UC-10

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

**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

Utility Sheet 3 of 4

REFERENCE NO.		SHEET NO.
-2524D		UC-9A
BY: DMP		
DMP		
Y: DMP		
BY:		
CAROLINA MENT OF ORTATION		
ENGINEERING SEC. 19) 707-6690 0) 250-4151		
UTILITY CONSTRUCTION PLANS ONLY		

UTILITY CONSTRUCTION

CONSTRUCTION PLANS PREPARED BY:

UTILITY CONSTRUCTION PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
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WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS				
			404 Permanent Fill In Wetlands (ac)	CAMA Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	404 Hand Clearing in Wetlands (ac)	CAMA Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)
1	-L- 471+06.55, 128' LT.	Prop. 12" Gravity Sewer Line								< 0.01*		15	
2	-L- 477+92.58, 144' LT.	Prop. 12" Gravity Sewer Line								< 0.01*		15	
3	-L- 492+27.14, 295' RT.	Prop. 8" Gravity Sewer Line								< 0.01*		15	
4	-L- 492+66.24, 273' LT.	Prop. 12" Gravity Sewer Line								< 0.01*		15	
5	-L- 497+75.22, 306' RT.	Prop. 12" Gravity Sewer Line								< 0.01*		15	
6	-L- 503+79.45, 218' LT.	Prop. 12" Gravity Sewer Line								< 0.01*		15	
TOTALS:			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02*	0	90	0.00

* Temporary Excavation

* Excavated material will be set to the side and then placed back into the trench.

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34820.2.19 (U-2524D)

Utility SHEET 4 of 4