STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

August 26, 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 Eastern Loop from US 70 Relocation to SR 2303 (Lawndale Drive), Guilford County, Division 7. WBS Element No. 34821.1.1, TIP Nos. U-2525B and U-2525C.

Debit $570.00 from WBS Element No. 34821.1.1

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to construct a section of the Greensboro Eastern Loop from US 70 Relocation to SR 2303 (Lawndale Drive) in Greensboro, for a total of 9.7 miles. The project involves constructing a new four-lane freeway from US 70 Relocation to US 29 and a new six-lane freeway from US 29 to Lawndale Drive.

In addition to this cover letter, the application package consists of an ENG Form 4345, Interagency Hydraulic Design Review meeting minutes for U-2525B (Concurrence Points 4B and 4C), Stormwater Management Plan, permit drawings (U-2525B only), onsite mitigation plans (Section U-2525B only), and half-size roadway plan sheets. The North Carolina Ecosystem Enhancement Program (NCEEP) acceptance letter is forthcoming.

PROJECT SCHEDULE

For construction purposes, the remaining Greensboro Eastern Loop project has been broken down into two sections, U-2525B and U-2525C. Section U-2525A was permitted separately and completed in 2002. Table 1 reflects the project breakdown and section termini.

Table 1. Description of Project Sections for Construction Purposes

Section	Project Termini	Let Date
U-2525A	South of SR 3041 to US 70 Relocation (1.1 miles)	Complete (May 2002)
U-2525B	US 70 Relocation to US 29 (5.0 miles)	May 20, 2014
U-2525C	US 29 to SR 2303 (4.7 miles)	July 17, 2018

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

Permit drawings for the proposed project have been prepared based on final design for U-2525B. Preliminary design permit drawings have not yet been prepared for U-2525C. The NCDOT will apply for any relevant permit modifications for U-2525C when final design is complete. Construction will not commence on U-2525C until permit modifications have been received based on final designs.

This project calls for a Let date of May 20, 2014 and a review date of April 1, 2014 for Section U-2525B. The Let date for Section U-2525C is July 17, 2018. However, the Let dates may advance as additional funds become available.

PURPOSE AND NEED

The purpose of the proposed project is to provide an efficient circumferential connection for major arterial thoroughfares such as I-85, I-40, US 29, and US 70, and to improve service for local traffic.

NEPA DOCUMENT STATUS

A Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) for U-2525 (includes Sections U-2525A, U-2525B, and U-2525C) were approved on August 12, 1994 and March 7, 1995, respectively, and have been provided to the appropriate agencies. Right of Way (ROW) Consultations for U-2525B to update the U-2525 FEIS were completed on March 31, 2009, June 14, 2010, and February 24, 2012. No ROW Consultations have been done for U-2525C. Additional copies of the FEIS, ROD, and ROW Consultations will be provided upon request.

INDEPENDENT UTILITY

The subject project is in compliance with 23 CFR Part 771.111(f), which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project:

(1) The project connects logical termini and is of sufficient length to address environmental matters on a broad scope;
(2) The project is usable and a reasonable expenditure, even if no additional transportation improvements are made in the area;
(3) The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements..

RESOURCE STATUS

Wetland delineations within the U-2525B project study area followed the field delineation method outlined in the *1987 Corps of Engineers Wetland Delineation Manual* (USACE, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (USACE, 2010). Stream identification and classification followed the *Methodology for the Identification of Intermittent and Perennial Streams and Their Origins* (NC Division of Water Quality [NCDWQ], 2010 and 2005).
A jurisdictional determination (JD) for both sections, dated September 26, 2005, was received from USACE. The JD expired on September 26, 2010. Jurisdictional features were last re-verified by USACE Regulatory Specialist Andy Williams and NC Division of Water Resources

(NCDWR) representative Amy Euliss on October 10, 2012, December 6, 2012, and January 29, 2013 for U-2525B only. A request packet for the final JD for U-2525B was submitted to the USACE on February 4, 2013. No written JD was received from the USACE for the re-verification.

U-2525B

This project lies within the Piedmont Physiographic Province in the Cape Fear River Basin [Hydrologic Unit Code (HUC) 03030002]. Jurisdictional features within the U-2525B project study area that will be impacted include 4 unnamed tributaries (UT) to South Buffalo Creek (NCDWQ Classification WS-V; NSW; NCDWQ Index No. 16-11-14-2), 18 UTs to North Buffalo Creek (NCDWQ Classification WS-V; NSW; NCDWQ Index No. 16-11-14-1), and 4 UTs to UT at Camp Herman [NCDWQ Classification WS-V; NSW; NCDWQ Index No 16-11-10-(2)], 2 ponds, and 34 riparian wetlands.

U-2525C

Jurisdictional features within the U-2525C project study area that will be impacted include 2 UTs to North Buffalo Creek (NCDWQ Classification WS-V; NSW; NCDWQ Index No. 16-11-14-1), 5 UTs to UT at Camp Herman [NCDWQ Classification WS-V; NSW; NCDWQ Index No 16-11-10-(2)], 14 UTs to Reedy Fork [NCDWQ Classification WS-III; NSW, CA; NCDWQ Index No 16-11-(3.5)], and Richland Creek (Richland Lake) and 10 UTs to Richland Creek [NCDWQ Classification WS-III; NSW; NCDWQ Index No 16-11-7-(1)], 3 ponds, and 16 riparian wetlands.

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. North Buffalo Creek and South Buffalo Creek, including their UTs, 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 standard violations of Copper (2008) and Zinc (2008). North Buffalo Creek, including its UTs, is also listed for standard violation of nitrite-nitrate nitrogen series (2012).

IMPACTS TO WATERS OF THE UNITED STATES

Utility Impacts

There will be no impacts from utilities for Section U-2525B. Utility impacts for Section U-2525C will be evaluated during the permit modification process.

Surface Waters

U-2525B

Total surface water impacts for U-2525B are 10,255 linear feet of permanent stream impacts, 607 linear feet of temporary stream impacts, and 0.62 acres of pond impacts. The jurisdictional stream impacts are summarized below in Table 2.

Table 2. U-2525B Stream Impacts (Final)

Permit Site No.	Stream Name/JD Packet ID	I/P Flow Status	Impact Type	Permanent Impacts (ft)	Impacts requiring USACE mitigation (ft)	USACE Mitigation Ratio[1]	Impacts requiring NCDWR mitigation (ft)	Temp Impacts (ft)
1	UT to South Buffalo Creek/SAF	P	Fill	1352	1352	2:1	1352	0
		I	Fill	332	332	1:1	0[3]	0
4	UT to South Buffalo Creek/SAE	P	Fill	394	394	2:1	394	153
			BS	98	0[2]	n/a	98	0
5	UT to South Buffalo Creek/SAD	P	Fill	1598	1598	2:1	1598	20
6	UT to South Buffalo Creek/SAG	I	Fill	138	138	1:1	0[3]	10
9	UT to North Buffalo Creek/SAA	P	Fill	462	462	1:1	462	10
9A	UT to North Buffalo Creek/SAJ	I	Fill	84	84	1:1	0[3]	0
10	UT to North Buffalo Creek/SZ	P	Fill	212	212	2:1	212	29
			BS	97	0[2]	n/a	97	0
11	UT to North Buffalo Creek/SY	P	BS	18	0[2]	n/a	0[4]	0
12	UT to North Buffalo Creek/SX	P	Fill	286	286	2:1	286	22
			BS	30	0[2]	n/a	30	0
13	UT to North Buffalo Creek/SW	P	Fill	137	137	2:1	0[4]	7
			BS	10	0[2]	n/a	0[4]	0
		I	Fill	32	0[5]	n/a	0[3]	0
14	UT to North Buffalo Creek/SV	I	Fill	347	347	1:1	347	35
			BS	10	0[2]	n/a	10	0
15	UT to North Buffalo Creek/SU	P	Fill	292	292	2:1	292	26
			BS	20	0[2]	n/a	20	0
16	UT to North Buffalo Creek/SS	P	Fill	382	382	1:1	382	43
			BS	12	0[2]	n/a	12	0
17	UT to North Buffalo Creek/SR	I	Fill	51	51	1:1	0[3]	20
18	UT to North Buffalo Creek/SQ	P	Fill	241	241	2:1	241	20
			BS	30	02	n/a	30	0

Table 2. U-2525B Stream Impacts (Final) continued

Permit Site No.	Stream Name/JD Packet ID	I/P Flow Status	Impact Type	Permanent Impacts (ft)	Impacts requiring USACE mitigation (ft)	USACE Mitigation Ratio[1]	Impacts requiring NCDWR mitigation (ft)	Temp Impacts (ft)
20	UT to North Buffalo Creek/SL	P	Fill	815	815	2:1	815	49
20A	UT to North Buffalo Creek/SL	P	Fill	236	236	1:1	236	29
20B	UT to North Buffalo Creek/SM	P	Fill	29	29	2:1	0[4]	0
21	UT to North Buffalo Creek/SI	P	Fill	374	374	2:1	374	10
22A	UT to North Buffalo Creek/SK	I	Fill	142	142	1:1	0[3]	10
			BS	10	0[2]	n/a	0[3]	0
25	UT to North Buffalo Creek/SO	I	Fill	12	12	1:1	0[3]	10
			BS	12	0[2]	n/a	0[3]	0
26	UT to North Buffalo Creek/SI	P	Fill	319	319	2:1	319	11
			BS	12	0[2]	n/a	12	0
27	UT to North Buffalo Creek/SH	I	Fill	215	215	1:1	0[3]	10
28	UT to North Buffalo Creek/SH	I	Fill	461	461	1:1	0[3]	0
29	UT to UT at Camp Herman/SF	P	Fill	290	290	2:1	290	4
			BS	10	0[2]	n/a	10	0
31	UT to UT at Camp Herman /SD	P	Fill	191	191	2:1	191	27
			BS	21	0[2]	n/a	21	0
32A	UT to UT at Camp Herman/SB	P	Fill	151	151	2:1	151	25
			BS	28	0[2]	n/a	28	0
33	UT to UT at Camp Herman/SC	I	Fill	115	115	1:1	0[3]	10
			BS	17	0[2]	n/a	0[3]	0
35	UT to UT at Camp Herman/SF	P	Fill	120	120	2:1	120	17
			BS	10	0[2]	n/a	10	0
TOTALS (ft)				**10,255**	**9,778**		**8,440**	**607**

Notes: P = Perennial; I = Intermittent; BS = Bank Stabilization; n/a = not applicable. [1]Determined from USACE during verification site visits on October 10, 2012, December 6, 2012, and January 29, 2013. [2]Mitigation for bank stabilization not required by USACE. [3]Intermittent streams grandfathered from NCDWR mitigation. [4]Mitigation not required by NCDWR (less than 150 linear feet of steam). [5]Stream deemed unimportant by the USACE requiring no mitigation.

U-2525C

Total preliminary surface water impacts for U-2525C are 12,646 linear feet of permanent stream impacts and 1.7 acres of pond impacts. This total was derived by calculating stream and pond impacts within slope stake limits plus 25 additional feet outside of slope stake limits. Impacts are anticipated to be reduced during final design.

Wetlands

U-2525B

There will be a total of 7.65 acres of permanent riparian wetland impacts associated with this section. These impacts will result from 6.96 acres of permanent fill, 0.31 acres of excavation, and 0.38 acres of mechanized clearing. There will also be 0.03 acres of wetland impacts due to hand clearing. Permanent and temporary wetland impacts are summarized below in Table 3 for U-2525B.

Table 3. U-2525B Wetland Impacts (Final)

Permit Site No.	JD Package ID	Permanent Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Total Impacts (ac)
1	WAP	0.57	0.04		0.61
1A	WAO	0.03			0.03
1B	WAN	0.01			0.01
2	WAQ	0.05		<0.01	0.06
3	WAM	0.12			0.12
3A	WAX	0.03			0.03
3B	WAL	0.02			0.02
3C	WAK	0.25	0.02	0.02	0.29
4	WAI	0.02			0.02
5A	WAH	0.08			0.08
5B	WAG	0.02			0.02
6	WAE	0.03			0.03
6A	WAD	0.05		<0.01	0.05
7	WAC	1.29	0.05	0.03	1.37
8	WZ	0.88		0.09	0.97
8A	WAA		<0.01		<0.01
9	WX/WY	2.07		0.15	2.22
10	WV		<0.01		<0.01
10A	WU	0.02		0.02	0.04
10B	WT	0.03	<0.01	<0.01	0.04
10C	WS	0.25	0.04		0.29
11	WR	0.33			0.33
13	WO	0.02		0.01	0.03
16	WAY	<0.01			<0.01
18	WK	0.03		0.01	0.04
19	WJ		0.14		0.14
20B	WI	0.02			0.02
21	WE	0.34		0.04	0.38
22	WH	0.03			0.03

Table 3. U-2525B Wetland Impacts (Final) continued

Permit Site No.	JD Package ID	Permanent Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Total Impacts (ac)
22A	WF	0.02			0.02
22B	WG	0.01			0.01
23	WAB	0.02			0.02
24	WAB	0.19			0.19
27	WAR	0.10			0.10
30	WA	0.03	<0.01		0.04
34	WAT	<0.01			<0.01
TOTALS (ac)		**6.96**	**0.31**	**0.38**	**7.65**

Notes: Totals are rounded based upon sum of actual impacts. Most permanent impacts require 2:1 USACE mitigation except for Permit Sites 20B and 34 which USACE determined as 1:1 mitigation. Permit Site 8A is an isolated wetland and therefore not under USACE jurisdiction.

U-2525C

Total preliminary wetland impacts for U-2525C are 2.4 acres. This total was derived by calculating wetland impacts within slope stake limits plus 25 additional feet outside of slope stake limits. Impacts are anticipated to be reduced during final design.

MITIGATION OPTIONS

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. CEQ has defined mitigation of wetland and surface water impacts to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20).

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 phase and minimization measures were incorporated as part of the project design. Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts.

Avoidance and Minimization

Avoidance and minimization has been employed in the project area to the maximum extent practicable. The following measures were implemented for the project:

U-2525B Minimization Measures

- NCDOT's Best Management Practices (BMPs) for the Protection of Surface Waters will be enforced;
- Impacts to wetlands and surface waters were minimized using 2:1 side slopes where practicable. Sites with greater than 2:1 slopes are due to roadway constraints such as grade differences between roadway fill and natural ground, safety issues, and maintenance issues such as mowing;
- No direct discharges into streams from proposed lateral ditches;

- Grass swale treatment will be utilized in drainage systems discharging into jurisdictional streams;
- All storm drainage will be diffused and designed for non-erosive velocities before entering wetland areas to the maximum extent practicable;
- Rip rap stabilization on banks of jurisdictional streams will be implemented to prevent erosion;
- Pre-formed scour holes will be constructed at 14 locations;
- 4 box culverts will be buried one foot below stream bed with one foot sill in one barrel;
- Reduction of permanent wetland and stream impacts at Permit Site 11 due to bridging;

For additional avoidance/minimization for U-2525B see attached Stormwater Management Plan. Despite these best efforts of NCDOT, final wetland impacts (10.05 acres) for U-2525B/U-2525C did increase from the impacts reported in the FEIS (5.1 acres). The FEIS lists 11.2 acres of wetland impacts, but 6.1 acres of the 11.2 acres were for Section U-2525A which has already been completed, leaving 5.1 acres for Sections U-2525B and U-2525C. The increase is due to new wetlands found within the project area that were not calculated in the FEIS. The difference between FEIS calculations and those done for this permit application may be explained based upon differences in field determination methodology of wetlands used between the FEIS and this permit application. Calculations in the FEIS were based mainly on desktop review using soil survey maps, US Geological Survey topographic maps, FEMA Flood Insurance Rate Maps, and stereographic interpretation of aerial photography to determine the locations and extent of the wetlands in the study area. A field reconnaissance was conducted only in selected areas for the FEIS. This mostly likely lead to an underestimation of actual wetlands when compared to complete ground-truthing as done in the most recent re-verification of wetlands for this permit application.

Stream impacts for this permit application cannot be accurately compared to the FEIS since stream impacts in the FEIS were calculated in acres. Streams were treated as bank-to-bank wetlands in the FEIS, and therefore, received the same methodology of determination for wetlands explained above. More accurate stream determination methodology has been developed well after the field work (1991) for the FEIS was completed. Therefore, it is assumed that an underestimation of stream impacts resulted in the FEIS based upon the methodology used when compared to the more accurate methodology used for this permit application. This is reflected by streams shown in the FEIS (fewer stream crossings) than what is shown in the most recent jurisdictional waters re-verification package sent to the USACE in 2013.

Compensatory Mitigation

U-2525B

Compensatory mitigation requirements for U-2525B are summarized below in Table 4. The U-2525B section will permanently impact 10,255 feet of warm water streams. Of these 10,255 feet, there are 445 feet of bank stabilization and 32 feet of an intermittent stream that do not require mitigation by the USACE, resulting in 9,778 feet of stream impacts requiring USACE mitigation.

The USACE is requiring 2:1 mitigation for 4,746 feet and requiring 1:1 mitigation for 2,977 feet of stream impacts. NCDWR is requiring 1:1 mitigation for 8,440 feet. Therefore, the total USACE mitigation requirement exceeds the NCDWR requirement. NCDOT is providing onsite mitigation of 2,055 feet of warm water stream by relocating or restoring streams at three sites. See Table 1 of the attached On-Site Mitigation Plan Document for further information. The remaining mitigation requirements of 7,723 feet of permanent warm water stream impacts will be provided by the NCEEP for U-2525B (Table 4)

NCEEP will also provide mitigation for the 7.65 acres (7.63 acres at 2:1, 0.02 acres at 1:1) of permanent riparian wetland impacts resulting from roadway fill, excavation, and mechanized clearing.

Table 4. U-2525B Required Compensatory Mitigation Summary (Final)

	Stream Impacts in Length (ft)	Riparian Wetland Impacts (ac)
Impacts Requiring Mitigation	**9,778**	**7.65**
Onsite Mitigation Credits	**2,055**	
Total Mitigable Impacts Less Onsite Mitigation	**7,723**	**7.65**
Required EEP Mitigation	**4,746 @ 2:1**	**7.63 @ 2:1**
	2,977 @ 1:1	**0.02 @ 1:1**
Total EEP Mitigation	**12,249**	**15.28**

U-2525C

Compensatory mitigation requirements for stream and wetland impacts are summarized in Table 5. The U-2525C section will permanently impact a total of 12,646 feet of warm water streams and 2.4 acres of riparian wetlands. Since these impacts are preliminary, it is assumed that these impacts will require 2:1 mitigation by the USACE for the worst-case scenario. Once a final re-verification of streams and wetlands is made by the USACE and NCDWR and final design drawings are complete for Section U-2525C, the mitigation requirements will be revised in the Permit Modification for this section.

Table 5. U-2525C Required Compensatory Mitigation Summary (Preliminary)

	Stream Impacts in Length (ft)	Riparian Wetland Impacts (ac)
Impacts Requiring Mitigation	**12,646**	**2.4**
Required EEP Mitigation	**12,646 @ 2:1**	**2.4 @ 2:1**
Total EEP Mitigation	**25,292**	**4.8**

FEDERALLY PROTECTED SPECIES

Plants and animals with a Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended. As of December 3, 2012, the U.S. Fish and Wildlife Service (USFWS) list one federally protected species for Guilford County: Small whorled pogonia (*Isotria medeoloides)*. A species description and biological conclusion for the small whorled pogonia was not stated in the FEIS because the species was added to the USFWS county list of protected species after the documents were completed. A survey (U-2525B only) was done by Atkins, Inc. biologists on June 13-15 and June 18-19, 2012 and a biological conclusion of "No Effect" was given for small whorled pogonia. A search of the North Carolina Natural Heritage Database on August 1, 2013 revealed no known occurrences of any federally protected species within 1.0 mile of the limits of this section.

Since the FEIS the bald eagle has been delisted for Guilford County. The bald eagle was delisted as of August 2007 and is not subject to Section 7 consultation and a biological conclusion is not required. However, the bald eagle remains protected by the Bald and Golden Eagle Protection Act. No habitat exists in the U-2525 project study area for the bald eagle.

CULTURAL RESOURCES

One historic structure that is listed on the National Register of Historic Places (NRHP) and that will be adversely affected from the proposed project includes the Schoolfield-Hatcher Farm. A Memorandum of Agreement (MOA), regarding impacts to this property, between the USACE, NCDOT, and the North Carolina Department of Cultural Resources, State Historic Preservation Office (HPO) was written and signed by all parties (last signature date on October 2, 2008). The property owner concurred with the MOA on October 12, 2008 (ROW consultation dated March 31, 2009).

Based on stipulations stated in the MOA, the proposed alignment was shifted to reduce impacts to the Schoolfield-Hatcher Farm. The new transportation facility with control-of-access fencing will divide the farm into two discontiguous parcels. Access to the first parcel, containing the house and primary farm structures, will be retained via the current driveway. NCDOT will provide a cul-de-sac to allow access to the second parcel. The driveway and cul-de-sac are included in the U-2525B final design plans. Another stipulation of the MOA involved developing a landscaping plan. In consultation with HPO and the property owner, NCDOT developed a landscape plan for the Schoolfield-Hatcher property which was approved on May 14, 2013. Another stipulation of the MOA states that prior to the initation of construction, NCDOT will record the existing condition of the Schoolfield-Hatcher Farm and its surroundings in accordance with the attached Historic Structures and Landscape Recordation Plan.

Based upon the NCDOT Archaeological Survey Report dated January 22, 2008, NCDOT recommended three sites as being eligible for the NRHP. These sites include Site 31GF452** (Schoolfield-Hatcher Farmstead), Site 31GF456 (long-term multi-component Native American site), and Site 31GF466 (long-term Early Archaic to Middle Woodland Native American site). The proposed project will not adversely impact any of these sites. However, archaeological monitoring will be conducted during initial ground-disturbing activities at both Sites 31GF452** and 31GF466. Given the National Register eligibility of Sites 31GF456 and 31GF466 and their proximity to the proposed project, a visual barrier or fencing of some kind will be placed along the proposed right-of-way in order to avoid and prevent any disturbance to these two archaeological sites. Site 31GF445** (May/Hudson Cemetery) while not eligible, cannot be avoided and will be relocated in accordance with the provisions of NCGS Chapter 65. In addition, five areas within the area of potential effect were not surveyed due to denial of access by the property owners. Of these five areas, only the Louise Coble parcel (15.64 acres) is to be affected by the proposed project and will require additional investigations once access has been granted or right-of-way has been acquired and prior to any construction activities. HPO concurred with these recommendations and findings on September 12, 2008.

FEMA COMPLIANCE

There are streams within the project limits that are within Federal Emergency Management Agency (FEMA)-designated flood zones. Coordination between the NCDOT Hydraulics Unit and FEMA will occur prior to Let to ensure that NCDOT is in full compliance with applicable floodplain ordinances.

INDIRECT AND CUMULATIVE EFFECTS

An Indirect and Cumulative Effects (ICE) report was completed for U-2525. The report details the potential socioeconomic, and ecological effects that may result from U-2525 and other past, present, and reasonably foreseeable future development activities in the region. It was completed in October 2009 and distributed shortly thereafter. Additional copies of the ICE report are available upon request.

Based upon the ICE report, a majority of the study area is urban and suburban in character, and most of the area already has access to an established road network. The project's individual effects on land use and natural resources are minor. The provisions contained in the Water Supply Watershed rules that are in effect and are stringently enforced by the local governments will control and limit development within the watershed areas in the project study area. The potential indirect effects identified in the ICE report are consistent with all local jurisdictions' land use and transportation plans. Current land use and transportation policies contained in the local plans support the proposed project.

WILD AND SCENIC RIVERS

This project will not impact any designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended) or North Carolina Natural and Scenic Rivers.

ESSENTIAL FISH HABITAT

The project will not impact any essential fish habitat afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C 1801 *et seq.*).

REGULATORY APPROVALS

Application is hereby made for a Department of the Army Section 404 Individual Permit as required for the above-described activities for the proposed T.I.P. Project U-2525B and C. The NCDOT understands that a permit modification will be required for Section U-2525C after final design is complete and prior to construction.

We are also hereby requesting a Section 401 Individual Water Quality Certification from NCDWR. In compliance with Section 143-215.3D (e) of the NCAC, we will provide $570.00 to act as payment for processing the Section 401 permit. We are providing two copies of this application to NCDWR for their review and approval.

A copy of this permit application and its distribution list will be posted on the NCDOT website at https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx. Thank you for your time and assistance with this project. Please contact Greg Price at either gwprice@ncdot.gov or (919) 707-6148 if you have any questions or need additional information.

Sincerely,

for E. L. Lusk

Deborah M. Barbour, PE
Director of Preconstruction

Cc: NCDOT Permit Application Standard Distribution List

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
EXPIRES: 28 FEBRUARY 2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Debbie Middle - Last - Barbour	First - Middle - Last -
Company - NCDOT-Preconstruction	Company -
E-mail Address -	E-mail Address -
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 1598 Mail Service Center	Address-
City - Raleigh State - NC Zip - 27699 Country - USA	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business 919-707-2540 c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____ _____
SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
U-2525B/U-2525C

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
UTs to N Buffalo Cr, S Buffalo Cr, Reedy Fork, & Richland Cr.	Address
15. LOCATION OF PROJECT Latitude: °N 36.12707 Longitude: °W 79.71203	City - State- Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality
Section - Township - Range -

17. DIRECTIONS TO THE SITE
Please see attached vicinity map and cover letter.

18. Nature of Activity (Description of project, include all features)
U-2525B/U-2525C proposes to construct a section of the Greensboro Eastern Loop from US 70 Relocation to SR 2303 (Lawndale Drive) in Greensboro, NC for a total of 9.7 miles.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
The purpose of U-2525B/U-2525C is to provide an efficient circumferential connection for major arterial thoroughfares such as I-85, I-40, US 29, and US 70, and to improve service for local traffic.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
Impacts will result from widening the roadway and shoulders, construction of roadway on new location, and bridge construction.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards

See attached cover letter.

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
Acres See attached cover letter.
or
Linear Feet See attached cover letter.

23. Description of Avoidance, Minimization, and Compensation (see instructions)
See attached cover letter.

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See attached permit drawings.

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

E. L. Luke for Deborah M. Barbar, PE Aug 20, 2013

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

Subject: **Final** Minutes of the Interagency Hydraulic Design Review (4b) Meeting on September 24, 2008 for U-2525B, Guilford County

Participants:

Team Members:

Randy Henegar, NCDOT Hydraulics (present)
Andrew Williams, USACE (present)
Amy Euliss, NCDWQ (present)
Travis Wilson, NCWRC (not present)
Gary Jordan, USFWS (present)
Kathy Matthews, EPA (present)
James Speer, NCDOT Roadway (present)
Donnie Brew, FHWA (present)
Lonnie Brooks, NCDOT Structures (present)
Rachelle Beauregard, NCDOT NEU (present)
Patty Eason, NCDOT Division 7 (present)
David Harris, NCDOT REU (not present)
Beverly Robinson, NCDOT PDEA (not present)

Other Attendees

Danny Gardner, NCDOT Roadway
John Gauthier, NCDOT Roadway
Randy Griffin, NCDOT NEU
Tom Payne, NCDOT Structures
Paul Fisher, NCDOT Hydraulics
Lisa Feller, NCDOT PDEA
Brett Feulner, NCDOT NEU
Jamie Lancaster, NCDOT NEU
Zach McNeill, NCDOT PDEA
Daren Pait, Kimley Horn & Assoc.

Randy Henegar opened with a brief description of the project. He commented that throughout the project every effort has been made to protect water quality through best management practices, including discharging outfalls as far away from live streams as practicable, and specifying preformed scour holes wherever they can be effective. It was also noted that NEU and Kimley Horn & Assoc. have been studying this project to determine possible opportunities for mitigation, stream restoration and enhancement, etc. Mr. Henegar then proceeded to go through the plans sheet by sheet addressing the impacted streams or wetland sites.

Items discussed are summarized as follows:

1. Plan Sheets 4 & 5: The existing stream will be relocated to the west. This is Site #1 of the Natural Stream Design Study. A site visit will be scheduled prior to finalizing all of the Natural Stream Designs. Jamie Lancaster will set up the site visit prior to the Field Inspection. The upland wetlands at this site may be incorporated into preservation.

2. Plan Sheet 5: The upstream and downstream benches for the two barrel culvert will be made with rip rap. The voids will fill in and vegetation will form over time. A specific planting plan will not be done, except in cases where the bench is in a cut section.

3. General: All stream relocations, restorations and enhancements will be enclosed in right-of-way.

4. Plan Sheets 6 & 7: The stream leading into the 66" RCP will be restored. This is Site #2 of the Natural Stream Design Study.

5. Plan Sheet 7: The ditches in the wetlands will be allowed. The impacts will need to be shown on the Permit Drawings.

6. Plan Sheet 8: There seems to be a wetland boundary completely inside another wetland boundary. NEU should fix the wetland file to avoid confusion.

7. Plan Sheet 16: The stream will be enhanced both upstream and downstream of the 66" RCP. This is Site #3 of the Natural Stream Design Study.

8. Plan Sheet 18: Stream Restoration is proposed for 400' upstream of the 2 @ 7' x 8' box culvert. This is Site #4 of the Natural Stream Design Study. Hydraulics will investigate the impact of the 24" pipe discharging into the wetlands. The drainage in this area may be adjusted for the 4c Meeting.

9. Plan Sheet 20: The stream will be relocated upstream of the 2 @ 8' x 8' box culvert. This is Site #5 of the Natural Stream Design Study.

10. Plan Sheet 32: Hydraulics will check the velocity of the two pipes discharging into the same stream. Should velocities be erosive, the design will be adjusted.

11. Plan Sheet 33: The pond shown partially under the fill of -Y21- will be a complete take.

12. Plan Sheet 34: The discharge from the ponds near the Service Road (-I26-) should be treated as streams. Coordinate the classifications with Brett Feulner.

Minutes of the Interagency Hydraulic Design Review (4c) Meeting on March 21, 2013 for U-2525B, Guilford County

Participant:

Team Members:
Randy Henegar, NCDOT Hydraulics (present)
Andrew Williams, USACE (present)
Amy Euliss, NCDWQ (present)
Kevin Fischer NCDOT Structures (present)
Travis Wilson, NCWRC (absent)
Gary Jordan, USFWS (absent)
Chris Militscher, EPA (telephone)
James Speer, NCDOT Roadway (present)
Patty Eason, NCDOT Division 7 (telephone)
Felix Davila, FHWA (absent)
Beverly Robinson, NCDOT PDEA (absent)
David Harris, NCDOT REU (absent)
Rachelle Beauregard, NCDOT PDEA (present)

Other Attendees
Danny Gardner, NCDOT Roadway
John Gauthier, NCDOT Roadway
Paul Fisher, NCDOT Hydraulics
Shawn Harris, NCDOT Hydraulics
David Shaeffer, USACE
Steve McKee, NCDOT Utilities
Greg Price, NCDOT PDEA
Lisa Feller, NCDOT PDEA
Mark Staley, NCDOT REU
Phil Harris, NCDOT NES
Randy Griffin, NCDOT PDEA
Brett Feulner, NCDOT PDEA
Pete Allen, NCDOT PDEA
Michael Abuya, NCDOT TRB
Jamshid Hafshejani, NCDOT Util.

It should be noted that the 30% Hydraulic Design Review (4b) meeting for this project was held on 9/24/2008. The 4C meeting commenced at approximately 10:15 a.m. Randy Henegar (NCDOT Hydraulics Unit) conducted the meeting and began reviewing the project sheet-by-sheet taking comments from the attendees. Comments were as follows:

1. Mitigation Plans: The Mitigation Plans will need to be updated to the current standards. ***Response: Randy Griffin will coordinate this work.***

2. General: All Plan Sheets need to be checked to ensure that Jurisdictional Streams are labeled "JS". ***Response: done***

3. General: USACE requested that each Site No. be linked to the Wetland Number in the document. ***Response: NES will provide this documentation in the Permit Package.***

4. General: DWQ requested that for each multi-barrel culvert, note if sills are used on the plan sheets. ***Response: done***

5. Plan Sheet #5: Partition Site 3 into 3A, 3B, 3C, etc. Also, do a "total take" on the wetlands near –L- Sta. 46+50 (Lt.) ***Response: done***

6. Plan Sheet #7: Check to see if the various wetland sites for Site No. 5 between the project slope stake line and Stream Mitigation Site No. 2 are a "take" or not. ***Response: These sites will be a total take.***

7. General: Several Blow-Ups may be needed in tight spaces throughout the plans to ensure clarity. Field Plans are typically on a small scale. ***Response: Six (6) sheets have been added to the Permit Drawings showing Blow-ups of the following Sites: 1, 1a, 1b, 2, 5, 5a, 5b, 6, 6a, 7, 22, 22a, 22b, 26, 27, 28 and 35.***

8. Plan Sheet #8: Use Bank Stabilization at pipe outlets in Jurisdictional Streams for Site 9 and throughout the project. ***Response: done***

9. Plan Sheet #9: Break Site 10 into two separate sites (10-A and 10-B). ***Response: done***

10. Plan Sheet #13: Show the non-jurisdictional pond near –L- Sta. 164+00. ***Response: done***

11. Plan Sheet #14: The stream south side of –Y9- is mitigable. The stream north side of –Y9- is not mitigable. Also, DWQ would like the bank stabilization extended on the south side of –Y9-. ***Response: done***

12. Plan Sheet #19: Near –L- Sta. 240+00 (Lt.) a Permanent Check Dam will be installed just inside the R/W line. This stream will be reclassified as Intermittent (from Perennial) and will have a 1:1 Mitigation Ratio. ***Response: done***

13. Plan Sheet #33: The general comment was made that NCDOT will attempt to install Stormwater controls inside the loops wherever possible. Hydro agreed to raise the invert and install a rip rap berm at the inlet inside the loop on this sheet. ***Response: done***

14. Plan Sheet #37: Site 35 will need a "Blow-Up" for clarity. ***Response: done***

15. The Corps of Engineers questioned whether Concurrence Point 3 needed to be resolved prior to issuing a permit. ***Response: Lisa Feller will provide the Corps with documentation from a previous meeting addressing this issue.***

No further comments were recorded, and the meeting adjourned at 12:15 p.m.

Subsequent to the March 21, 2013 Meeting, NCDOT received comments from NCDWQ regarding the Mitigation Plans.

1. For the areas that will be excavated down to the floodplain, soil amendments need to be added for vegetative success. I think there is a detail for this, but it is not incorporated into the discussion in the Site Plans. ***Response: done***

2. Site 2: It is stated that "special attention must be also given to the possible change in flow regime in this system as it may be influenced by storm water runoff from the proposed roadway." Please elaborate on what this means for the design. ***Response: done***

3. Site 5: As we discussed in the meeting, there is a "potential road" labeled on the plans. Please determine what this road is. Also, if there is no road, can you acquire the right of way between the road and the mitigation site, and incorporate it into the Mitigation Plan? ***Response: done***

Subsequent to the March 21, 2013 Meeting, NCDOT also received comments from USACE regarding the Mitigation Plans.

1. NCDOT will need to indicate why it is environmentally preferable to provide on-site mitigation instead of through EEP. ***Response:*** ***done***

2. For each stream that is being "relocated" or restored, we will need the appropriate USACE stream score and/or the mitigation ratio that was determined (if it was determined) during the site visit. This will assist us in determining if the relocation may provide all the appropriate mitigation or if additional credits will need to be purchased through EEP. ***Response:*** ***done***

NOTE: NEU will address each of the above comments in detail with the respective agencies.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: U-2525B **County(ies):** Guilford

General Project Information

Project No.:	U-2525B		**Project Type:** New Location		**Date:** 4/3/2013
NCDOT Contact:	Paul Fisher / Shawn Harris		**Contractor / Designer:**		
	Address:			**Address:**	
	Phone:	(919) 707-6720 / (919) 707-6725		**Phone:**	
	Email:	pfisher@ncdot.gov / shawnharrris@ncdot.gov		**Email:**	pfisher@ncdot.gov shawnharris@ncdot.gov
City/Town:			**County(ies):**	Guilford	
River Basin(s):	Cape Fear		**CAMA County?**	No	
Primary Receiving Water:	Buffalo Creek		**NCDWQ Stream Index No.:**		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**		Class C		
	Supplemental:		Nutrient Sensitive Waters (NSW)		
Other Stream Classification:					
303(d) Impairments:					
Buffer Rules in Effect					

Project Description

Project Length (lin. Miles or feet):	5.00	**Surrounding Land Use:**	Suburb / Rural

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	ac.	ac.
Typical Cross Section Description:		
Average Daily Traffic (veh/hr/day):	Design/Future: N/A / ADT 2030 = 20000	Existing:
General Project Narrative:	This roadway project is a portion of the Eastern Greensboro Loop. The U-2525B portion is from North of US 70 Relocation to US 29. The surrounding area is predominately wooded and agricultural with some residential neighborhoods intersperesed. The project mainline will have typical sections that predominately consist of a 46' median with 6:1 side slopes, where 38' is grass lined with non-erosive velocities throughout the project to the extent practicable. In cut sections of the typical will have grass lined V-ditch with 6:1 side side slopes in the median and on the lateral ditches the side slopes are 6:1 4:1 with a 2:1 back slope. No discharges directly in the streams, all discharges were made as far away from the streams as practicable. Any pipes that are placed within a jurisdictional stream will include outlet protection on the stream banks for bank stabilization, no riprap will be placed in the stream bed. We have raised pipe inverts within some interchanges and loops were practicable to provide treatment and placed riprap inlet sediment trap (s) Type "A" where feasible as a SCM. Major Structures: Sta. 48+65 -L-, 2@9'x9' RCBC buried one foot below stream bed with one foot sill in on barrel (Grade=0.6%), Sta. 114+55 -L-, 2@7'x8' RCBC buried one foot below stream bed with one foot sill in on barrel (Grade=0.8%), Sta. 218+00 -L-, 2@7'x8' RCBC buried one foot below stream bed with one foot sill in on barrel (Grade=1.5%), Sta. 541+96 -L-, 2@8'x8' RCBC buried one foot below stream bed with one foot sill in on barrel (Grade=1.5%).	

References

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FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: U-2525B **County(ies):** Guilford

Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
4 & 5	27+25 -Y3RPA- 47+94 -L- (LT)	Stream & Wetland	Perennial Headwater Wetland	S. Buffalo Creek					Fill		
4	24+84 -Y3RPD- 	Wetland	Headwater Wetland						Fill		
5	48+75 -L- 	Stream & Wetland	Perennial Headwater Wetland	S. Buffalo Creek					Culvert & Fill		
5	48+65 -L- 	Wetland	Headwater Wetland						Fill		
5	46+46 -L- (LT) 47+70 -L- (RT)	Wetland	Bottomland Hardwood						Fill		
6 & 7	59+31 -L- (RT) 81+35 -L- (LT)	Stream	Perennial	S. Buffalo Creek					Fill		
7	66+14 -L- (LT) 68+72 -L- (LT)	Wetland	Headwater Wetland						Excavation		
7	70+32 -L- (LT) 71+59 -L- (LT)	Wetland	Headwater Wetland						Excavation		
7	21+56 -Y4RPB- 22+00 -Y4RPB-	Wetland	Headwater Wetland						Fill		
7	22+11 -Y4RPB- 22+75 -Y4RPB-	Wetland	Headwater Wetland						Fill		
7	77+25 -L- LT 25+57 -RPC- (RT)	Wetland	Headwater Wetland						Fill		
7 & 8	93+50 -L- 95+95 -L- (LT)	Wetland	Headwater Wetland						Fill		
7	33+23 -EY4- 	Wetland	Small-Basin Wetland (Isolated Wetland Only)						Excavation		
8	95+78 -L- (LT) 102+77 -L- (RT)	Stream & Wetland	Perennial Headwater Wetland	N. Buffalo Creek					Fill		
8	101+78 -L- (LT) 102+19 -L- (LT)	Stream	Intermittent	N. Buffalo Creek					Fill		

* List all stream and surface water impact locations regardless of jurisdiction or size.

Equalizer Pipes to be noted as a minimization of impacts.

All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

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Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
9	113+64 -L- (LT) 117+08 -L- (RT)	Stream	Perennial	N. Buffalo Creek					Culvert		
9	114+23 -L- (RT) 115+15 -L- (RT)	Wetland	Headwater Wetland						Fill		
9	115+19 -L- (LT) 116+17 -L- (RT)	Wetland	Headwater Wetland						Fill		
9	116+15 -L- (LT) 117+08 -L- (RT)	Wetland	Headwater Wetland						Fill		
10	123+22 -L- (LT) 127+94 -L- (RT)	Wetland	Headwater Wetland						Fill		
13	156+90 -L-	Stream	Perennial	N. Buffalo Creek					Culvert		
14	174+23 -L- (LT) 174+67-L-(LT)	Stream	Perennial	N. Buffalo Creek					Culvert		
14	174+72 -L-(RT) 174+17-L-(RT)	Wetland	Headwater Wetland						Fill		
15	182+76 -L-	Stream	Intermittent	N. Buffalo Creek					Culvert		
15	189+55 -L-	Stream	Perennial	N. Buffalo Creek					Culvert		
16	195+35 -L-	Stream & Wetland	Perennial Headwater Wetland	N. Buffalo Creek					Culvert		
17	14+26 -Y10A-	Stream	Intermittent	N. Buffalo Creek					Culvert		
18	218+00-L- (LT) 219+51-L- (RT)	Stream	Perennial	N. Buffalo Creek					Culvert		
18	218+00-L- (LT) 219+51-L- (RT)	Wetland	Bottomland Hardwood						Culvert		
18	218+92 -L-	Open Water	Pond	N. Buffalo Creek					Fill		
19	230+83-L-(RT) 230+83-L-(LT)	Wetland	Headwater Wetland						Excavation		

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Project/TIP No.: U-2525B **County(ies):** Guilford

Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
19	239+57-L- (LT) 245+33-L- (RT)	Stream	Perennial	N. Buffalo Creek					Culvert		
19	239+59-L- (LT) 241+22-L- (LT)	Stream	Perennial	N. Buffalo Creek					Culvert		
20	11+05-LCD- (RT) 11+57-LCD- (RT)	Stream	Perennial	N. Buffalo Creek					Culvert		
20	11+05-LCD- (RT) 11+57-LCD- (RT)	Wetland	Small-Basin Wetland						Fill		
21	16+35 -Y13LPD-	Stream	Perennial	N. Buffalo Creek					Fill		
21	16+35 -Y13LPD-	Wetland	Headwater Wetland	N. Buffalo Creek					Fill		
21 & 31	17+40-Y13RPB- (RT) 17+81 -Y13RPB- (RT)	Wetland	Headwater Wetland						Fill		
31	16+67-Y13RPB- (LT) 17+13 -Y13RPB- (LT)	Stream & Wetland	Intermittent & Headwater Wetland	N. Buffalo Creek					Fill		
31	17+21-Y13RPB- (LT) 17+46 -Y13RPB- (LT)	Wetland	Headwater Wetland						Fill		
25	16+35 -Y4A- (RT)	Wetland	Headwater Wetland						Fill		
25	36+00 -Y4- (RT)	Wetland	Headwater Wetland						Fill & CULVERT		
28	(RT)	Stream	Intermittent	N. Buffalo Creek					Fill & CULVERT		
32	29+38-Y13RPC-	Stream	Perennial	N. Buffalo Creek					Fill & CULVERT		
32	(RT) (LT)	Stream & Wetland	Intermittent & Headwater Wetland	N. Buffalo Creek					Fill & CULVERT		
32 & 33	(RT) (RT)	Stream & Pond	Intermittent	N. Buffalo Creek					Fill		
33	22+88-Y22RPA-	Stream	Perennial	Unnamed Trib. At Camp Herman					Fill & CULVERT		
34	13+63-Y22RPD-	Wetland	Small-Basin Wetland						Fill		

NCDOT Highway Stormwater Program

(Version 1.2; Released July 2012)

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

Project Environmental Summary

Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
34	16+35-Y23-	Stream	Perennial	Unnamed Trib. At Camp Herman					Fill & CULVERT		
34	34+30-Y26- (LT)	Open Water	Pond						Fill & CULVERT		
34	28+37-Y26- (LT)	Stream	Perennial	Unnamed Trib. At Camp Herman					Fill & CULVERT		
35	22+14 -Y26-	Stream	Perennial	Unnamed Trib. At Camp Herman					Fill & CULVERT		
35	16+03 -Y23-	Wetland	Headwater Wetland						Fill & CULVERT		
37	48+53 -Y23-	Stream	Perennial	Unnamed Trib. At Camp Herman					Culvert		

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FOR LINEAR ROADWAY PROJECTS

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Project/TIP No.: U-2525B **County(ies):** Guilford

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)
4	21+00 -Y3RPD- (LT)	PFSH	Class 'B'	0.26	Pipe	15	1.3	1.1
4	19+50 -Y3RPA- (RT)	PFSH	Class 'B'	0.37	Pipe	15	1.9	1.5
7	20+20 -Y3RPB- (LT)	PFSH	Class 'B'	0.23	Pipe	15	1.2	1.0
7	17+00 -Y4- (RT)	PFSH	Class 'B'	0.31	Pipe	15	1.5	1.2
7	26+00 -Y4- (LT)	PFSH	Class 'B'	0.16	Pipe	15	0.8	0.7
25	37+00 -Y4- (RT)	PFSH	Class 'B'	0.45	Pipe	15	2.3	1.9
25	14+50 -Y4A- (RT)	PFSH	Class 'B'	2.57	Pipe	18	6.1	3.6
12	152+50 -L- (LT)	PFSH	Class 'B'	0.23	Pipe	15	1.2	1.0
12	155+70 -L- (LT)	PFSH	Class 'B'	2.20	Pipe	18	9.0	4.0
13	159+50 -L- (LT)	PFSH	Class 'B'	0.87	Pipe	15	3.3	2.7
15	182+00 -L- (LT)	PFSH	Class 'B'	0.92	Pipe	15	3.9	3.1
15	192+50 -L- (LT)	PFSH	Class 'B'	1.27	Pipe	15	5.0	4.0
16	197+50 -L- (RT)	PFSH	Class 'B'	1.45	Pipe	18	6.0	3.5
16	110+50 -Y13- (LT)	PFSH	Class 'B'	0.16	Pipe	15	0.8	0.7

Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox (2008), NCDOT Standard Details, or FHWA HEC-14 (July 2006), been met and verified, as applicable? If No, provide further explanantion of why design criteria was not met.

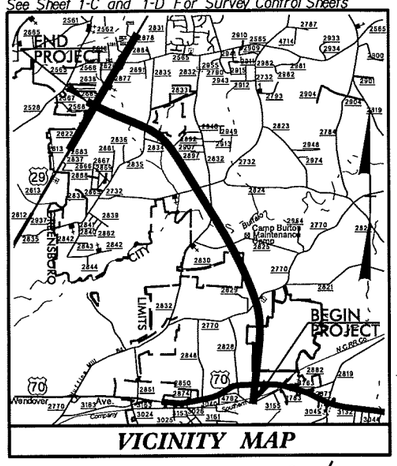
Additional Comments

* Refer to the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), NCDOT Standard Details, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09/28/99

CONTRACT: TIP PROJECT: U-2525B

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols
See Sheet 1-C and 1-D For Survey Control Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWINGS
SHEET 1 OF 93

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2525B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34821.1.3		PE
34821.2.3		R/W & UTILITIES

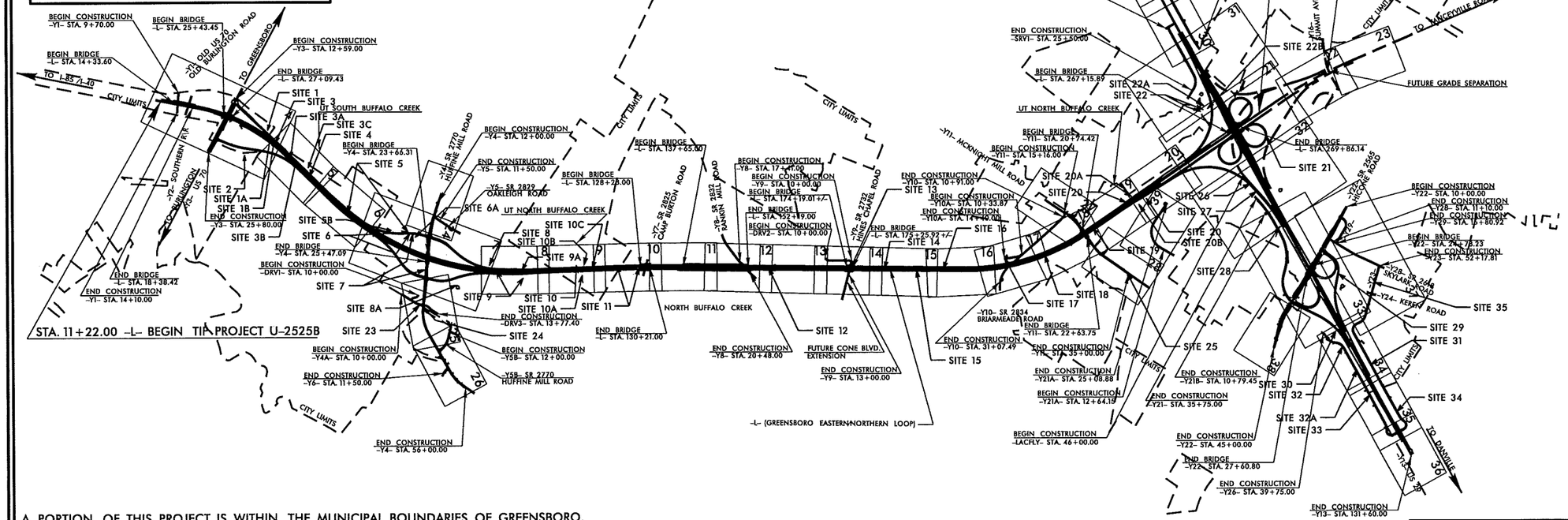
GUILFORD COUNTY

LOCATION: *GREENSBORO EASTERN LOOP FROM NORTH OF US 70 RELOCATION TO US 29 NORTH OF GREENSBORO*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, SIGNALS, CULVERTS, RETAINING WALLS, AND STRUCTURES*

NAD 83/95

WETLAND AND SURFACE WATER IMPACTS PERMIT



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO.
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.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = N/A
ADT 2030 = 20000
DHV = 10 %
D = 60 %
T = 16 % *
V = 70 MPH

* TTST 5% DUAL 11%
FUNC CLASS = INTERSTATE
"STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2525B = 4.504 Miles
LENGTH STRUCTURE TIP PROJECT U-2525B = 0.492 Miles
TOTAL LENGTH OF TIP PROJECT U-2525B = 4.996 Miles

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 22, 2012

LETTING DATE: MAY 20, 2014

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$$$

PERMIT DRAWINGS
SHEET 2 OF 93

SITE 1

SITE 1A

SITE 1B

SITE 2

BEGIN -L- STA. 11+22.00 TIP PROJECT U-2525B

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

PROPOSED SIGNAL

INCOMPLETE PLANS
PRELIMINARY PLANS

SEE SHEET 2-J FOR BRIDGE SKETCHES
SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 52 FOR -Y1-, -Y2-, & -Y3- PROFILE
SEE SHEET 53 FOR -Y3RA- PROFILE
SEE SHEET 53 & 54 FOR -Y3RD- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWINGS
SHEET 3 OF 93

SITE 1

SITE 1A

SITE 1B

SITE 2

BEGIN -L- STA. 11+22.00 TIP PROJECT U-2526B

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

MATCHLINE -Y3RPD- STA 19+00.00 SEE SHEET 5

MATCHLINE -Y3RPD- STA 38+00.00 SEE SHEET 5

SEE SHEET 54 FOR BRIDGE SKETCHES
SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 52 FOR -Y1- , -Y2- & -Y2- PROFILE
SEE SHEET 53 FOR -Y3RPA- PROFILE
SEE SHEET 53 & 54 FOR -Y3RPD- PROFILE

INCOMPLETE PLANS
PRELIMINARY PLANS

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	4 & 5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWINGS
SHEET 4 OF 93

03-19-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO).

SITE 1

SITE 1A

SITE 1B

SE = .06

-Y3RPD-

PI Sta 15+72.72	PIs Sta 19+71.24	PIs Sta 24+89.90	PI Sta 27+00.97
Δ = 25° 34' 24.0" (LT)	θs = 4° 51' 38.2"	θs = 4° 33' 06.1"	Δ = 9° 35' 53.5" (RT)
D = 3° 58' 04.3"	Ls = 245.00'	Ls = 245.00'	D = 3° 42' 56.4"
L = 644.51'	LT = 163.39'	LT = 163.39'	L = 258.32'
T = 327.72'	ST = 81.72'	ST = 81.72'	T = 129.46'
R = 1,444.00'			R = 1,542.00'
SE = .08			SE = .03

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

NAD 83/95

100' 0' 100'
GRAPHIC SCALE

KOTIS COMPANY, LLC

RIP RAP CLASS "B" W/FILTER FABRIC

E TO DRAIN

RETAIN EXIST. R/W

+70.00 -Y3RPA- 100.00' @ EXIST. R/W

+30.00 -Y3RPA- 100.00' @ EXIST. R/W

PSH SEE DETAIL SHEET 2-L

PDE

BEGIN SBG @ STA. 19+55 -Y3RPA- (RT.)

ROD AND LUG W/ELBOWS

R/W MON

60' WW & ISBW

RETAIN EXIST. R/W

LATERAL BASE DITCH SEE DETAIL "JN"

+49.80 -Y3RPA- @ EXIST. R/W BEGIN C/A FENCE

KOTIS COMPANY, LLC

1002.6' N02°18'19"E

S84°44'20"E 280.18'

NCDOT

20+00

-Y3RPA-

S 12°46'51"E

15+00

LATERAL BASE DITCH SEE DETAIL "JM"

CLASS "B" RIP RAP W/FILTER FABRIC EST. 5 TONS EST. 16 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 3 SY FABRIC

-Y3RPA- POT STA. 10+00.00= -L- POC STA. 39+54.00 47.00' LT CHORD

LATERAL BASE DITCH SEE DETAIL "JM"

CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC

ROD AND LUG W/ELBOWS

S05°24'20"W 874.25'

-Y3RPA-

S 12°46'51"E

10+00

ROD AND LUG W/ELBOWS

CITY OF GREENSBORO

-L- CS STA. 39+94.14

30+00

35+00

3' CMB

30" C&G

21.65= 06.65

RETAIN

15" CMP

CB

DID

18" CONC

RETAIN

NCDOT

-Y3RPD-

15+00

20+00

ROD AND LUG W/ELBOWS

03-19-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO).

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWINGS
SHEET 5 OF 93

-L- POC STA. 26+21.65=
-Y3- POT STA. 17+06.65

-L- CS STA. 39+94.14

-Y3RPD- SC Sta. 25+71.51

-Y3RPD- PT Sta. 28+29.83

-Y3RPD- ST Sta. 21+34.51

-Y3RPD- TS Sta. 23+26.51

-Y3RPD- CS Sta. 18+89.51

1 NCDOT

2 ARC COMMUNITIES II, LLC

4 CITY OF GREENSBORO

S 21°11' 30.2" E

S 7°08' 30.5" E

S03°09'19"E 400.06'

CHORD

REMOVE DI & 28' OF 15" RCP

REMOVE 50' OF 15" RCP

REMOVE DI & 280' OF 15" RCP

RETAIN 30' C&G

RETAIN COLLAR AND EXTEND

ROD AND LUG W/ELBOWS

BEGIN SBG @ -Y3RPD- (LT.) STA. 25+50

CLASS "B" RIP RAP W/FILTER FABRIC EST. 5 TONS EST. 14 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

SPECIAL CUT DITCH SEE DETAIL "S"

SPECIAL CUT DITCH SEE DETAIL "X"

TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "C"

@ PL
@ EXIST. R/W
BEGIN C/A FENCE

+89.51 -Y3RPD- 90.00'

RETAIN EXIST. R/W

60' RW & 150W R/W MON

228.75' N65°10'08"E

★ PROPOSED SIGNAL

SITE 2

F F DENOTES FILL IN WETLAND

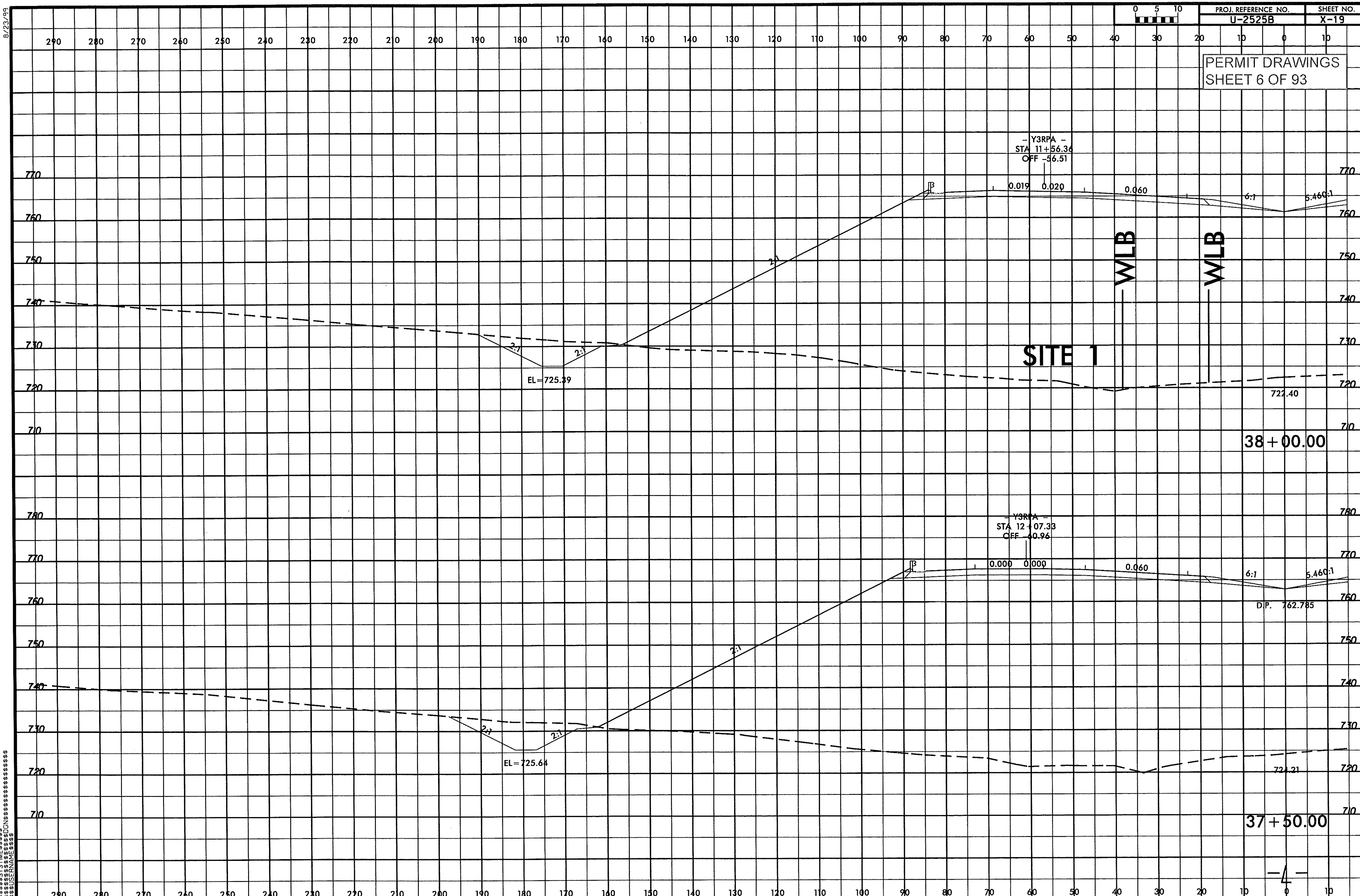
DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

100' 0' 100'
GRAPHIC SCALE

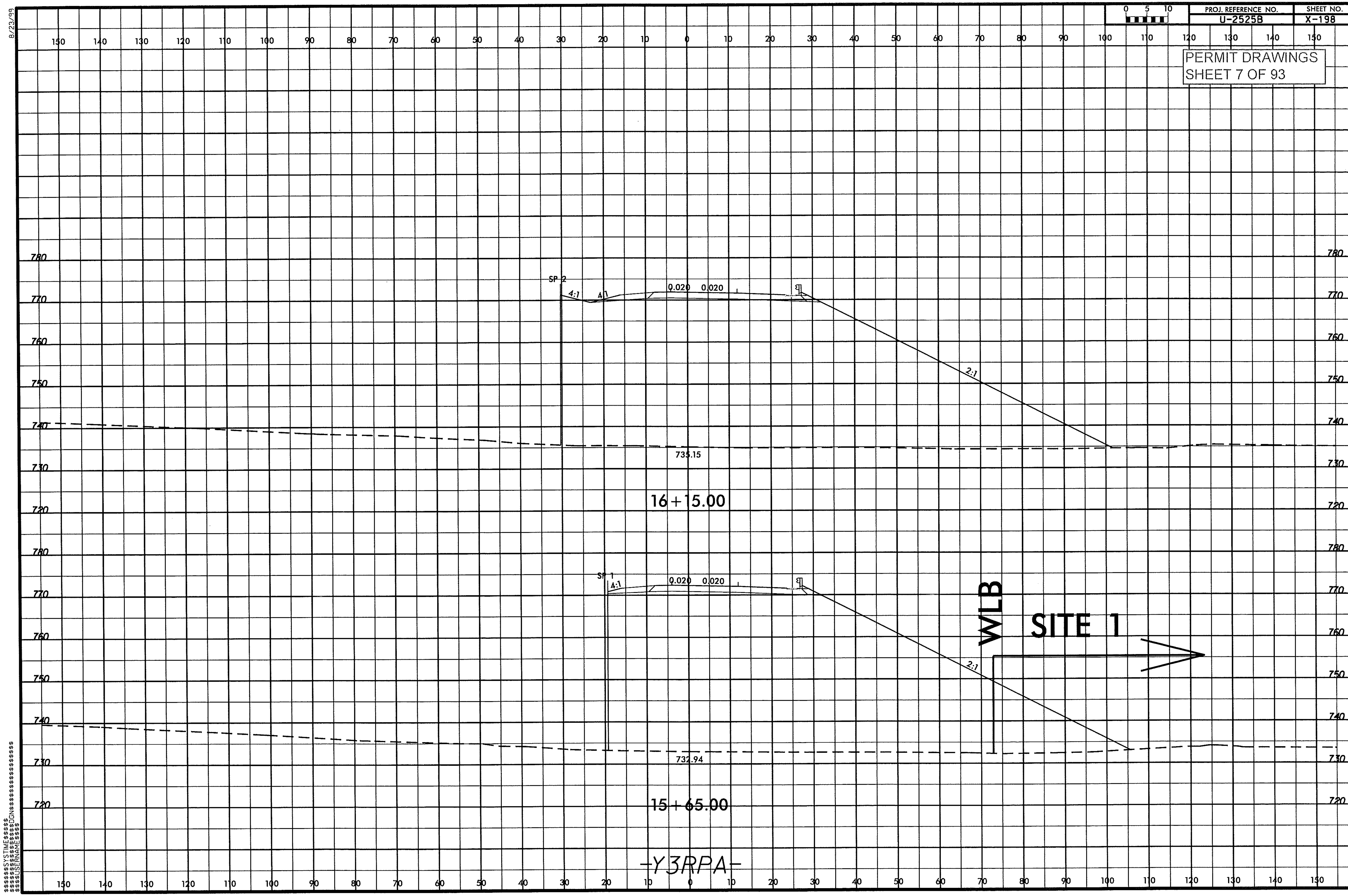
8/23/99

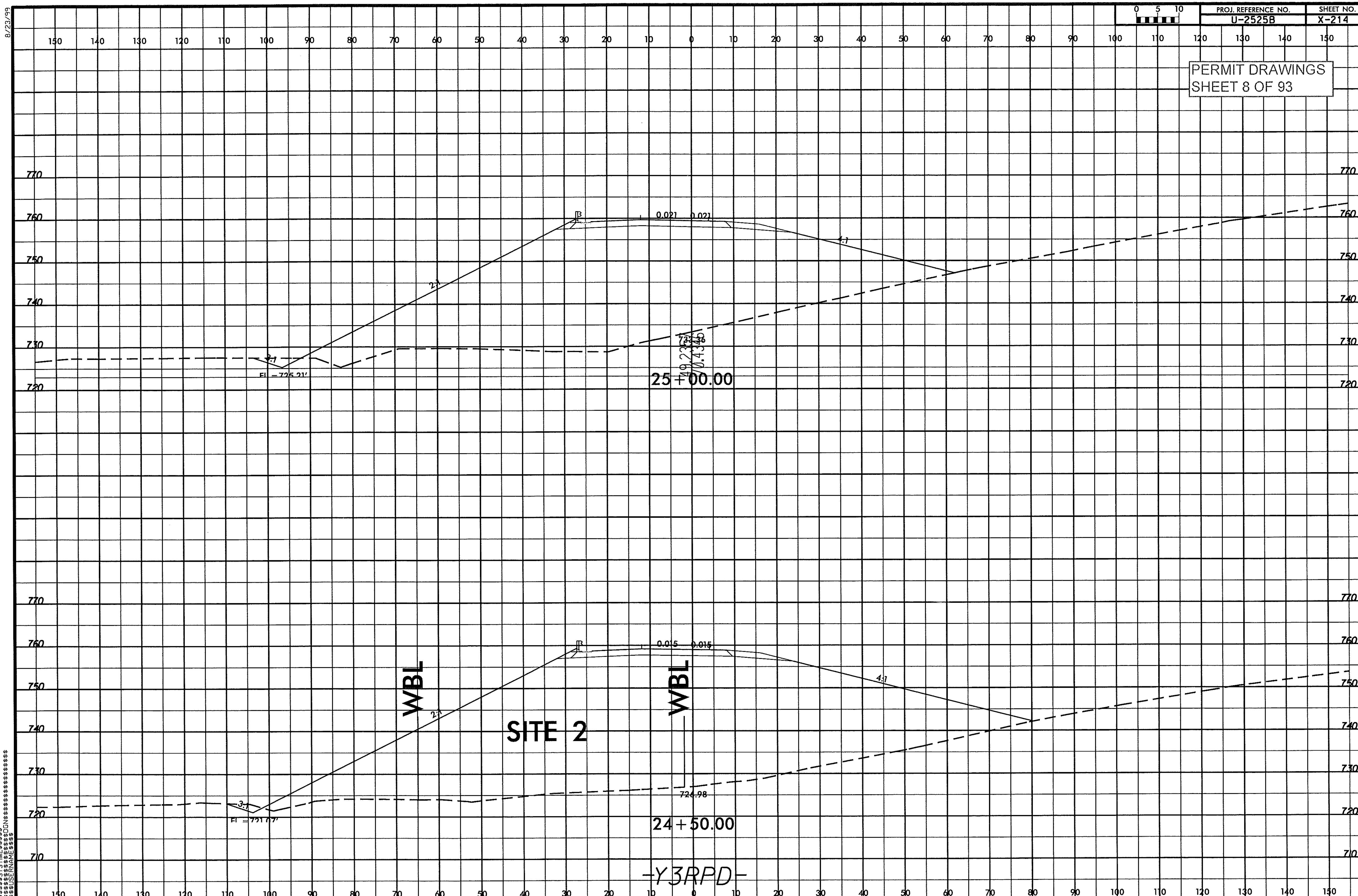


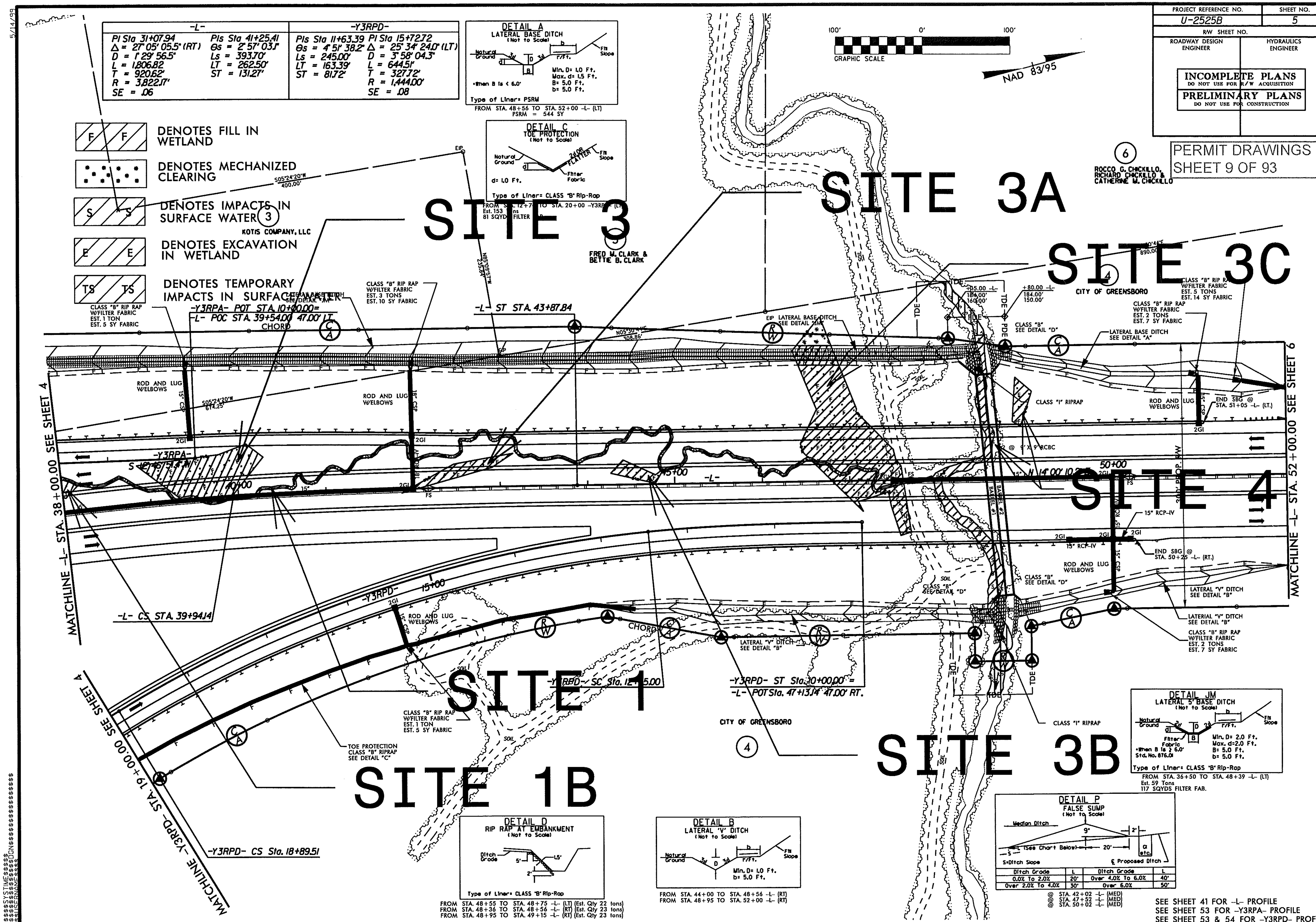
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-198

PERMIT DRAWINGS
SHEET 7 OF 93




8/23/99
0 5 10
PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-214
PERMIT DRAWINGS
SHEET 8 OF 93
770
760
750
740
730
720
710
0.021 0.021
2:1
4:1
3:1
EL = 725.21'
25+00.00
0.015 0.015
WBL
SITE 2
726.98
EL = 721.07'
24+50.00
-Y3RPD-



PROJECT REFERENCE NO. U-2525B
SHEET NO. 5
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
PERMIT DRAWINGS SHEET 9 OF 93
5/14/99
-L-
PI Sta 31+07.94
Δ = 27° 05' 05.5" (RT)
D = 1° 29' 56.5"
L = 1,806.82
T = 920.62'
R = 3,822.17'
SE = .06
PIs Sta 41+25.41
θs = 2° 57' 03.1"
Ls = 393.70'
LT = 262.50'
ST = 131.27'
-Y3RPD-
PIs Sta 11+63.39
θs = 4° 51' 38.2"
Ls = 245.00'
LT = 163.39'
ST = 81.72'
PI Sta 15+72.72
Δ = 25° 34' 24.0" (LT)
D = 3° 58' 04.3"
L = 644.51'
T = 327.72'
R = 1,444.00'
SE = .08
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATER
DENOTES EXCAVATION IN WETLAND
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 5.0 Ft.
b= 5.0 Ft.
Type of Liner= PSRM
FROM STA. 48+56 TO STA. 52+00 -L- (LT)
PSRM = 544 SY
DETAIL C
TOE PROTECTION
(Not to Scale)
d= 1.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
GRAPHIC SCALE
NAD 83/95
SITE 3
SITE 3A
SITE 3C
SITE 4
SITE 1
SITE 1B
SITE 3B
KOTIS COMPANY, LLC
FRED M. CLARK & BETTIE B. CLARK
ROCCO G. CHICKILLO, RICHARD CHICKILLO & CATHERINE M. CHICKILLO
CITY OF GREENSBORO
-L- ST STA. 43+87.84
-Y3RPA- POT STA. 10+00.00=
-L- POC STA. 39+54.00 47.00' LT.
-L- CS STA. 39+94.14
-Y3RPD- SC Sta. 12+15.00
-Y3RPD- ST Sta. 10+00.00 =
-L- POT Sta. 47+13.14 47.00' RT.
-Y3RPD- CS Sta. 18+89.51
MATCHLINE -L- STA. 38+00.00 SEE SHEET 4
MATCHLINE -L- STA. 52+00.00 SEE SHEET 6
MATCHLINE -Y3RPD- STA. 19+00.00 SEE SHEET 4
CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 5 TONS EST. 14 SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC
ROD AND LUG W/ELBOWS
TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "C"
LATERAL BASE DITCH SEE DETAIL "A"
LATERAL "V" DITCH SEE DETAIL "B"
CLASS "I" RIPRAP
2 @ 9' X 9' RCBC
END SBG @ STA. 51+05 -L- (LT.)
END SBG @ STA. 50+25 -L- (RT.)
DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 48+55 TO STA. 48+75 -L- (LT) (Est. Qty 22 tons)
FROM STA. 48+36 TO STA. 48+56 -L- (RT) (Est. Qty 23 tons)
FROM STA. 48+95 TO STA. 49+15 -L- (RT) (Est. Qty 23 tons)
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Min. D= 1.0 Ft.
b= 5.0 Ft.
FROM STA. 44+00 TO STA. 48+56 -L- (RT)
FROM STA. 48+95 TO STA. 52+00 -L- (RT)
DETAIL JM
LATERAL 5' BASE DITCH
(Not to Scale)
Min. D= 2.0 Ft.
Max. d=2.0 Ft.
B= 5.0 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 36+50 TO STA. 48+39 -L- (LT)
Est. 59 Tons
117 SQYDS FILTER FAB.
DETAIL P
FALSE SUMP
(Not to Scale)
Ditch Grade | L | Ditch Grade | L
0.0% To 2.0% | 20' | Over 4.0% To 6.0% | 40'
Over 2.0% To 4.0% | 30' | Over 6.0% | 50'
@ STA. 42+02 -L- (MED)
@ STA. 47+52 -L- (MED)
@ STA. 50+02 -L- (MED)
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 53 FOR -Y3RPA- PROFILE
SEE SHEET 53 & 54 FOR -Y3RPD- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 10 OF 93

REVISIONS
03-19-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO).
5/14/99

-L-
PI Sta 31+07.94
Δ = 27° 05' 05.5" (RT)
D = 1° 29' 56.5"
L = 1806.82
T = 920.62
R = 3822.17
SE = .06

PIs Sta 41+25.41
Os = 2° 57' 03"
Ls = 393.70'
LT = 262.50'
ST = 131.27'

-Y3RPD-
PIs Sta 11+63.39
Os = 4° 61' 38.2"
Ls = 245.00'
LT = 163.39'
ST = 81.72'

PI Sta 15+72.72
Δ = 25° 34' 24.0" (LT)
D = 3° 58' 04.3"
L = 644.51'
T = 327.72'
R = 1,444.00'
SE = .08

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
When B is ≤ 6.0'
Min. D= LO Ft.
Max. d= L5 Ft.
B= 5.0 Ft.
b= 5.0 Ft.
Type of Liner= PSRM
FROM STA. 48+56 TO STA. 52+00 -L- (LT)
PSRM = 544 SY

DETAIL C
TOE PROTECTION
(Not to Scale)
d= LO Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 33+47 TO STA. 20+00 -Y3RPD- (LT)
Est. 159 Tons
81 SCYDS FILTER

F F DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER (3)
E E DENOTES EXCAVATION IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 3
SITE 3A
SITE 3C
SITE 4
SITE 1
SITE 1B
SITE 3B

KOTIS COMPANY, LLC
FRED M. CLARK & BETTIE B. CLARK
ROCCO G. CHICKILLO, RICHARD CHICKILLO & CATHERINE M. CHICKILLO (6)
CITY OF GREENSBORO (4)

-Y3RPA- POT- STA 10+00.00 =
-L- POC- STA 39+54.00 47.00' LT
CHORD

-L- ST STA 43+87.84

-L- CS STA 39+94.14

-Y3RPD- SC Sta. 12+76.00

-Y3RPD- ST Sta. 10+00.00 =
-L- POT Sta. 47+13.14 47.00' RT.

-Y3RPD- CS Sta. 18+89.51

MATCHLINE -L- STA. 38+00.00 SEE SHEET 4

MATCHLINE -L- STA. 52+00.00 SEE SHEET 6

MATCHLINE -Y3RPD- STA 19+00.00 SEE SHEET 4

CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 5 TONS EST. 16 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC

TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "C"

CLASS "I" RIPRAP

CLASS "B" SEE DETAIL "D"

LATERAL BASE DITCH SEE DETAIL "A"

LATERAL "V" DITCH SEE DETAIL "B"

LATERAL "V" DITCH SEE DETAIL "B"

EIC LATERAL BASE DITCH SEE DETAIL "A"

ROD AND LUG W/ELBOWS

END SBG @ STA. 51+05 -L- (LT.)

END SBG @ STA. 50+25 -L- (RT.)

15" RCP-IV

9'x9' RCBC

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 48+55 TO STA. 48+75 -L- (LT) (Est. Qty 22 tons)
FROM STA. 48+36 TO STA. 48+56 -L- (RT) (Est. Qty 23 tons)
FROM STA. 48+95 TO STA. 48+15 -L- (RT) (Est. Qty 23 tons)

DETAIL B
LATERAL "V" DITCH
(Not to Scale)
Min. D= LO Ft.
b= 5.0 Ft.
FROM STA. 44+00 TO STA. 48+56 -L- (RT)
FROM STA. 48+95 TO STA. 52+00 -L- (RT)

DETAIL JM
LATERAL "C" BASE DITCH
(Not to Scale)
When B is ≤ 6.0' Std. No. 876.01
Min. D= 2.0 Ft.
Maxi d=2.0 Ft.
B= 5.0 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 36+50 TO STA. 48+39 -L- (LT)
Est. 59 Tons
117 SCYDS FILTER FAB.

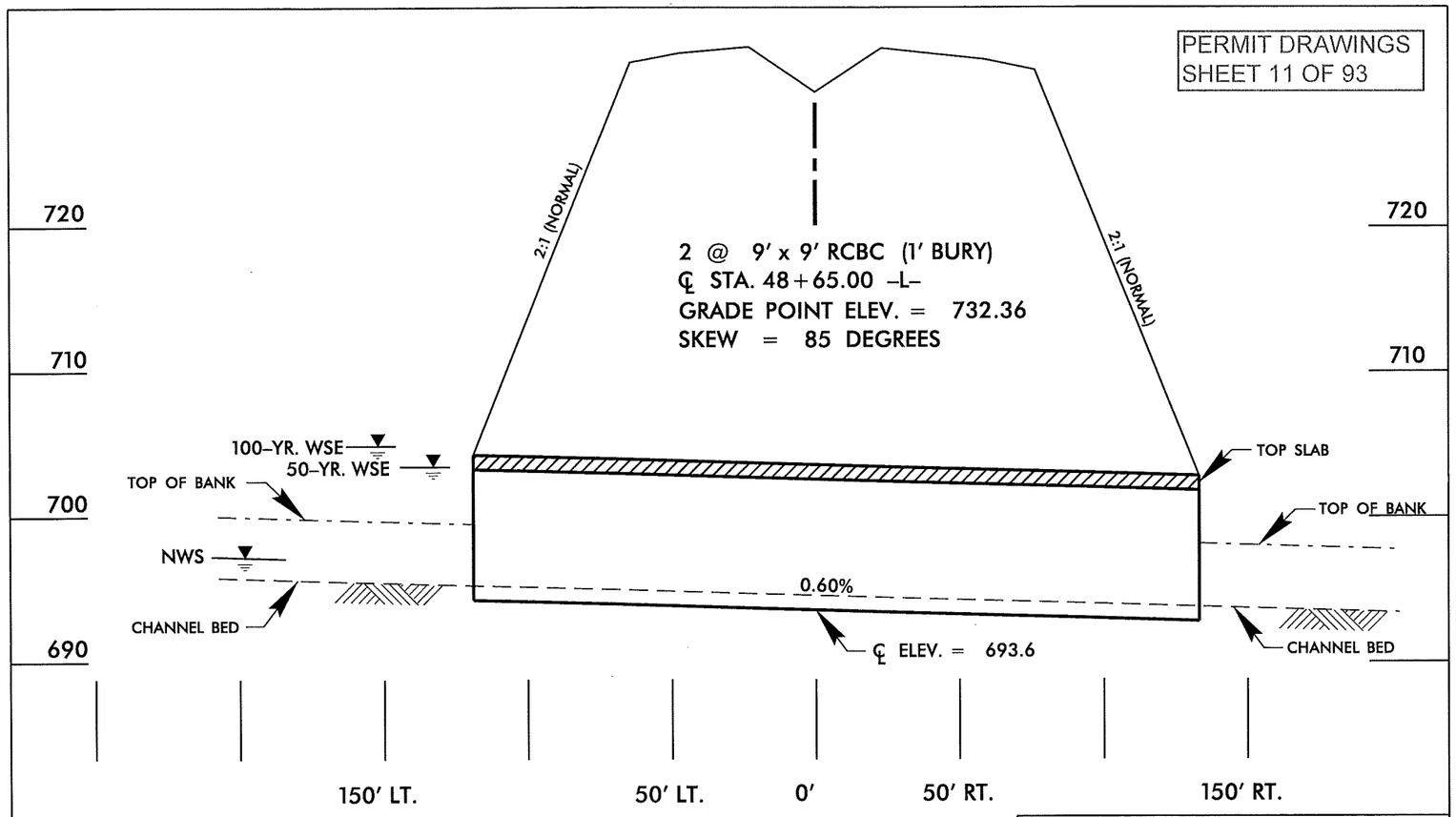
DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch
(See Chart Below)
Slope Ditch
Proposed Ditch

Ditch Grade	L
0.0% To 2.0%	20'
Over 2.0% To 4.0%	30'
Over 4.0% To 8.0%	40'
Over 8.0%	50'

@ STA. 42+02 -L- (MED) SEE SHEET 41 FOR -L- PROFILE
@ STA. 47+82 -L- (MED) SEE SHEET 53 FOR -Y3RPA- PROFILE
@ STA. 50+02 -L- (MED) SEE SHEETS 53 & 54 FOR -Y3RPD- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

GRAPHIC SCALE 100' 0' 100'
NAD 83/95

PERMIT DRAWINGS
SHEET 11 OF 93



PROFILE

NCDOT

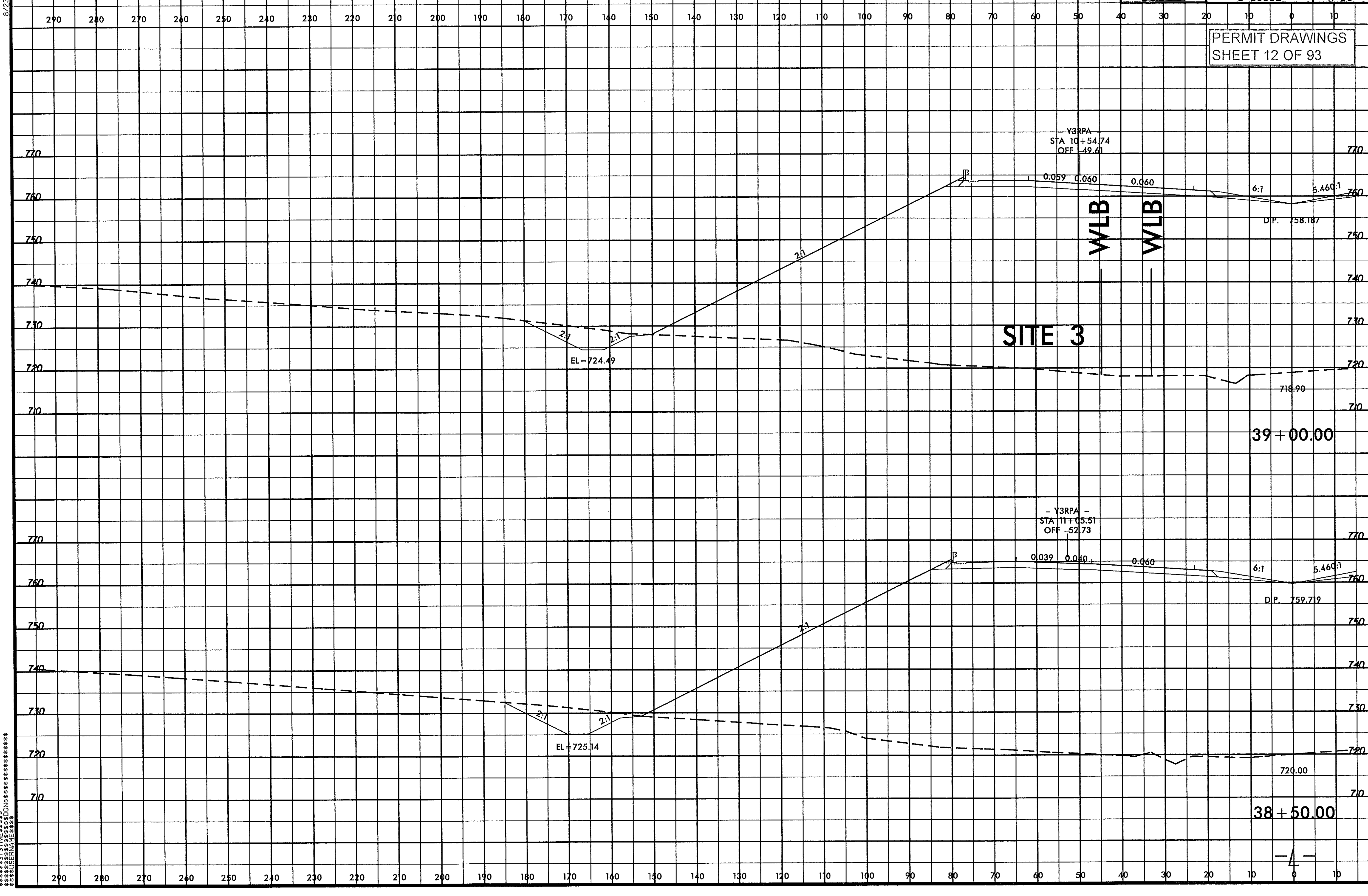
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34821.1.1 (U-2525B)
GREENSBORO EASTERN LOOP
FROM NORTH OF US 70
RELOCATION TO US 29 NORTH
OF GREENSBORO

SHEET OF 03/08/13

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-20

PERMIT DRAWINGS
SHEET 12 OF 93



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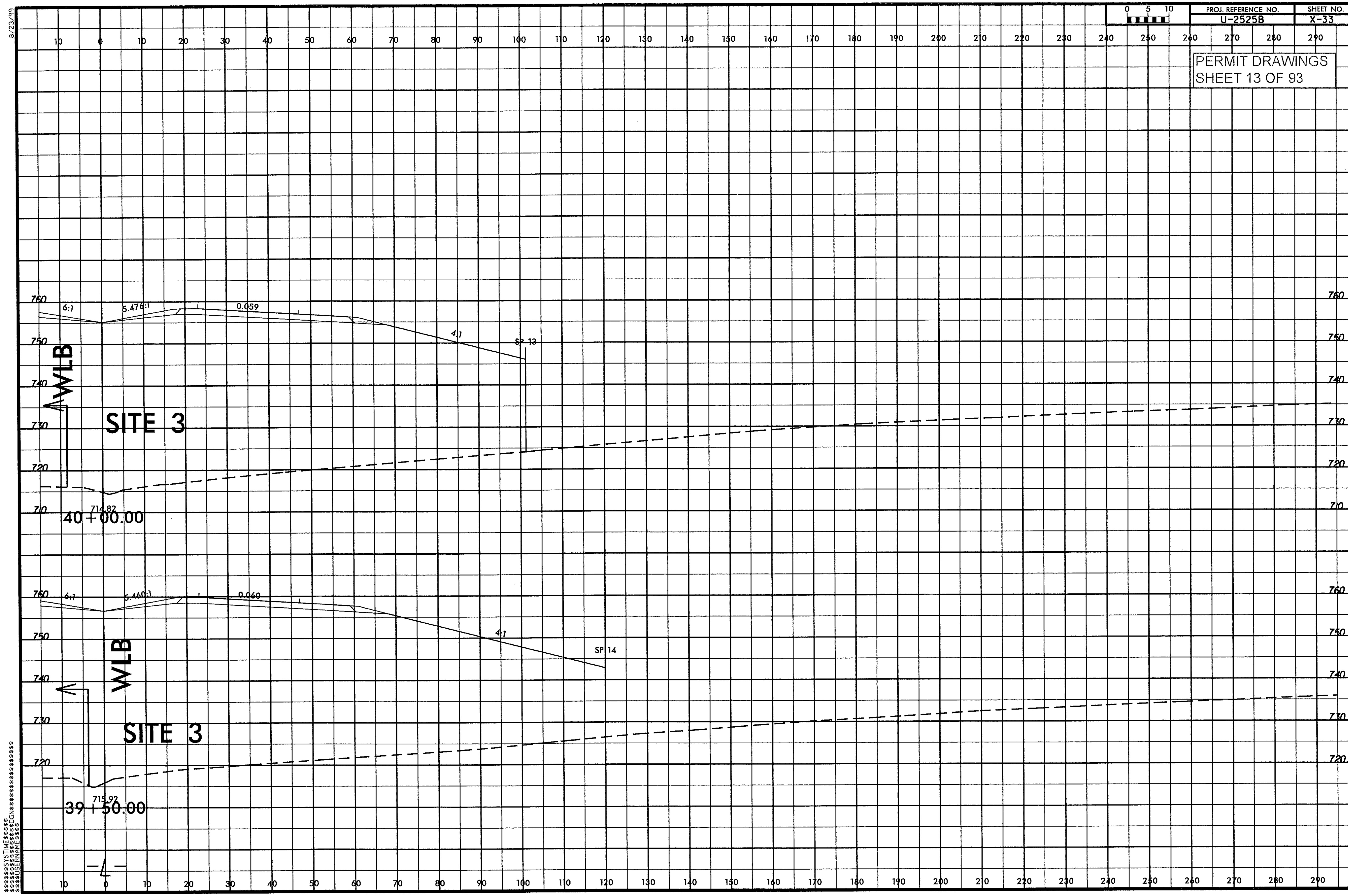
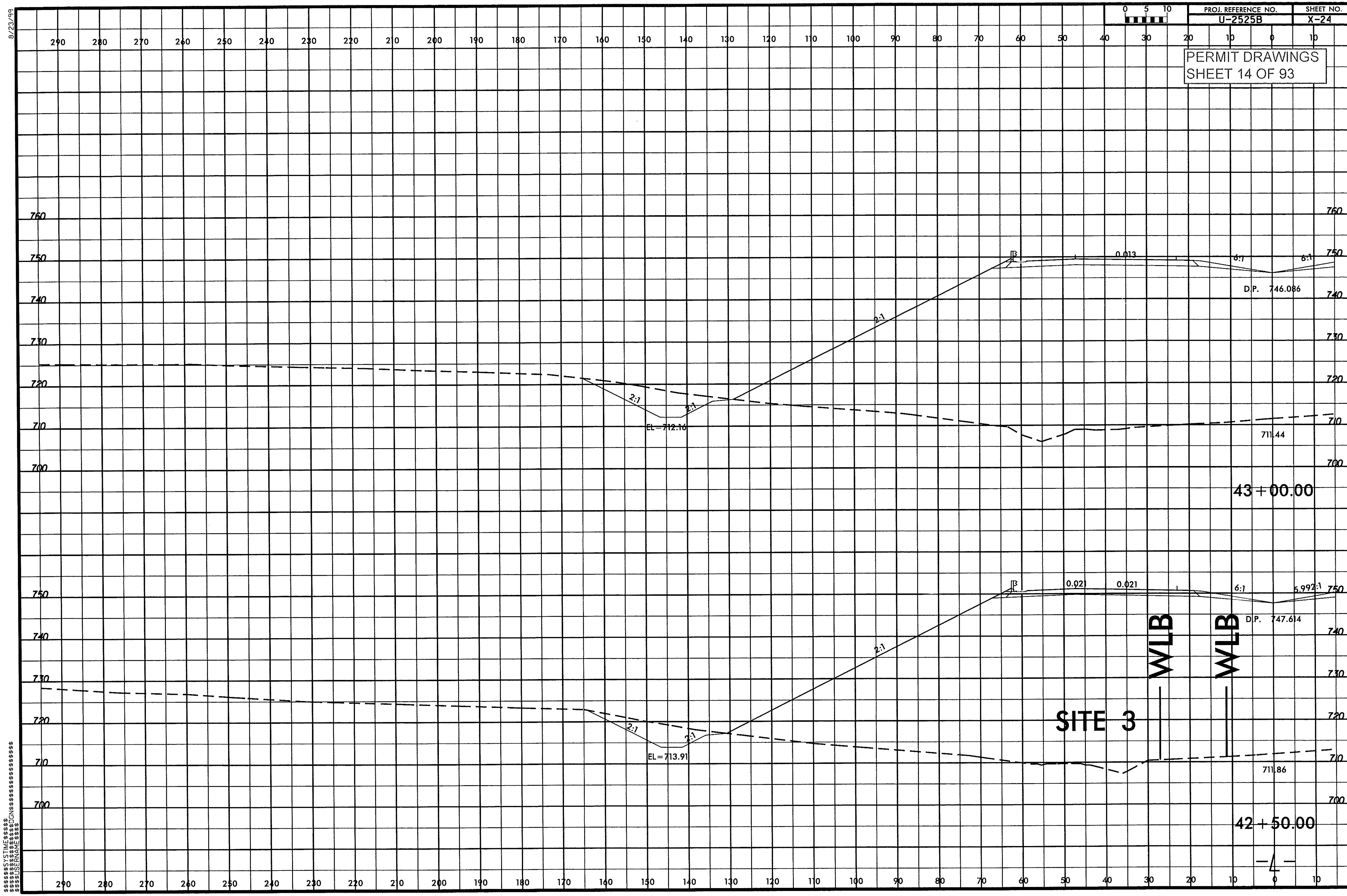
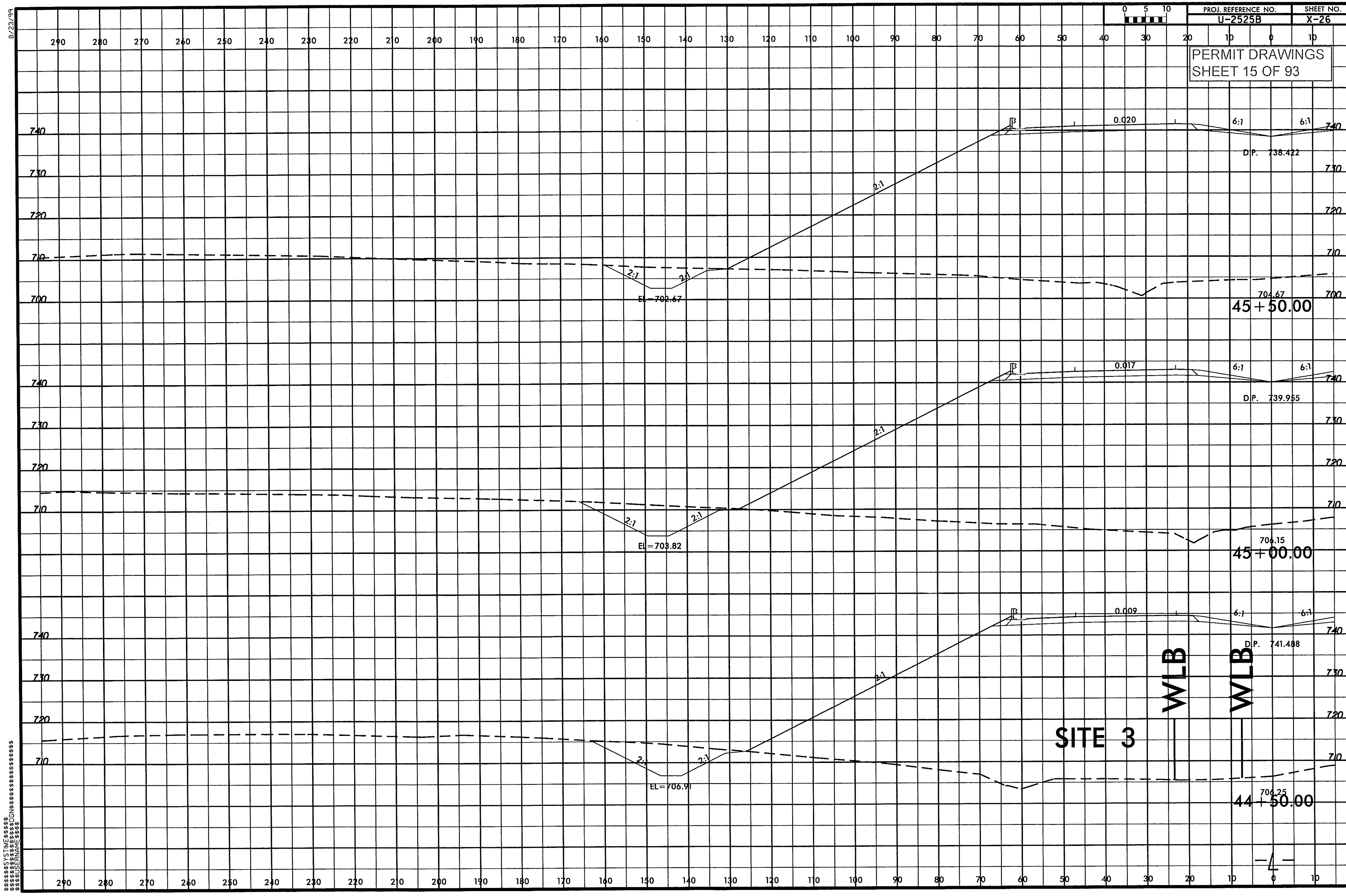
$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$



PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-33
0 5 10
PERMIT DRAWINGS
SHEET 13 OF 93
8/23/99
WLB
SITE 3
6:1
5.476:1
0.059
4:1
SP 13
714.82
40+00.00
6:1
5.460:1
0.060
4:1
SP 14
715.92
39+50.00
760
750
740
730
720
710
$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$


8/23/99
PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-24
0 5 10
PERMIT DRAWINGS
SHEET 14 OF 93
290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10
760
750
740
730
720
710
700
0.013
6:1
6:1
D.P. 746.086
2:1
2:1
2:1
EL=712.16
711.44
43+00.00
0.021
0.021
6:1
5.992:1
D.P. 747.614
WLB
WLB
2:1
2:1
2:1
SITE 3
EL=713.91
711.86
42+50.00
$$$$$$SYSTIME$$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$


8/23/99
PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-26
0 5 10
PERMIT DRAWINGS
SHEET 15 OF 93
0.020
6:1
6:1
D.P. 738.422
2:1
2:1
2:1
EL=702.67
704.67
45+50.00
0.017
6:1
6:1
D.P. 739.955
2:1
2:1
2:1
EL=703.82
706.15
45+00.00
0.009
6:1
6:1
D.P. 741.488
2:1
2:1
2:1
EL=706.91
WLB
WLB
SITE 3
706.25
44+50.00
-4-
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2525B	X-27

PERMIT DRAWINGS
SHEET 16 OF 93

SITE 3

WLB

0.020 6:1 6:1

D.P. 733.824

700.79

47+00.00

2:1 2:1

EL=699.22

D.P. 735.357

701.91

46+50.00

EL=700.37

D.P. 736.890

702.80

46+00.00

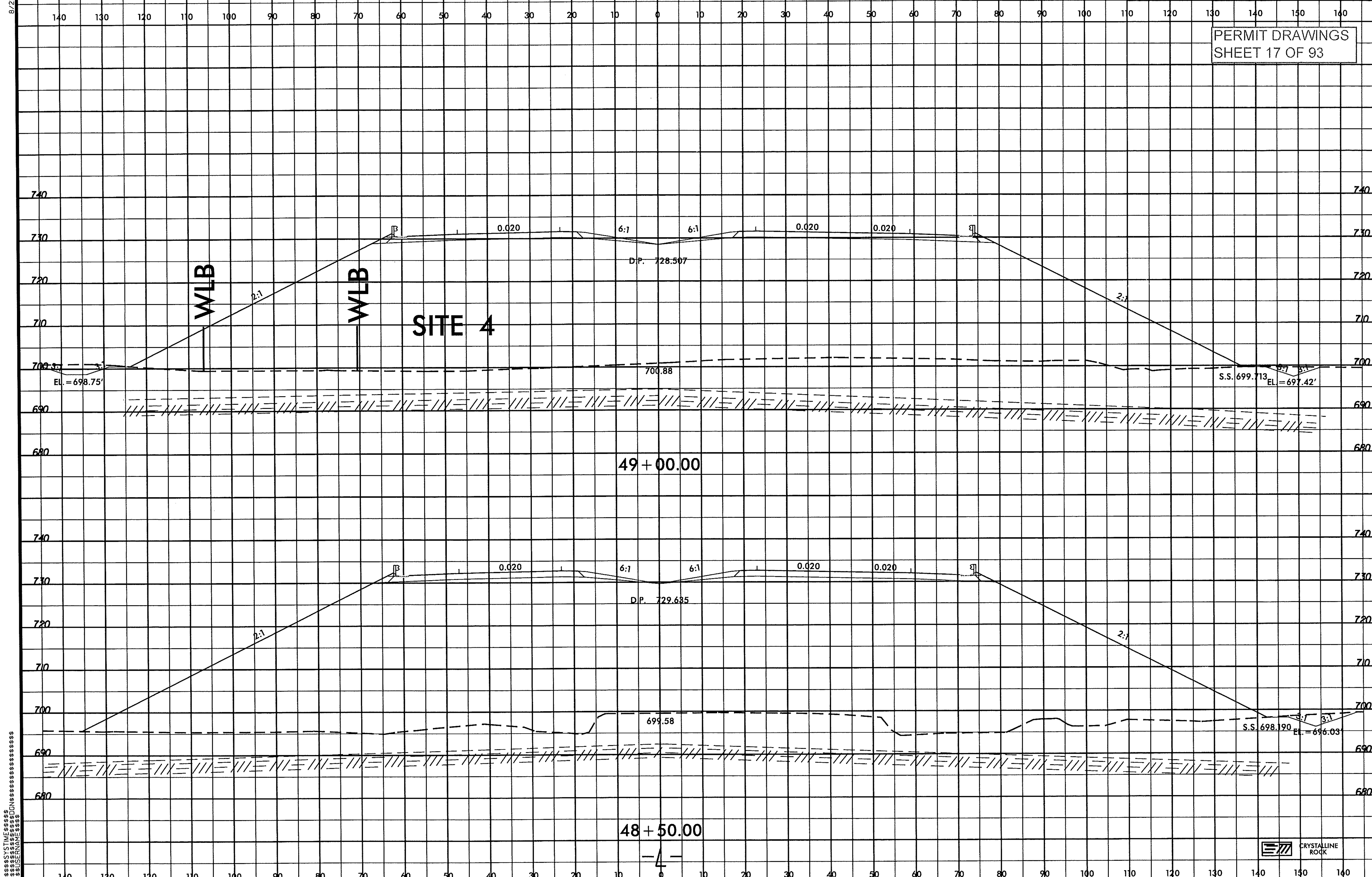
EL=701.52

$$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$USERNAME$$$$

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-42

PERMIT DRAWINGS
SHEET 17 OF 93



-4-

$$$$SYSTIME$$$$
$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

5/14/99

PERMIT DRAWINGS
SHEET 18 OF 93

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	6
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

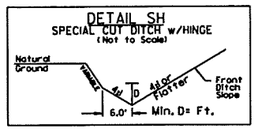
NAD 83

SITE 5

-L-	
PIs Sta 55+78.47	PI Sta 79+71.67
θs = 0° 59' 59.7"	Δ = 44° 11' 48.7" (LT)
Ls = 200.00'	D = 0° 59' 59.7"
LT = 133.34'	L = 4,420.01'
ST = 66.67'	T = 2,326.53'
	R = 5,730.00'
	SE = .04

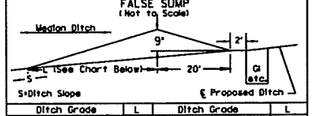
-Y4RPB-	
PIs Sta 11+26.24	PI Sta 15+64.37
θs = 1° 03' 28.8"	Δ = 28° 24' 32.1" (LT)
θs = 4° 17' 52.0"	D = 4° 05' 33.2"
Ls = 210.00'	L = 694.16'
LT = 126.24'	T = 354.37'
ST = 83.90'	R = 1,400.00'
	SE = .08

DETAIL SH
SPECIAL CUT DITCH w/HINGE
(Not to Scale)



FROM STA. 53+00 TO STA. 56+00 -L- (LT)

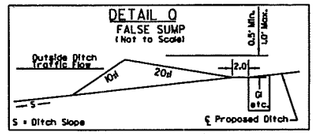
DETAIL P
FALSE SUMP
(Not to Scale)



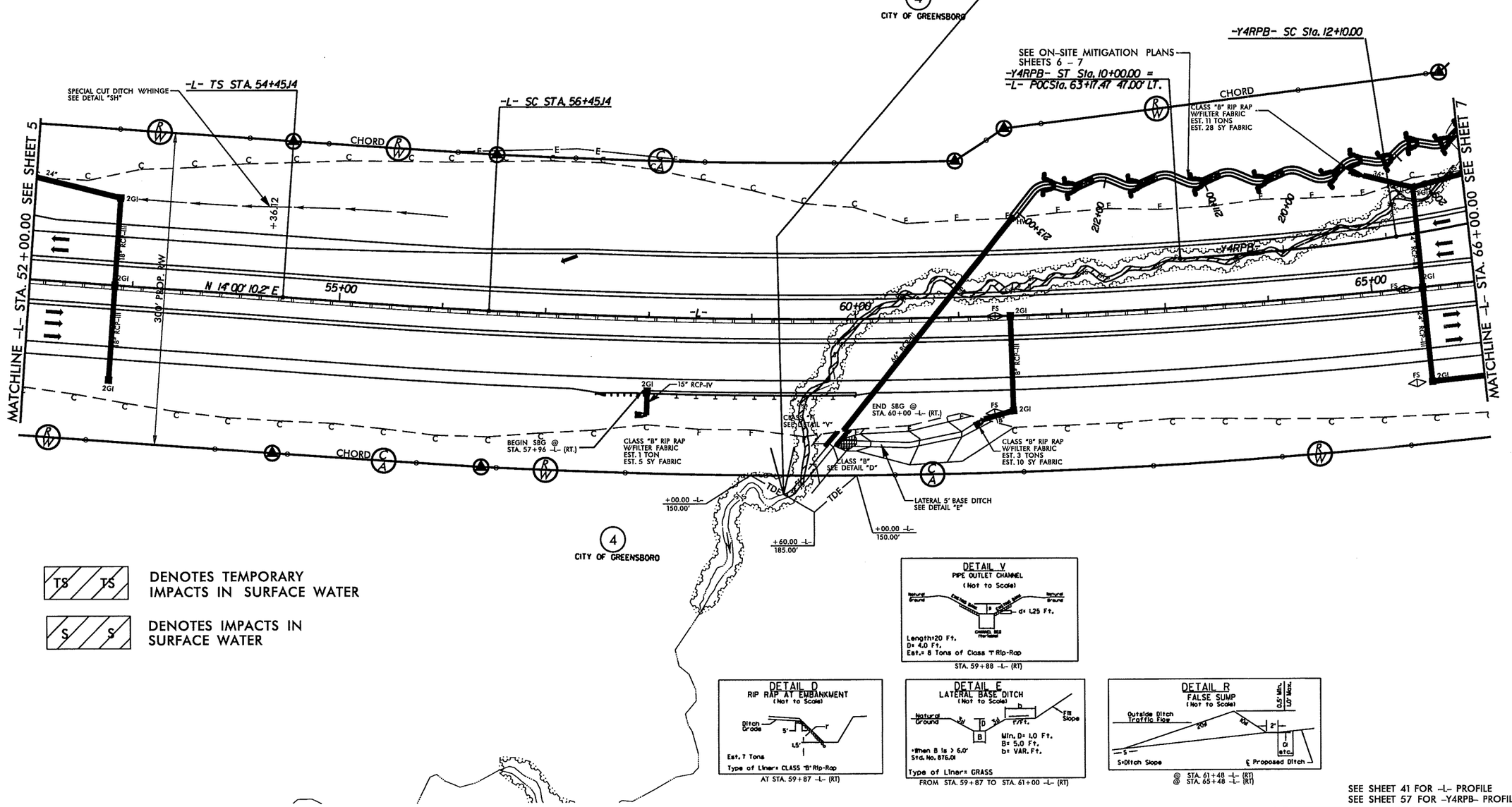
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 61+48 -L- (MED)
@ STA. 65+48 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)



@ STA. 65+48 -L- (LT)



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)

Length=20 Ft.
D= 4.0 Ft.
Est.= 8 Tons of Class "A" Rip-Rap

STA. 59+88 -L- (RT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

Est. 7 Tons
Type of Liner= CLASS "B" Rip-Rap

AT STA. 59+87 -L- (RT)

DETAIL E
LATERAL BASE DITCH
(Not to Scale)

*When B Is > 6.0' Std. No. 876.01
Min. D= 1.0 Ft.
B= 5.0 Ft.
D= VAR. Ft.

Type of Liner= GRASS

FROM STA. 59+87 TO STA. 61+00 -L- (RT)

DETAIL R
FALSE SUMP
(Not to Scale)

@ STA. 61+48 -L- (RT)
@ STA. 65+48 -L- (RT)

SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 57 FOR -Y4RPB- PROFILE

SYSTIME=$$$$$$ SYSDATE=$$$$$$ SYSTIME=$$$$$$ SYSDATE=$$$$$$ SYSTIME=$$$$$$ SYSDATE=$$$$$$

5/14/99

PERMIT DRAWINGS
SHEET 19 OF 93

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	6
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

SITE 5

-L-
Pls Sta 55+78.47
Θs = 0° 59' 59.7"
Ls = 200.00'
LT = 133.34'
ST = 66.67'
Pl Sta 79+71.67
Δ = 44° 11' 48.7" (LT)
D = 0° 59' 59.7"
L = 4,420.01'
T = 2,326.53'
R = 5,730.00'
SE = .04

-Y4RPB-
Pls Sta 11+26.24
Θs = 1° 03' 28.8"
Θs = 4° 11' 52.0"
Ls = 210.00'
LT = 126.24'
ST = 83.90'
Pl Sta 15+64.37
Δ = 28° 24' 32.1" (LT)
D = 4° 05' 33.2"
L = 694.16'
T = 354.37'
R = 1,400.00'
SE = .08

DETAIL SH
SPECIAL CUT DITCH W/HINGE
(Not to Scale)
Natural Ground
Hinge
4 to 1 Slope
Front Ditch Slope
6.0' Min. D = Ft.
FROM STA. 53+00 TO STA. 56+00 -L- (LT)

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch
9'
2'
5' (See Chart Below)
20'
Cl etc.
S = Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 61+48 -L- (MED)
@ STA. 65+48 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)
0.5' Min. 1.0' Max.
Outside Ditch Traffic Flow
10H
20H
2.0
Cl etc.
S = Ditch Slope
℄ Proposed Ditch
@ STA. 65+48 -L- (LT)

NAD 83

CITY OF GREENSBORO

SEE ON-SITE MITIGATION PLANS SHEETS 6 - 7

-Y4RPB- ST Sta. 10+00.00 =
-L- POCSta. 63+17.47 47.00 LT.

-Y4RPB- SC Sta. 12+10.00

CHORD

CLASS "B" RIP RAP W/FILTER FABRIC EST. 11 TONS EST. 28 SY FABRIC

SPECIAL CUT DITCH W/HINGE SEE DETAIL "SH"

-L- TS STA. 54+45.14

-L- SC STA. 56+45.14

±36.12

N 14° 00' 10" E

55+00

60+00

65+00

300' PROP. R/W

MATCHLINE -L- STA. 52+00.00 SEE SHEET 5

MATCHLINE -L- STA. 66+00.00 SEE SHEET 7

2GI

15" RCP-IY

BEGIN SBG @ STA. 57+96 -L- (RT)

CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC

END SBG @ STA. 60+00 -L- (RT)

CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC

CLASS "B" SEE DETAIL "D"

LATERAL 5' BASE DITCH SEE DETAIL "E"

+00.00 -L- 150.00'

+50.00 -L- 185.00'

TDE

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S DENOTES IMPACTS IN SURFACE WATER

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)
Natural Ground
Natural Ground
d= L25 Ft.
Length=20 Ft.
D=4.0 Ft.
Est.= 8 Tons of Class "B" Rip-Rap
STA. 59+88 -L- (RT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
Est.= 7 Tons
Type of Liner= CLASS "B" Rip-Rap
AT STA. 59+87 -L- (RT)

DETAIL E
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1.0 Ft.
B= 5.0 Ft.
BRIVAR Ft.
When B 18-3 6.0" Std. No. 876.01
Type of Liner= GRASS
FROM STA. 59+87 TO STA. 61+00 -L- (RT)

DETAIL R
FALSE SUMP
(Not to Scale)
0.5' Min. 1.0' Max.
Outside Ditch Traffic Flow
2.0
Cl etc.
S=Ditch Slope
℄ Proposed Ditch
@ STA. 61+48 -L- (RT)
@ STA. 65+48 -L- (RT)

SEE SHEET 4T FOR -L- PROFILE
SEE SHEET 57 FOR -Y4RPB- PROFILE

PERMIT DRAWINGS
SHEET 20 OF 93

SITE 5

SITE 5A

SITE 5B

SITE 6

SITE 6A

SITE 7

SITE 8

SITE 8A

DETAIL H
STANDARD 2' BASE DITCH
(Not to Scale)

Natural Ground — 3:1 — D — 3:1 — Natural Ground

Min. D= 2.5 Ft.
B= 2.0 Ft.

FROM STA. 74+28 TO STA. 79+12 -L- (LT)

DETAIL I
STANDARD "I" DITCH
(Not to Scale)

Natural Ground — 3:1 — D — 3:1 — Natural Ground

Min. D= 0.5 Ft.

FROM STA. 12+77 TO STA. 14+16 -Y4RPD- (LT)
FROM STA. 13+36 TO STA. 14+45 -Y4RPA- (RT)
FROM STA. 25+72 TO STA. 27+00 -Y4- (LT)

DETAIL Q
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow — 10d — 20d — 2.0' — 0.5' Min. — 1.0' Min. — GI etc.

S = Ditch Slope — ℄ Proposed Ditch

@ STA. 14+98 -Y4RPB- (LT)
@ STA. 72+48 -L- (LT)

DETAIL R
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow — 10d — 4d — 2' — 0.5' Min. — 1.0' Min. — GI etc.

S=Ditch Slope — ℄ Proposed Ditch

@ STA. 15+48 -Y4RPA- (RT)
@ STA. 18+98 -Y4RPC- (LT)
@ STA. 74+98 -L- (RT)
@ STA. 14+98 -Y4RPC- (RT)

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch — 9' — 2' — L (See Chart Below) — 20' — GI etc.

S=Ditch Slope — ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 72+48 -L- (MED)
@ STA. 81+98 -L- (MED)
@ STA. 92+02 -L- (MED)

DETAIL VV
PIPE OUTLET CHANNEL
(Not to Scale)

Existing Ditch — Proposed Ditch — d= L0 Ft. — Channel Bed

Length= 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap

STA. 21+00 -Y4RPB- (LT)

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

MATCHLINE -L- STA. 66+00.00 SEE SHEET 24

MATCHLINE -L- STA. 31+50.00 SEE SHEET 25

SEE ON-SITE MITIGATION PLANS SHEETS 6 - 7

SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 55 & 56 FOR -Y4- PROFILE
SEE SHEET 56 & 57 FOR -Y4A- PROFILE
SEE SHEET 58 & 59 FOR -Y4RPC- PROFILE
SEE SHEET 59 & 60 FOR -Y4RPD- PROFILE
SEE SHEET 60 FOR -Y5- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO. 11.2(20)EB
SHEET NO. 7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:

PERMIT DRAWINGS
SHEET 21 OF 93

REVISIONS

PROJECT REFERENCE NO. 17-2501R
SHEET NO. 21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 5
SITE 5A
SITE 5B
SITE 6
SITE 6A
SITE 7
SITE 8
SITE 8A

DETAIL O
FALSE SUMP
(Not to Scale)

DETAIL H
STANDARD "Z" BASE DITCH
(Not to Scale)

DETAIL Y
STANDARD "V" DITCH
(Not to Scale)

DETAIL R
FALSE SUMP
(Not to Scale)

DETAIL P
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over -6.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL VV
PIPE OUTLET CHANNEL
(Not to Scale)

Length= 10-Ft.
D=4.0 Ft.
Est.t.4 Tons of Class "B" Rip-Rap

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

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION
F.P. NO.
COUNTY
DESIGNED BY
CHECKED BY
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 22 OF 93

R = 5,730.00'
SE = .04

R = 3,800.00'
SE = .02

R = 1,400.00'
SE = .08

R = 800.00'
SE = .06

-Y4RPB-

PIs Sta 11+26.24
Θs = 1°03' 28.8"
Θs = 4°17' 52.0"
Ls = 210.00'
LT = 126.24'
ST = 83.90'

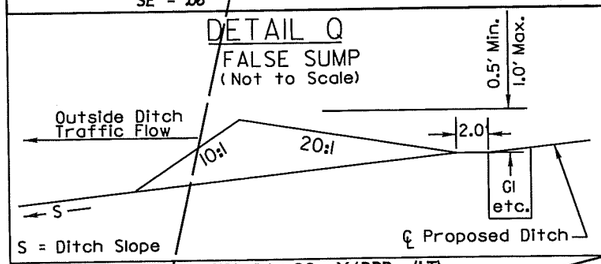
PI Sta 15+64.37
Δ = 28°24' 32.2" (LT)
D = 4°05' 33.2"
L = 694.16'
T = 354.37'
R = 1,400.00'
SE = .08

PIs Sta 19+74.20
Θs = 4°17' 49.9"
Ls = 210.00'
LT = 140.04'
ST = 70.04'

PIs Sta 22+47.60
Θs = 1°09' 43.1"
Ls = 200.00'
LT = 133.44'
ST = 66.77'

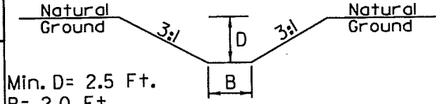
PI Sta 23+88.67
Δ = 10°38' 32.8" (RT)
D = 7°09' 43.1"
L = 148.60'
T = 74.51'
R = 800.00'
SE = .06

DETAIL Q
FALSE SUMP
(Not to Scale)



@ STA. 14+98 -Y4RPB- (LT)
@ STA. 72+48 -L- (LT)

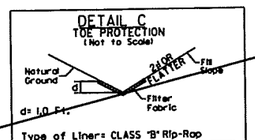
DETAIL H
STANDARD 2' BASE DITCH
(Not to Scale)



Min. D= 2.5 Ft.
B= 2.0 Ft.

FROM STA. 74+28 TO STA. 79+12 -L- (LT)

DETAIL C
TOE PROTECTION
(Not to Scale)



Type of Liner: CLASS 'B' Rip-Rap
FROM STA. 21+08 TO STA. 24+33 -L- (RT)
EST. 97 TONS
42 SQYDS FILTER FAB.

Loyd A. Whitener

-Y4RPB- SC Sta. 23+14.16

-Y4RPB- SRS Sta. 21+14.16

-Y4RPB- CS Sta. 19+04.16

-Y4RPC- ST Sta. 10+00.00 =
-Y4RPC- POC Sta. 66+96.59 47.00' RT.

-Y4RPC- SC Sta. 12+00.00

-Y4- POC Sta. 20+04.80 =
-Y4RPB- POT Sta. 26+52.76

-Y4- POC Sta. 20+04.60
-Y4RPA- POT Sta. 27+2

SEE ON-SITE MITIGATION PLANS SHEETS 6 - 7

CITY OF GREENSBORO

SITE 5

SITE 5A

SITE 5B

SITE 6

SITE 6A

SITE 7

CLASS "B" RIP RAP SEE DETAIL "W"

TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "GE"

PSH SEE DETAIL SHEET 2-L

ROD AND LUG W/ELBOWS

END SBG @ STA. 20+15 -Y4RPB- (LT)

STANDARD 2' BASE DITCH SEE DETAIL "H"

ROCK PIPE INLET SEDIMENT TRAP TYPE 'A' PERMANENT INSTALLATIONS

STEPHEN J. ANDERSON & MARTHA ANDERSON

SEE DETAIL SHEET 2-L

BEGIN SBG @ STA. 16+75 -Y4- (RT.)

BEGIN SBG @ STA. 23+05 -Y4- (RT.)

END SBG BEG. APP. SLAB

CLASS "B" RIP RAP W/FILTER FABRIC EST. 15 TONS EST. 37 SY FABRIC

REMOVE

@ EXIST. R/W 90.00'

EXIST. R/W

FLAGPOLE

N 13°58' 38.5" W

S 10°42' 15.6" E

N 65°08' 07" E

-Y4- 25+00

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

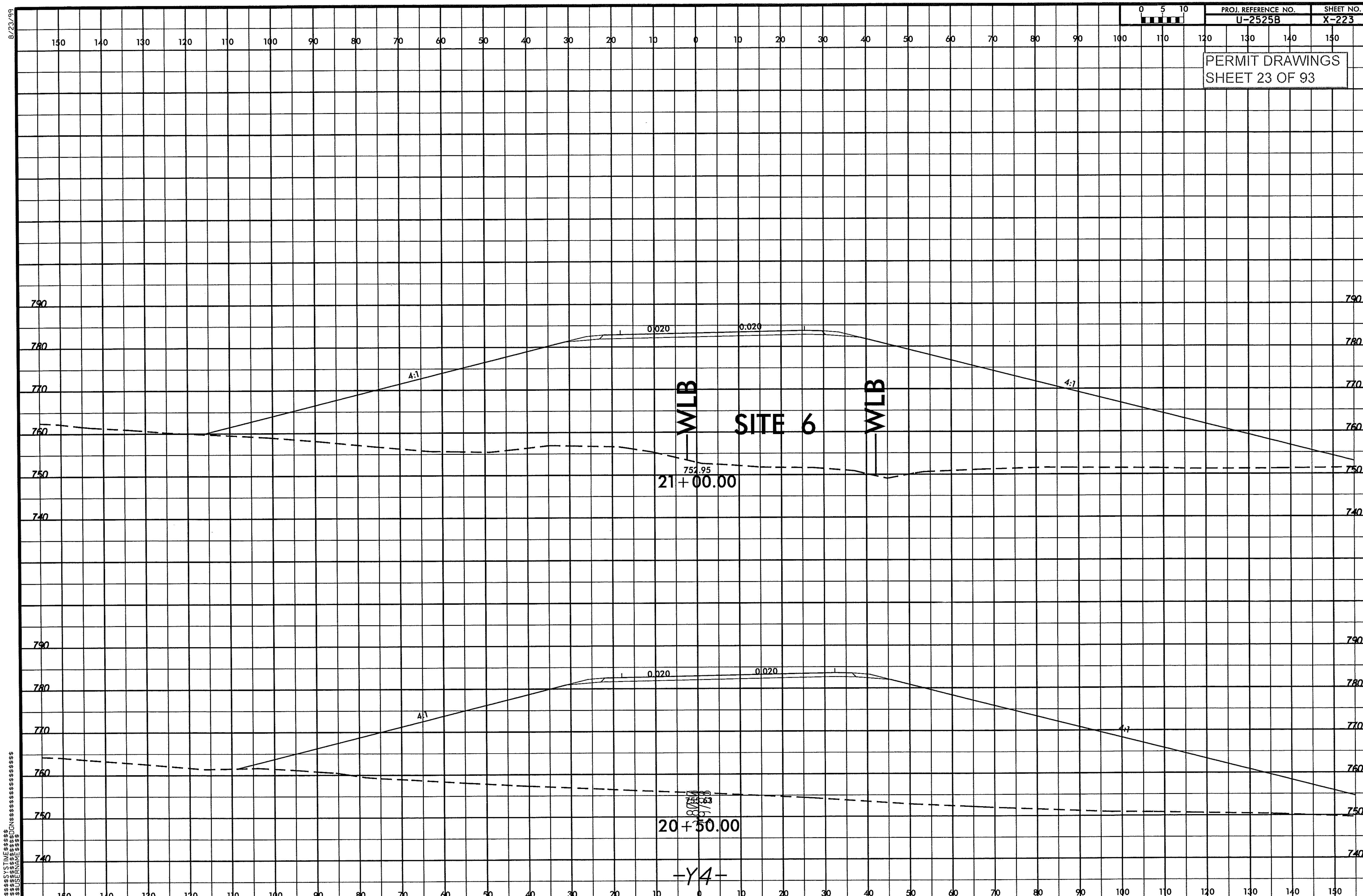
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

GRAPHIC SCALE

PROJ. REFERENCE NO. U-2525B | SHEET NO. X-223

PERMIT DRAWINGS
SHEET 23 OF 93



8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2525B	X-224

PERMIT DRAWINGS
SHEET 24 OF 93

WLB

SITE 6

WLB

22+50.00

WLB

SITE 6

WLB

22+00.00

WLB

SITE 6

WLB

21+50.00

-Y4-

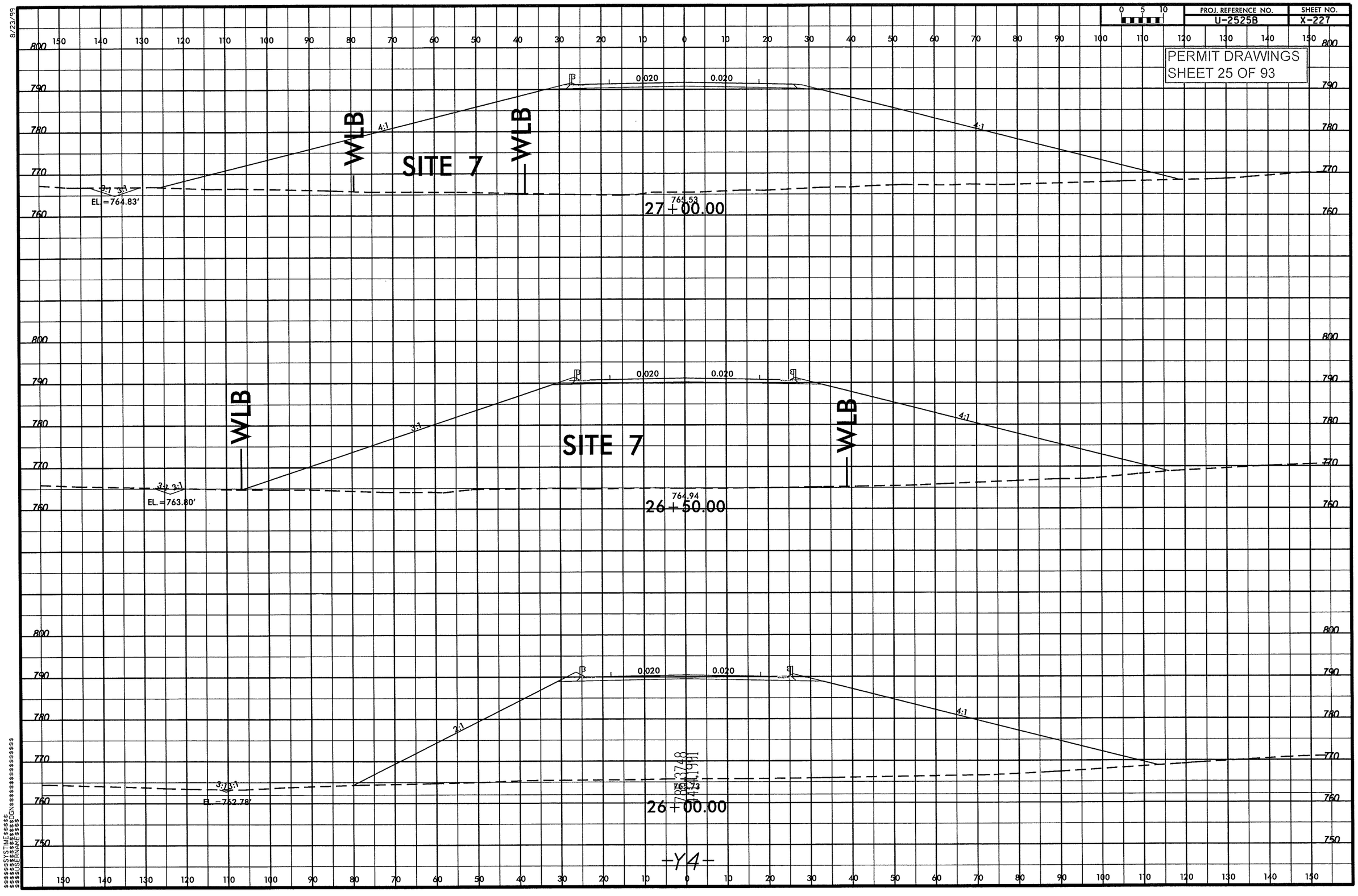
$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$DGN$$$$$$$$
$$$$USERNAME$$$$

8/23/99

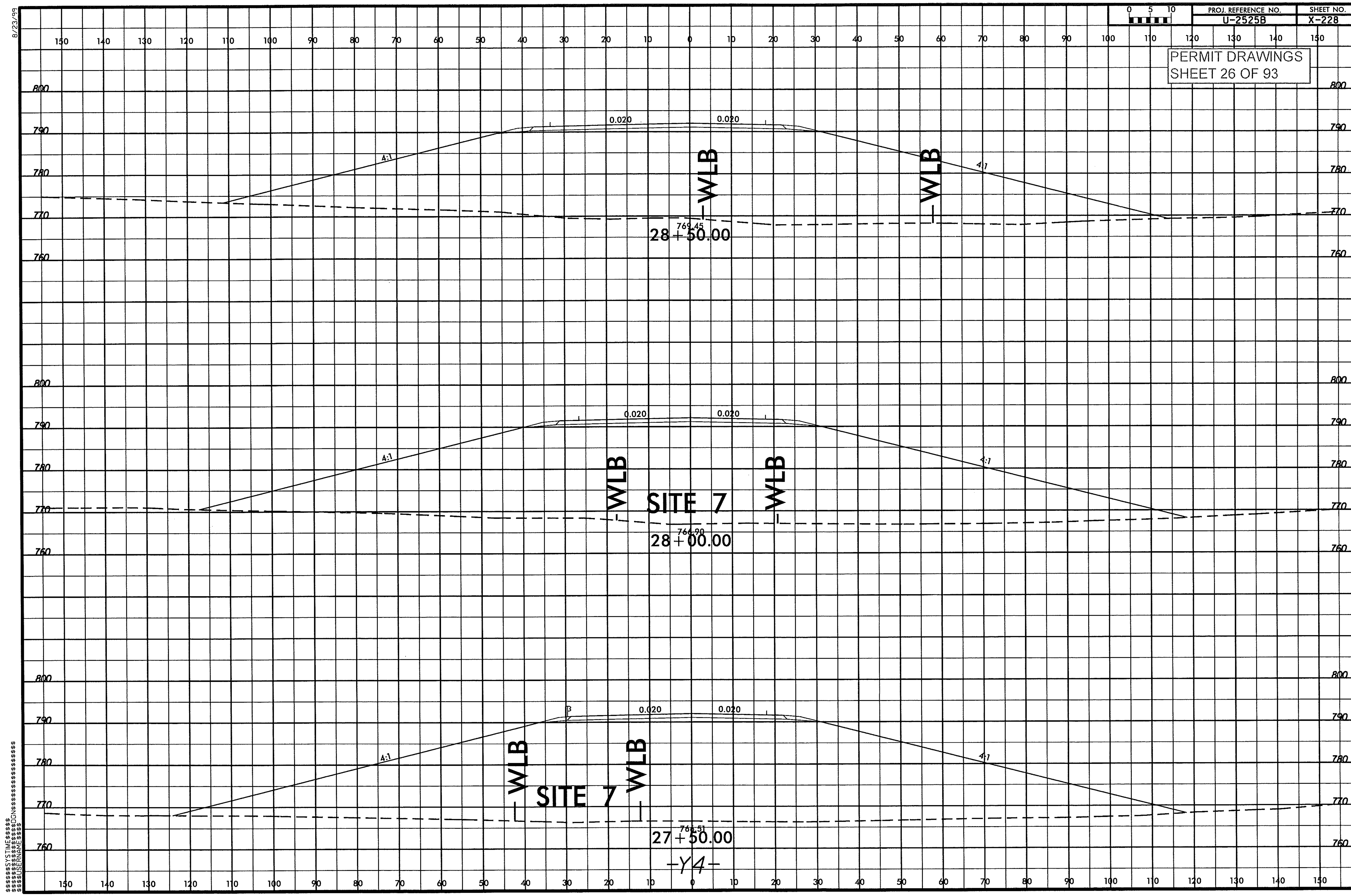
PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-227

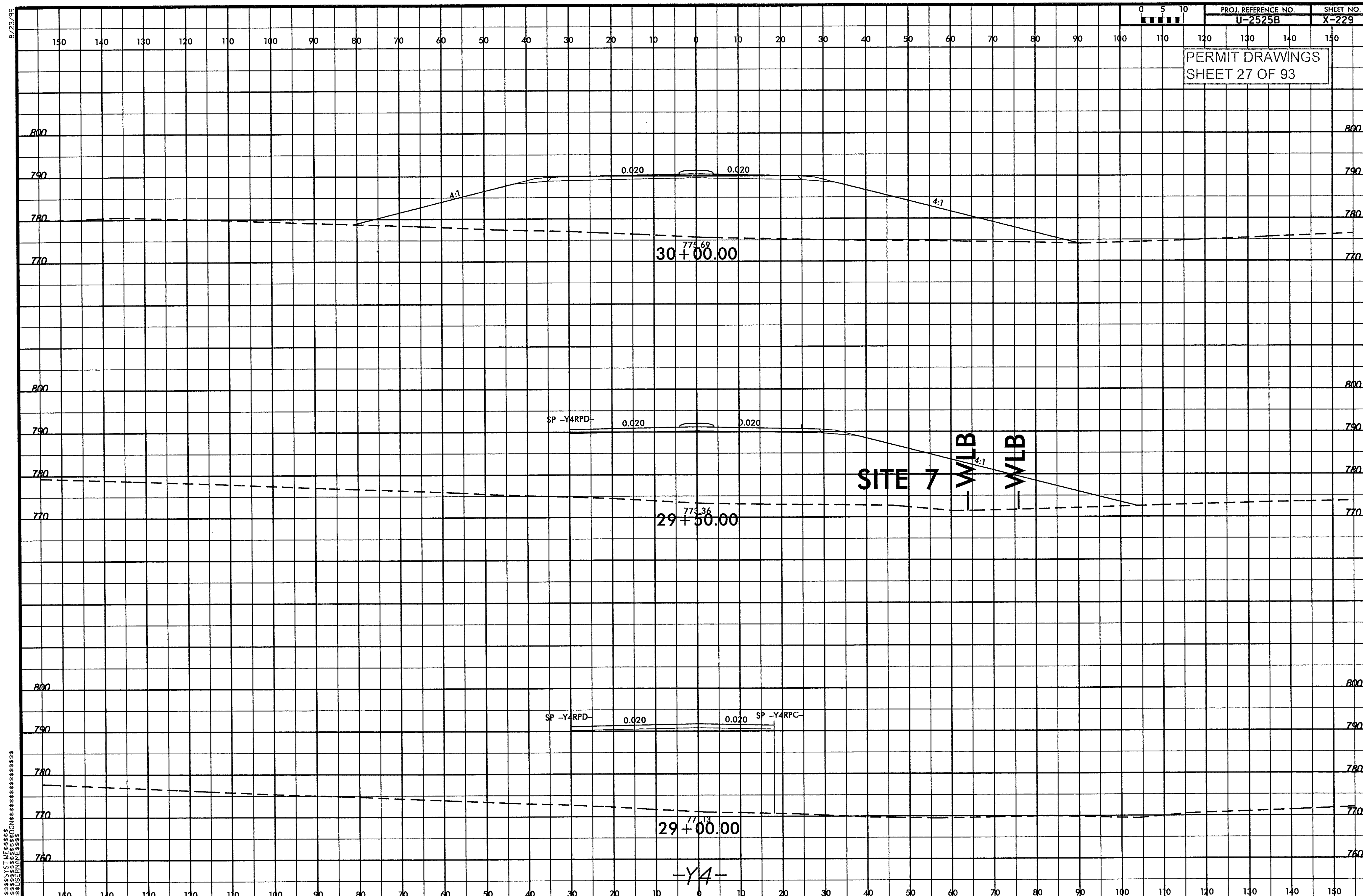
0 5 10

PERMIT DRAWINGS
SHEET 25 OF 93



$$$$$$$SYSTIME$$$$$$$
$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$$


8/23/99
PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-228
PERMIT DRAWINGS
SHEET 26 OF 93
0.020
0.020
4:1
4:1
WLB
WLB
769.45
28+50.00
SITE 7
766.90
28+00.00
SITE 7
766.51
27+50.00
-Y4-


8/23/99
0 5 10
PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-229
PERMIT DRAWINGS
SHEET 27 OF 93
0.020
0.020
4:1
4:1
775.69
30+00.00
SP -Y4RPD-
0.020
0.020
4:1
SITE 7
WLB
WLB
773.36
29+50.00
SP -Y4RPD-
0.020
0.020
SP -Y4RPC-
771.13
29+00.00
-Y4-
$$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

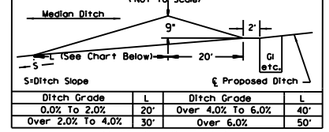
Revised 10/15/13

SITE 8
SITE 9
SITE 9A

-L-	
PI Sta 79+71.67	PIs Sta 101+31.82
Δ = 44° 11' 48.7" (LT)	Θs = 0° 59' 59.7"
D = 0° 59' 59.7"	Ls = 200.00'
L = 4,420.01'	LT = 133.34'
T = 2,326.53'	ST = 66.67'
R = 5,730.00'	
SE = .04	

-Y4RPA-	
PIs Sta 11+26.24	PI Sta 15+72.22
Θs = 1° 03' 28.8"	Δ = 29° 00' 41.5" (RT)
Θs = 4° 17' 52.0"	D = 4° 05' 33.2"
Ls = 210.00'	L = 708.89'
LT = 126.24'	T = 362.22'
ST = 83.90'	R = 1,400.00'
	SE = .08

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 95+52 -L- (MED)
@ STA. 99+02 -L- (MED)
@ STA. 102+02 -L- (MED)

NAD 83/95

18 ALBERT L. RHEW LIVING TRUST

25 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

26 NC PRISON DEPT.

Charles C. Drye Sr.

-Y4RPA- SC Sta. 12+10.00

-Y4RPA- CS Sta. 10+00.00 =
-L- POC Sta. 96+88.35 47.00' LT.

-L- CS STA. 100+65.15

-L- ST STA. 102+65.15

-Y4RPD- CS Sta. 10+00.00 =
-L- POC Sta. 95+78.58 47.00' RT.

-Y4RPD-	
PIs Sta 11+33.35	PI Sta 14+41.55
Θs = 3° 10' 59.2"	Δ = 15° 17' 09.4" (LT)
Ls = 200.00'	D = 3° 10' 59.2"
LT = 133.35'	L = 480.22'
ST = 66.69'	T = 241.55'
	R = 1,800.00'
	SE = .07

CLASS "B" RIP RAP W/FILTER FABRIC
EST. 15 TONS
EST. 37 SY FABRIC

60' DUKE POWER EASEMENT

30' PROP. R/W

MATCHLINE -L- STA. 94+00.00 SEE SHEET 7

MATCHLINE -L- STA. 107+00.00 SEE SHEET 9

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 56 FOR -Y4RPA- PROFILE
SEE SHEET 59 FOR -Y4RPD- PROFILE

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

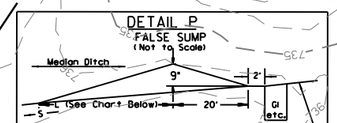
Revised
10/15/13

SITE 8
SITE 9
SITE 9A

NAD 83/95

-L-		-Y4RPA-	
PI Sta 79+71.67	PIs Sta 101+31.82	PIs Sta 11+26.24	PI Sta 15+72.22
Δ = 44° 11' 48.7" (LT)	Θs = 0° 59' 59.7"	Θs = 1° 03' 28.8"	Δ = 29° 00' 41.5" (RT)
D = 0° 59' 59.7"	Ls = 200.00'	Θs = 4° 17' 52.0"	D = 4° 05' 33.2"
L = 4,420.01'	LT = 133.34'	Ls = 210.00'	L = 708.89'
T = 2,326.53'	ST = 66.67'	LT = 126.24'	T = 362.22'
R = 5,730.00'		ST = 83.90'	R = 1,400.00'
SE = .04			SE = .08

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 95+52 -L- (MED)
@ STA. 99+02 -L- (MED)
@ STA. 102+02 -L- (MED)

18 ALBERT L. RHEW LIVING TRUST

25 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

26 NC PRISON DEPT.

Charles C. Drye Sr.

-Y4RPA- SC Sta. 12+10.00

-Y4RPA- CS Sta. 10+00.00 =
-L- POC Sta. 96+88.35 47.00' LT.

-L- CS STA. 100+65.15

-L- ST STA. 102+65.15

-Y4RPD- CS Sta. 10+00.00 =
-L- POC Sta. 95+78.58 47.00' RT.

-Y4RPD-	
PIs Sta 11+33.35	PI Sta 14+41.55
Θs = 3° 10' 59.2"	Δ = 15° 17' 09.4" (LT)
Ls = 200.00'	D = 3° 10' 59.2"
LT = 133.35'	L = 480.22'
ST = 66.69'	T = 241.55'
	R = 1,800.00'
	SE = .07

CLASS "B" RIP RAP W/FILTER FABRIC
EST. 15 TONS
EST. 37 SY FABRIC

MATCHLINE -L- STA. 94+00.00 SEE SHEET 7

MATCHLINE -L- STA. 107+00.00 SEE SHEET 9

F F	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

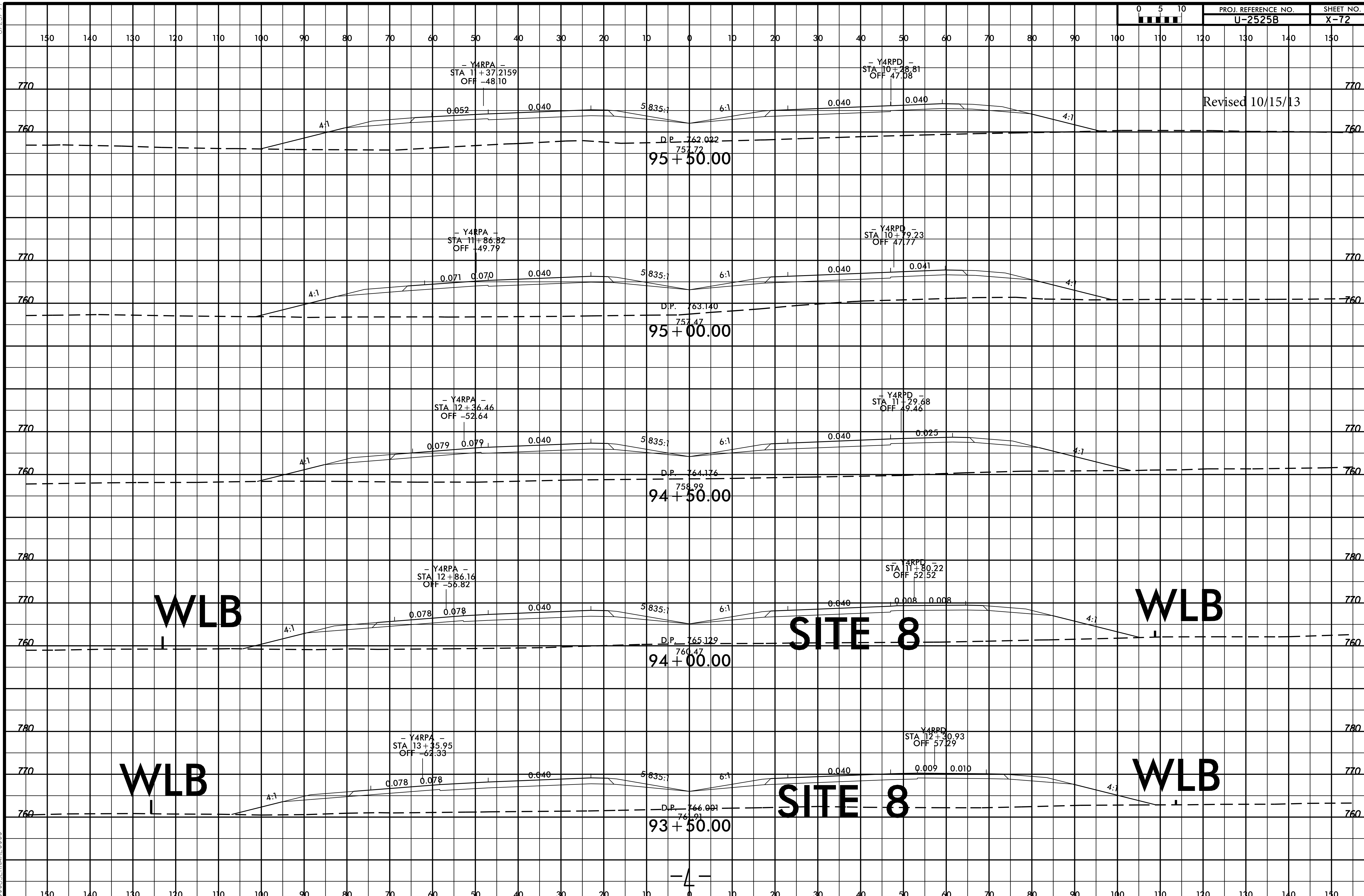
100' 0' 100'
GRAPHIC SCALE

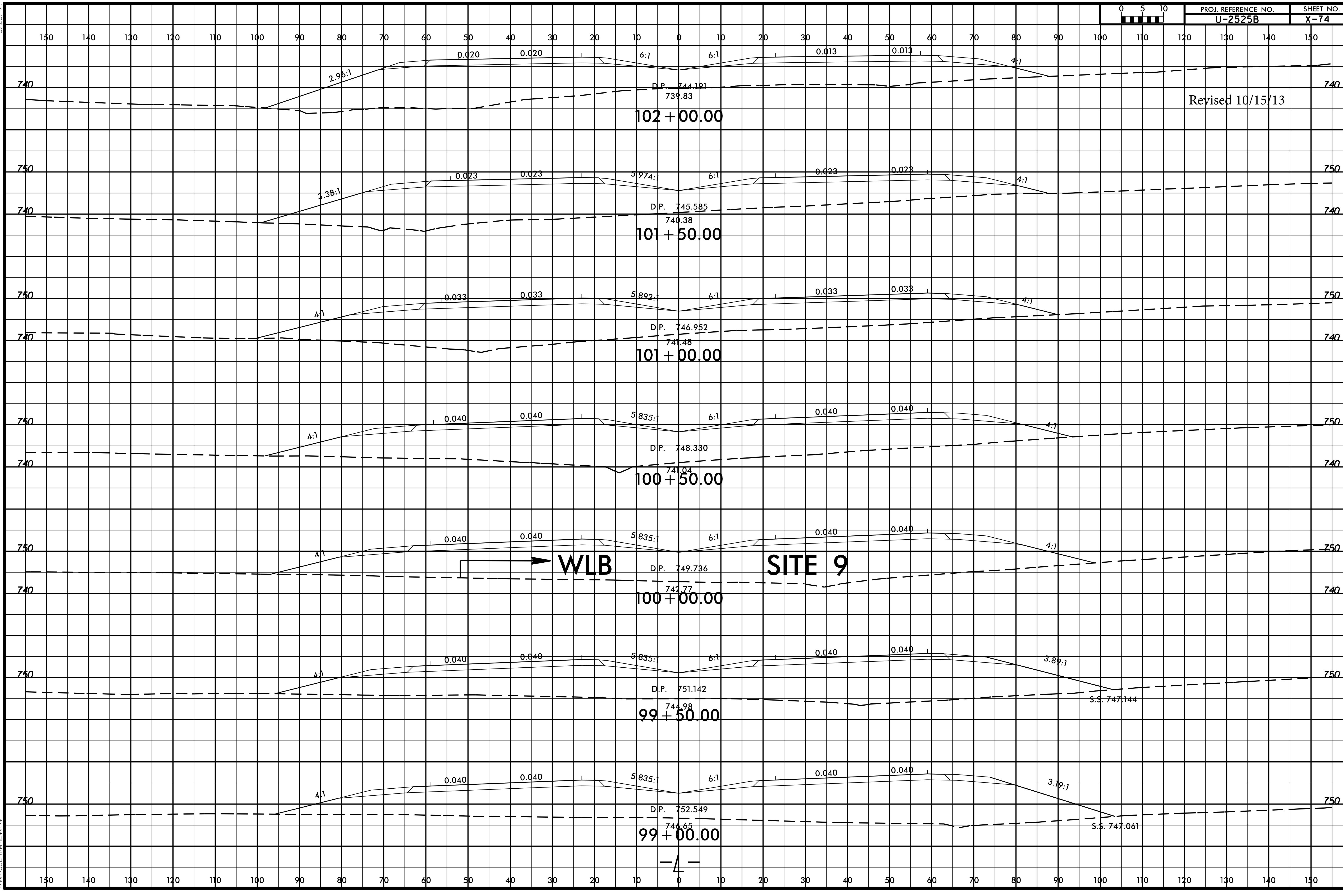
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 56 FOR -Y4RPA- PROFILE
SEE SHEET 59 FOR -Y4RPD- PROFILE

PROJ. REFERENCE NO. U-2525B

SHEET NO. X-72

Revised 10/15/13





8/23/99

$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 32 OF 93

Revised 9/24/13

REVISIONS

6-24-13 R/W REVISION (DNG) - ADDED PUE AT -L- STA.116+57.00 RT.ON PARCEL 27 (CITY OF GREENSBORO).

5/14/99

SITE 10B

SITE 10C

SITE 10

SITE 10A

NAD 83/95

MATCHLINE -L- STA. 107+00.00 SEE SHEET 8

MATCHLINE -L- STA. 119+00.00 SEE SHEET 10

300' PROP. R/W

110+00

115+00

N 32° 11' 38.0" W

N 03°36'16"E 210.45'

NC PRISON DEPT.

26

27

City Of Greensboro

EXCAVATION

CLASS "B" SEE DETAIL "D"

CLASS "I" RIPRAP

CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 4 TONS EST. 12 SY FABRIC

LATERAL 5' BASE DITCH SEE DETAIL "EE"

LATERAL 5' BASE DITCH SEE DETAIL E

CROSS VANE LATERAL 'V' DITCH SEE DETAIL BC

BEGIN SBG @ STA. 113+50 -L- (LT.)

END SBG @ STA. 116+27 -L- (LT.)

BEGIN SBG @ STA. 114+00 -L- (RT.)

END SBG @ STA. 114+87 -L- (RT.)

ROD AND LUG W/ELBOWS

TDE

PUE

+60.00 -L- 170.00' 150.00'

+10.00 -L- 170.00' 150.00'

+69.00 -L- 150.00'

+58.00 -L- 170.00'

+82.00 -L- 170.00'

+93.00 -L- 150.00'

+95.00 -L- 150.00' 170.00'

+51.00 -L- 170.00'

+39.00 -L- 150.00'

+63.00 -L- 150.00'

+74.00 -L- 170.00'

+25.00 -L- 150.00' 170.00'

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade, 5', 1', 1.5', Est. ? Tons

Type of Liner= CLASS "B" Rip-Rap

AT STA. 113+70 -L- (LT) Est. 11 Tons
AT STA. 113+95 -L- (LT) Est. 11 Tons

DETAIL E
LATERAL 5' BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, b, F/Ft., Fill Slope, B

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

*When B is > 6.0'
Std. No. 876.01

Type of Liner= GRASS

FROM STA. 113+95 TO STA. 115+50 -L- (LT)

DETAIL R
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow, 10:1, 20:1, 2', 0.5' Min., 1.0' Max., GI etc., S=Ditch Slope, ℄ Proposed Ditch

@ STA. 112+02 -L- (LT)
@ STA. 107+02 -L- (LT)

DETAIL BC
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 2:1, D, 2:1, b, 0.02 Ft./Ft., Fill Slope

Min. D= 1.5 Ft.
b= 5.0 Ft.

FROM STA. 115+39 TO STA. 116+50 -L- (RT)

DETAIL EE
LATERAL 5' BASE DITCH
(Not to Scale)

Natural Ground, d1, 3:1, D, 3:1, b, .02'/Ft., Fill Slope, Filter Fabric, B

Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
B= 5.0 Ft.
b= VAR. Ft.

*When B is > 6.0'
Std. No. 876.01

Type of Liner= CLASS "B" Rip-Rap

FROM STA. 112+50 TO STA. 113+65 -L- (LT)
FROM STA. 115+50 TO STA. 116+23 -L- (LT)

Est. 96 Tons
159 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch, 9', 2', L (See Chart Below), 20', GI etc., S=Ditch Slope, ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 107+02 -L- (MED)
@ STA. 112+02 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow, 10:1, 20:1, 2.0', 0.5' Min., 1.0' Max., GI etc., S = Ditch Slope, ℄ Proposed Ditch

@ STA. 113+52 -L- (RT)
@ STA. 107+02 -L- (RT)

F F — DENOTES FILL IN WETLAND

27 — DENOTES MECHANIZED CLEARING

S S — DENOTES IMPACTS IN SURFACE WATER

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 43 FOR -L- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 33 OF 93

Revised 9/24/13

REVISIONS

6-24-13 R/W REVISION (ONGI.) - ADDED PUE AT -L- STA.114+57.00 RT. ON PARCEL 27 (CITY OF GREENSBORO).

5/14/99

SITE 10B

SITE 10C

SITE 10

SITE 10A

MATCHLINE -L- STA. 107 + 00.00 SEE SHEET 8

MATCHLINE -L- STA. 119 + 00.00 SEE SHEET 10

NAD 83/95

City Of Greensboro

NC PRISON DEPT.

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade
5'
1'
1.5'
Est. ? Tons
Type of Liner: CLASS "B" Rip-Rap

AT STA. 113+70 -L- (LT) Est. 11 Tons
AT STA. 113+95 -L- (LT) Est. 11 Tons

DETAIL E
LATERAL 5' BASE DITCH
(Not to Scale)

Natural Ground
3:1
D
1:1
B
b
F/Ft.
Fill Slope
Min. D= 1.0 Ft.
B= 5.0 Ft.
b= 5.0 Ft.
When B is > 6.0'
Std. No. 876.01
Type of Liner: GRASS

FROM STA. 113+95 TO STA. 115+50 -L- (LT)

DETAIL R
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow
0.5' Min.
1.0' Max.
10H
20H
2'
D etc.
S
S=Ditch Slope
℄ Proposed Ditch

@ STA. 112+02 -L- (LT)
@ STA. 107+02 -L- (LT)

DETAIL BC
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground
2d
D
2d
b
0.02' Ft./Ft.
Fill Slope
Min. D= 1.5 Ft.
b= 5.0 Ft.

FROM STA. 115+39 TO STA. 116+50 -L- (RT)

DETAIL EE
LATERAL 5' BASE DITCH
(Not to Scale)

Natural Ground
d
D
2d
B
b
.02'/Ft.
Fill Slope
Filter Fabric
*When B is ≥ 6.0'
Std. No. 876.01
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
B= 5.0 Ft.
b= VAR. Ft.
Type of Liner: CLASS "B" Rip-Rap

FROM STA. 112+50 TO STA. 113+65 -L- (LT)
FROM STA. 115+50 TO STA. 116+23 -L- (LT)
Est. 96 Tons
159 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch
9'
2'
20'
-L- (See Chart Below)
S
S=Ditch Slope
D etc.
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 107+02 -L- (MED)
@ STA. 112+02 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow
0.5' Min.
1.0' Max.
10H
20H
2.0'
D etc.
S
S=Ditch Slope
℄ Proposed Ditch

@ STA. 113+52 -L- (RT)
@ STA. 107+02 -L- (RT)

CLASS "B" SEE DETAIL "D"
EXCAVATION
LATERAL 5' BASE DITCH SEE DETAIL EE
CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC
CLASS "I" RIPRAP
BEGIN SBG @ STA. 113+50 -L- (LT)
BEGIN SBG @ STA. 114+00 -L- (RT)
END SBG @ STA. 116+27 -L- (LT)
END SBG @ STA. 116+27 -L- (RT)
ROD AND LUG W/ELBOWS
CROSS VANE LATERAL 'V' DITCH SEE DETAIL BC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 4 TONS EST. 12 SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC
LATERAL 5' BASE DITCH SEE DETAIL E
PUE
+60.00 -L- 170.00' 150.00'
+10.00 -L- 170.00' 150.00'
+69.00 -L- 150.00
+58.00 -L- 170.00'
+82.00 -L- 170.00'
+93.00 -L- 150.00
+95.00 -L- 150.00' 170.00'
+25.00 -L- 150.00' 170.00'
+51.00 -L- 170.00'
+39.00 -L- 150.00'
+63.00 -L- 150.00'
+74.00 -L- 170.00'
N 32° 11' 38.0" W
N 03°15'16"E 210.89'
110+00
115+00
18" RCP
24" RCP
2GI
FS
RW
TS
F
E
S
C
W
A

F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S DENOTES IMPACTS IN SURFACE WATER

E DENOTES EXCAVATION IN WETLAND

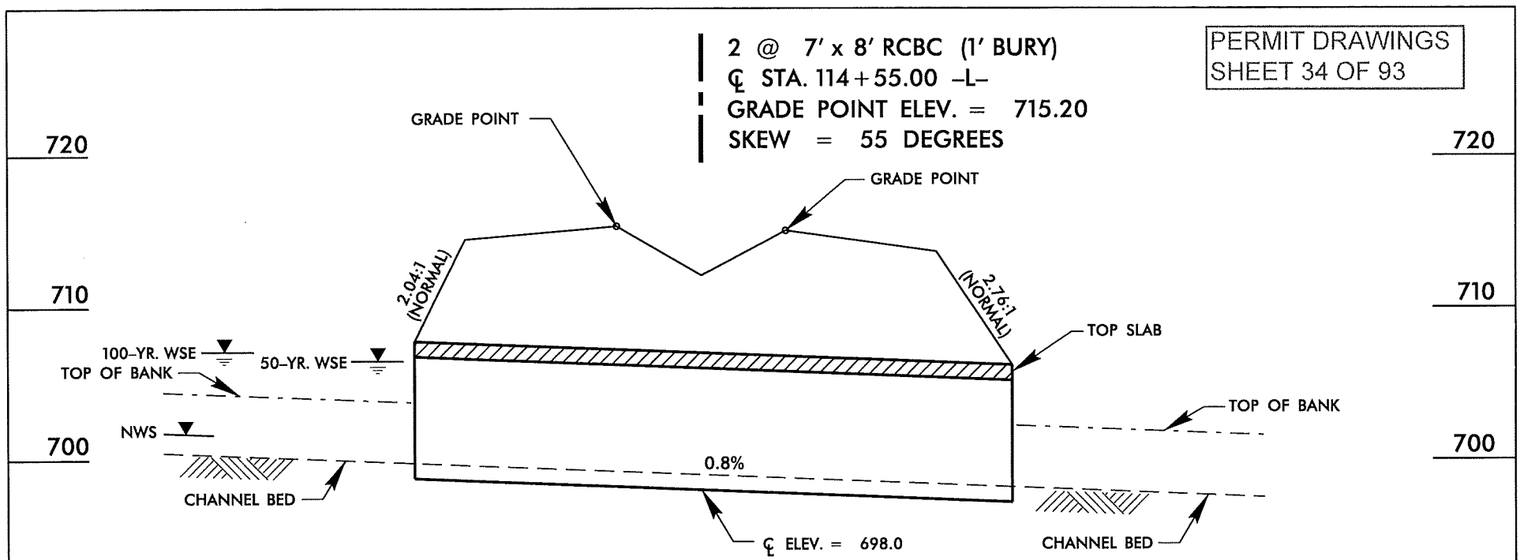
TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 43 FOR -L- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

PERMIT DRAWINGS
SHEET 34 OF 93

2 @ 7′ x 8′ RCBC (1′ BURY)
℄ STA. 114+55.00 –L–
GRADE POINT ELEV. = 715.20
SKEW = 55 DEGREES



PROFILE

NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34821.1.1 (U-2525B)
GREENSBORO EASTERN LOOP
FROM NORTH OF US 70
RELOCATION TO US 29 NORTH
OF GREENSBORO

SHEET OF 03/08/13

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-83

0 5 10

PERMIT DRAWINGS
SHEET 35 OF 93

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

S.S. 722.59

720

710

2:1

6:1

0.020

718.06

6:1

6:1

0.020

6:1

2:1

S.S. 714.83

720

710

117 + 50.00

710

2:1

6:1

0.020

713.84

6:1

6:1

0.020

6:1

6:1

S.S. 709.76

710

117 + 00.00

750

740

730

720

710

700

690

680

WLB

SITE 10

WLB

S.S. 713.00

2.12:1

6:1

0.020

707.35

6:1

6:1

0.020

5.95:1

2.16:1

S.S. 705.36

BL. = 703.70

116 + 50.00

750

740

730

720

710

700

690

680

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

$$$$$$$$SYSTIME$$$$$
$$$$$$$$USERNAME$$$$$
$$$$$$$$DGN$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 36 OF 93

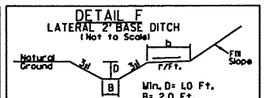
REVISIONS 5/14/99

03-19-13 R/W REVISION (DWG) - PARCEL 29 (JAMES L.GOODWIN) WAS SUBDIVIDED,ADDING PARCEL 29A (NCDOT FORMERLY BETTY JEAN GOODWIN),PARCEL 29B (NCDOT),AND PARCEL 29C (MICHAEL A.FOWLER). CHANGED THE NORTHERN PROPERTY LINE ON PARCEL 29A AND THE SOUTHERN PROPERTY LINE ON PARCEL 29B TO R/W.DELETED PARCEL 28 (DUKE POWER COMPANY) DUE TO PROPERTY LINE DELINEATION CHANGING TO EASEMENT ON PARCELS 26, 27 (CITY OF GREENSBORO) AND 29 (JAMES L.GOODWIN). ADDING SOUTHERN PROPERTY LINES ON PARCELS 26, REVISED THE NORTHERN PROPERTY LINE ON PARCEL 29 (JAMES L.GOODWIN) AND 29A (NCDOT FORMERLY BETTY JEAN GOODWIN). REVISED THE LOCATION OF THE R/W AND C/A TO THE WESTERN PROPERTY LINE ON PARCEL 29B (NCDOT).

SITE 11

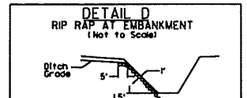
-L-
PI Sta 130+34.85
Δ = 2° 24' 09.0" (RT)
D = 0° 14' 56.8"
L = 964.43'
T = 482.29'
R = 23,000.00'
SE = NC

DETAIL F
LATERAL 2' BASE DITCH
(Not to Scale)



*When B is > 6.0' Std. No. 876.01
Min. D= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
Type of Liner= GRASS
FROM STA. 127+50 TO STA. 128+97 -L- (LT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CLASS "B" Rip-Rap
AT STA. 128+97 -L- (LT) Est. Qty. 11 Tons
AT STA. 129+78 -L- (RT) Est. Qty. 11 Tons

100' 0' 100'
GRAPHIC SCALE

NAD 83/95

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DUKE POWER COMPANY

City Of Greensboro (27)

City Of Greensboro (27)

JAMES L. GOODWIN (29)

MICHAEL A. FOWLER (29C)

-L- PC Sta. 125+52.57

-Y7- POT Sta. 10+00.00

LATERAL 2' BASE DITCH SEE DETAIL "F"

PUE PUE PUE PUE PUE

NCDOT FORMERLY BETTY JEAN GOODWIN (29A)

50' DUKE POWER EASEMENT

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

CLASS "B" SEE DETAIL "D"

ROD AND LUG W/ELBOWS BEGIN SBG @ 127+95 -L- (LT.)

END SBG @ BEGIN APP. SLAB -L- (LT.)

BEGIN SBG @ END APP. SLAB -L- (LT.)

MATCHLINE -L- STA. 119+00.00 SEE SHEET 9

MATCHLINE -L- STA. 132+00.00 SEE SHEET 11

120+00 125+00 130+00

300' PROP. R/W

ROD AND LUG W/ELBOWS BEGIN SBG @ STA. 125+45 -L- (RT.)

END SBG @ BEGIN APP. SLAB -L- (RT.)

BEGIN SBG @ END APP. SLAB -L- (RT.)

ROD AND LUG W/ELBOWS

RETAIN Sta. Cap

CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC

TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "C"

CLASS "B" SEE DETAIL "D"

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

150' DUKE POWER EASEMENT

LATERAL 2' BASE DITCH SEE DETAIL "FF"

-L- POC STA. 129+37.56=
-Y7- POT STA. 11+73.23

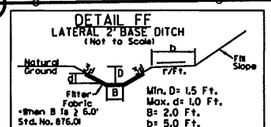
-Y7- POT Sta. 13+75.58

N 15° 37' 35" E

EXISTING R/W

PDE PDE

DETAIL FF
LATERAL 2' BASE DITCH
(Not to Scale)



*When B is > 6.0' Std. No. 876.01
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 129+78 TO STA. 130+65 -L- (RT)
EST. 34 TONS
72 SQYDS FILTER FAB.

City Of Greensboro (27)

NC PRISON DEPT. (26)

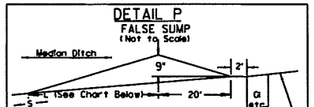
NCDOT FORMERLY BETTY JEAN GOODWIN (29A)

NCDOT (29B)

SR 2825 CAMP BURTON RD 21' EOT

108" CMC & ISRW

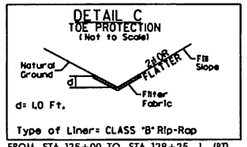
DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

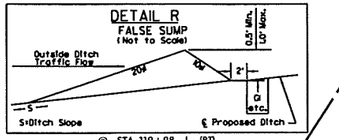
@ STA. 119+98 -L- (MED)
@ STA. 130+48 -L- (MED)

DETAIL C
TOE PROTECTION
(Not to Scale)



d= 1.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 125+00 TO STA. 128+25 -L- (RT)
EST. 97 TONS
42 SQYDS FILTER FAB.

DETAIL R
FALSE SUMP
(Not to Scale)



@ STA. 119+98 -L- (RT)

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-M FOR BRIDGE SKETCH
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 61 FOR -Y7- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 37 OF 93

REVISIONS 5/14/99

03-19-13 R/W REVISION (DWG) - PARCEL 29 (JAMES L GOODWIN) WAS SUBDIVIDED ADDING PARCEL 29A (NCDOT FORMERLY BETTY JEAN GOODWIN) PARCEL 29B (NCDOT), AND PARCEL 29C (MICHAEL A FOWLER) CHANGED THE NORTHERN PROPERTY LINE ON PARCEL 29A AND THE SOUTHERN PROPERTY LINE ON PARCEL 29B TO REFLECT PROPERTY LINE DELINEATION CHANGING TO EASEMENT ON PARCELS 26 AND 27 DUKE POWER COMPANY. THE NORTHERN PROPERTY LINE ADJOINING SOLD HEREIN PROPERTY LINES ON PARCELS 26 AND 27 DUKE POWER COMPANY AND THE NORTHERN PROPERTY LINE ADJOINING SOLD HEREIN PROPERTY LINES ON PARCELS 26 AND 27 DUKE POWER COMPANY AND THE WESTERN PROPERTY LINE ON PARCEL 29 (JAMES L GOODWIN) REVISED THE LOCATION OF THE R/W AND C/A TO THE EASTERN PROPERTY LINE ON PARCEL 29A (NCDOT FORMERLY BETTY JEAN GOODWIN). REVISED THE LOCATION OF THE R/W AND C/A TO THE WESTERN PROPERTY LINE ON PARCEL 29B (NCDOT).

SITE 11

-L-
PI Sta 130+34.85
Δ = 2°24'09.0" (RT)
D = 0°14'56.8"
L = 964.43'
T = 482.29'
R = 23,000.00'
SE = NC

DETAIL F
LATERAL 2' BASE DITCH
(Not to Scale)
Natural Ground, 3:1, 1:1, Fill Slope, F/F Ft., B, D
Min. D= 1.0 Ft.
B= 2.0 Ft.
d= 5.0 Ft.
*When B Is > 6.0' Std. No. 876.01
Type of Liner= GRASS
FROM STA. 127+50 TO STA. 128+97 -L- (LT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade, 5', 1.5:1
Type of Liner= CLASS "B" Rip-Rap
AT STA. 128+97 -L- (LT) Est. Qty. 11 Tons
AT STA. 129+78 -L- (RT) Est. Qty. 11 Tons

GRAPHIC SCALE
100' 0 100'

NAD 83/95

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

-L- PC Sta. 125+52.57

-Y7- POT Sta 10+00.00

-L- POC STA 129+37.56
-Y7- POT STA 11+73.23

-Y7- POT Stg. 13+75.58

N 25°37'35"E

DUKE POWER COMPANY

City Of Greensboro (27)

JAMES L. GOODWIN (29)

MICHAEL A. FOWLER (29C)

NCDOT FORMERLY BETTY JEAN GOODWIN (29A)

NCDOT (29B)

NC PRISON DEPT. (26)

LATERAL 2' BASE DITCH SEE DETAIL "F"

50' DUKE POWER EASEMENT

PUE

108" CMP & ISRW

SR 2825 CAMP BURTON RD

ROD AND LUG W/ELBOWS BEGIN SBG @ 127+95 -L- (LT)

END SBG @ BEGIN APP. SLAB -L- (LT)

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

CLASS "B" RIP RAP SEE DETAIL "D"

BEGIN SBG @ STA. 125+45 -L- (RT)

END SBG @ BEGIN APP. SLAB -L- (RT)

TOE PROTECTION (CLASS "B" RIPRAP SEE DETAIL "C"

BEGIN SBG @ END APP. SLAB -L- (RT)

RETAIN 68' MIN.

CLASS "B" RIP RAP SEE DETAIL "D"

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

50' DUKE POWER EASEMENT

LATERAL 2' BASE DITCH SEE DETAIL "FF"

DETAIL FF
LATERAL 2' BASE DITCH
(Not to Scale)
Natural Ground, 3:1, 1:1, Fill Slope, F/F Ft., B, D, Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
d= 5.0 Ft.
*When B Is > 6.0' Std. No. 876.01
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 129+78 TO STA. 130+65 -L- (RT)
EST. 34 TONS
72 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch, 9', 2', 20', "L" (See Chart Below), S, 3:1 Ditch Slope, ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 119+98 -L- (MED)
@ STA. 130+48 -L- (MED)

DETAIL R
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 20', 2', 3:1 Ditch Slope, ℄ Proposed Ditch
@ STA. 119+98 -L- (RT)

DETAIL C
TOE PROTECTION
(Not to Scale)
Natural Ground, d, 24" FLATTEN, Fill Slope, Filter Fabric
d= 1.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 125+00 TO STA. 128+25 -L- (RT)
EST. 97 TONS
42 SQYDS FILTER FAB.

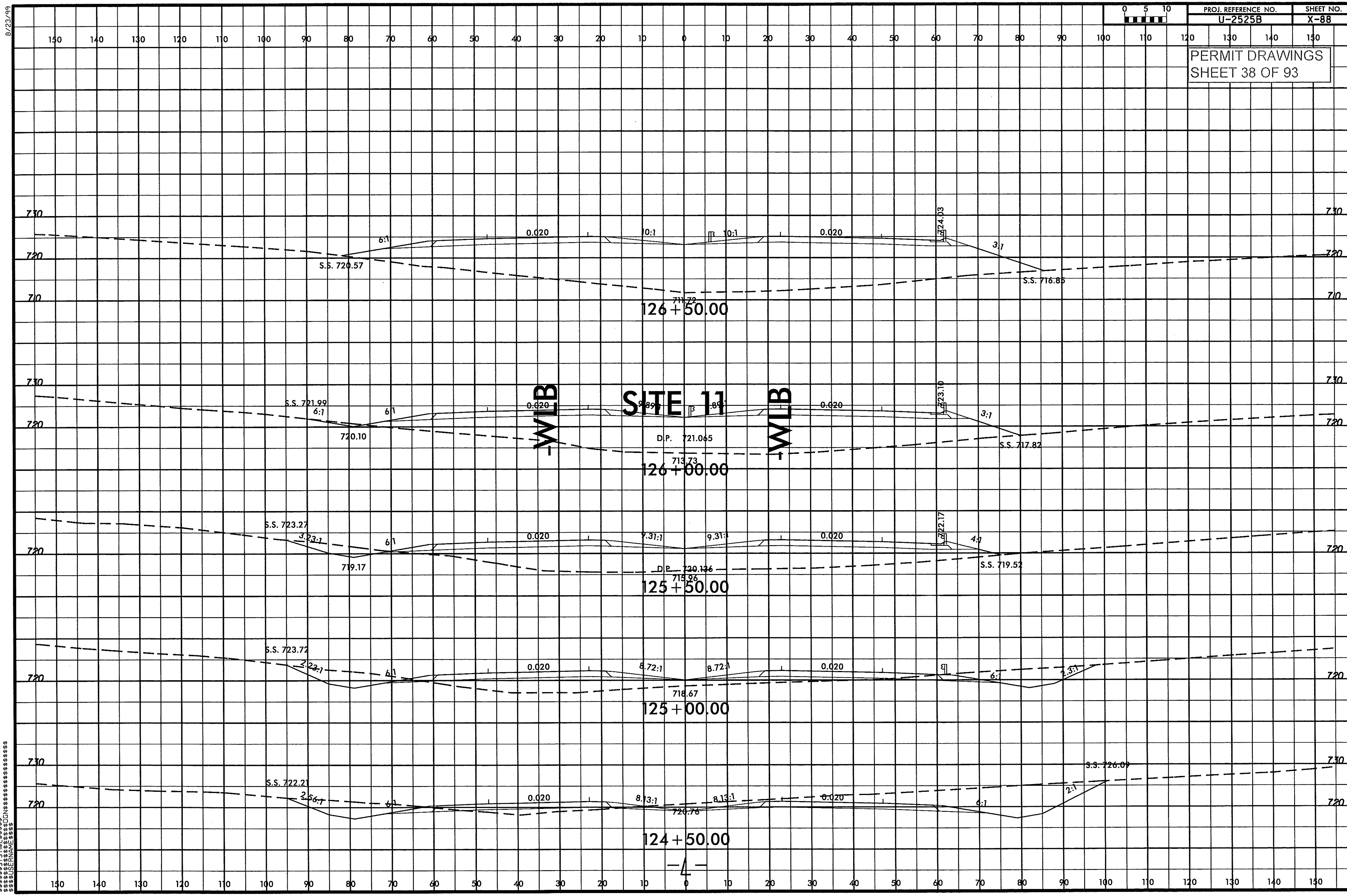
MATCHLINE -L- STA. 119+00.00 SEE SHEET 9

MATCHLINE -L- STA. 132+00.00 SEE SHEET 11

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-M FOR BRIDGE SKETCH
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 61 FOR -Y7- PROFILE
SEE SHEETS S-1 THRU S-## FOR STRUCTURE PLANS

8/23/99



$$$$$SYSTIME$$$$$
$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 39 OF 93

REVISIONS

5/14/99 03-19-13 R/W REVISION (DWG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 35 (RUBY G.DONNELL) TO (DAVID E.DICK,ELLEN L.DICK) AND REVISED THE SOUTHERN PROPERTY LINE.
SUBDIVIDED PARCEL 35 ADDING PARCEL 35A (JOYCE LYNETTE DONNELL WILLARD JONES) AND PARCEL 35B (ROY E.DONNELL II AND WIFE,NANCY S.DONNELL.
REVISED THE PROPERTY OWNER NAME ON PARCEL 36 (MITCHELL K.CURRIE) TO CURRIE LIVING TRUST.
CHANGED THE EASTERN PROPERTY LINE ON PARCEL 32 AND THE NORTHERN PROPERTY LINE ON PARCEL 36 TO R/W.

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch — 9' — 2' — 20' — 5' — L (See Chart Below) — @ etc. — ℄ Proposed Ditch — St/Ditch Slope

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 159+48 -L- (MED)
@ STA. 163+98 -L- (MED)

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)

Natural Ground — Centerline Ditch — d — Natural Ground — Channel Bed Material

d= 1.25 Ft.

Length= 10 Ft.
D= 3.25 Ft.
Est.= 1.5 Tons of Class "I Rip-Rap

STA. 156+78 -L- (LT)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 3H — D — 3:1 — D — F/Ft. — Fill Slope

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

FROM STA. 157+15 TO STA. 161+50 -L- (RT)

NAD 83/95

NCDOT (32)

DAVID E. DICK
ELLEN L. DICK (35)

CURRIE LIVING TRUST (36)

MATCHLINE -L- STA. 156+00.00 SEE SHEET 12

MATCHLINE -L- STA. 168+00.00 SEE SHEET 14

PUE — PUE — PUE — PUE

PSH
SEE DETAIL SHEET 2-L

CLASS I
SEE DETAIL "V"

CLASS V METHOD B INSTALL

ROD AND LUG W/ELBOWS

FILL IN POND

GRADE TO OBAIN

CLASS "B" RIP RAP W/FILTER FABRIC
EST. 1 TON
EST. 5 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC
EST. 2 TONS
EST. 7 SY FABRIC

CLASS "B" RIP-RAP W/FILTER FABRIC
EST. 5 TONS
EST. 16 SY FABRIC

160+00

165+00

-L-

END SBG @ STA. 159+50 -L- (RT.)

CLASS "B" SEE DETAIL "B"

SEE DETAIL "B"

SEE DETAIL "BB"

SEE DETAIL "BB"

300' PROP. R/W

W/LT

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (37)

2SFD

CONC FOUND

DAVID E. DICK
ELLEN L. DICK (35)

JOYCE LYNETTE
DONNELL WILLARD JONES (35A)

F F — DENOTES FILL IN WETLAND

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade — 5' — L — r — L5' — T

Type of Liner= CLASS "B" Rip-Rap

AT STA. 157+15 -L- (RT) Est. Qty. 6 Tons

DETAIL BB
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — W TO 3d — d — D — F/Ft. — Fill Slope — Filter Fabric

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
b= 5.0 Ft.

Type of Liner= CLASS "B" Rip-Rap

FROM STA. 163+00 TO STA. 164+70 -L- (RT)
Est. 80 Tons
169 SQYDS FILTER FAB.
FROM STA. 165+80 TO STA. 168+00 -L- (RT)
Est. 94 Tons
235 SQYDS FILTER FAB.

100' 0' 100'
GRAPHIC SCALE

SITE 12

NOTE: SEE CROSS SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 1665.01 SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 45 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

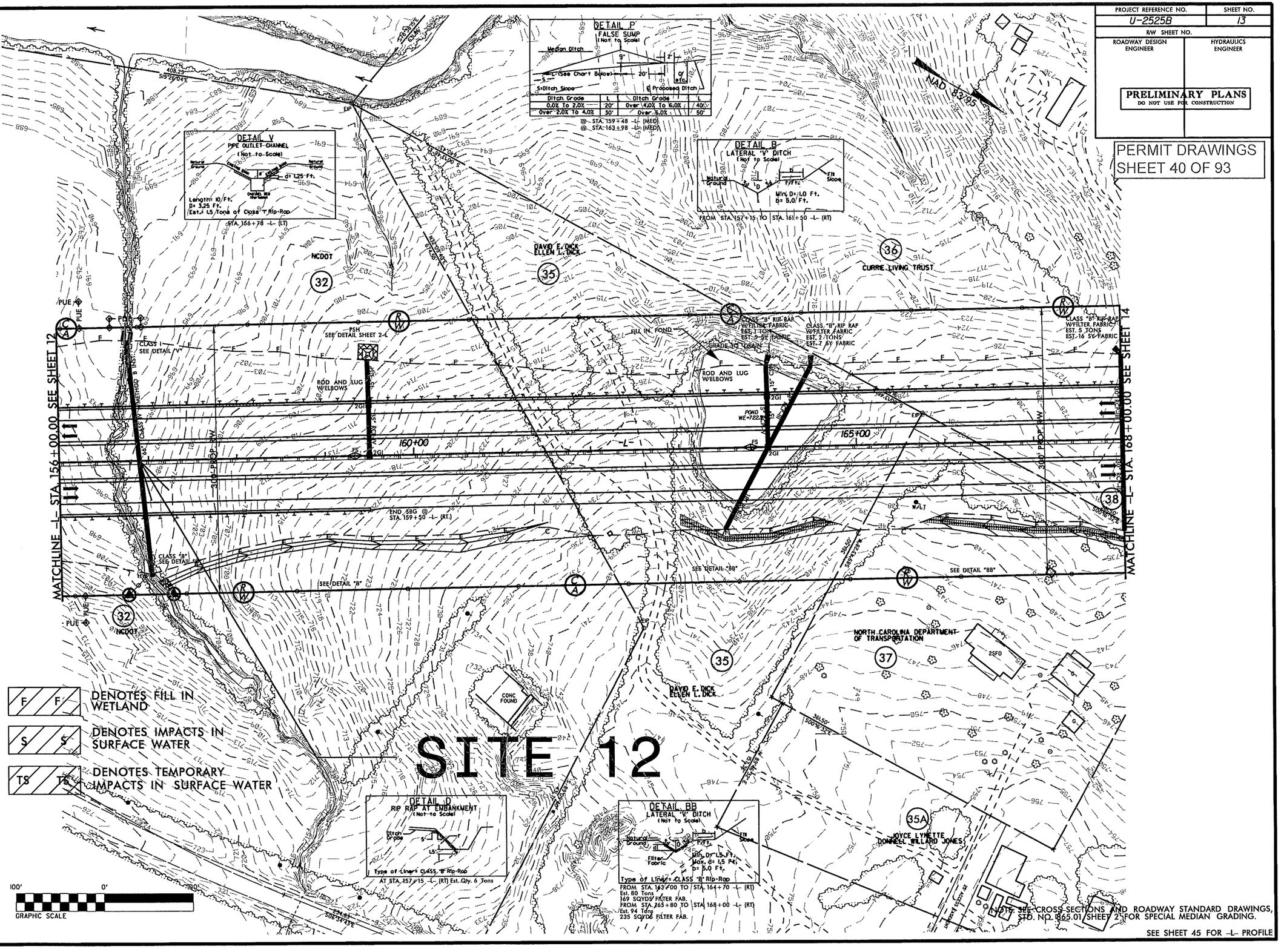
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 40 OF 93

REVISIONS

5/14/99

03-19-13 R/W REVISION (ONG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 35 (RUBY G.DONNELL) TO (DAVID E.DICK,ELLEN L.DICK) AND REVISED THE SOUTHERN PROPERTY LINE.
SUBDIVIDED PARCEL 35 ADDING PARCEL 35A (JOYCE LYNETTE DONNELL WILLARD JONES) AND PARCEL 35B (ROY E.DONNELL II AND WIFE,NANCY S.DONNELL).
REVISED THE PROPERTY OWNER NAME ON PARCEL 36 (MITCHELL C.CURRIE TRUSTEE) TO CURRIE LIVING TRUST.
CHANGED THE EASTERN PROPERTY LINE ON PARCEL 32 AND THE NORTHERN PROPERTY LINE ON PARCEL 36 TO R/W.



SEE SHEET 45 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 41 OF 93

SITE 13

MATCHLINE –L– STA. 168+00.00 SEE SHEET 13

MATCHLINE –L– STA. 180+00.00 SEE SHEET 15

-DRV2-
PI Sta 10+78.12
Δ = 37° 32' 24.9" (LT)
D = 57° 17' 44.8"
L = 65.52'
T = 33.98'
R = 100.00'

PI Sta 15+76.54
Δ = 13° 07' 37.2" (RT)
D = 57° 17' 44.8"
L = 22.91'
T = 11.51'
R = 100.00'

-DRV2- POT Sta. 10+00.00
-DRV2- PCSta. 10+44.13
-DRV2- PTSta. 11+09.65
-DRV2- PTSta. 15+87.94
-DRV2- PCSta. 15+65.03

-Y9- POT Sta. 10+00.00
-Y9- POT Sta. 10+14.50 =
-DRV2- POT Sta. 16+06.04
-L- POT STA. 174+72.46 =
-Y9- POT STA. 11+82.16

-Y9-
PI Sta 15+50.46
Δ = 1° 05' 14.4" (RT)
D = 0° 45' 50.2"
L = 142.33'
T = 71.17'
R = 7,500.00'

-Y9- PC Sta. 14+79.29
-Y9- PT Sta. 16+21.63

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
5'
1'
1.5'
Est. 8 Tons
Type of Liner= CLASS "B" Rip-Rap
At STA. 10+46 -Y9- (RT)

DETAIL VV
DIKE OUTLET CHANNEL
TYPE I
(Not to Scale)
Length: 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap
STA. 174+52 -L- (LT) Est. 4.0 Tons Class "B" RipRap
STA. 15+26 -DRV2- (LT) Est. 4.5 Tons Class "B" RipRap

DETAIL BB
LATERAL "V" DITCH
(NOT to Scale)
Natural Ground
w
D
d
F/F
FTN Slope
Fiber Fabric
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch
9'
2'
L (See Chart Below)
20'
d etc
S=Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 168+48 -L- (MED)
@ STA. 170+98 -L- (MED)
@ STA. 173+23 -L- (MED)
@ STA. 176+24 -L- (MED)

FROM STA. 168+00 TO STA. 169+00 -L- (RT)
Est. 37 Tons
75 SQYDS FILTER FAB.
FROM STA. 173+00 TO STA. 174+35 -L- (LT)
Est. 37 Tons
75 SQYDS FILTER FAB.

F F DENOTES FILL IN WETLAND
G G DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 61 FOR -Y9- PROFILE
SEE SHEET 62 FOR -DRV2- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

36 CURRIE LIVING TRUST
37 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
38 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
39 NCDOT
39 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
35A JOYCE LYNETTE DONNELL WILLARD JONES
JANICE D. CURL, ELLEN L. DICK, JOYCE D. JONES, ROY E DONNELL II
ROY E DONNELL and wife, NANCY S. DONNELL
40 DAVID E. DICK
41 N.C.D.O.T.
42 LLOYD F. SHAW

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 42 OF 93

SITE 13

MATCHLINE –L– STA. 168+00.00 SEE SHEET 13

MATCHLINE –L– STA. 180+00.00 SEE SHEET 15

-DRV2-
PI Sta 10+78.12
Δ = 37° 32' 24.9" (LT)
D = 57° 17' 44.8"
L = 65.52'
T = 33.98'
R = 100.00'

PI Sta 15+76.54
Δ = 13° 01' 37.2" (RT)
D = 57° 17' 44.8"
L = 22.91'
T = 11.51'
R = 100.00'

-DRV2- POT Sta. 10+00.00
-DRV2- PCSta. 10+44.13
-DRV2- PT Sta. 11+09.65
-DRV2- PT Sta. 15+87.94
-DRV2- PCSta. 15+65.03

-Y9- POT Sta. 10+00.00
-Y9- POT Sta. 10+14.50 =
-DRV2- POT Sta. 16+06.04

-L- POT STA. 174+72.46 =
-Y9- POT STA. 11+82.16

-Y9- PC Sta. 14+79.29

-Y9-
PI Sta 15+50.46
Δ = 1° 05' 14.4" (RT)
D = 0° 45' 50.2"
L = 142.33'
T = 71.17'
R = 7,500.00'

-Y9- PT Sta. 16+21.63

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
Est. 8 Tons
Type of Liner: CLASS "B" Rip-Rap
AT STA. 10+46 -Y9- (RT)

DETAIL VV
LARGE OUTLET CHANNEL
(Not to Scale)
Length: 10 Ft.
D=4.0 Ft.
Est.=4 Tons of Class "B" Rip-Rap
STA. 174+52 -L- (LT) Est. 4.0 Tons Class "B" RipRap
STA. 15+26 -DRV2- (LT) Est. 4.5 Tons Class "B" RipRap

DETAIL BB
LATERAL "V" DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 168+00 TO STA. 169+00 -L- (RT)
Est. 37 Tons
75 SQYDS FILTER FAB.
FROM STA. 173+00 TO STA. 174+35 -L- (LT)
Est. 37 Tons
75 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch
9'
2'
20'
(See Chart Below)
Typical Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 168+48 -L- (MED)
@ STA. 170+98 -L- (MED)
@ STA. 173+23 -L- (MED)
@ STA. 176+24 -L- (MED)

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

CLASS "B" RIP RAP W/FILTER FABRIC EST. 11 TON ESE 5. SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY. FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC
ROD AND LUG W/ELBOWS
END SBG @ STA. 168+55 -L- (LT)
BEGIN SBG @ 173+05 -L- (RT)
END SBG @ BEGIN APP. SLAB -L- (RT)
BEGIN SBG @ END APP. SLAB -L- (LT)
REMOVE 21' OF 18" RCP PIPE
FILL W/FLOWABLE FILL
COLLAR AND EXTEND
RETAIN
SEE DETAIL "BB"
SEE DETAIL "DD"
SEE DETAIL "EE"
SEE DETAIL "VV"
SEE DETAIL "FF"
CLASS "A" SEE DETAIL "DD"
CLASS "B" SEE DETAIL "EE"
CLOSED SEE DETAIL "FF"
TS
2GI
2SBRD
2SFD
2RCBC
2RCP
15" RCP
18" RCP
24" RCP
30" RCP
60" CMP
60" CONC
PUE
20' UTILITY EASEMENT
300' PROP. R/W
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
N.C.D.O.T.
NCDOT
CURRIE LIVING TRUST
LLOYD F. SHAW
DAVID E. DICK
JOYCE LYNETTE DONNELL WILLARD JONES
JANICE D. CURL
ELLEN L. DICK
JOYCE D. JONES
ROY E. DONNELL, II
ROY E DONNELL and wife, NANCY S. DONNELL
NAD 83/95
GRAPHIC SCALE

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 61 FOR -Y9- PROFILE
SEE SHEET 62 FOR -DRV2- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2525B	X-118

PERMIT DRAWINGS
SHEET 43 OF 93

BRIDGE

732.96

175+50.00

BRIDGE

729.59

175+00.00

BRIDGE

728.30

174+50.00

BRIDGE

731.54

174+00.00

SITE 13 WLB WLB

9:1 9:1

EL. = 723.09

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$ENAME$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 44 OF 93

5/14/99

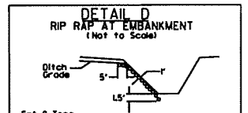
REVISIONS

03-19-13 R/W REVISION (DWG) - CHANGED THE SOUTHERN PROPERTY LINES ON PARCELS 40, 41, AND 42 TO R/W.

SITE 14

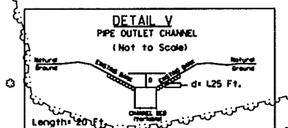
SITE 15

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



AT STA. 189+70 -L- (LT) Est. 9 Tons

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)



STA. 182+27 -L- (LT)
STA. 189+74 -L- (LT)

TREES IN WATER

NAD 83/95

NORTHING 703.33

LLOYD F. SHAW
42

PDE
PSH
SEE DETAIL SHEET 2-L

CLASS "I" RIP RAP
SEE DETAIL "V"

SEE DETAIL "FF"

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 2 TONS
EST. 7 SY FABRIC

CLASS "B" RIP RAP
SEE DETAIL "P"

CLASS "I" RIPRAP
SEE DETAIL "V"

ROD AND LUG
W/ELBOWS

15" CSP

48" CLASS IV RAMEWOOD B INST.

30" METHOD A INST.

2GI

15" RCP-IV

FS

185+00

190+00

-L-

300' PROP. R/W

MATCHLINE -L- STA. 180+00.00 SEE SHEET 14

MATCHLINE -L- STA. 193+00.00 SEE SHEET 16

TS

HW

S 55

S 15

N.C.D.O.T.
41

EIP

150.24'
N88°07'27"W

692.37'
S01°09'31"E

DAVID E. DICK
40

359.40'
N88°07'27"W

45
H.W. HATCHER &
MINNIE R. HATCHER

NO°19'15"E
99.86'

N88°39'50"W
57.46'

NO°19'28"E
825.31'

399.97'
N88°39'58"W

LLOYD F. SHAW
42

Clayton G. Micheal
43

44
Robert K. Micheal

683.31'
N01°09'31"W

S68°38'48"W
663.46'

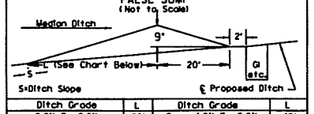
DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

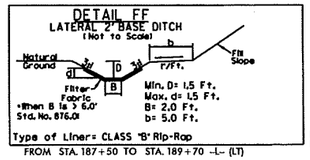
DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 182+02 -L- (MED)
@ STA. 188+02 -L- (MED)
@ STA. 192+52 -L- (MED)

DETAIL FF
LATERAL 2' BASE DITCH
(Not to Scale)



Type of Liner= CLASS "B" Rip-Rap
FROM STA. 187+50 TO STA. 189+70 -L- (LT)

Est. Qty. 100 Tons
Est. 202 Sqyds Fit.Fab.

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 46 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 45 OF 93

REVISIONS
03-19-13 R/W REVISION (DWG) - CHANGED THE SOUTHERN PROPERTY LINES ON PARCELS 40,41,AND 42 TO R/W.
5/14/99

SITE 14

SITE 15

DETAIL P
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade
5'
Est. 9 Tons
Type of Liners CLASS "B" Rip Rap
AT STA. 189+70 -L- (LT) Est. 9 Tons

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)

Length= 80 Ft.
D= 6.0 Ft.
Est.= 103 Tons of Class "B" Rip Rap
STA. 182+27 -L- (LT)
STA. 189+74 -L- (LT)

TREES IN WATER

NAD 83/95

-L- STA. 180+00.00 SEE SHEET 14

-L- STA. 193+00.00 SEE SHEET 16

MATCHLINE -L- STA. 180+00.00 SEE SHEET 14

MATCHLINE -L- STA. 193+00.00 SEE SHEET 16

LLOYD F. SHAW

H.W. HATCHER & MINNIE R. HATCHER

Robert K. Micheal

Clayton G. Micheal

DAVID E. OCK

N.C.D.O.T.

PDE
PSH
SEE DETAIL SHEET 2-L

CLASS "I" RIP RAP
SEE DETAIL "V"

ROD AND LUG W/ELBOWS

CLASS "B" RIP RAP W/FILTER FABRIC
EST. 2 TONS
EST. 7 SY FABRIC

SEE DETAIL "FF"

CLASS "I" RIPRAP
SEE DETAIL "V"

300' PROP. R/W

185+00

190+00

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch
9'
2'
S= (See Chart Below)
20'
S=Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 182+02 -L- (MED)
@ STA. 188+02 -L- (MED)
@ STA. 192+52 -L- (MED)

DETAIL FF
LATERAL 2' BASE DITCH
(Not to Scale)

Natural Ground
b
F/Ft.
FILL Slope
d
D
B
Filter Fabric
*When B is > 6.0' Std. No. 876.01
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 2.0 Ft.
b= 5.0 Ft.

Type of Liners= CLASS "B" Rip-Rap
FROM STA. 187+50 TO STA. 189+70 -L- (LT)
Est. Qty. 100 Tons
Est. 202 Sqyds Fil.Fab.

100' 0' 100'
GRAPHIC SCALE

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 46 FOR -L- PROFILE

5/14/99

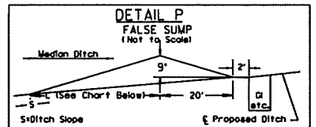
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 46 OF 93

SITE 16

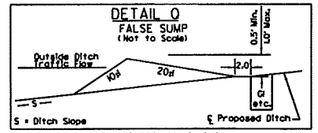
DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

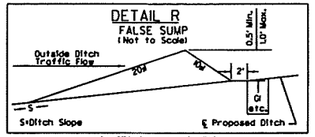
@ STA. 197+52 -L- (MED)
@ STA. 202+02 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)



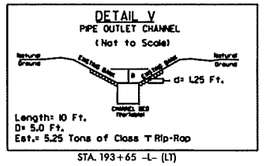
@ STA. 202+02 -L- (RT)

DETAIL R
FALSE SUMP
(Not to Scale)



@ STA. 202+02 -L- (LT)

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)



STA. 193+65 -L- (LT)

-L-	
PIs Sta 200+53.92	PI Sta 215+01.73
θs = 1°12' 13.3"	Δ = 32° 21' 39.4" (LT)
Ls = 200.00'	D = 1°12' 13.3"
LT = 133.34'	L = 2,688.41'
ST = 66.67'	T = 1,381.15'
	R = 4,760.00'
	SE = .04

-L- TS Sta. 199+20.58

-L- SC Sta. 201+20.58

H.W. HATCHER & WINNIE R. HATCHER (45)

NAD 83/95

MATCHLINE -L- STA. 193+00.00 SEE SHEET 15

MATCHLINE -L- STA. 205+00.00 SEE SHEET 17

CLASS "I" RIP RAP SEE DETAIL "I"

300' PROP. R/W

15" RCP

15" CSP

2GI END SBG @ STA. 197+55 -L- (LT.)

N 29° 47' 28.9" W

-L-

200+00

195+00

205

ROD AND LUG W/ELBOWS

END SBG @ STA. 197+55 -L- (RT.)

HWC

PSH

TS SEE DETAIL SHEET 2-L

2GI FS

15"

15" CSP W/ELBOW

BDO

PROP. BERM DITCH FROM -L- STA. 201+85 TO STA. 205+70 SEE DETAIL "U"

+50.00 -L- 150.00'

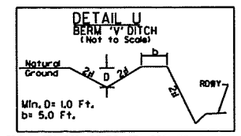
+50.00 -L- 180.00'

Robert K. Michael (44)

H.W. HATCHER & WINNIE R. HATCHER (45)

N0°28'28"E 86.47'

DETAIL U
BERM "U" DITCH
(Not to Scale)



FROM STA. 201+85 TO STA. 205+70 -L- (RT)

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 47 FOR -L- PROFILE

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 47 OF 93

SITE 16

DETAIL P
FALSE SUMP
(Not to Scale)

DETAIL Q
FALSE SUMP
(Not to Scale)

DETAIL R
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	60'

DETAIL S
PIPE OUTLET CHANNEL
(Not to Scale)

Lengths 10 Ea.
Dr 5.0 Ft.
Est.= 5.25 Tons of Class I Rip-Rap

@ STA. 197+52 -L- (RT)
@ STA. 202+02 -L- (LT)

PI Sta 200+53.92
DELTA = 12° 13' 13.3" (RT)
Ds = 12° 13' 13.3"
Ls = 200.00'
ST = 133.34'
SL = 66.67'

@ STA. 202+02 -L- (LT)

PI Sta 215+01.73
DELTA = 32° 21' 39.4" (LT)
Ds = 12° 13' 13.3"
Ls = 2,688.41'
T = 1,381.05'
R = 470.00'
SE = .04

PI Sta 215+01.73
Dis Sta 200+53.92
Ds = 12° 13' 13.3"
Ls = 2,688.41'
T = 1,344.54'
R = 470.00'
SE = .04

-L- TS Sta. 199+20.58
-L- SC Sta. 201+20.58

NWA D8 3.5"

H.W. HATCHER & LAWNE R. HATCHER

Robert K. Michael

CLASS "I" RIP RAP SEE DETAIL "Y"

MATCHLINE -L- STA. 193+00.00 SEE SHEET 15

MATCHLINE -L- STA. 205+00.00 SEE SHEET 17

300' PROP R/W

24' MEDIAN

12' PS

4' PS

2GI

15"

GRAIL 250

END SBG @ STA. 197+55 -L- (LT)

END SBG @ STA. 197+55 -L- (RT)

N. 29° 47' 28.9" W

200+00

195+00

ROD AND LUG W/ELBOWS

HW

FSH

TP SEE DETAIL SHEET 2-L

CAT-I

20.58

50' INC

FS

15" CSP W/ELBOW

BDO

PROP. BERM DITCH FROM -L- STA. 201+85 TO STA. 205+70 SEE DETAIL "U"

+50.00 -L- 180.00'

DETAIL U
BERM "V" DITCH
(Not to Scale)

Nature of Ground

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

FROM STA. 201+85 TO STA. 205+70 -L- (RT)

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 47 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

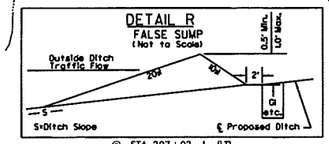
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 48 OF 93

REVISIONS 5/14/99

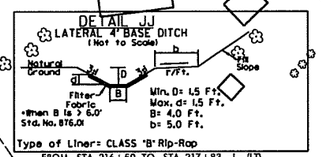
SITE 17

DETAIL R
FALSE SUMP
(Not to Scale)



@ STA. 207+02 -L- (LT)
@ STA. 212+02 -L- (LT)
@ STA. 216+02 -L- (LT)

DETAIL JJ
LATERAL 4' BASE DITCH
(Not to Scale)



Type of Liner= CLASS "B" Rip-Rap
FROM STA. 216+50 TO STA. 217+83 -L- (LT)
Est. Qty. 85 Tons
Est. 172 Sqyds Fit.Fab.

NAD 83/95

-Y10- STA. 20+00.00 SEE SHEET 18

MATCHLINE SEE SHEET 18

MATCHLINE -L- STA. 205+00.00 SEE SHEET 16

-Y10A- POT Sta. 14+50.00

-Y10A- POT Sta. 11+16.91

-Y10A- PC Sta. 10+33.87

-Y10A- POT Sta. 10+00.00

-Y10- POT Sta. 23+80.00

S 71° 09' 19" E

-Y10A-

-L- POC Sta. 210+43.85 =
-Y10- POT STA. 26+55.73

-Y10- PC STA. 27+24.47

-Y10- PT STA. 32+90.41

-Y10- POT STA. 33+09.36

N 52° 58' 18" E

H.W. HATCHER & WIFE R. HATCHER — (45)

M. L. Barber — (46)

SR 2834 BRIARMEADE RD

PROP. BERM DITCH FROM -L- STA. 205+70 TO STA. 208+50 SEE DETAIL "U"

PROP. BERM DITCH FROM -L- STA. 201+85 TO STA. 205+70 SEE DETAIL "U"

PROP. BERM DITCH FROM -L- STA. 208+50 TO STA. 210+50 SEE DETAIL "U"

PROP. BERM DITCH FROM -L- STA. 210+50 TO STA. 215+55 SEE DETAIL "U"

LATERAL 4' BASE DITCH SEE DETAIL JJ

CLASS "B" RIP RAP W/FILTER FABRIC
EST. 8 TONS
EST. 21 SY FABRIC

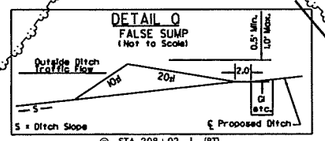
BEGIN SBG @ STA. 216+00 -L- (RT)

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

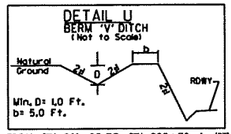
GRAPHIC SCALE 100' 0' 100'

DETAIL Q
FALSE SUMP
(Not to Scale)



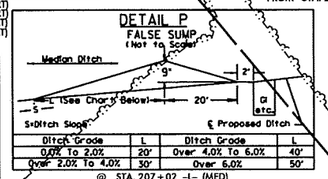
@ STA. 208+02 -L- (RT)
@ STA. 209+02 -L- (RT)
@ STA. 212+02 -L- (RT)
@ STA. 215+52 -L- (RT)

DETAIL U
BERM "U" DITCH
(Not to Scale)



FROM STA. 201+85 TO STA. 205+70 -L- (RT)
FROM STA. 205+70 TO STA. 208+50 -L- (RT)
FROM STA. 208+50 TO STA. 210+50 -L- (RT)
FROM STA. 210+50 TO STA. 215+55 -L- (RT)

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 207+02 -L- (MED)
@ STA. 212+02 -L- (MED)
@ STA. 216+02 -L- (MED)

-L-	-Y10-	-Y10A-
PI Sta 215+01.73	PI Sta 30+32.26	PI Sta 10+76.48
Δ = 32° 21' 39.4" (LT)	Δ = 55° 54' 22.0" (LT)	Δ = 31° 42' 58.1" (RT)
D = 1° 12' 13.3"	D = 9° 52' 42.9"	D = 38° 11' 49.9"
L = 2,688.47'	L = 565.93'	L = 83.03'
T = 1,381.15'	T = 307.78'	T = 42.61'
R = 4,760.00'	R = 580.00'	R = 150.00'
SE = .04		SE = NC

SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 62 FOR -Y10- PROFILE
SEE SHEET 62 FOR -Y10A- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 49 OF 93

SITE 17

5/14/99

REVISIONS

NAD 83/95

-Y10A- POT Sta. 14+50.00

-Y10A- POT Sta. 11+16.91

-Y10A- PC Sta. 10+33.87

-Y10A- POT Sta. 10+00.00

-Y10- POT Sta. 23+00.00

-Y10- STA. 20+00.00 SEE SHEET 18

MATCHLINE -L- STA. 205+00.00 SEE SHEET 16

MATCHLINE -L- STA. 217+00.00 SEE SHEET 18

-L- POC Sta. 210+43.85 = -Y10- POT STA. 26+55.73

-Y10- PC STA. 27+24.47

-Y10- PT STA. 32+90.41

-Y10- POT STA. 33+09.36

N 57°58'18" E

S 71°09'19" E

H.W. HATCHER & WANE R. HATCHER (45)

M. L. Barber (46)

SR 1834 BRAMEMEADE RD

2SFD

LATERAL 4' BASE DITCH SEE DETAIL "JJ"

CLASS "B" RIP RAP W/FILTER FABRIC EST. 8 TONS EST. 21 SY FABRIC

15" CSP W/ELBOW

BEGIN SBO @ STA. 216+00 -L- (RT)

PROP. BERM DITCH FROM -L- STA. 201+85 TO STA. 205+70 SEE DETAIL "U"

PROP. BERM DITCH FROM -L- STA. 205+70 TO STA. 208+50 SEE DETAIL "U"

PROP. BERM DITCH FROM -L- STA. 208+50 TO STA. 210+50 SEE DETAIL "U"

PROP. BERM DITCH FROM -L- STA. 210+50 TO STA. 215+55 SEE DETAIL "U"

DETAIL R
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow

S=Ditch Slope

℄ Proposed Ditch

@ STA. 207+02 -L- (LT)
@ STA. 212+02 -L- (LT)
@ STA. 216+02 -L- (LT)

DETAIL JJ
LATERAL 4' BASE DITCH
(Not to Scale)

Natural Ground

Filter Fabric

*Rmin. B is 3.6.0'
Std. No. 876.01

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 4.0 Ft.
b= 6.0 Ft.

Type of Liner= CLASS "B" Rip-Rap
FROM STA. 216+50. TO STA. 217+83 -L- (LT)
Est. Qty. 85 Tons
Est. 172 Sqyds Fil. Fab.

DETAIL Q
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow

S=Ditch Slope

℄ Proposed Ditch

@ STA. 208+02 -L- (RT)
@ STA. 209+02 -L- (RT)
@ STA. 212+02 -L- (RT)
@ STA. 215+52 -L- (RT)

DETAIL U
BERM "U" DITCH
(Not to Scale)

Natural Ground

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

FROM STA. 201+85 TO STA. 205+70 -L- (RT)
FROM STA. 205+70 TO STA. 208+50 -L- (RT)
FROM STA. 208+50 TO STA. 210+50 -L- (RT)
FROM STA. 210+50 TO STA. 215+55 -L- (RT)

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch

(See Chart Below)

S=Ditch Slope

℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 207+02 -L- (MED)
@ STA. 212+02 -L- (MED)
@ STA. 216+02 -L- (MED)

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

GRAPHIC SCALE 100' 0' 100'

-L-	-Y10-	-Y10A-
PI Sta 215+01.73	PI Sta 30+32.26	PI Sta 10+76.48
Δ = 32° 21' 39.4" (LT)	Δ = 55° 54' 22.0" (LT)	Δ = 31° 42' 58.1" (RT)
D = 1° 12' 13.3"	D = 9° 52' 42.9"	D = 38° 11' 49.9"
L = 2,688.41'	L = 565.93'	L = 83.03'
T = 1,381.15'	T = 307.78'	T = 42.61'
R = 4,760.00'	R = 580.00'	R = 150.00'
SE = .04	SE = .10	SE = NC

SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 62 FOR -Y10- PROFILE
SEE SHEET 62 FOR -Y10A- PROFILE

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 50 OF 93

SITE 18

F/F DENOTES FILL IN WETLAND

S/S DENOTES IMPACTS IN SURFACE WATER

TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

P/P DENOTES IMPACTS IN SURFACE WATER (POND)

DETAIL KK
LATERAL 6' BASE DITCH
(Not to Scale)
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 6.0 Ft.
D= 5.0 Ft.
*When B is > 6.0' Std. No. 876.01
Type of Liner= CLASS 'B' Rip-Rap
FROM STA. 218+33 -L- (LT) TO STA. 219+00 -L- (LT) Est. Qty. 85 Tons Est. 172 Sqyds Fit.Fab.

DETAIL Q
FALSE SUMP
(Not to Scale)
S = Ditch Slope
@ STA. 219+98 -L- (LT)
@ STA. 223+98 -L- (LT)
@ STA. 229+48 -L- (RT)
@ STA. 217+02 -L- (RT)

DETAIL JJ
LATERAL 4' BASE DITCH
(Not to Scale)
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 4.0 Ft.
D= 5.0 Ft.
*When B is > 6.0' Std. No. 876.01
Type of Liner= CLASS 'B' Rip-Rap
FROM STA. 216+50 TO STA. 217+83 -L- (LT) Est. Qty. 85 Tons Est. 172 Sqyds Fit.Fab.

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner= CLASS 'B' Rip-Rap
AT STA. 218+35 -L- (LT) Est. 9 Tons
AT STA. 217+80 -L- (RT) Est. 9 Tons
AT STA. 217+82 -L- (LT) Est. 22 Tons

DETAIL U
BERM 'V' DITCH
(Not to Scale)
Min. D= 1.0 Ft.
b= 5.0 Ft.
FROM STA. 224+57 TO STA. 227+50 -L- (RT)
FROM STA. 223+50 TO STA. 225+50 -L- (LT)
FROM STA. 228+50 TO STA. 230+50 -L- (RT)

DETAIL R
FALSE SUMP
(Not to Scale)
S=Ditch Slope
@ STA. 224+98 -L- (RT)
@ STA. 220+48 -L- (RT)

DETAIL P
FALSE SUMP
(Not to Scale)
S=Ditch Slope
@ STA. 223+98 -L- (MED)
@ STA. 229+48 -L- (MED)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

-L-	-Y11-	-Y10-
PI Sta 215+01.73	PI Sta 17+92.52	PI Sta 26+80.11	PI Sta 13+38.21
Δ = 32° 21' 39.4" (LT)	Δ = 20° 42' 51.8" (RT)	Δ = 19° 38' 06.2" (LT)	Δ = 5° 31' 37.6" (RT)
D = 1° 12' 13.3"	D = 6° 09' 39.0"	D = 6° 09' 39.0"	D = 1° 30' 28.0"
L = 2,688.47'	L = 336.23'	L = 318.71'	L = 366.57'
T = 1,381.15'	T = 169.97'	T = 160.93'	T = 183.43'
R = 4,760.00'	R = 930.00'	R = 930.00'	R = 3,800.00'
SE = .04	SE = .04	SE = .04	
Pls Sta 228+75.73	RO = SEE PLANS	RO = 96'	
Θs = 1° 12' 13.3"			
Ls = 200.00'			
LT = 133.34'			
ST = 66.67'			

NOTE: MCF – MODIFIED CONCRETE FLUME

100' 0' 100'
GRAPHIC SCALE

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEET 48 FOR -L- PROFILE
SEE SHEET 62 FOR -Y10- PROFILE
SEE SHEET 63 FOR -Y11- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 51 OF 93

REVISIONS

5/14/99

SITE 18

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER (POND)

MATCHLINE -Y10- STA. 20+00.00 SEE SHEET 17

MATCHLINE -Y10- STA. 14+00.00 SEE SHEET 27

MATCHLINE -Y11- STA. 17+00.00 SEE SHEET 27

MATCHLINE -L- STA. 217+00.00 SEE SHEET 17

MATCHLINE -L- STA. 230+00.000 SEE SHEET 19

MATCHLINE -Y11- STA. 26+00.000 SEE SHEET 28

-Y10- PT STA 15+21.35

-Y11- PT Sta 19+58.78

-Y11- PC Sta. 25+19.18

-L- CS Sta. 228+09.06

-L- POS Sta. 228+23.81=
-Y11- POT Sta. 21+69.08

SEE ON-SITE MITIGATION PLANS SHEET 10

DETAIL KK
LATERAL 6' BASE DITCH
(Not to Scale)

DETAIL Q
FALSE SUMP
(Not to Scale)

DETAIL JJ
LATERAL 4' BASE DITCH
(Not to Scale)

DETAIL JJJ
BERM DITCH
(Not to Scale)

DETAIL P
FALSE SUMP
(Not to Scale)

DETAIL R
FALSE SUMP
(Not to Scale)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

-L-	-Y11-	-Y10-
PI Sta 215+01.73	PI Sta 17+92.52	PI Sta 26+80.31
Δ = 32° 21' 39.4" (LT)	Δ = 20° 42' 51.8" (RT)	Δ = 19° 38' 06.2" (LT)
D = 1° 12' 13.3"	D = 6° 09' 39.0"	D = 6° 09' 39.0"
L = 2,688.47'	L = 336.23'	L = 318.71'
T = 1,381.15'	T = 169.97'	T = 160.93'
R = 4,760.00'	R = 930.00'	R = 930.00'
SE = .04	SE = .04	SE = .04
	RO = SEE PLANS	RO = 96'
PI Sta 228+75.73		PI Sta 13+38.21
Δs = 1° 12' 13.3"		Δ = 5° 31' 37.6" (RT)
Ls = 200.00'		D = 1° 30' 28.0"
LT = 133.34'		L = 366.57'
ST = 66.67'		T = 183.43'
		R = 3,800.00'

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

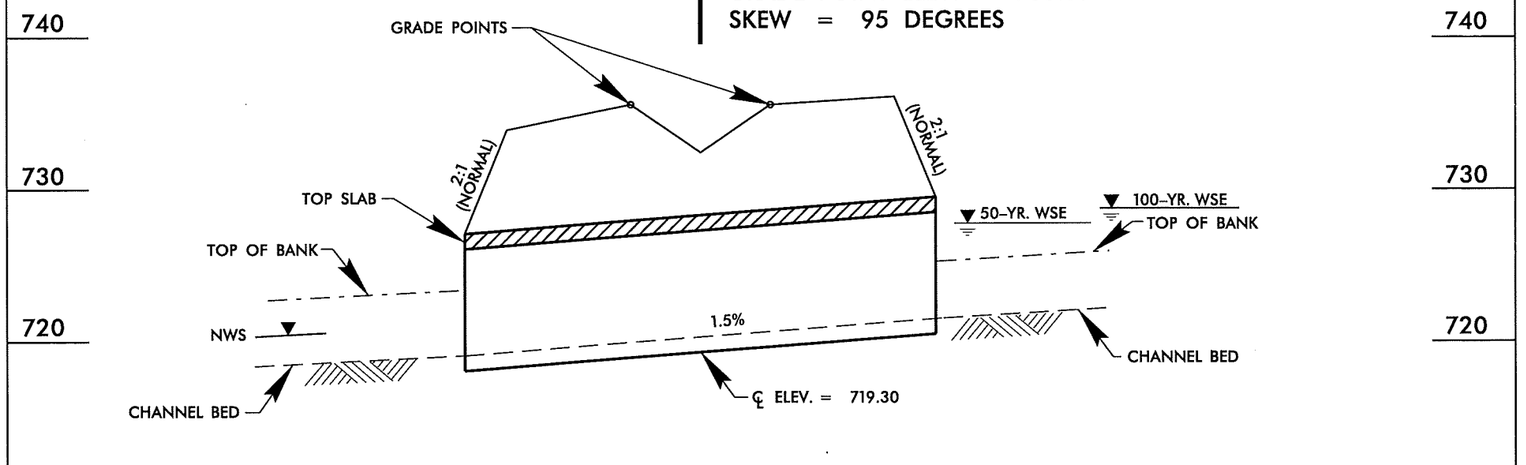
SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEET 48 FOR -L- PROFILE
SEE SHEET 62 FOR -Y10- PROFILE
SEE SHEET 63 FOR -Y11- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

GRAPHIC SCALE 100' 0' 100'

NOTE: MCF - MODIFIED CONCRETE FLUME

PERMIT DRAWINGS
SHEET 52 OF 93

2 @ 7′ x 8′ RCBC (1′ BURY)
℄ STA. 218+00.00 –L–
GRADE POINT ELEV. = 735.57
SKEW = 95 DEGREES



PROFILE

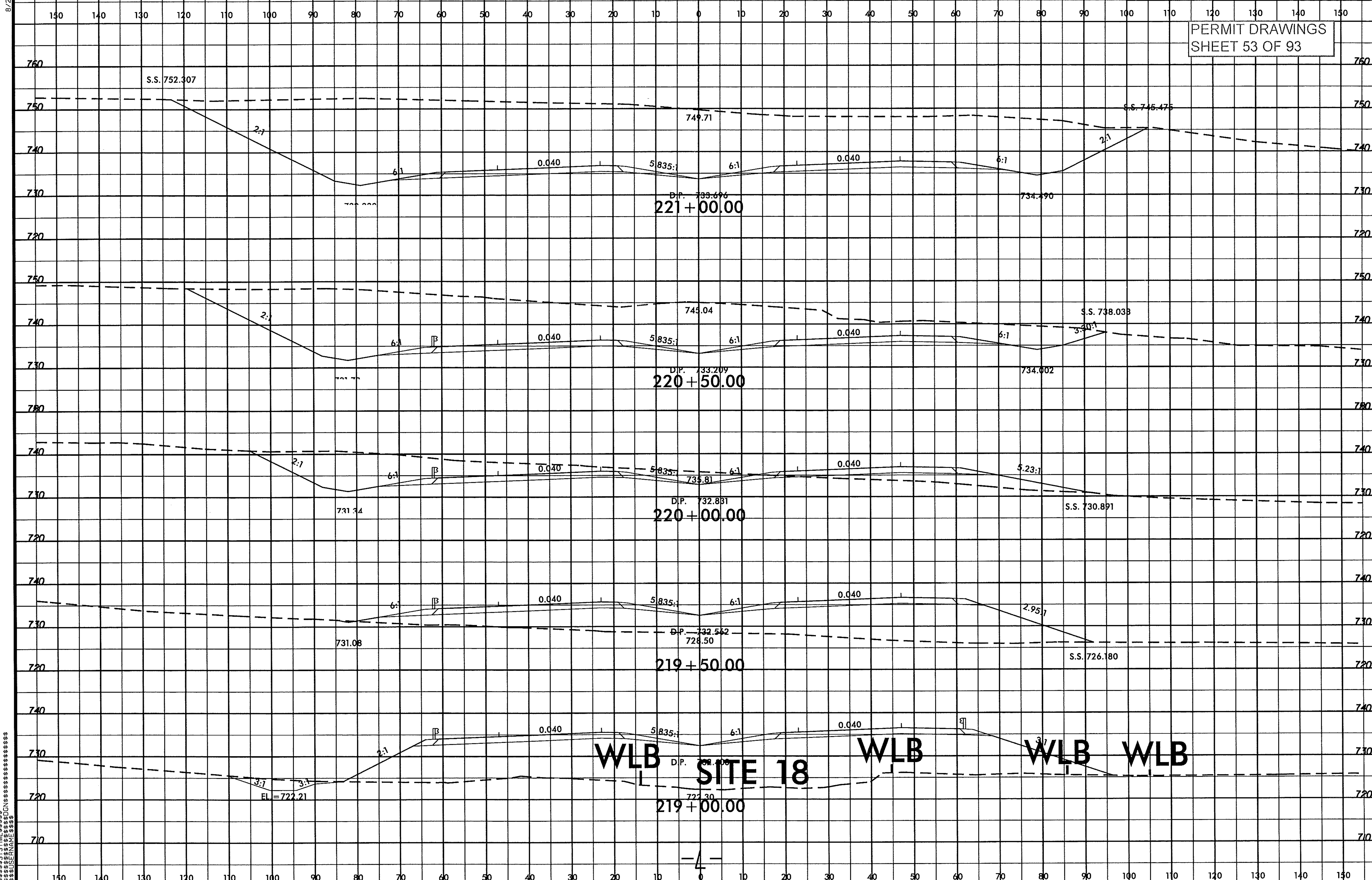
NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34821.1.1 (U-2525B)
GREENSBORO EASTERN LOOP
FROM NORTH OF US 70
RELOCATION TO US 29 NORTH
OF GREENSBORO

SHEET OF 03/08/13

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-145

PERMIT DRAWINGS
SHEET 53 OF 93



$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 54 OF 93

SITE 20A

SITE 19

SITE 20

NAD 83/95

-L- ST Sta. 230+09.06

MATCHLINE -L- STA. 230+00.00 SEE SHEET 18

MATCHLINE -L- STA. 242+00.00 SEE SHEET 20

DETAIL PP
LATERAL 6' BASE DITCH
(Not to Scale)

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 6.0 Ft.
b= VAR. Ft.

*When B is > 6.0
Std. No. 876.01

Type of Liner= CLASS 'I' Rip-Rap

FROM STA. 241+65 TO STA. 243+50 -L- (LT)
Est. 219 Tons
308 SQYDS FILTER FAB.

DETAIL UV
BERM 'V' DITCH
(Not to Scale)

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

Type of Liner= CLASS 'B' Rip-Rap

FROM STA. 230+50 TO STA. 232+50 -L- (RT)
Est. 30 Tons
67 SQYDS FILTER FAB.

DETAIL Q
FALSE SUMP
(Not to Scale)

S = Ditch Slope

@ STA. 233+98 -L- (LT)

DETAIL U
BERM 'V' DITCH
(Not to Scale)

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

FROM STA. 228+50 TO STA. 230+50 -L- (RT)
FROM STA. 232+50 TO STA. 234+00 -L- (RT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CLASS 'B' Rip-Rap

AT STA. 239+50 -L- (LT) Est. 6 Tons

DETAIL DD
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CLASS 'I' Rip-Rap

AT STA. 241+65 -L- (LT) Est. 12 Tons
AT STA. 245+12 -L- (RT) Est. 7 Tons

DETAIL F
LATERAL 2' BASE DITCH
(Not to Scale)

Min. D= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.

*When B is > 6.0
Std. No. 876.01

Type of Liner= GRASS

FROM STA. 238+50 TO STA. 239+50 -L- (LT)

-L-

PI Sta 215+01.73	PIs Sta 228+75.73
Δ = 32° 21' 39.4" (LT)	Θs = 1°12' 13.3"
D = 1°12' 13.3"	Ls = 200.00'
L = 2,688.47'	LT = 133.34'
T = 1,381.15'	ST = 66.67'
R = 4,760.00'	
SE = .04	

Van A. Johnson (53)

Betty W. Johnson (5)

SEE DETAIL "F"

CLASS "I" RIPRAP

CLASS "B" RIP RAP W/FILTER FABRIC
EST. 2 TON
EST. 7 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC
SEE DETAIL "D"

BEGIN SBG @ STA. 238+45 -L- (LT.)

BEGIN SBG @ STA. 238+45 -L- (RT)

PROP. BERM DITCH FROM -L- STA. 230+50 TO STA. 232+50 SEE DETAIL "UV"

PROP. BERM DITCH FROM -L- STA. 232+50 TO STA. 234+00 SEE DETAIL "U"

REMOVE

RETAIN EXIST. R/W

-LCD- POT. Sta. 10+00.00=
-L- POT. Sta. 241+25.00 47.00 LT.

Betty W. Johnson (55)

RACHEL J. MARTIN (94)

RACHEL J. MARTIN (94)

Harold S. Parton (56)

CARROLLAND C (57)

NCDOT (59)

55' DRAINAGE EASEMENT FROM CENTERLINE OF CREEK

30' SANITARY SEWER EASEMENT

PDE

TDE

TS

2 @ 8' X 8' RCBC

15" RCP

18" RCP

24" RCP

30" RCP

36" RCP

42" RCP

60" RCP

2GI

FS

W/ELBOWS

ROD AND LUG

W00DS

S DENOTES IMPACTS IN SURFACE WATER

E DENOTES EXCAVATION IN WETLAND

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

DETAIL P
FALSE SUMP
(Not to Scale)

S=Ditch Slope

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 233+98 -L- (MED)
@ STA. 238+48 -L- (MED)

DETAIL R
FALSE SUMP
(Not to Scale)

S=Ditch Slope

@ STA. 230+48 -L- (RT)
@ STA. 233+98 -L- (RT)

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 55 OF 93

SITE 20A

SITE 19

SITE 20

DETAIL PP
LATERAL 6' BASE DITCH
(Not to Scale)

Natural Ground | Fill Slope | Filter Fabric | When B is > 5.0 Std. No. 815.01 | Min. D= 1.5 Ft. Max. d= 1.5 Ft. B= 6.0 Ft. d= VAR. Ft.

Type of Liner= CLASS "I" Rip-Rap

FROM STA. 241+65 TO STA. 243+50 -L- (LT)
Est. 219 Tons
308 SQYDS FILTER FAB.

DETAIL UV
BERM "V" DITCH
(Not to Scale)

Natural Ground | RDWY | Min. D= 1.0 Ft. d= 5.0 Ft.

Type of Liner= CLASS "B" Rip-Rap

FROM STA. 230+50 TO STA. 232+50 -L- (RT)
Est. 30 Tons
67 SQYDS FILTER FAB.

DETAIL Q
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow | 0.5' Min. 1.0' Max. | 20' | 2.0' | 6H to 1V | Ditch Slope | ℄ Proposed Ditch

@ STA. 233+98 -L- (LT)

DETAIL U
BERM "V" DITCH
(Not to Scale)

Natural Ground | RDWY | Min. D= 1.0 Ft. d= 5.0 Ft.

FROM STA. 228+50 TO STA. 230+50 -L- (RT)
FROM STA. 232+50 TO STA. 234+00 -L- (RT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade | L=5' | L=5'

Type of Liner= CLASS "B" Rip-Rap

AT STA. 239+50 -L- (LT) Est. 6 Tons

DETAIL DD
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade | L=5' | L=5'

Type of Liner= CLASS "I" Rip-Rap

AT STA. 241+65 -L- (LT) Est. 12 Tons
AT STA. 249+12 -L- (RT) Est. 7 Tons

DETAIL F
LATERAL 2' BASE DITCH
(Not to Scale)

Natural Ground | Fill Slope | When B is > 6.0' Std. No. 876.01 | Min. D= 1.0 Ft. B= 2.0 Ft. d= 5.0 Ft.

Type of Liner= GRASS

FROM STA. 238+50 TO STA. 239+50 -L- (LT)

-L-
PI Sta 215+01.73
Δ = 32° 21' 39.4" (LT)
D = 1°12'13.3"
L = 2,688.47'
T = 1,381.15'
R = 4,760.00'
SE = .04

PI Sta 228+75.73
Es = 1°12'13.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

-L- ST Sta. 230+09.06

Van A. Johnson (53)

Betty W. Johnson (55)

RACHEL J. MARTIN (94)

Harold A. Farton (56)

CARROLL AND CORA (57)

NCDOT (59)

CLASS "I" RIPRAP

CLASS "B" RIP RAP W/FILTER FABRIC, EST. 2 TON, EST. 7 SY FABRIC

SEE DETAIL "F"

ROD AND LUG W/ELBOWS

BEGIN SBG @ STA. 238+45 -L- (LT)

BEGIN SBG @ STA. 238+45 -L- (RT)

50' DRAINAGE EASEMENT FROM CARROLL AND CORA CREEK

PROP. BERM DITCH FROM STA. 230+50 TO STA. 232+50 SEE DETAIL "UV"

PROP. BERM DITCH FROM STA. 232+50 TO STA. 234+00 SEE DETAIL "U"

REMOVE

RETAIN EXIST. R/W

-LCD- POT. Sta. 10+00.00= 47.00 LT.
-L- POT. Sta. 241+25.00

MATCHLINE -L- STA. 230+00.00 SEE SHEET 18

MATCHLINE -L- STA. 242+00.00 SEE SHEET 20

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch | 9' | 2' | -L- Ditch Chart Below | 20' | 6H to 1V | S=Ditch Slope | ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 233+98 -L- (MED)
@ STA. 238+48 -L- (MED)

DETAIL R
FALSE SUMP
(Not to Scale)

Outside Ditch Traffic Flow | 0.5' Min. 1.0' Max. | 2' | 6H to 1V | S=Ditch Slope | ℄ Proposed Ditch

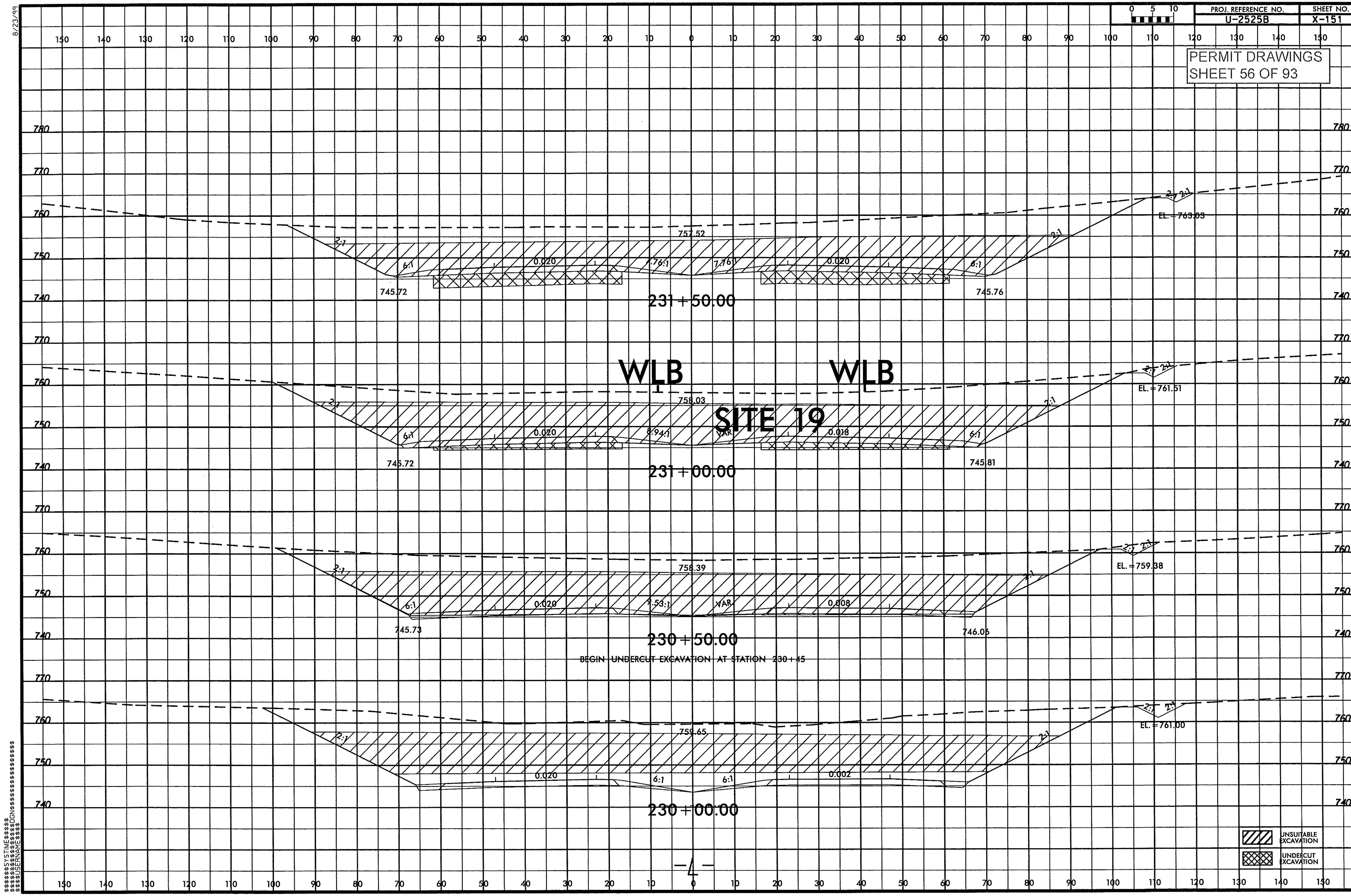
@ STA. 230+48 -L- (RT)
@ STA. 233+98 -L- (RT)

DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE



PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-151
PERMIT DRAWINGS
SHEET 56 OF 93
8/23/99
WLB
WLB
SITE 19
757.52
745.72
745.76
EL. = 763.03
231+50.00
758.03
745.72
745.81
EL. = 761.51
231+00.00
758.39
745.73
746.06
EL. = 759.38
230+50.00
BEGIN UNDERCUT EXCAVATION AT STATION 230+45
759.65
EL. = 761.00
230+00.00
UNSUITABLE EXCAVATION
UNDERCUT EXCAVATION
-4-
$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

5/14/99

PERMIT DRAWINGS
SHEET 57 OF 93

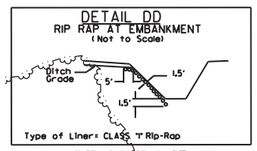
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Revised 10/15/13

-Y13RPC-			-LCD-
PIs Sta 11+81.52	PI Sta 22+25.70	PIs Sta 29+93.79	PI Sta 15+56.93
θs = 3° 22' 49.5"	Δ = 73° 02' 24.8" (RT)	θs = 3° 22' 49.5"	Δ = 3° 30' 00.0" (LT)
Ls = 158.00'	D = 4° 16' 44.4"	Ls = 158.00'	D = 0° 28' 38.9"
LT = 105.35'	L = 1,706.95'	LT = 105.35'	L = 733.04'
ST = 52.68'	T = 991.54'	ST = 52.68'	T = 366.63'
	R = 1,339.00'		R = 12,000.00'
	SE = .07		SE = NC
	RO = 158'		

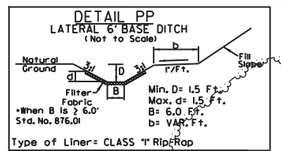
DETAIL DD
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CLASS "I" Rip-Rap

AT STA. 241+65 -L- (LT) Est. 12 Tons
AT STA. 245+92 -L- (RT) Est. 7 Tons

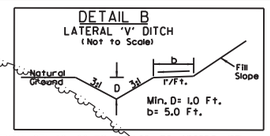
DETAIL PP
LATERAL 6' BASE DITCH
(Not to Scale)



Type of Liner= CLASS "I" Rip-Rap

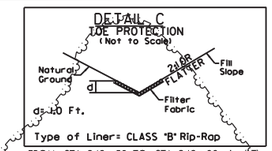
FROM STA. 241+65 TO STA. 243+50 -L- (LT)
Est. 219 Tons
308 SQYDS FILTER FAB.

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 10+00 TO STA. 13+75 -Y13RPC- (RT)

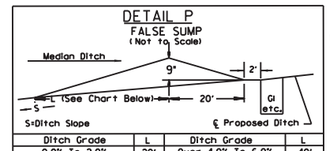
DETAIL C
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS "B" Rip-Rap

FROM STA. 243+50 TO STA. 249+00 -L- (LT)
Est. 116 Tons
244 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 242+98 -L- (MED)
@ STA. 247+48 -L- (MED)
@ STA. 252+48 -L- (MED)

NAD 83/95

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

CARROLLAND CORPORATION

MATCHLINE -L- STA. 242+00.00 SEE SHEET 19

MATCHLINE -L- STA. 255+00.00 SEE SHEET 21

-LCD- PC Sta. 11+90.30

-LCD- PT Sta. 19+23.34=
-Y13RPC- POT Sta. 10+00.00 12° RT.

-Y13RPC- TS Sta. 10+76.16

-Y13RPC- SC Sta. 12+34.16

-Y13RPC- STA. 14+50.00 MATCHLINE -L- SEE SHEET 21

-Y13RPC- MATCHLINE SEE SHEET 39

CHORD

NCDOT

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 2 TON
EST. 7 SY FABRIC

TOE PROTECTION
CLASS "B" RIPRAP
SEE DETAIL "C"

END SBG @
STA. 244+00 -L- (LT.)

ROD AND LUG
W/ELBOWS

2 @ 8' X 8'
RCBC

15" RCP

24" CSP

CLASS "I" RIPRAP

NOTE: SHOTS TAKEN ON ACTUAL STEEL CASING.
ALL INVERTS ARE UNATTAINABLE.

CLASS "I"
SEE DETAIL "DD"

END SBG @
STA. 14+50 -Y13RPC- (RT.)

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 5 TONS
EST. 14 SY FABRIC

SEE ON SITE MITIGATION PLANS
SHEET: OSM-09.

56 Harold A. Horton

INV. OUT 737.96
TOP 743.08
INV. IN 738.06

20' UTILITY EASEMENT

25' PERMANENT SANITARY SEWER EASEMENT

97 TOMMIE SUZANNE TAYLOR

CATHY BRENNAN 101

58 ROBERT & CATHY BRENNAN

59 NCDOT

57

SITE 20

SITE 20B

ARVID A. WHITE

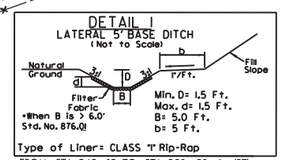
EXISTING R/W

30" DIP

ARVID DR

EXISTING

DETAIL I
LATERAL 5' BASE DITCH
(Not to Scale)



Type of Liner= CLASS "I" Rip-Rap

FROM STA. 245+12 TO STA. 250+50 -L- (RT)
Est. 311 Tons
658 SQYDS FILTER FAB.

JAMES R. FLINCHUM

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 74 FOR -Y13RPC- PROFILE
SEE SHEET 75 & 76 FOR -LCD- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

5/14/99

PERMIT DRAWINGS
SHEET 58 OF 93

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Revised 10/15/13

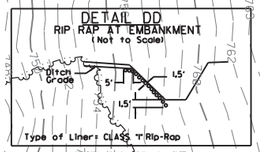
-Y13RPC-

PIs Sta 11+81.52	PI Sta 22+25.70	PIs Sta 29+93.79
Os = 3° 22' 49.5"	Δ = 73° 02' 24.8" (RT)	Os = 3° 22' 49.5"
Ls = 158.00'	D = 4° 16' 44.4"	Ls = 158.00'
LT = 105.35'	L = 1,706.95'	LT = 105.35'
ST = 52.68'	T = 991.54'	ST = 52.68'
	R = 1,339.00'	
	SE = .07	
	RO = 158'	

-LCD-

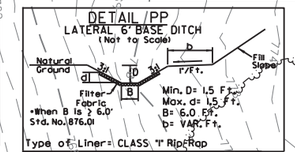
PI Sta 15+56.93
Δ = 3° 30' 00.0" (LT)
D = 0° 28' 38.9"
L = 733.04'
T = 366.63'
R = 12,000.00'
SE = NC

DETAIL DD
RIP RAP AT EMBANKMENT
(Not to Scale)



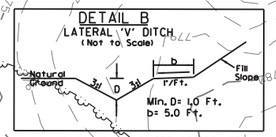
Type of Liner= CLASS "I" Rip-Rap
AT STA. 241+65 -L- (LT) Est. 12 Tons
AT STA. 245+92 -L- (RT) Est. 7 Tons

DETAIL PP
LATERAL 6' BASE DITCH
(Not to Scale)



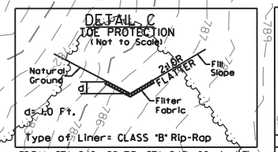
Type of Liner= CLASS "I" Rip-Rap
FROM STA. 241+65 TO STA. 243+50 -L- (LT)
Est. 219 Tons
308 SQYDS FILTER FAB.

DETAIL B
LATERAL "V" DITCH
(Not to Scale)



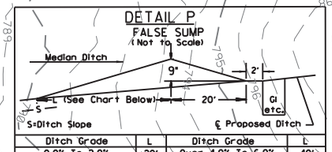
FROM STA. 10+00 TO STA. 13+75 -Y13RPC- (RT)

DETAIL C
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS "B" Rip-Rap
FROM STA. 243+50 TO STA. 249+00 -L- (LT)
Est. 116 Tons
244 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 242+98 -L- (MED)
@ STA. 247+48 -L- (MED)
@ STA. 252+48 -L- (MED)

CARROLLAND CORPORATION

NAD 83/95

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

MATCHLINE -L- STA. 242+00.00 SEE SHEET 19

MATCHLINE -L- STA. 255+00.00 SEE SHEET 21

MATCHLINE -Y13RPC- STA. 14+50.00 SEE SHEET 21

MATCHLINE SEE SHEET 39

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TON EST. 7 SY FABRIC

TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "C"

END SBG @ STA. 244+00 -L- (LT)

ROD AND LUG W/ELBOWS

2 @ 8' X 8' RCBC

-LCD- PC Sta. 11+90.30

-LCD-

NOTE: SHOTS TAKEN ON ACTUAL STEEL CASING. ALL INVERTS ARE UNATTAINABLE.

CLASS "I" SEE DETAIL "DD"

CLASS "I" RIPRAP

SEE ON SITE MITIGATION PLANS SHEET: OSM-09.

-LCD- PT Sta. 19+23.34=
-Y13RPC- POT Sta. 10+00.00 12° RT.

-Y13RPC- TS Sta. 10+76.16

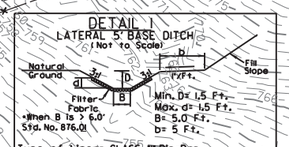
-Y13RPC- SC Sta. 12+34.16

CHORD

END SBG @ STA. 14+50 -Y13RPC- (RT.)

CLASS "B" RIP RAP W/FILTER FABRIC EST. 5 TONS EST. 14 SY FABRIC

DETAIL I
LATERAL 5' BASE DITCH
(Not to Scale)



Type of Liner= CLASS "I" Rip-Rap
FROM STA. 245+12 TO STA. 250+50 -L- (RT)
Est. 311 Tons
658 SQYDS FILTER FAB.

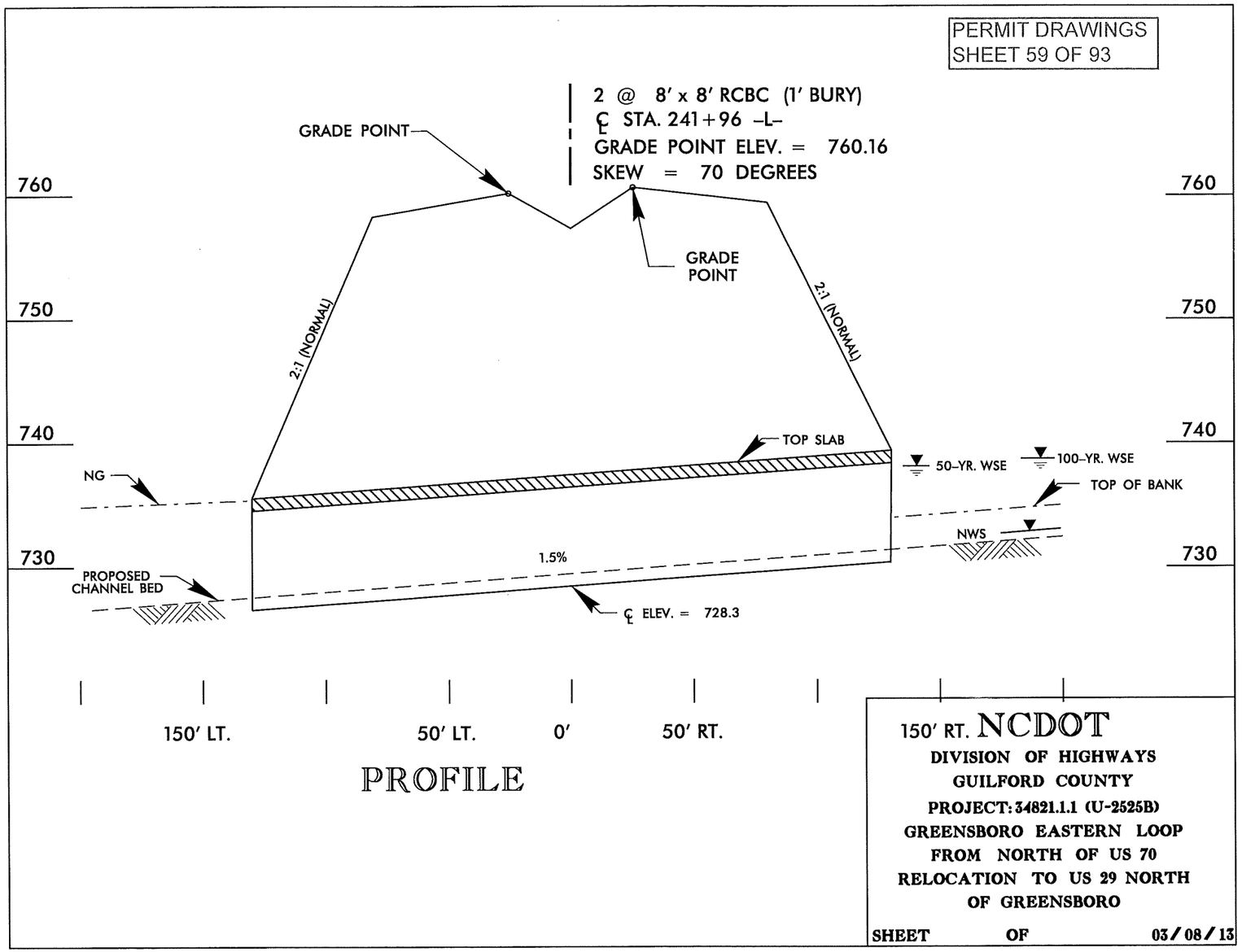
SITE 20

SITE 20B

GRAPHIC SCALE 100' 0' 100'

SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 74 FOR -Y13RPC- PROFILE
SEE SHEET 75 & 76 FOR -LCD- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

PERMIT DRAWINGS
SHEET 59 OF 93



PROFILE

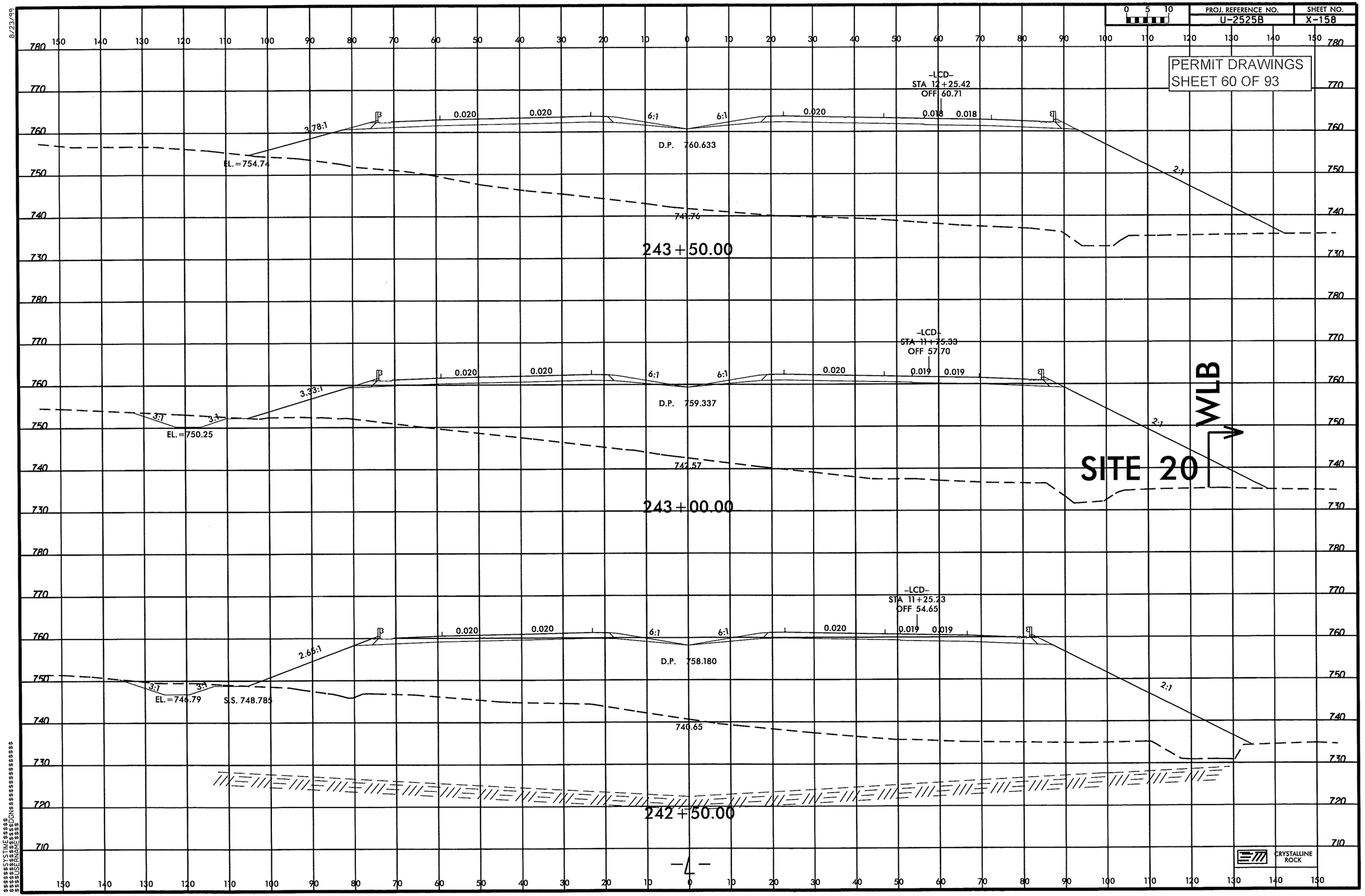
NCDOT
DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: 34821.1.1 (U-2525B)
GREENSBORO EASTERN LOOP
FROM NORTH OF US 70
RELOCATION TO US 29 NORTH
OF GREENSBORO

SHEET OF 03/08/13

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2525B	X-158

PERMIT DRAWINGS
SHEET 60 OF 93



$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$USERNAME$$$$

PERMIT DRAWINGS
SHEET 61 OF 93

SITE 22

SITE 21

END -L- STA. 275+00.00 TIP PROJECT U-2525B

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 31

MATCHLINE -L- STA. 275+00.00 SEE SHEET 20

MATCHLINE -Y13- STA. 57+50.00 SEE SHEET 32

MATCHLINE -L- STA. 280+00.00 SEE SHEET 22

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PRELIMINARY PLANS

PERMIT DRAWINGS
SHEET 62 OF 93

SITE 22

SITE 21

MATCHLINE -Y13RPB- STA. 39+50.00 SEE SHEET 31

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 31

MATCHLINE -Y13RPA- STA. 50+50.00 SEE SHEET 31

MATCHLINE -L- STA. 255+00.00 SEE SHEET 20

MATCHLINE -Y13RPC- STA. 32+00.00 SEE SHEET 32

MATCHLINE -LACLY- STA. 44+00.00 SEE SHEET 32

MATCHLINE -Y13- STA. 57+50.00 SEE SHEET 32

MATCHLINE -Y13RPD- STA. 62+00.00 SEE SHEET 32

MATCHLINE -L- STA. 280+00.00 SEE SHEET 22

END -L- STA. 275+00.00 TIP PROJECT U-2525B

[-L-] NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 3 FOR SPECIAL MEDIAN GRADING.

[-Y13-] NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 867.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 3-H FOR MINOR SECTIONS
SEE SHEET 20 FOR -L- PROFILE
SEE SHEET 18-BBB FOR -Y13- PROFILE
SEE SHEET 20-CCC FOR -Y13RPA- PROFILE
SEE SHEET 71 FOR -Y13RPB- PROFILE
SEE SHEET 72 FOR -Y13RPC- PROFILE
SEE SHEET 73 FOR -Y13RPD- PROFILE
SEE SHEET 74 FOR -LACLY- PROFILE
SEE SHEET 75 FOR -Y13RPE- PROFILE
SEE SHEET 3-I FOR STRUCTURE PLANS

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO. U-2525B
SHEET NO. 21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULIC ENGINEER
PRELIMINARY PLANS
NOT FOR BID OR CONSTRUCTION

REVISIONS

LOCATION:

TIP NO.: COUNTY:

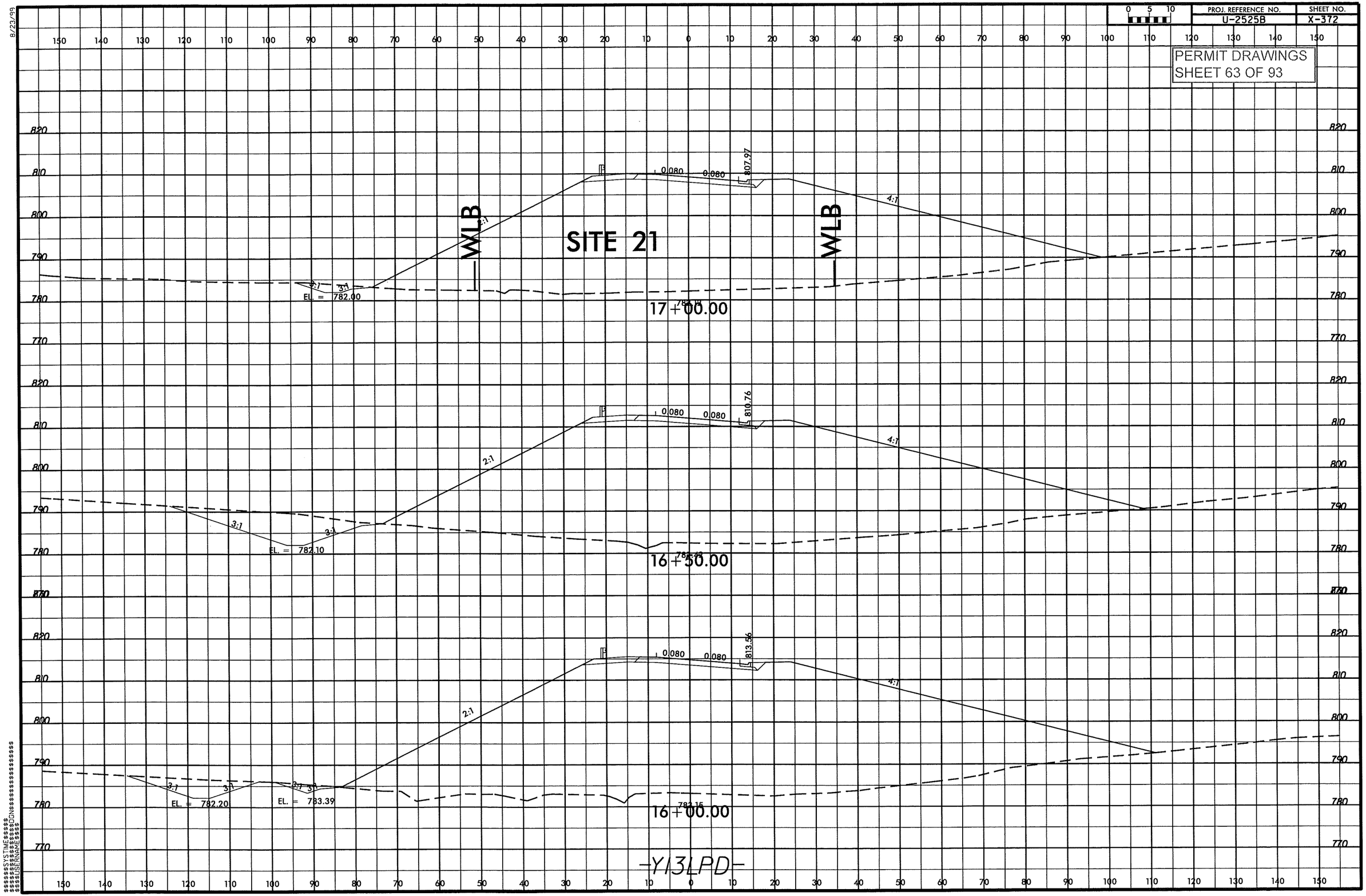
DESIGNED BY:

CHECKED BY: DATE:

8/23/99

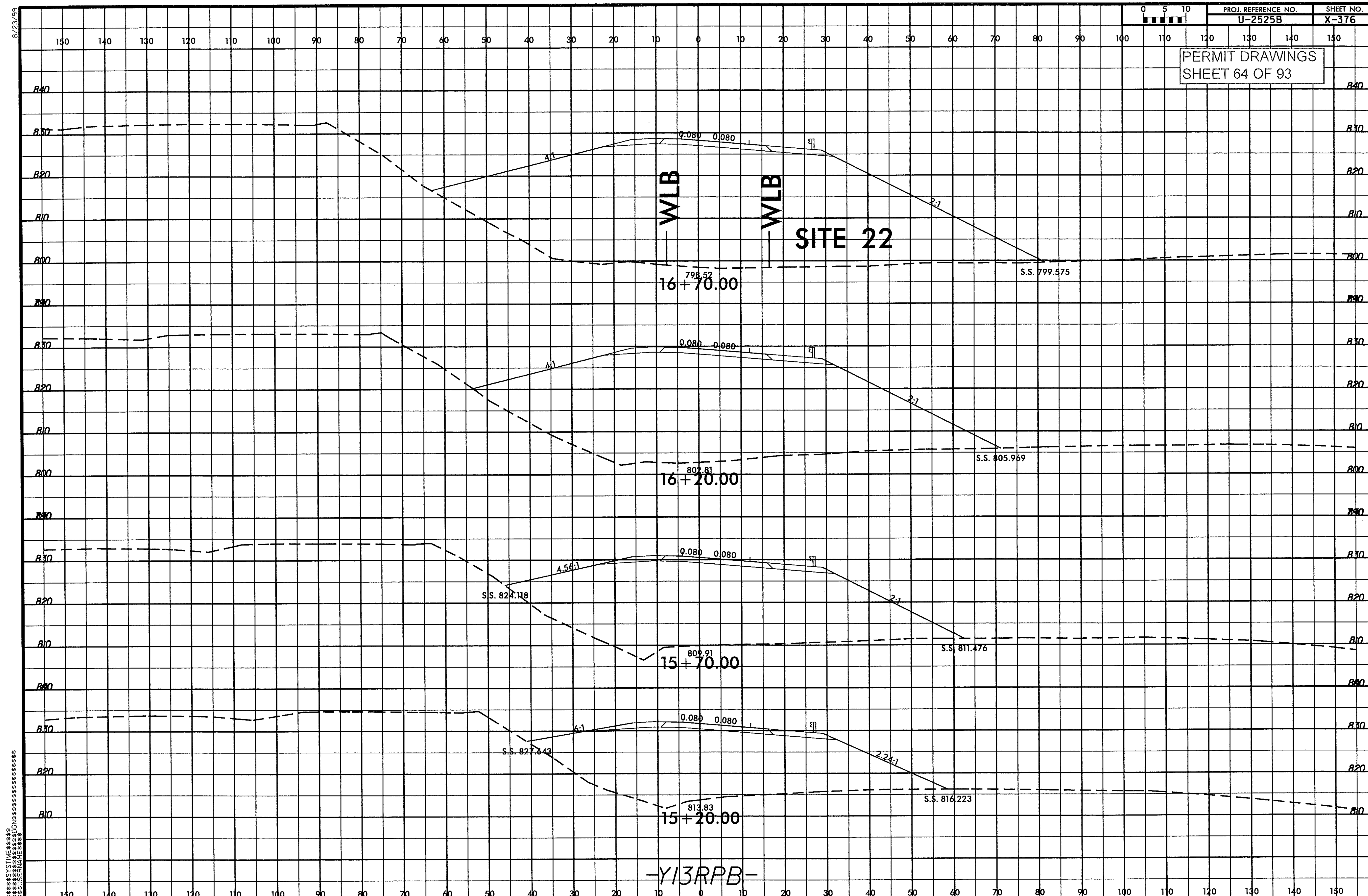
PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-372

PERMIT DRAWINGS
SHEET 63 OF 93



$$$$$$$$SYSTIME$$$$$
$$$$$$$$DGNFILE$$$$$
$$$$$$$$USERNAME$$$$$

-YI3LPD-


8/23/99
PROJ. REFERENCE NO.
U-2525B
SHEET NO.
X-376
PERMIT DRAWINGS
SHEET 64 OF 93
-WLB-
-WLB-
SITE 22
0.080
0.080
4:1
2:1
798.52
16+70.00
S.S. 799.575
802.81
16+20.00
S.S. 805.969
4.56:1
S.S. 824.118
809.91
15+70.00
S.S. 811.476
6:1
2.24:1
S.S. 827.643
813.83
15+20.00
S.S. 816.223
-Y13RPB-
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PERMIT DRAWINGS
SHEET 65 OF 93

REVISIONS

03-19-13 R/W REVISION (08G) - REVISED THE R/W C/A AND ADDED TCE ON PARCEL 106 (JAMES N.SCALES) FOR THE NEW "HY- SERVICE ROAD. REVISED THE R/W AND PUE ON PARCEL 108 (MARSHALL F.SCALES). REVISED THE PROPERTY OWNER NAME ON PARCEL #2 (COMMON AREA SOUTHEAST LAND COMPANY,LLC) TO YOUNG OAKS HOMEOWNERS ASSOCIATION).

PROJECT REFERENCE NO. 17-2502 | SHEET NO. 17
S/W SHEET NO.
RICHMOND STATION ENGINEERS | HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT APPROVED FOR CONSTRUCTION

-Y1SWM-
PVI Sta 13+68.74 PI Sta 21+27.05
PVI = 4.29' ELEV. (R = 1710.00' VRT)
L1 = 100.00' D = 1°09'42"
L2 = 100.00' L = 199.58'
S1 = 1.00% T = 99.76'
S2 = 2.99% R = 1710.00'
SE = 1.98

-Y13DD-
PVI Sta 17+44.68 PVI Sta 19+41.80
PVI = 4.29' ELEV. (R = 2.5' VRT)
L1 = 17.26' SAG L = 17.26'
L2 = 100.00' L = 100.00'
S1 = -1.00% R = 1725.00'
S2 = 2.99% ST = 16.0
SE = 1.98

-SR4T-
PVI Sta 21+74.16
PVI = 4.29' ELEV. (R = 1710.00' VRT)
L1 = 69.00' D = 2°23'54.62"
L2 = 69.00' L = 137.16'
S1 = 2.99% T = 97.16'
S2 = 1.00% R = 2500.00'
SE = 1.98
PO = SEE PLANS

-Y1C-
PVI Sta 18+49.86
PVI = 4.29' ELEV. (R = 1710.00' VRT)
L1 = 17.26' SAG L = 17.26'
L2 = 100.00' L = 100.00'
S1 = -1.00% R = 1725.00'
S2 = 2.99% ST = 16.0
SE = 1.98

-Y1SWM-
PVI Sta 13+68.74 PI Sta 21+27.05
PVI = 4.29' ELEV. (R = 1710.00' VRT)
L1 = 100.00' D = 1°09'42"
L2 = 100.00' L = 199.58'
S1 = 1.00% T = 99.76'
S2 = 2.99% R = 1710.00'
SE = 1.98

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

GRAPHIC SCALE 100' 0' 100'

MATCHLINE -Y13- STA 30+00.00 SEE SHEET 30

SITE 22A

SITE 22

SITE 22B

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 21

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 21

DETAIL A
STANDARD DITCH
Not to Scale

DETAIL B
TYPE RT-10
Not to Scale

SEE SHEET 68 FOR -Y13- PROFILE
SEE SHEET 75 FOR -Y14- PROFILE
SEE SHEET 69 FOR -Y1SWM- PROFILE
SEE SHEET 70 FOR -Y13DD- PROFILE
SEE SHEET 73 FOR -Y13SR4- PROFILE

LOCATION:
VP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWINGS
SHEET 66 OF 93

REVISIONS

03-19-13 R/W REVISION (DRG) - REVISED THE R/W C/A AND ADDED TCE ON PARCEL 106 (JAMES H.SCALES) FOR THE NEW "Y14" SERVICE ROAD.
REVISED THE R/W AND PUE ON PARCEL 108 (MARSHALL F.SCALES).
REVISED THE PROPERTY OWNER NAME ON PARCEL #2 COMMON AREA SOUTHEAST LAND COMPANY,LLC TO YOUNG OAKS HOMEOWNERS ASSOCIATION.

PROJECT ENGINEERING NO. 17-2506 | SHEET NO. W
SW SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER
PRELIMINARY PLANS
NO WAY USE FOR CONSTRUCTION

-Y13RPB-
PI Sta 13+48.74 PI Sta 21+27.78
Δ = 42°29'30.3" (LT) Δ = 17°07'55.9" (RT)
D = 4.00°
Lt = 1060
Lc = 1036
St = 552.46
R = 1432.69
Lc = 1390.00
St = 726.00
SE = .08

-Y13CD-
PI Sta 17+49.26 PI Sta 19+49.20
Δ = 17°07'55.9" (LT) Δ = 4°34'30.0" (RT)
D = 17°00'00"
L = 200.00
St = 100.56
R = 337.00
Lc = 200.00
SE = .14

-Y13-
PI Sta 21+27.78
Δ = 6°10'59.8" (RT)
D = 8°00'00"
L = 309.76
St = 155.16
R = 716.78
Lc = 309.00
SE = .04
PO = SEE PLANS

-Y14-
PI Sta 10+00.00
Δ = 17°07'55.9" (RT)
D = 17°00'00"
L = 200.00
St = 100.56
R = 337.00
Lc = 200.00
SE = .14

-Y13RPA-
PI Sta 43+50.00
Δ = 17°07'55.9" (RT)
D = 17°00'00"
L = 200.00
St = 100.56
R = 337.00
Lc = 200.00
SE = .14

MATCHLINE -Y13- STA. 30+00.00 SEE SHEET 30

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

GRAPHIC SCALE 100' 0' 100'

SITE 22A

SITE 22

SITE 22B

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 21

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 21

MATCHLINE -Y14- STA. 10+00.00 SEE SHEET 21

SEE SHEET 66 FOR -Y13- PROFILE
SEE SHEET 75 FOR -Y14- PROFILE
SEE SHEET 64 FOR -Y13RPA- PROFILE
SEE SHEET 70 FOR -Y13CD- PROFILE
SEE SHEET 73 FOR -Y13RPB- PROFILE

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWINGS
SHEET 67 OF 93

PROJECT REFERENCE NO.	
U-2525B	31
R/W SHEET NO.	
ROADWAY DESIGN	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SITE 22A

SITE 22

SITE 22B

TFF REAL ESTATE HOLDING COMPANY, LLC (111)

Marshall F. Scales (109)

James H. Scales (110)

(112)

(113)

(104)

ARCMLOG, LLC

(57)

(59)

(67)

(68)

(69)

(114)

NCDOT

-SRV1- PC Sta. 21+96.18

-SRV1- PT Sta. 25+16.49

-SRV1- POT Sta. 27+69.45

-Y13RPB- POT Sta. 10+00.00 = -Y13- POT Sta. 36+00.00 41.00' RT.

-Y13RPA- ST Sta. 27+42.75

-Y13RPA- CS Sta. 25+88.75

-Y13RPB- TS Sta. 12+56.68

-Y13RPB- SC Sta. 14+66.58

-113CD- PRC Sta. 16+38.62

-Y13RPA-

PI Sta 15+30.28	PI Sta 21+46.55	PI Sta 26+48.15
Θs = 5°57'08.6"	Δ = 63°13'45.4" (RT)	Θs = 5°57'08.6"
Ls = 187.00'	D = 6°21'58.3"	Ls = 187.00'
LT = 124.74'	L = 993.20'	LT = 124.74'
ST = 62.40'	T = 554.00'	ST = 62.40'
	R = 900.00'	
	SE = .08	

-Y13RPB-

PI Sta 23+27.06	PI Sta 30+31.09
Δ = 71°03'15.3" (RT)	Θs = 4°59'33.3"
D = 4°45'17.4"	Ls = 210.00'
L = 1,494.36'	LT = 140.06'

-Y13RPC-

PI Sta 11+81.52	PI Sta 22+25.70	PI Sta 29+93.79
Θs = 3°22'49.5"	Δ = 73°02'24.8" (RT)	Θs = 3°22'49.5"
Ls = 158.00'	D = 4°16'44.4"	Ls = 158.00'
LT = 105.35'	L = 1,706.95'	LT = 105.35'

5/14/99

REVISIONS

03-09-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO) REVISED THE PROPERTY OWNER NAME ON PARCEL 24 (JOHN LEE BROADWAY & TIFFANY N.BROADWAY) TO (ALBERT L.RHEW JR.) AND REVISED THE SOUTHERN PROPERTY LINE, COMBINED PARCELS 24 AND 78 INTO PARCEL 24 (ALBERT L.RHEW JR.) COMBINED PARCEL 24 (ALBERT L.RHEW JR.) AND PARCEL 80 (NORTHEAST BAPTIST CHURCH) - THIS AREA IS DEEDED TO PARCEL 4 (CITY OF GREENSBORO).

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

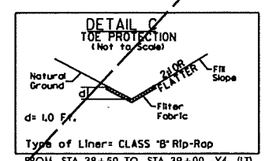
PERMIT DRAWINGS
SHEET 68 OF 93

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

100' 0' 100'
GRAPHIC SCALE

DETAIL C
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS "B" Rip-Rap
FROM STA. 38+50 TO STA. 39+00 -Y4- (LT)
Est. 25 Tons
83 SQYDS FILTER FAB.

-DRV3- POT Sta. 13+77.40

-DRV3- PT Sta. 12+54.13

-DRV3- PRC Sta. 11+63.90

-DRV3- PC Sta. 10+13.39

-Y4- POT Sta. 35+00.00=
-Y4A- POT Sta. 15+54.51
-DRV3- POT Sta. 10+00.00

-Y4- PC STA. 35+53.96

-Y5B- POT Sta. 10+00.00

-DRV1- POT Sta. 10+00.00

-DRV1- PC Sta. 10+06.67

-DRV1- PRC Sta. 11+01.67

-Y4A- PT Sta. 15+39.89

-DRV1- PT Sta. 11+89.75

-Y4A- PC Sta. 13+60.06

-Y4A- POT Sta. 12+59.00 =
-DRV1- POT Sta. 12+03.46

-Y4A- POT Sta. 10+00.00

-Y4- PT STA. 41+39.88

MATCHLINE -Y4- STA. 31+50.00 SEE SHEET 7

MATCHLINE -Y4- STA. 43+00.00 SEE SHEET 26

MATCHLINE -Y5B- STA. 12+00.00 SEE SHEET 26

Robert L. Mafford (23)

Albert L. Rhew Jr. (24)

ALBERT L. RHEW JR

Northeast Baptist Church (80)

NCDOT (81)

CITY OF GREENSBORO (4)

ISBKD

ISBK NORTHEAST BAPTIST CHURCH

ISFD

2SFD

BALL FIELD

CANOPY

POOL

REMOVE MH AND 18" RCP

18" RCP-III

15" RCP-III

24" RCP-III

DRAPE TO DRAIN

TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "C"

CLASS "B" RIPRAP PAD Est. 15 Tons 27 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC Est. 7 TONS 93 SY FABRIC

CLASS "B" RIPRAP W/FILTER FABRIC Est. 3 TONS Est. 19 SY FABRIC

LATERAL "V" DITCH SEE DETAIL "B"

PDE PSH SEE DETAIL SHEET 2-1

END SBG @ STA. 37+06 -Y4- (LT.)

END SBG @ STA. 37+05 -Y4- (RT.)

ROD AND ELBOWS

N 30° 20' 54" E

N 02°49'34"E 355.77'

N 02°47'57"E 483.17'

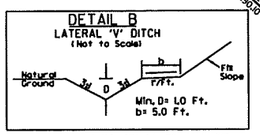
S 03°27'03" W 466.37'

N02°49'34"E 356.25'

SITE 24

SITE 23

DETAIL B
LATERAL "V" DITCH
(Not to Scale)



FROM STA. 12+89 TO STA. 14+50 -Y4A- (LT)

-DRV1-		-Y4-	-Y4A-	-DRV3-	
PI Sta 10+59.14	PI Sta 11+49.21	PI Sta 38+56.26	PI Sta 14+51.52	PI Sta 10+92.41	PI Sta 12+09.36
Δ = 60° 28' 50.9" (RT)	Δ = 55° 41' 17.5" (LT)	Δ = 34° 47' 19.0" (LT)	Δ = 25° 45' 31.5" (LT)	Δ = 43° 07' 09.3" (RT)	Δ = 17° 13' 52.6" (LT)
D = 63° 39' 43.5"	D = 63° 39' 43.5"	D = 5° 56' 14.6"	D = 14° 19' 26.2"	D = 28° 38' 52.4"	D = 19° 05' 54.9"
L = 95.00'	L = 87.47'	L = 585.92'	L = 179.83'	L = 150.51'	L = 90.22'
T = 52.47'	T = 47.54'	T = 302.31'	T = 91.46'	T = 79.02'	T = 45.45'
R = 90.00'	R = 90.00'	R = 965.00'	R = 400.00'	R = 200.00'	R = 300.00'
		SE = 04			
		RO = 100'			

SEE SHEET 55 FOR -Y4- PROFILE
SEE SHEET 60 FOR -Y4A- PROFILE
SEE SHEET 60 FOR -DRV1- PROFILE
SEE SHEET 60 FOR -DRV3- PROFILE
SEE SHEET 61 FOR -Y5B- PROFILE

5/14/99

REVISIONS

03-19-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO), REVISED THE PROPERTY OWNER NAME ON PARCEL 24 (JOHN LEE BROADWAY) TO (ALBERT L.RHEW JR.) AND REVISED THE SOUTHERN PROPERTY LINE, CHANGED O THE EXISTING R/W LINES TO PROPERTY LINES BETWEEN PARCEL 24 (ALBERT L.RHEW JR.) AND PARCEL 80 (NORTHEAST BAPTIST CHURCH) - THIS AREA IS DEEDED TO PARCEL 4 (CITY OF GREENSBORO).

F / F DENOTES FILL IN WETLAND

HC / HC DENOTES HAND CLEARING

100' 0' 100'
GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 69 OF 93

SITE 24

SITE 23

DETAIL C
TOE PROTECTION
(Not to Scale)

Natural Ground, 2:1 FLATTER, Fill Slope, dl, 1.0 Ft., Filter Fabric

Type of Liner= CLASS "B" Rip-Rap
FROM STA. 38+50 TO STA. 39+00 -Y4- (LT)
Est. 25 Tons
83 SQYDS FILTER FAB.

DETAIL B
LATERAL "V" DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1, b, 1 Ft., Fill Slope
Min. D= 1.0 Ft.
b= 5.0 Ft.

FROM STA. 12+89 TO STA. 14+50 -Y4A- (LT)

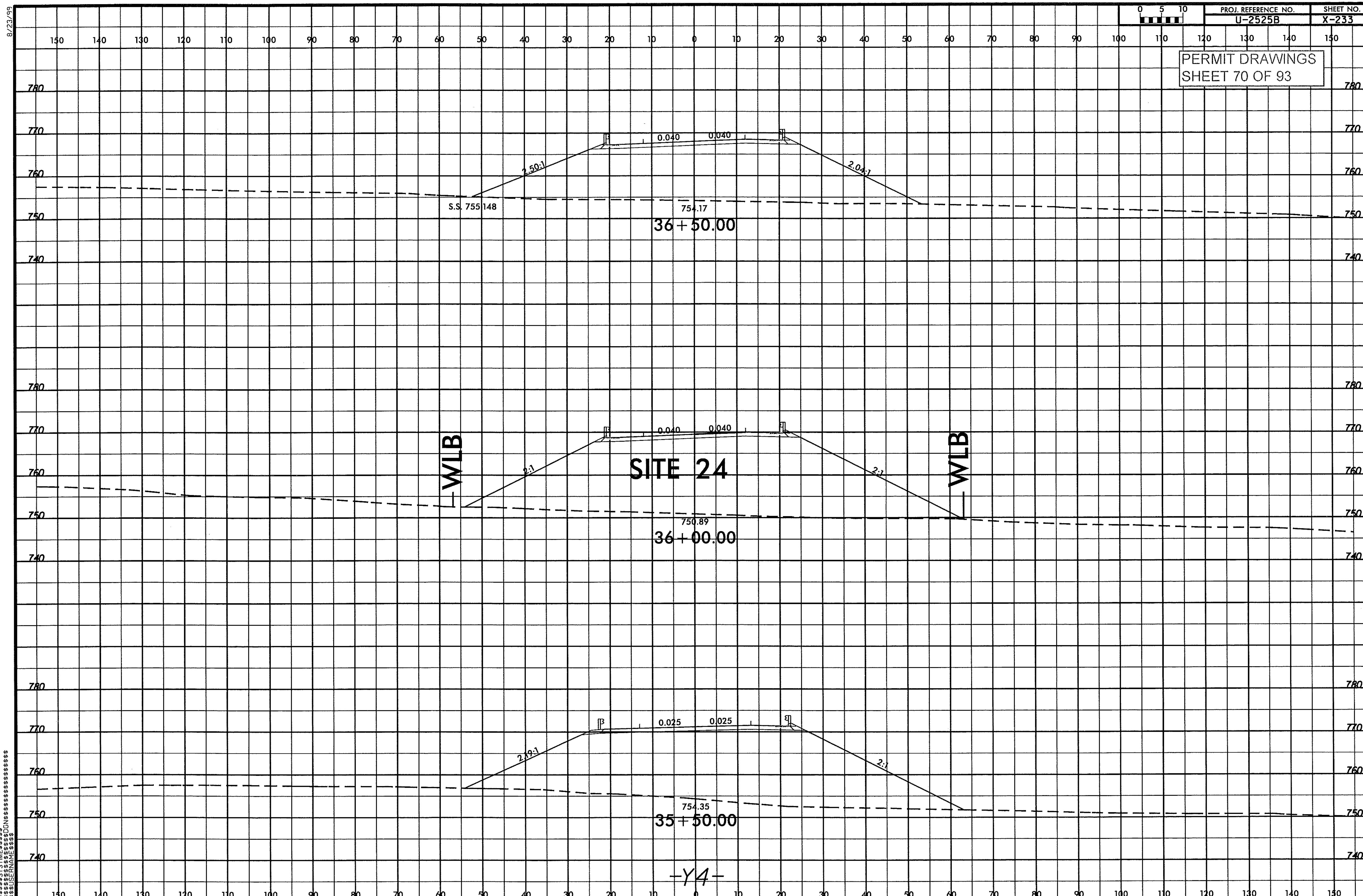
-DRV1-		-Y4-	-Y4A-	-DRV3-	
PI Sta 10+59.14	PI Sta 11+49.21	PI Sta 38+56.26	PI Sta 14+51.52	PI Sta 10+92.41	PI Sta 12+09.36
Δ = 60° 28' 50.9" (RT)	Δ = 55° 41' 17.1" (LT)	Δ = 34° 47' 19.0" (LT)	Δ = 25° 45' 31.5" (LT)	Δ = 43° 07' 09.3" (RT)	Δ = 17° 13' 52.6" (LT)
D = 63° 39' 43.5"	D = 63° 39' 43.5"	D = 5° 56' 14.6"	D = 14° 19' 26.2"	D = 28° 38' 52.4"	D = 19° 05' 54.9"
L = 95.00'	L = 87.41'	L = 585.92'	L = 179.83'	L = 150.51'	L = 90.22'
T = 52.47'	T = 47.54'	T = 302.31'	T = 91.46'	T = 79.02'	T = 45.45'
R = 90.00'	R = 90.00'	R = 965.00'	R = 400.00'	R = 200.00'	R = 300.00'
		SE = 04			
		RO = 100'			

SEE SHEET 55 FOR -Y4- PROFILE
SEE SHEET 60 FOR -Y4A- PROFILE
SEE SHEET 60 FOR -DRV1- PROFILE
SEE SHEET 60 FOR -DRV3- PROFILE
SEE SHEET 61 FOR -Y5B- PROFILE

8/23/99

PROJ. REFERENCE NO. U-2525B | SHEET NO. X-233

PERMIT DRAWINGS
SHEET 70 OF 93



$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PERMIT DRAWINGS
SHEET 71 OF 93

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS 5/14/99

MATCHLINE -Y11- STA. 26+00.00 SEE SHEET 18

-Y11-
PI Sta 26+80.11
Δ = 19° 38' 06.2" (LT)
D = 6° 09' 39.0"
L = 318.71'
T = 160.93'
R = 930.00'
SE = .04
RO = 96'

DETAIL VV
PIPE OUTLET CHANNEL
(Not to Scale)

Length= 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap

STA. 32+79 -Y11- (RT) Est. 4.0 Tons Class "B" RipRap

DETAIL CD
SPECIAL CUT DITCH
(Not to Scale)

Min. D= 1.0 Ft.

FROM STA. 29+50 TO STA. 31+50 -Y11- (LT)

DETAIL CC
SPECIAL CUT DITCH w/HINGE
(Not to Scale)

Min. D= 1.0 Ft.

FROM STA. 32+00 TO STA. 32+86 -Y11- (LT)

RACHEL J. MARTIN 94

Harold A. Horton 56

Thomas G. Hayes Jr. 96

ALICE PATTERSON HAYES 54

THOMAS G. HAYES 95

ALICE PATTERSON HAYES 54

Katherine G. Moore

ROBERT R. & MICHELLE L. PORTER

JOHN R. CHANDLER

PAULINE C. R. IRVING

SITE 25

-Y11- PT Sta. 28+37.88

POND WE=755.0

RETAIN EXIST R/W

RETAIN EXISTING R/W

SPECIAL CUT DITCH SEE DETAIL "CD"

SPECIAL CUT DITCH SEE DETAIL "CC"

GRADE TO DRAIN

COLLAR AND EXTEND

REMOVE

RETAIN COLLAR AND EXTEND

ISFD

ISBKD

ISBW

60' ELEC

50' ELEC

PUE

10' UTILITY EASEMENT

10'X70' SIGHT EASEMENT

10' ACCESS EASEMENT

CANAAN FOREST

MCKNIGHT MILL RD SR 2803

SR 2803 LINK RD

EXISTING R/W

15" CONC

12" CONC

10" CONC

30+00

35+00

40+00

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 63 FOR -Y11- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 72 OF 93

REVISIONS 5/14/99

MATCHLINE -Y11- STA. 26+00.00 SEE SHEET 18

-Y11-
PI Sta 26+80.11
Δ = 19° 38' 06.2" (LT)
D = 6° 09' 39.0"
L = 318.71'
T = 160.93'
R = 930.00'
SE = .04
RO = 96'

DETAIL VV
PIPE OUTLET CHANNEL
(Not to Scale)
Length= 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap
STA. 32+79 -Y11- (RT) Est. 4.0 Tons Class "B" RipRap

DETAIL CD
SPECIAL CUT DITCH
(Not to Scale)
Min. D= 1.0 Ft.
FROM STA. 29+50 TO STA. 31+50 -Y11- (LT)

DETAIL CC
SPECIAL CUT DITCH w/HINGE
(Not to Scale)
Min. D= 1.0 Ft.
FROM STA. 32+00 TO STA. 32+86 -Y11- (LT)

NAD 83/95

RACHEL J. MARTIN 94
ISFD
RETAIN EXIST R/W
RETAIN EXISTING R/W
Harold A. Horton 56
SPECIAL CUT DITCH SEE DETAIL "CD"
SPECIAL CUT DITCH SEE DETAIL "CC"
ALICE PATTERSON HAYES 54
GRADE TO DRAIN
30+00
35+00
40+00
COLLAR AND EXTEND
REMOVE
RETAIN COLLAR AND EXTEND
Thomas G. Hayes Jr. 96
ISBKD
95 THOMAS G. HAYES
-Y11- P.I. Sta. 28+37.88
POND WE=755.0
Katherine G. Moore
ROBERT R. & MICHELLE L. PORTER
JOHN R. CHANDLER
PAULINE C. R. IRVING
SR 2053 (LINK RD)
McKNIGHT MILL RD 20' BST
10' UTILITY EASEMENT
10'X10' SIGHT EASEMENT
D' ACCESS EASEMENT
CANNAN FORCE
EXISTING R/W
EXISTING R/W (CL CONC)

SITE 25

DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

0' 100' 200'
GRAPHIC SCALE

SEE SHEET 63 FOR -Y11- PROFILE

PERMIT DRAWINGS
SHEET 73 OF 93

PROJECT REFERENCE NO. 17-2562 | SHEET NO. 32
STATE PROJECT REFERENCE NO.
ROADWAY DESIGN ENGINEER | STRUCTURES ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

REVISIONS
03-16-23 R/W REVISION 10860 - REVISED THE NORTHERN LOT OF PARCEL 95 (JEROME D.SPRUILL) TO PARCEL 95A (SCOTT FORMERLY CARL W.PARADISE JR.). PARCEL 88 (WALTER S.JONES JR.) WAS SUBDIVIDED AND LOT DEEDED TO LARRY L.HOWELL & DIANE ELMORELL. REVISED THE PROPERTY OWNER NAME ON PARCEL 120 (SARAH C.COLLINS) TO JOAN EDWARD CECIL AND WIFE, SANDRA JEAN GARTIN CECIL. SUBDIVIDED PARCEL 125 (WALTER ALLEN'S & BOBBIE JEAN ALLEN'S LAND) PARCEL 125A (WALTER ALLEN'S).

SITE 26

SITE 27

SITE 28

MATCHLINE -Y13- STA. 57+50.00 SEE SHEET 21

MATCHLINE -Y13SPC- STA. 1+00.00 SEE SHEET 21

MATCHLINE -LACFLY- STA. 44+00.00 SEE SHEET 21

MATCHLINE -Y13SPD- STA. 1+00.00 SEE SHEET 30

MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 33

DETAIL P
TRUE N.
Type of Liner PIPE
FROM STA. 37+56 -Y13- (MID)
TO STA. 38+57 -ASCD- (MID)

DETAIL V
TRUE N.
Type of Liner PIPE
FROM STA. 37+56 -Y13- (MID)
TO STA. 38+57 -ASCD- (MID)

DETAIL AG
TRUE N.
Type of Liner PIPE
FROM STA. 33+60 TO STA. 33+70 -Y21- (LT)

DETAIL D
TRUE N.
Type of Liner PIPE
FROM STA. 37+56 -ASCD- TO
TO STA. 37+89 -ASCD- (LT)

DETAIL D
TRUE N.
Type of Liner PIPE
FROM STA. 34+10 -Y13- TO
TO STA. 33+89 -Y13- (LT)

-Y13SPC-
PI Sta. 1+00.00
Δ = 1°47'46.4" (LT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

-Y13-
PI Sta. 57+50.00
Δ = 1°47'46.4" (RT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

-Y13SPD-
PI Sta. 1+00.00
Δ = 1°47'46.4" (LT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

-LACFLY-
PI Sta. 44+00.00
Δ = 1°47'46.4" (RT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

-Y13SPC-
PI Sta. 41+75.00
Δ = 42°30.00" (RT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

-Y13SPD-
PI Sta. 1+75.00
Δ = 42°30.00" (LT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

-LACFLY-
PI Sta. 41+75.00
Δ = 42°30.00" (LT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

-LACFLY-
PI Sta. 1+75.00
Δ = 42°30.00" (RT)
D = 1°00.00'
T = 50.00'
L = 100.00'
R = 5729.600
SE = 0.00%

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

100' 0' 100'
GRAPHIC SCALE

SEE SHEET 97 FOR -Y13- PROFILE
SEE SHEET 76 FOR -LACFLY- PROFILE
SEE SHEETS 70 & 71 FOR -Y13CD- PROFILE
SEE SHEET 74 FOR -Y13APC- PROFILE
SEE SHEET 78 FOR -Y21- PROFILE
SEE SHEET 79 FOR -Y21B- PROFILE

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

PERMIT DRAWINGS
SHEET 74 OF 93

SITE 26

SITE 27

SITE 28

MATCHLINE -Y13- STA. 57+50.00 SEE SHEET 21

MATCHLINE -J13SPC- STA. 15+00.00 SEE SHEET 21

MATCHLINE -LACFLY- STA. 44+00.00 SEE SHEET 21

MATCHLINE -J13SPD- SEE SHEET 21

MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 33

REVISIONS
03-16-13 R/W REVISION 10180 - REVISED THE NORTHERN LOT OF PARCEL 85 JEROME G.SPRUILL TO PARCEL 85A WYDOT FORMERLY CARL B.PARKER JR.)
PARCEL 88 WALTER S.LOWES JR.) WAS SUBDIVIDED AND LOT DEEDED TO LARRY L.HOWELL & DIANE B.HOWELL
REVISED THE PROPERTY OWNER NAME ON PARCEL 120 SIDNEY C.COLLINS TO JOAN, EDWARD CECIL AND WIFE, BARBARA JEAN MARTIN CECIL)
SUBDIVIDED PARCEL 122 WALTER M.LEWIS & BOBBIE JEAN J.LEWIS,ADDING PARCEL 122A WALTER M.LEWIS

PROJECT REFERENCE NO. 17-2650 | SHEET NO. 19
S/W SHEET NO.
ROADWAY DESIGN ENGINEER | STRUCTURE ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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

GRAPHIC SCALE 100' 0' 100'

SEE SHEET 67 FOR -Y13- PROFILE
SEE SHEET 76 FOR -LACFLY- PROFILE
SEE SHEETS 70 & 71 FOR -J13CD- PROFILE
SEE SHEET 74 FOR -J13SPC- PROFILE
SEE SHEET 78 FOR -Y21- PROFILE
SEE SHEET 79 FOR -Y21B- PROFILE

GRAPHIC SCALE 50 25 0 50 100 PLANS

LOCATION:
F.P NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

PERMIT DRAWINGS
SHEET 75 OF 93

Revised 9/24/13

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

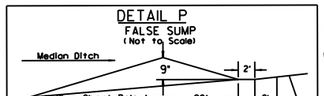
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 26

SITE 27

SITE 28

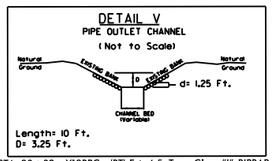
DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

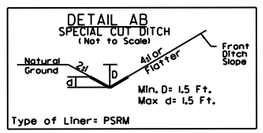
@ STA. 59+86 -Y13- (MED)
@ STA. 35+57 -113CD- (MED)

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)



STA. 30+02 -Y13RPC- (RT) Est. 4.5 Tons Class "I" RIPRAP
STA. 50+23 -LACFLY- (RT) Est. 4.0 Tons Class "I" RIPRAP

DETAIL AB
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= PSRM
FROM STA. 28+00 TO STA. 30+76 -Y21- (LT)

-Y13RPC- CS Sta. 29+41.11
-Y13RPC- ST Sta. 30+99.11=
-LACFLY- POT Sta. 50+00.00 12' RT.
-Y21- POT Sta. 35+96.87
-LACFLY- ST Sta. 51+59.99
-LACFLY- ST Sta. 48+05.71
-LACFLY- SC Sta. 53+59.99
-Y21B- POT Sta. 10+00.00=
-Y21- POC Sta. 31+44.04
-Y21B- POT Sta. 10+79.45
-Y21- PT Sta. 34+48.51
-Y13RPD- ST Sta. 10+00.00=
-Y13RPD- SC Sta. 11+82.00
-113CD- POT Sta. 4+80.04 =
-Y13- POT Sta. 64+87.25 39.00' LT.

NCDOT
FORMERLY CARL W. PARDUE, JR.

United Holy Church of America Inc.

W. W. ROBERSON

GREENSBORO WEEKLY RENTALS, LLC

CARL EDWARD CECIL and wife, BARBARA JEAN MARTIN CECIL

Walter S. Jones Jr.

Walter M. Lewis

WALTER M. LEWIS & BOBBIE JEAN J. LEWIS

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

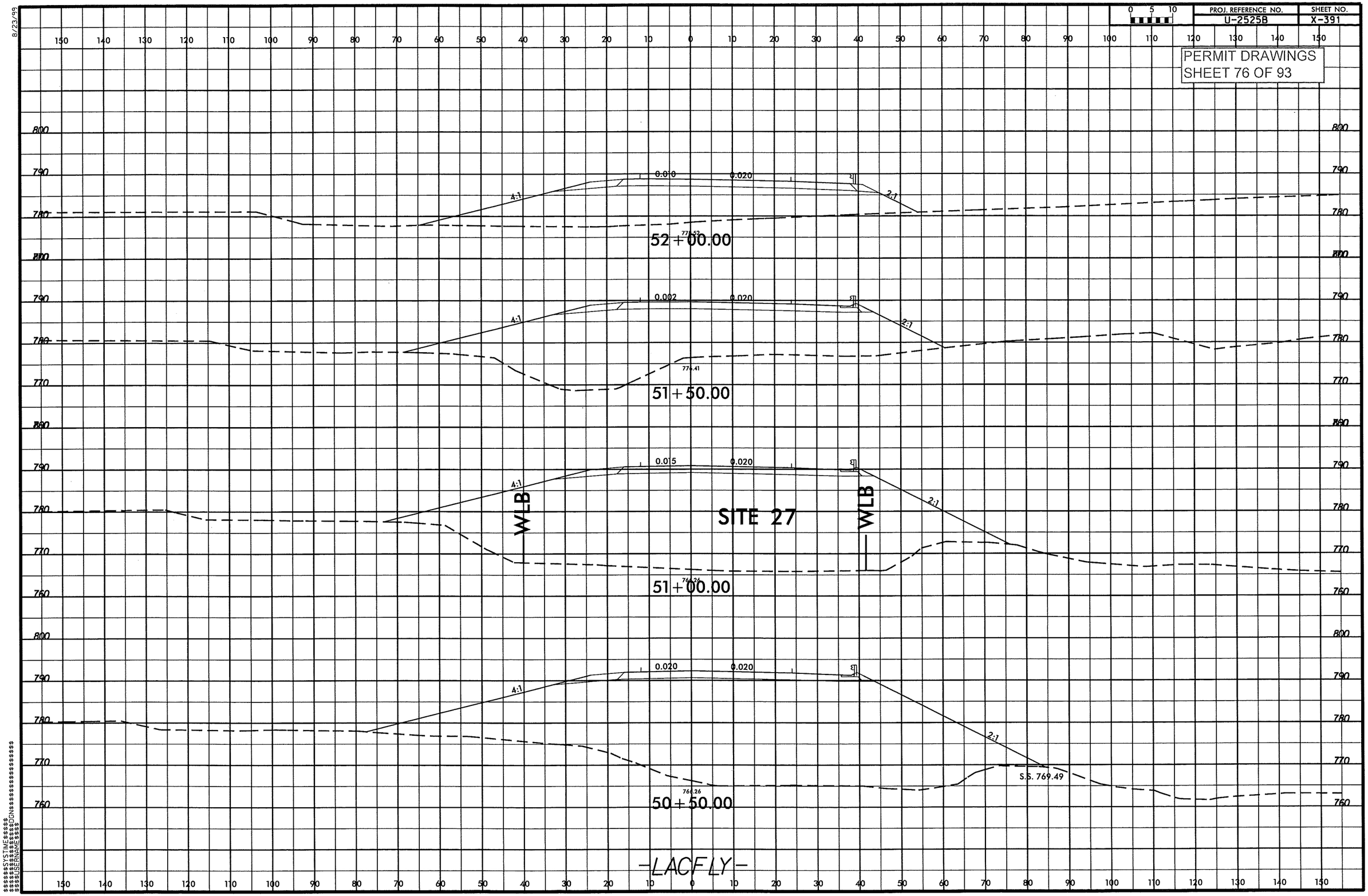
GRAPHIC SCALE

MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 33

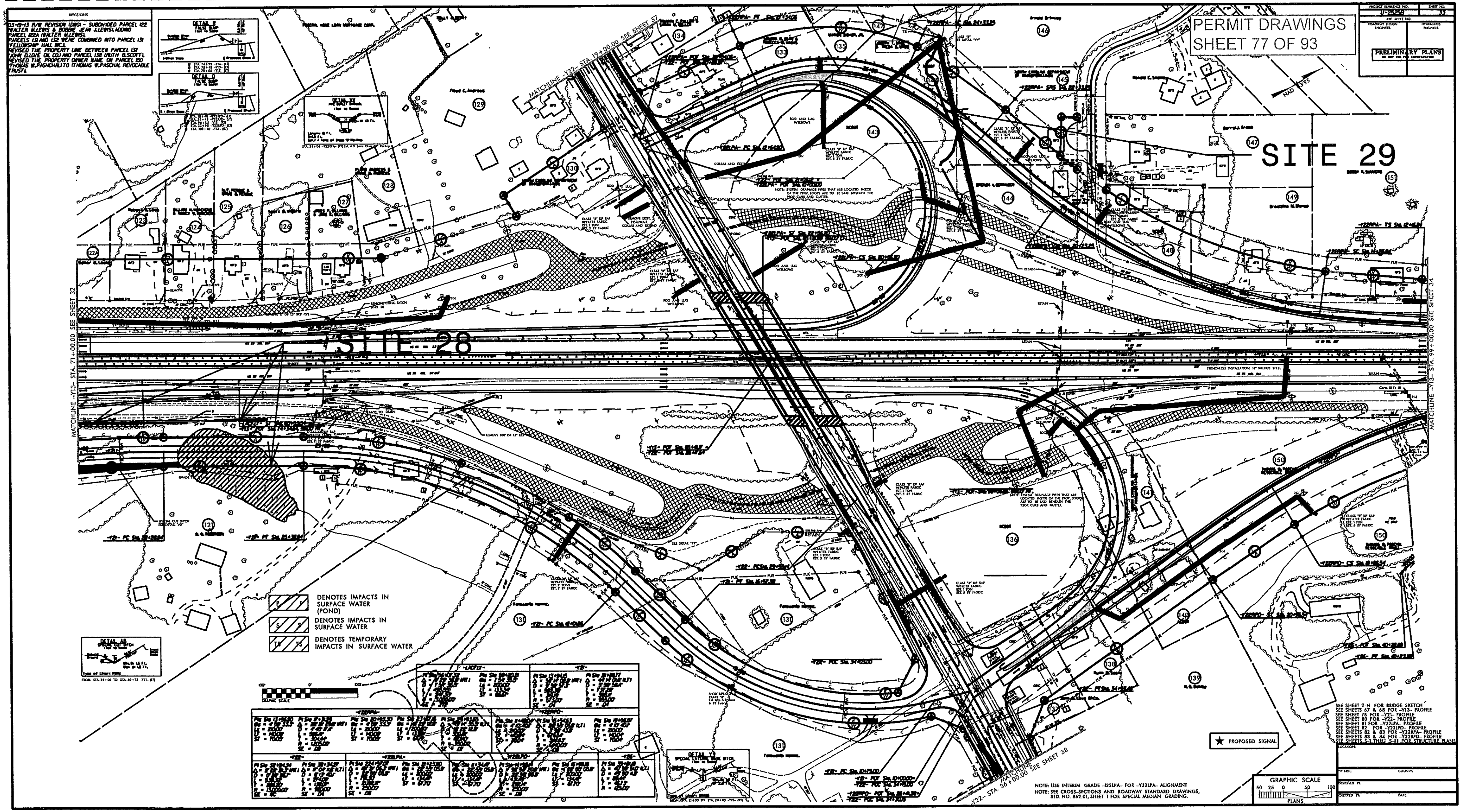
8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2525B	X-391

PERMIT DRAWINGS
SHEET 76 OF 93



$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$DGN$$$$$$$$


PERMIT DRAWINGS
SHEET 77 OF 93
PRELIMINARY PLANS
REVISIONS
SITE 28
SITE 29
MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 32
MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 34
MATCHLINE -Y22- STA. 19+00.00 SEE SHEET 37
MATCHLINE -Y22- STA. 36+00.00 SEE SHEET 38
DENOTES IMPACTS IN SURFACE WATER (POND)
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PROPOSED SIGNAL
TRENCHLESS INSTALLATION 18" WELDED STEEL
NOTE: USE INTERIM GRADE -I22LPA- FOR -Y22LPA- ALIGNMENT
NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEETS 67 & 68 FOR -Y13- PROFILE
SEE SHEET 78 FOR -Y21- PROFILE
SEE SHEET 80 FOR -Y22- PROFILE
SEE SHEET 81 FOR -Y22LPA- PROFILE
SEE SHEET 82 FOR -Y22LPD- PROFILE
SEE SHEETS 82 & 83 FOR -Y22RPA- PROFILE
SEE SHEETS 83 & 84 FOR -Y22RPD- PROFILE
SEE SHEETS S-1 THRU S-11 FOR STRUCTURE PLANS
GRAPHIC SCALE
PLANS
NAD 1/95

PERMIT DRAWINGS
SHEET 78 OF 93

SITE 28

SITE 29

MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 32

MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 34

MATCHLINE -Y22- STA. 36+00.00 SEE SHEET 38

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROPOSED SIGNAL

NOTE: USE INTERIM GRADE -I22LPA- FOR -Y22LPA- ALIGNMENT
NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

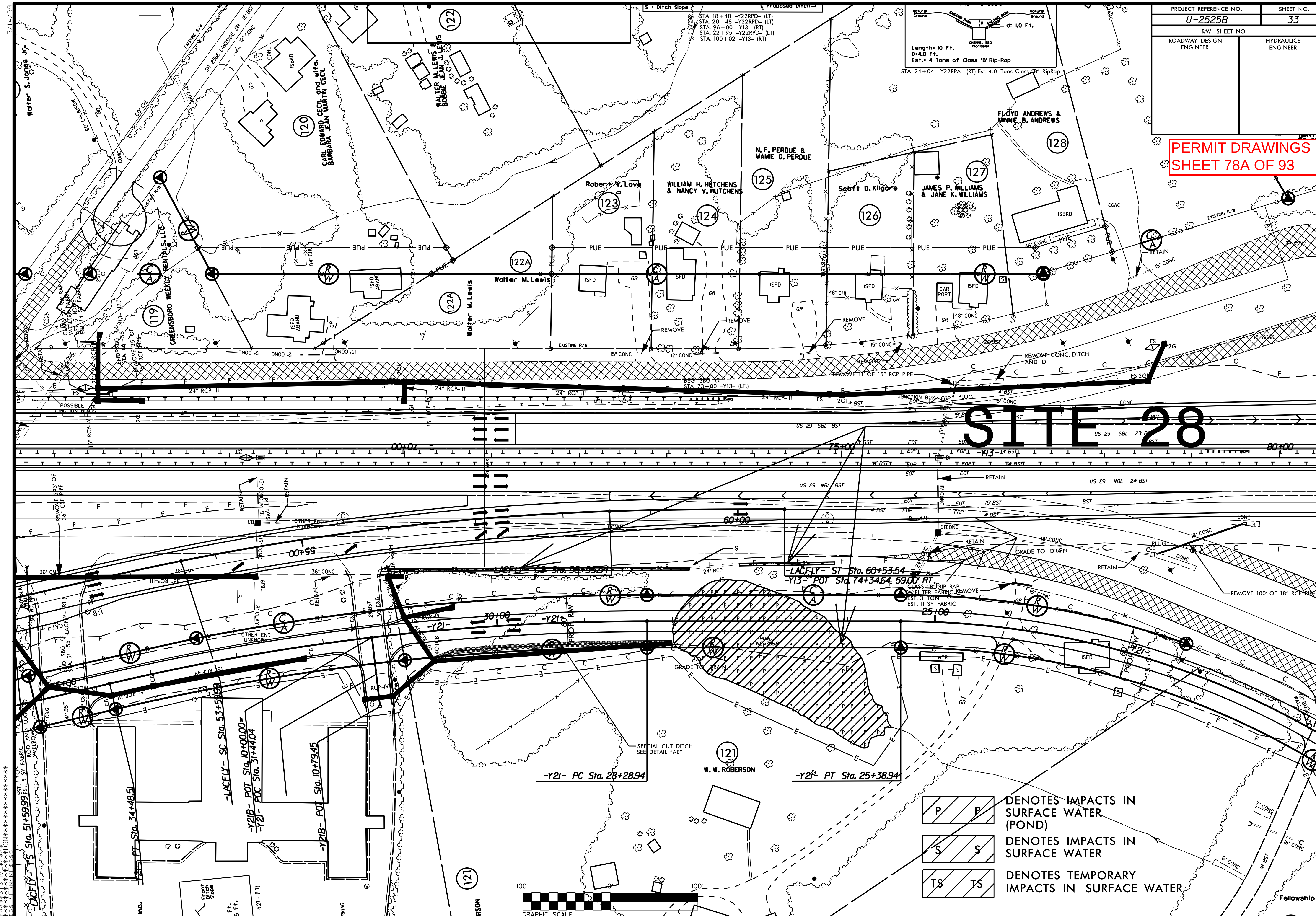
GRAPHIC SCALE
50 25 0 50 100
PLANS

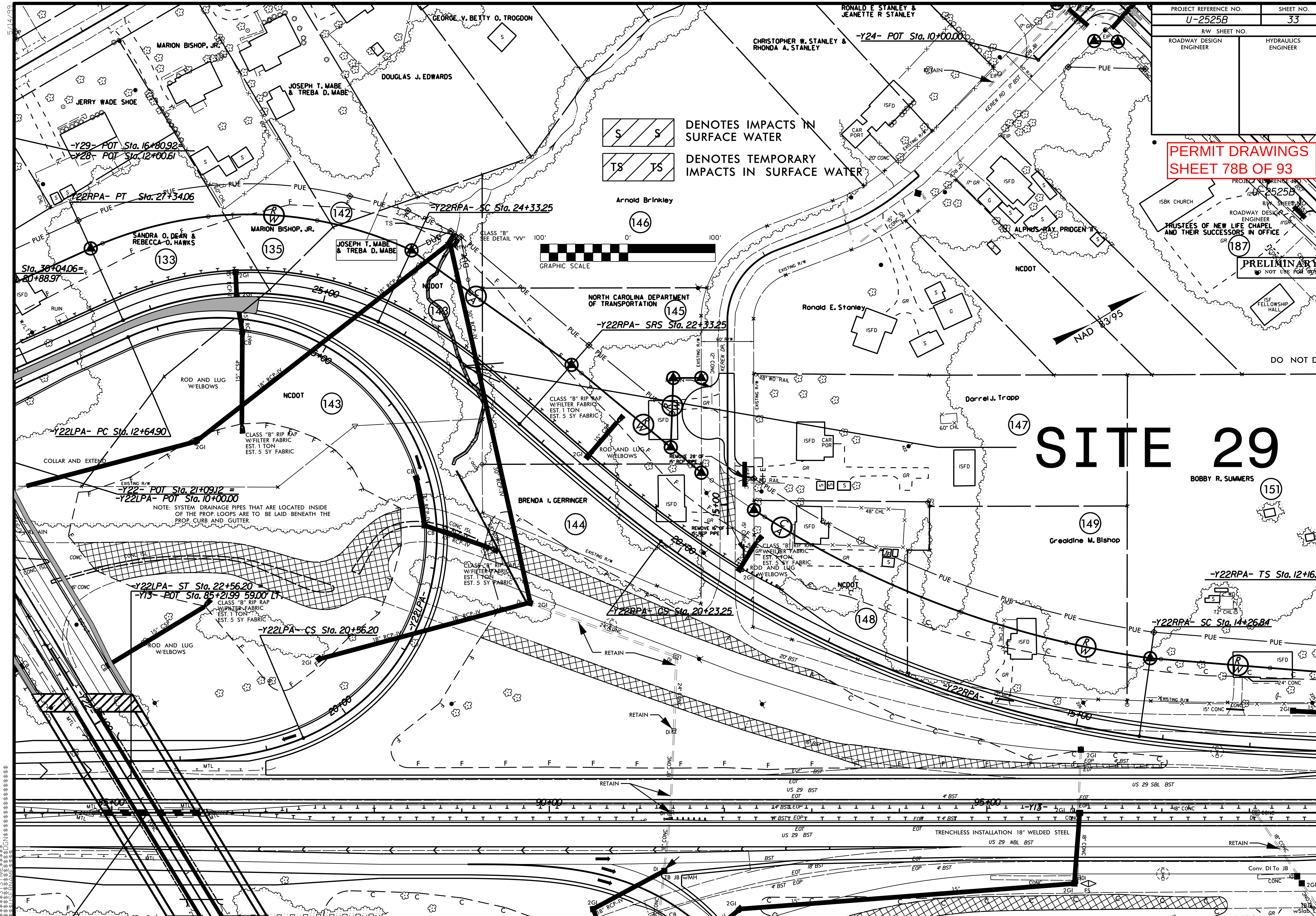
SEE SHEET 7-N FOR BRIDGE SKETCH
SEE SHEETS 57 & 68 FOR -Y13- PROFILE
SEE SHEET 78 FOR -Y21- PROFILE
SEE SHEET 80 FOR -Y22- PROFILE
SEE SHEET 81 FOR -Y22LPA- PROFILE
SEE SHEET 83 FOR -Y22LPD- PROFILE
SEE SHEETS 82 & 83 FOR -Y22RPA- PROFILE
SEE SHEETS 83 & 84 FOR -Y22RPD- PROFILE
SEE SHEETS S-1 THRU S-33 FOR STRUCTURE PLANS

REVISIONS
03-6-13 R/W REVISOR (DRG) - SUBDIVIDED PARCEL 122 WALTER ALLEN & BOBBIE JEAN J.LEWIS,ADDING PARCEL 122A WALTER ALLEWIS. PARCELS 129 AND 130 WERE COMBINED INTO PARCEL 131 FELLOWSHIP HALL INC. REVISED THE PROPERTY LINE BETWEEN PARCEL 137 JOHN DUDLEY OIL CO.,ILL AND PARCEL 138 (SMITH & SCOTT) REVISED THE PROPERTY OWNER NAME ON PARCEL 60 (THOMAS W.PASCHAL) TO (THOMAS W.PASCHAL REVOCABLE TRUST).

PROJECT REFERENCE NO. 17C2958
SHEET NO. 77
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
STRUCTURES ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

LOCATION
TIP NO.
COUNTY:
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE:


PROJECT REFERENCE NO.
U-2525B
SHEET NO.
33
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PERMIT DRAWINGS
SHEET 78A OF 93
SITE 28
Length= 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap
STA. 24+04 -Y22RPA- (RT) Est. 4.0 Tons Class "B" RipRap
S = Ditch Slope
STA. 18+48 -Y22RPD- (LT)
STA. 20+48 -Y22RPD- (LT)
STA. 96+00 -Y13- (RT)
STA. 22+95 -Y22RPD- (LT)
STA. 100+02 -Y13- (RT)
Walter S. Jones Jr.
CARL EDWARD CECIL and wife, BARBARA JEAN MARTIN CECIL
WALTER M. LEWIS & BOBBIE JEAN J. LEWIS
GREENSBORO WEEKLY RENTALS, LLC
Walter M. Lewis
Robert V. Love
WILLIAM H. HUTCHENS & NANCY V. HUTCHENS
N. F. PERDUE & MAMIE G. PERDUE
Scott D. Kilgore
JAMES P. WILLIAMS & JANE K. WILLIAMS
FLOYD ANDREWS & MINNIE B. ANDREWS
W. W. ROBERSON
Fellowship Ho
BEG SBG @ STA. 73+00 -Y13- (LT.)
REMOVE 11' OF 15" RCP PIPE
REMOVE CONC. DITCH AND DI
REMOVE 100' OF 18" RCP PIPE
REMOVE 293' OF 36" CSP PIPE
US 29 SBL BST
US 29 NBL 24' BST
-LACFLY- CS Sta. 58+55.57
-LACFLY- ST Sta. 60+53.54
-Y13- POT Sta. 74+34.64 59.00' RT.
CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TON EST. 11 SY FABRIC
-Y21- PC Sta. 28+28.94
-Y21- PT Sta. 25+38.94
SPECIAL CUT DITCH SEE DETAIL "AB"
GRADE TO DRAIN
-LACFLY- SC Sta. 53+59.99
-Y21B- POT Sta. 10+00.00= -Y21- POC Sta. 31+44.04
-Y21B- POT Sta. 10+79.45
-Y21- PT Sta. 34+48.51
-LACFLY- TS Sta. 51+59.99
GRAPHIC SCALE
DENOTES IMPACTS IN SURFACE WATER (POND)
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
5/14/99


PROJECT REFERENCE NO.
SHEET NO.
U-2525B
33
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PERMIT DRAWINGS
SHEET 78B OF 93
PRELIMINARY
DO NOT USE FOR CONST
SITE 29
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
GRAPHIC SCALE
100' 0' 100'
NAD 83/95
5/14/99
MARION BISHOP, JR.
JERRY WADE SHOE
JOSEPH T. MABE & TREBA D. MABE
DOUGLAS J. EDWARDS
GEORGE V. BETTY O. TROGDON
RONALD E STANLEY & JEANETTE R STANLEY
CHRISTOPHER W. STANLEY & RHONDA A. STANLEY
Arnold Brinkley
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Ronald E. Stanley
ALPHUS RAY PRIDGEN II
TRUSTEES OF NEW LIFE CHAPEL AND THEIR SUCCESSORS IN OFFICE
ISBK CHURCH
ISF FELLOWSHIP HALL
NCDOT
SANDRA O. DEAN & REBECCA O. HAWKS
BRENDA I. GERRINGER
Darrel J. Trapp
BOBBY R. SUMMERS
Grealdine M. Bishop
133
135
142
143
144
145
146
147
148
149
151
187
-Y24- POT Sta. 10+00.00
-Y29- POT Sta. 16+80.92=
-Y28- POT Sta. 12+00.61
-Y22RPA- PT Sta. 27+34.06
-Y22RPA- SC Sta. 24+33.25
-Y22RPA- SRS Sta. 22+33.25
-Y22RPA- CS Sta. 20+23.25
-Y22RPA- TS Sta. 12+16.84
-Y22RRA- SC Sta. 14+26.84
Sta. 30+04.06=
20+88.97
-Y22LPA- PC Sta. 12+64.90
-Y22- POT Sta. 21+09.12 =
-Y22LPA- POT Sta. 10+00.00
-Y22LPA- ST Sta. 22+56.20 =
-Y13- POT Sta. 85+21.99 59.00' LT.
-Y22LPA- CS Sta. 20+56.20
NOTE: SYSTEM DRAINAGE PIPES THAT ARE LOCATED INSIDE OF THE PROP. LOOPS ARE TO BE LAID BENEATH THE PROP. CURB AND GUTTER.
CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC
CLASS "B" SEE DETAIL "VV"
ROD AND LUG W/ELBOWS
COLLAR AND EXTEND
REMOVE 28' OF 15" RCP PIPE
REMOVE 16' OF 15" RCP PIPE
RETAIN
TRENCHLESS INSTALLATION 18" WELDED STEEL
US 29 SBL BST
US 29 NBL BST
US 29 BST
Conv. DI To JB
TB JB w/MH
TBJB w/Slab Lid
KEREN DR.
KEREN RD 17' BST
60' R/W
EXISTING R/W
18" RCP-IV
15" RCP-IV
30" RCP-IV
15" CSP
24" CONC
18" CONC
25+00
20+00
15+00
90+00
95+00
DO NOT DIS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 79 OF 93

REVISIONS
03-19-13 R/W REVISION (DMG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 150 (THOMAS W. PASCHAL) TO (THOMAS W. PASCHAL REVOCABLE TRUST).
5/14/99

MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 33

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 35

SITE 30

SITE 31

SITE 32A

SITE 32

DETAIL R
FALSE SUMP
(Not to Scale)

DETAIL JJ
LATERAL BASE DITCH
(Not to Scale)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

DETAIL J
LATERAL 4' BASE DITCH
(Not to Scale)

DETAIL K
ROCK FILL IN POND
(Not to Scale)

DETAIL TT
LATERAL BASE DITCH
(Not to Scale)

DETAIL T
LATERAL 'A' BASE DITCH
(Not to Scale)

DETAIL V
PIPE OUTFALL CHANNEL
(Not to Scale)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

DETAIL C
TOE PROTECTION
(Not to Scale)

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

-Y26-		-Y23-	
PI Sta 35+18.11	PI Sta 37+30.12	PI Sta 37+29.97	PI Sta 39+81.56
Δ = 58° 04' 38.9" (LT)	Δ = 49° 43' 06.3" (RT)	Δ = 94° 15' 54.1" (RT)	Δ = 49° 16' 01.7" (LT)
D = 24° 54' 40.4"	D = 24° 54' 40.4"	D = 39° 30' 51.6"	D = 24° 54' 40.4"
L = 233.14'	L = 199.58'	L = 238.56'	L = 197.77'
T = 127.69'	T = 106.56'	T = 156.22'	T = 105.47'
R = 230.00'	R = 230.00'	R = 145.00'	R = 230.00'
SE = .03	SE = .03	SE = .06	SE = .06

SEE SHEET 68 FOR -Y13- PROFILE
SEE SHEET 82 FOR -Y22RPA- PROFILE
SEE SHEET 83 FOR -Y22RPD- PROFILE
SEE SHEET 85 FOR -Y23- PROFILE
SEE SHEET 87 FOR -Y26- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	34
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 80 OF 93

REVISIONS
03-19-13 R/W REVISION (DWG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 150 (THOMAS W. PASCHAL TO (THOMAS W. PASCHAL REVOCABLE TRUST).
5/14/99

MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 33

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 35

MATCHLINE -Y23- STA. 39+00.00 SEE SHEET 37

SITE 30

SITE 31

SITE 32

SITE 32A

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL K
ROCK FILL IN POND
(Not to Scale)

DETAIL TT
LATERAL BASE DITCH
(Not to Scale)

DETAIL T
LATERAL 'T' BASE DITCH
(Not to Scale)

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

DETAIL C
TOE PROTECTION
(Not to Scale)

-Y26-
PI Sta 35+18.11
Δ = 58°04'88.9" (LT)
D = 24°54'40.4"
L = 233.14'
T = 127.69'
R = 230.00'
SE = .03

PI Sta 37+30.12
Δ = 49°43'06.3" (RT)
D = 24°54'40.4"
L = 199.58'
T = 106.56'
R = 230.00'
SE = .03

-Y23-
PI Sta 37+29.97
Δ = 94°15'54.1" (RT)
D = 39°30'51.6"
L = 238.56'
T = 156.22'
R = 145.00'
SE = .06

PI Sta 39+81.56
Δ = 49°16'01.7" (LT)
D = 24°54'40.4"
L = 197.17'
T = 105.47'
R = 230.00'
SE = .06

SEE SHEET 68 FOR -Y13- PROFILE
SEE SHEET 82 FOR -Y22RPA- PROFILE
SEE SHEET 83 FOR -Y22RPD- PROFILE
SEE SHEET 85 FOR -Y23- PROFILE
SEE SHEET 87 FOR -Y26- PROFILE

GRAPHIC SCALE

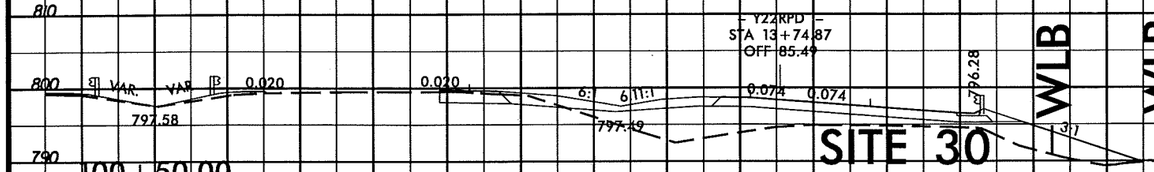
8/23/99

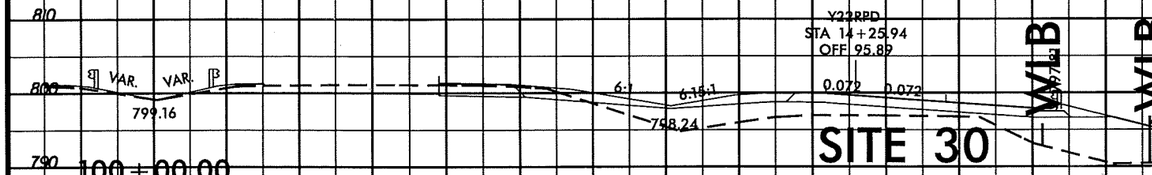
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2525B	X-345

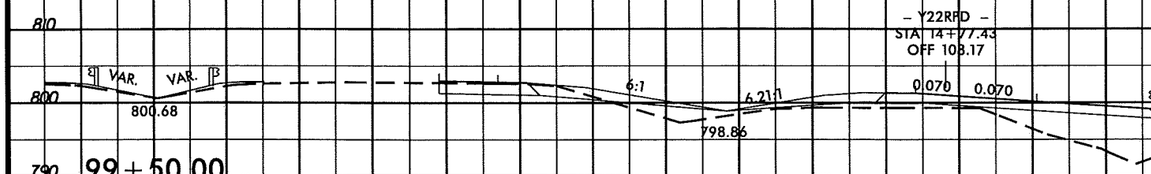
PERMIT DRAWINGS
SHEET 81 OF 93

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

820 810 800 790 780







–Y13–

$$$$$$SYSTIME$$$$$$
$$$$$$USERNAME$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 82 OF 93

NAD 83/99

REVISIONS

03-19-13 R/W REVISION (DWG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 168 (KENNETH C.CLYMER) TO (WILLIAM R.CLYMER).
REVISED THE PROPERTY OWNER NAME ON PARCEL 169 (CHARLES A.S.KEELEY) TO (KEELEY REALTY GREENSBORO,LLC).

5/14/99

SITE 34

SITE 33

DETAIL R
FALSE SUMP
(Not to Scale)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

FROM STA. 14+50 TO STA. 16+15 -Y23- (RT)
FROM STA. 14+50 TO STA. 15+90 -Y23- (LT)

@ STA. 22+54 -Y23- (LT)

WILLIAM THEODORE HOLLAND HEIRS (164)
WILLIAM HOLLAND & DOROTHY R. HOLLAND (165)
WORSHAM REALTY L.L.C. (167)
KEELEY REALTY GREENSBORO, LLC (169)
DUKE POWER COMPANY (166)
WILLIAM R. CLYMER (168)
SARAH KNIGHT JESSE, LIT & JUDY CAROL JESSE (160)
JAMES GOURLEY (170)
FRED D. CURL & STEVEN C. CURL (171)

-Y23- PT Sta. 14+89.22
-Y23- PRC Sta. 13+37.62
-Y23- PC Sta. 11+30.00
-Y23- PT Sta. 125+81.64 =
-Y26- PT Sta. 10+00.00
-Y23- PT Sta. 10+00.00
-Y26- PC Sta. 11+30.00
-Y26- PT Sta. 15+09.00
-Y26- PRC Sta. 13+42.56

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 34
MATCHLINE -Y13- STA. 127+00.00 SEE SHEET 36

150' DUKE POWER EASEMENT

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

GRAPHIC SCALE 100' 0' 100'

POWER SUB - STATION

-Y26-		-Y23-	
PI Sta 13+09.62	PI Sta 14+27.99	PI Sta 12+99.61	PI Sta 14+15.08
Δ = 125° 47' 18.2" (RT)	Δ = 31° 47' 18.0" (LT)	Δ = 118° 57' 17.9" (LT)	Δ = 28° 57' 18.1" (RT)
D = 57° 17' 44.8"	D = 19° 05' 54.9"	D = 57° 17' 44.8"	D = 19° 05' 54.9"
L = 212.56'	L = 166.44'	L = 207.62'	L = 151.61'
T = 179.62'	T = 85.42'	T = 169.61'	T = 77.46'
R = 100.00'	R = 300.00'	R = 100.00'	R = 300.00'
SE = .03	SE = .03	SE = .03	SE = .03

SEE SHEET 69 FOR -Y13- PROFILE
SEE SHEET 84 & 85 FOR -Y23- PROFILE
SEE SHEET 86 & 87 FOR -Y26- PROFILE

PERMIT DRAWINGS
SHEET 83 OF 93

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
03-19-13 R/W REVISION (DWG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 168 (KENNETH C.CLYMER) TO (WILLIAM R.CLYMER).
REVISED THE PROPERTY OWNER NAME ON PARCEL 169 (CHARLES A.S.KEELEY) TO (KEELEY REALTY GREENSBORO,LLC).

SITE 34

SITE 33

DETAIL A
FALSE SUMP
(Not to Scale)
Outside ditch traffic flow
Proposed Ditch
STA 22+52 -Y23- (LT)

DETAIL B
LATERAL "V" DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1.0 Ft.
b= 5.0 Ft.
FROM STA 14+50 TO STA 16+15 -Y23- (RT)
FROM STA 14+50 TO STA 15+90 -Y23- (LT)

NAD 83/98

-Y23- PT Sta. 14+89.22
-Y23- PRC Sta. 13+37.62
-Y23- PC Sta. 11+30.00
-Y13- POT Sta. 125+81.64 =
-Y26- PT Sta. 10+00.00
-Y23- PT Sta. 10+00.00
-Y26- PC Sta. 11+30.00
-Y26- PT Sta. 15+09.00
-Y26- PRC Sta. 13+42.56

WILLIAM THEODORE HOLLAND HEIRS
WILLIAM HOLLAND & DOROTHY R. HOLLAND
WORSHAM REALTY L.L.C.
KEELEY REALTY GREENSBORO, LLC
DUKE POWER COMPANY
WILLIAM R. CLYMER
JAMES GOURLEY
SARAH KNIGHT JESSE, LIT & JUDY CAROL JESSE

164 165 166 167 168 169 170 171 160

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 34
MATCHLINE -Y13- STA. 127+00.00 SEE SHEET 36

RETAIN
GRADE TO DRAIN
REMOVE HW/ COLLAR AND EXTEND GRADE TO DRAIN
REMOVE 90' OF 18" RCP PIPE
REMOVE 29' OF 16" RCP PIPE
REMOVE 520' OF 15" RCP AND EXIST. DI
REMOVE 55' OF 24" RCP PIPE
COLLAR AND EXTEND
CLASS "A" RIP-RAP W/FILTER FABRIC EST. 26 TONS EST/ 50 SY FABRIC
CLASS "B" RIP-RAP W/FILTER FABRIC EST/ 4 TONS EST/ 5 SY FABRIC
CLASS "B" RIP-RAP W/FILTER FABRIC EST. 9 TONS EST/ 14 SY FABRIC
CLASS "B" RIP-RAP W/FILTER FABRIC EST. 5 TONS EST. 6 SY FABRIC
CLASS "B" RIP-RAP W/FILTER FABRIC EST. 4 TONS EST. 4 SY FABRIC
5'X10' RIPRAP PAD CLASS "B" EST. 5.0 Tons 5 SY Fabric
3'X10' RIPRAP PAD CLASS "B" EST. 3.0 Tons 4 SY Fabric
CLASS "B" RIPRAP PAD
ROD AND LUG W/ELBOWS
GATE
LATERAL "V" DITCH SEE DETAIL "B"
END OF CONSTRUCTION
150' DUKE POWER EASEMENT
60' DUKE POWER EASEMENT
EXISTING R/W
48" WDLHW
CAR PORT
ISWTRBUS
ISBKBUS
2 PLACES

-Y26-
PI Sta 13+09.62
Δ = 125° 47' 18.2" (RT)
D = 57° 17' 44.8"
L = 212.56'
T = 179.62'
R = 100.00'
SE = .03

PI Sta 14+27.99
Δ = 31° 47' 18.0" (LT)
D = 19° 05' 54.9"
L = 166.44'
T = 85.42'
R = 300.00'
SE = .03

-Y23-
PI Sta 12+99.61
Δ = 118° 57' 17.9" (LT)
D = 57° 17' 44.8"
L = 207.62'
T = 169.61'
R = 100.00'
SE = .03

PI Sta 14+15.08
Δ = 28° 57' 18.1" (RT)
D = 19° 05' 54.9"
L = 151.61'
T = 77.46'
R = 300.00'
SE = .03

E E DENOTES EXCAVATION IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER

GRAPHIC SCALE 100' 0' 100'
POWER SUB - STATION

SEE SHEET 69 FOR -Y13- PROFILE
SEE SHEET 84 & 85 FOR -Y23- PROFILE
SEE SHEET 86 & 87 FOR -Y26- PROFILE

REVISIONS

03-19-13 R/W REVISION (ORIG) - REVISED THE PROPERTY OWNER NAME ON PARCEL #72 KAMADOMITO
LAURA ELWOOD REVOCABLE LIVING TRUST)
REVISED THE PROPERTY OWNER NAME ON PARCEL #74
TERRY L WATKINS & PATRICIA WATKINS TO
BETTER WAY BUILDERS, LLC)
REVISED THE PROPERTY OWNER NAME ON PARCEL 150
FRANNIE C. SMITH & FRANCES T SMITH TO
FRANCES T SMITH (WIDOW)

-Y23-	-Y25-	-Y29-
PI Sta 27+26.78	PI Sta 11+98.88	PI Sta 9+09.28
Δ = 9° 49' 00.0" (LT)	Δ = 61° 01' 02.7" (LT)	Δ = 12° 49' 52.5" (RT)
D = 31° 54' 42.6"	D = 43° 46' 28.5"	D = 6° 47' 43.7"
L = 617.17'	L = 140.75'	L = 825.43'
T = 309.46'	T = 75.00'	T = 414.58'
R = 179.60'	R = 130.00'	R = 843.00'
SE = 2.0%	SE = 2.0%	SE = SEE PLANS

-Y24-
PI Sta 13+68.04
Δ = 9° 49' 15.3" (RT)
D = 31° 54' 42.6"
L = 617.17'
T = 309.46'
R = 179.60'

-Y26-	-Y27-
PI Sta 13+68.04	PI Sta 13+68.04
Δ = 9° 49' 15.3" (RT)	Δ = 9° 49' 00.0" (LT)
D = 31° 54' 42.6"	D = 31° 54' 42.6"
L = 617.17'	L = 617.17'
T = 309.46'	T = 309.46'
R = 179.60'	R = 179.60'

PROJECT REFERENCE NO.	SHEET NO.
IC-2909	37
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	ROADWAY ENGINEER

PRELIMINARY PLANS
NOT VALID FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 84 OF 93

NAD 83/95

DETAIL AB
SPECIAL DITCH
NOT TO SCALE

DETAIL Y
SPECIAL DITCH
NOT TO SCALE

SITE 35

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

GRAPHIC SCALE

MATCHLINE -Y22- STA. 19+00.00 SEE SHEET 33

MATCHLINE -Y23- STA. 39+00.00 SEE SHEET 34

SEE SHEET 80 FOR -Y22- PROFILE
SEE SHEET 83 FOR -Y23- PROFILE
SEE SHEET 81 FOR -Y24- PROFILE
SEE SHEET 88 FOR -Y26- AND -Y27- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
T.I.P. NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

REVISIONS

01-9-13 R/W REVISION 10810 - REVISED THE PROPERTY OWNER NAME ON PARCEL 173 FROM DOROTO LUCK DURDD REVOCABLE LIVING TRUST.
REVISED THE PROPERTY OWNER NAME ON PARCEL 174 FROM STEVEN L WATKINS & PATRICIA WATKINS TO BETTER WAY BUILDERS, LLC.
REVISED THE PROPERTY OWNER NAME ON PARCEL 150 FROM FRANCES C SMITH & FRANCES T SMITH TO FRANCES T SMITH, TRUSTEE

-Y21-
N 54° 39' 09.5" E
Δ = 4° 49' 03.3" (LT)
D = 2° 54' 45.4"
L = 167.9'
T = 83.96'
R = 2000.00'
SE = 0.08

-Y22-
N 54° 39' 09.5" E
Δ = 9° 39' 21.1" (LT)
D = 2° 54' 45.4"
L = 464.96'
T = 233.07'
R = 1,000.00'
SE = 0.08

-Y23-
N 54° 39' 09.5" E
Δ = 9° 49' 03.3" (RT)
D = 2° 54' 45.4"
L = 503.45'
T = 252.43'
R = 1,000.00'
SE = SEE PLANS

-Y24-
N 54° 39' 09.5" E
Δ = 10° 48' 24.5" (RT)
D = 2° 54' 45.4"
L = 553.91'
T = 277.79'
R = 1,100.00'

PROJECT STRUCTURE NO. 17-2528
SHEET NO. 17
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 85 OF 93

NAD 83/95

DETAIL AB
SCALE: 1"=50'
FROM STA. 13+98 TO STA. 14+50 -Y22- (LT)
FROM STA. 14+15 TO STA. 13+35 -Y22- (LT)

DETAIL Y
SCALE: 1"=50'
FROM STA. 43+32 -Y23- (LT) TO -Y23- (LT)

SITE 35

MATCHLINE -Y22- STA. 19+00.00 SEE SHEET 33

MATCHLINE -Y23- STA. 39+00.00 SEE SHEET 34

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

GRAPHIC SCALE

SEE SHEET 80 FOR -Y22- PROFILE
SEE SHEET 85 FOR -Y23- PROFILE
SEE SHEET 86 FOR -Y24- PROFILE
SEE SHEET 88 FOR -Y26- AND -Y29- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 86 OF 93

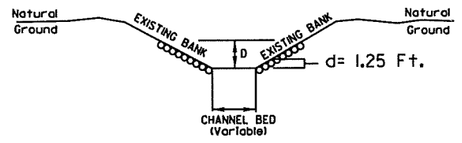
03-19-13 R/W REVISION (DWG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 168 (KENNETH C.CLYMER) TO (WILLIAM R.CLYMER).
REVISED THE PROPERTY OWNER NAME ON PARCEL 169 (CHARLES A.S.KEELEY) TO (KEELEY REALTY GREENSBORO,LLC).

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100'
GRAPHIC SCALE

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)



Length= 10 Ft.
D= 3.25 Ft.

STA. 48+65 -Y23- (RT) Est. 12 Tons CLASS "I" RIPRAP

SITE 35

DONALD W MATTHEWS
& SANDRA L MATTHEWS

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 1 TON
EST. 5 SY FABRIC

CLASS "I"
SEE DETAIL "V"

192
JAMES A TAYLOR

DOUGLAS E LOWDERMILK

193

191
MICHELLE W BARKER
& ANN W COLLINS

-Y24- POT Sta. 12+19.94

-Y23- POT Sta. 45+83.85=
-Y24- POT Sta. 11+10.84

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
1	27+25 -Y3RPA- (RT) TO	30" RCP	0.57		0.04			0.09		1684		
	47+94 -L- (LT)											
1A	24+84 -Y3RPA- (LT)		0.03									
	12+26 -Y3RPA- (LT)											
1B	37+76 -L- (LT) TO		0.01									
	38+18 -L- (LT)											
2	24+84 -Y3RPD- (LT)	24" RCP	0.05			<0.01						
3	38+87 -L- (LT) TO		0.12									
	40+30 -L- (LT)											
3A	41+86 -L- (RT) TO		0.03									
	43+15 -L- (LT)											
3B	44+26 -L- (LT) TO		0.02									
	44+86 -L- (LT)											
3C	46+46 -L- (LT) TO		0.25		0.02	0.02						
	47+70 -L- (RT)											
SUBTOTALS:			1.08		0.06	0.03		0.09		1684		

PERMIT DRAWINGS
SHEET 87 OF 93

NOTE: Rounded totals are based upon sum of actual impacts.
Also, Site 1 has 332 linear feet of intermittent stream at 1:1 mitigation; 1352 linear feet of perennial stream at 2:1 mitigation.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

SHEET 4/8/2013

ATN Revised 3/31/05

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)
4	48+65 -L-	2 @ 9' X 9' RCBC	0.02					0.10	0.04	394	153	
	Bank Stabilization									98		
5	59+31 -L- (RT) TO	66" RCP,24"RCP, &						0.09	<0.01	1117	20	
	81+35 -L- (LT)	42" RCP										
	Restoration							0.04		481		1307
5A	66+14 -L- (LT) TO		0.08									
	68+72 -L- (LT)											
5B	70+32 -L- (LT) TO		0.02									
	71+59 -L- (LT)											
6	21+56 -Y4 RPB-(LT) TO		0.03					0.01		138	10	
	22+00 -Y4 RPB- (RT)											
6A	22+11 -RPB-(RT) TO		0.05			<0.01						
	22+75 -RPB-(RT)											
7	77+25 -L-(LT) TO		1.29		0.05	0.03						
	25+57 -RPC-(RT)											
8	93+50 -L- TO		0.83			0.09						
	95+95 -L-(LT)											
SUBTOTALS:			2.32		0.05	0.12		0.24	0.04	2228	183	1307

PERMIT DRAWINGS
SHEET 88 OF 93

Revised 10/15/13

NOTE: Rounded totals are based upon sum of actual impacts.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

SHEET 4/8/2013

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)
8A	33+23 -EY4-				<0.01							
9	95+78 -L- (LT) TO	15" RCP	2.01			0.15		0.03	<0.01	462	10	
	102+77 -L-(RT)											
9A	101+78 -L- (LT) TO	42" RCP						<0.01		84		
	102+19 -L-(LT)											
10	113+64 -L- (LT) TO	2 @ 7' X 8' RCBC			<0.01			0.03	<0.01	212	29	
	117+08 -L-(RT)											
	Bank Stabilization									97		
10A	114+23 -L- (RT) TO		0.02			0.02						
	115+15 -L-(RT)											
10B	115+19 -L- (LT) TO		0.03		<0.01	<0.01						
	116+17 -L-(RT)											
10C	116+15 -L- (LT) TO		0.25		0.04							
	117+08 -L-(RT)											
11	123+22 -L- (LT) TO		0.33									
	127+94 -L-(RT)											
	Bank Stabilization									18		
SUBTOTALS:			2.64		0.05	0.17		0.06	<0.01	873	39	

PERMIT DRAWINGS
SHEET 89 OF 93
Revised 10/15/13

NOTE: Rounded totals are based upon sum of actual impacts.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

SHEET 4/8/2013

ATN Revised 3/31/05

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
12	156+90 -L-	66" RCP						0.03	<0.01	286	22	
	Bank Stabilization									30		
13	174+72 -L- (RT)	DUAL BRIDGES	0.02			0.01		0.01		*169	7	
	Bank Stabilization									10		
14	182+76 -L-	48" RCP						0.03	<0.01	347	35	
	Bank Stabilization									10		
15	189+55 -L-	60" RCP						0.03	<0.01	292	26	
	Bank Stabilization									20		
16	195+35 -L-	66" RCP	<0.01					0.05	<0.01	382	43	
	Bank Stabilization									12		
17	14+26 -Y10A- (RT)	15" RCP						<0.01	<0.01	51	20	
18	218+00 -L- TO	2 @ 7' X 8' RCBC	0.03			0.01		0.03	<0.01	241	10	
	219+51 -L- (RT)											
	POND							0.04				
	Bank Stabilization									30		
	Restoration								<0.01		10	386
19	230+21 -L- (RT) TO				0.14							
	230+83 -L- (LT)											
20	239+57 -L- (LT) TO	2 @ 8' X 8' RCBC						0.09	<0.01	520	39	
	245+33 -L- (RT)											
	Relocation							0.06	<0.01	295	10	362
SUBTOTALS:			0.05		0.14	0.02		0.46	0.03	2695	222	748

PERMIT DRAWINGS

SHEET 90 OF 93

NOTE: Rounded totals are based upon sum of actual impacts.

*SITE 13 - Has 32 feet of non-migitable stream impact.

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

SHEET 4/8/2013

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)
20A	239+59 -L- (LT) TO							0.04	<0.01	236	29	
	241+22 -L- (LT)											
20B	11+05 -LCD- (RT) TO		0.02					<0.01		29		
	11+57 -LCD-											
21	16+35 -Y13LPD-	24" RCP	0.34			0.04		0.03	<0.01	374	10	
22	17+40 -Y13RPB- (RT) TO		0.03									
	17+81 -Y13RPB- (RT)											
22A	16+67 -Y13RPB- (LT) TO	36" RCP	0.02					0.01	<0.01	142	10	
	17+13 -Y13RPB- (LT)											
	Bank Stabilization									10		
22B	17+21 -Y13RPB- (LT) TO		0.01									
	17+46 -Y13RPB- (LT)											
23	16+35 -Y4A- (RT)	18" RCP	0.02				<0.01					
24	36+00 -Y4-	36" RCP	0.19				0.02					
25	33+80 -Y11- (RT)	24" RCP							<0.01	12	10	
	Bank Stabilization									12		
26	29+38 -Y13RPC-	60" RCP						0.03	<0.01	319	11	
	Bank Stabilization									12		
SUBTOTALS:			0.62			0.04	0.03	0.11	0.01	1146	70	

PERMIT DRAWINGS
SHEET 91 OF 93

NOTE: Rounded totals are based upon sum of actual impacts.

SITE 20A requires 1:1 mitigation.
SITE 23 & 24 Have <0.01 ac. of Temp. Fill in Wetlands in Hand Clearing areas for erosion control measures.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

SHEET 4/8/2013

ATN Revised 3/31/05

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
27	50+09-LACFLY- (RT)TO	54" RCP	0.10					0.01	<0.01	215	10	
	51+53-LACFLY- (LT)											
28	31+25 -Y21- (RT) TO	30" RCP						0.03		461		
	27+81-Y21- (RT)											
	POND							0.58				
29	22+88 -Y22RPA-	30" RCP & 18" RCP						0.02	<0.01	290	4	
	Bank Stabilization									10		
30	13+63 -Y22 RPD- TO	15" RCP W/ 2GI	0.03		<0.01							
	15+35 -Y22 RPD-											
31	16+35 -Y23-	66" RCP						0.03	<0.01	191	27	
	Bank Stabilization									21		
32	34+30 -Y26- (LT)	12" RCP						0.03				
32A	28+37 -Y26-	48" RCP						0.01	<0.01	151	25	
	Bank Stabilization									28		
33	22+14 -Y26-	48" RCP						0.01	<0.01	115	10	
	Bank Stabilization									17		
34	16+03 -Y23-	24" RCP	<0.01									
SUBTOTALS:			0.14		<0.01			0.74	<0.01	1499	76	

NOTE: Rounded totals are based upon sum of actual impacts.

PERMIT DRAWINGS
SHEET 92 OF 93

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GUILFORD COUNTY
WBS - 34821.1.1 (U-2525B)

SHEET 4/8/2013

ATN Revised 3/31/05

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)
35	48+53 -Y23-	36" RCP						<0.01	<0.01	120	17	
	Bank Stabilization									10		
	THIS SHEET	SUBTOTALS:						<0.01	<0.01	130	17	
SUBTOTALS OF ALL OTHER:			6.85	0.00	0.31	0.38	0.03	1.70	0.09	10125	590	2055
TOTALS:			**6.85**	**0.00**	**0.31**	**0.38**	**0.03**	**1.72**	**0.10**	**10255**	**607**	**2055**

PERMIT DRAWINGS
SHEET 93 OF 93

Revised 10/15/13

NOTE: Rounded totals are based upon sum of actual impacts.

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GUILFORD COUNTY

WBS - 34821.1.1 (U-2525B)

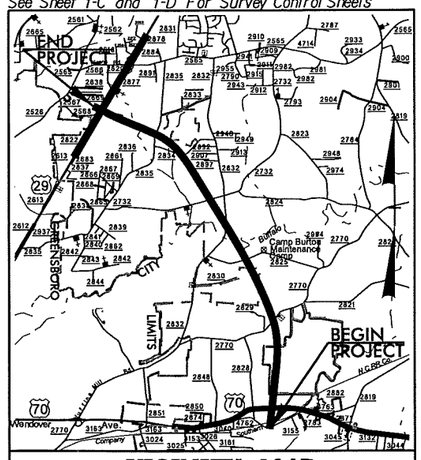
SHEET 4/8/2013

ATN Revised 3/31/05

09/08/99

CONTRACT: **TIP PROJECT: U-2525B**

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols
See Sheet 1-C and 1-D For Survey Control Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

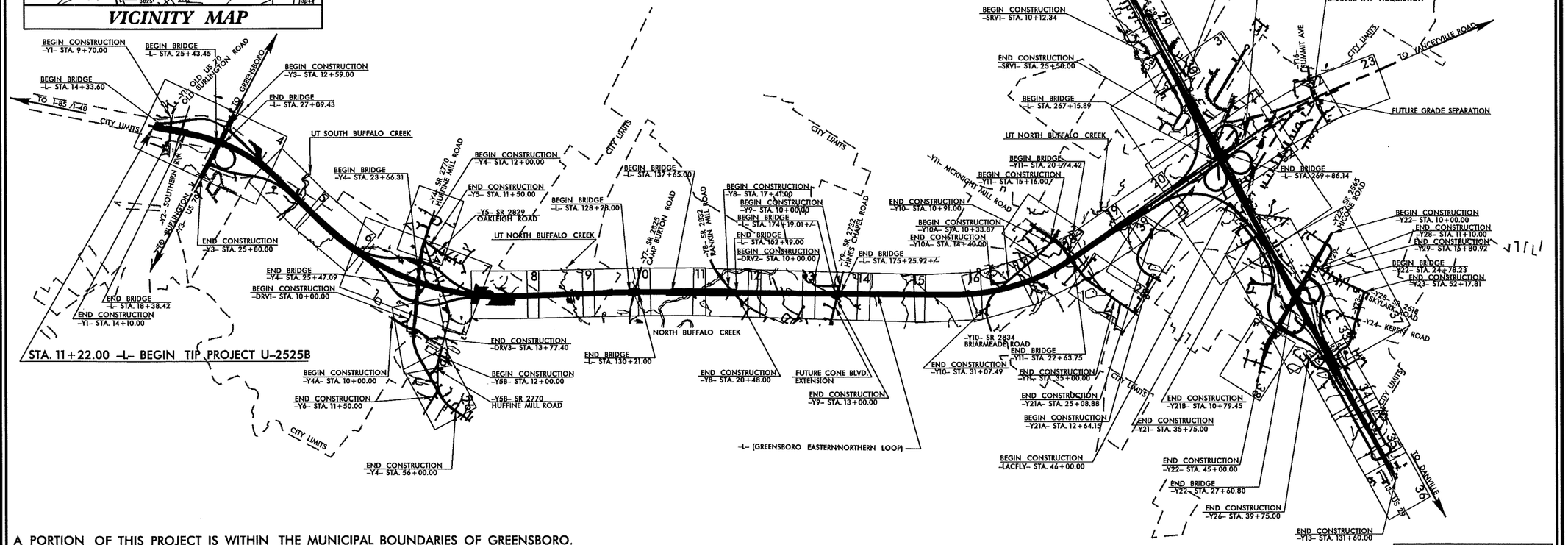
GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	U-2525B		1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION		
34821.1.3		PE		
34821.2.3		R/W & UTILITIES		
34821.3.6		CONST.		

LOCATION: ***GREENSBORO EASTERN LOOP FROM NORTH OF US 70 RELOCATION TO US 29 NORTH OF GREENSBORO***

TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, SIGNALS, CULVERTS, RETAINING WALLS, AND STRUCTURES***

NAD 83/95



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO.
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.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2014 = N/A
ADT 2030 = 20000
DHV = 10 %
D = 60 %
T = 16 % *
V = 70 MPH

* TTST 5% DUAL 11%
FUNC CLASS = INTERSTATE "STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2525B = 4.504 Miles
LENGTH STRUCTURE TIP PROJECT U-2525B = 0.492 Miles
TOTAL LENGTH OF TIP PROJECT U-2525B = 4.996 Miles

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 22, 2012

LETTING DATE: MAY 20, 2014

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

15-APR-2013 14:26
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3/15/06

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EP
- Property Corner
- Property Monument — CM
- Parcel/Sequence Number — 23
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — PH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — PH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — PH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole — SS
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

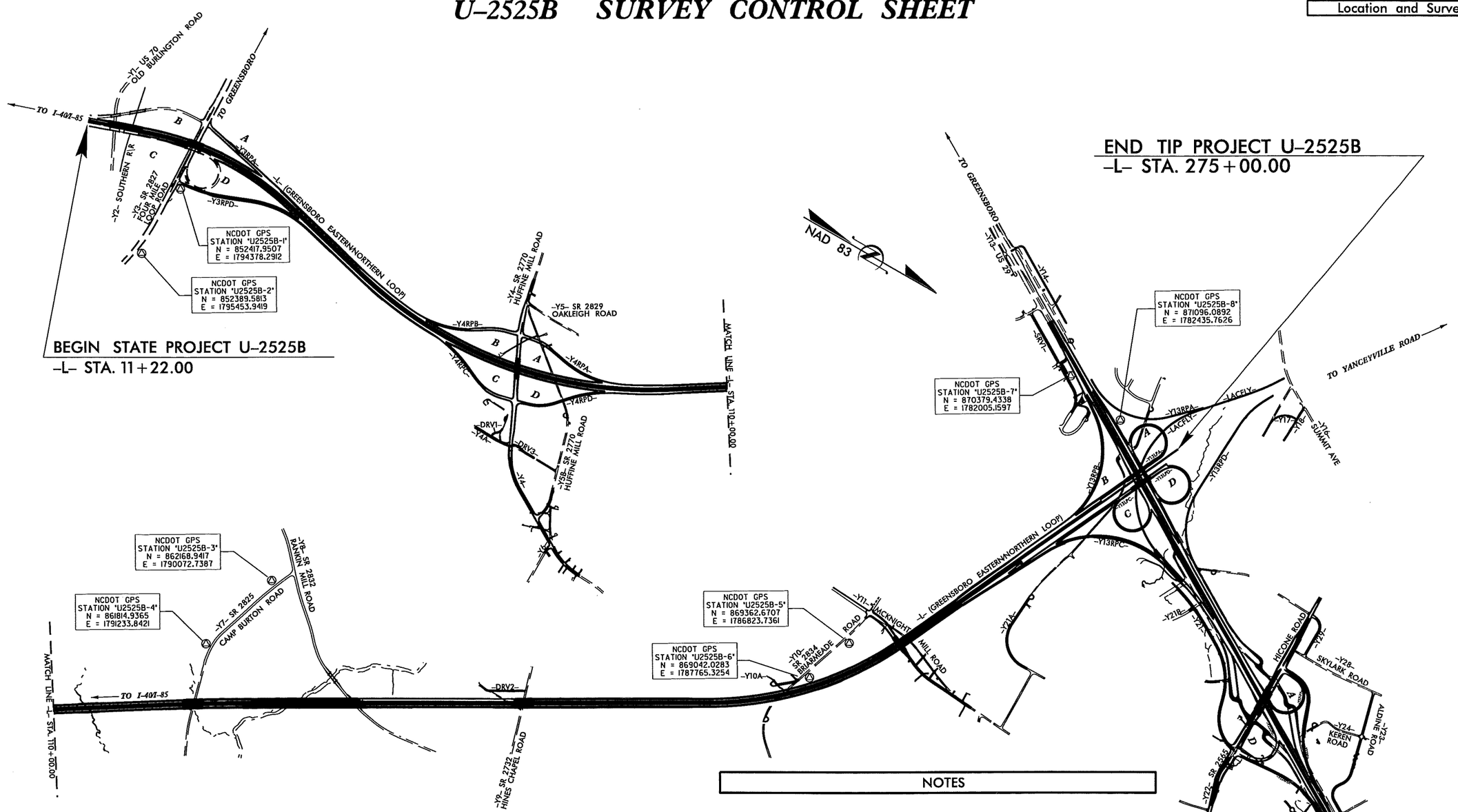
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?U/G
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	1-C
Location and Surveys	

U-2525B SURVEY CONTROL SHEET



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "WYRICK" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 886491.0682(ft) EASTING: 1771530.6138(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999956490
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "WYRICK" TO -L- STATION 11+22.00 IS
S 32° 35' 20" E 42.226.68 ft
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U2525B_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⚠ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM FROM EXISTING NCGS MONUMENTATION.

NOTE: DRAWING NOT TO SCALE

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12/01/2005

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	1-D
Location and Surveys	

U-2525B SURVEY CONTROL SHEET

BASELINE DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
10	BL-10	851147.5113	1794087.4481	756.08	14+84.88	108.24 LT
11	BL-11	852480.8917	1793726.8878	758.08	26+92.98	102.07 LT
12	BL-12	852836.7108	1793743.4999	751.55	31+17.35	44.51 LT
13	BL-13	853365.1982	1793768.8911	726.31	36+41.28	36.04 LT
14	BL-14	853695.4336	1793841.8379	716.36	39+76.60	11.36 LT
15	BL-15	854145.8698	1793962.5986	707.24	44+32.36	4.53 RT
16	BL-16	854519.4199	1794049.9236	697.55	48+03.86	1.22 LT
17	BL-17	854869.7195	1794139.3883	723.92	51+87.48	0.91 RT
18	BL-18	855257.6298	1794235.4322	744.94	55+87.18	0.66 RT
19	BL-19	855456.8297	1794276.4429	729.81	57+98.58	2.63 LT
20	BL-20	855811.3789	1794339.7158	723.63	61+58.74	8.29 LT
21	BL-21	856195.0842	1794384.1383	733.08	65+37.88	3.68 RT
22	BL-22	856598.5293	1794485.5194	759.78	70+32.47	11.15 RT
23	BL-23	857285.8981	1794358.8798	767.26	76+98.97	4.59 RT
24	BL-24	857674.4863	1794314.6481	778.82	80+18.99	28.22 RT
25	BL-25	858064.8385	1794211.3382	765.65	84+21.16	5.45 RT
26	BL-26	858283.7854	1794143.8718	773.72	86+58.55	8.68 RT
27	BL-27	858533.8969	1794067.6429	777.33	89+11.87	7.12 RT
28	BL-28	858972.0289	1793892.5878	768.68	93+83.16	9.82 RT
29	BL-29	859475.8262	1793641.9462	744.33	99+44.77	16.29 RT
30	BL-30	859878.8883	1793378.2938	748.86	104+18.97	8.98 LT
31	BL-31	860285.1632	1793181.2137	749.81	108+86.88	10.43 RT
32	BL-32	860764.2425	1792828.4869	783.63	114+67.93	9.81 RT
33	BL-33	861200.8822	1792540.2025	736.30	119+91.86	8.83 RT
34	BL-34	861498.6124	1792378.3123	727.88	123+26.73	9.88 RT
35	BL-35	861991.5945	1792062.4491	786.85	129+14.92	12.61 RT
36	BL-36	862222.6472	1791915.8625	724.12	131+88.98	5.84 RT
37	BL-37	862698.2341	1791630.5755	718.32	137+32.23	8.25 LT
38	BL-38	863180.9611	1791484.4375	685.98	142+11.94	4.59 RT
39	BL-39	863656.7911	1791180.4398	694.68	148+38.41	12.96 RT
40	BL-40	863894.8811	1790973.9033	782.27	151+87.98	21.44 RT
41	BL-41	864258.9482	1790798.6886	786.48	155+18.96	58.18 RT
42	BL-42	864496.1118	1790643.8898	787.86	157+93.68	33.64 RT
43	BL-43	864838.5838	1790459.3947	731.58	161+75.58	10.47 RT
44	BL-44	865139.8737	1790228.4089	724.44	165+37.17	24.13 RT
45	BL-45	865587.3977	1790061.2347	751.58	170+39.19	78.38 RT
46	BL-46	865812.8606	1789911.2887	754.98	172+68.94	186.71 RT
47	BL-47	866251.1528	1789625.4252	753.02	179+89.57	71.57 RT
48	BL-48	867055.6591	1789236.1811	745.76	187+14.33	83.78 RT
49	BL-49	867540.7181	1788982.9172	736.74	192+62.85	185.98 RT
50	BL-50	867916.3821	1788764.8586	729.53	196+95.41	182.35 RT
51	BL-51	868256.6578	1788558.6551	757.93	200+86.72	58.34 RT
52	BL-52	868714.1830	1788288.4788	770.88	206+58.18	54.48 RT
53	BL-53	868924.5825	1788828.1781	756.78	209+37.23	46.24 RT
54	BL-54	869485.2778	1787514.1452	739.83	216+38.14	28.22 RT
55	BL-55	869726.5654	1787092.9816	754.85	221+58.36	26.82 RT
56	BL-56	869938.5665	1786763.8494	766.48	225+47.28	29.19 RT
57	BL-57	870145.2878	1786381.7139	764.69	229+88.22	41.47 RT
58	BL-58	870285.8456	1786044.2489	767.37	232+98.13	48.59 RT
59	BL-59	870425.5932	1785747.6483	769.64	236+26.34	48.18 RT
60	BL-60	870564.9618	1785585.4539	737.36	239+58.87	48.44 RT
61	BL-61	870867.8225	1784971.5892	753.88	246+52.23	48.92 RT
62	BL-62	871321.8214	1783917.2752	811.82	257+89.83	48.95 RT
63	BL-63	871681.3426	1783161.8288	836.87	265+46.73	41.47 RT
64	BL-64	871899.8373	1782831.2363	831.98	269+38.48	97.11 RT
65	BL-65	872034.9480	1782433.9384	824.71	273+55.22	48.44 RT
66	BL-66	872174.7319	1782161.2562	815.87	276+83.65	62.86 RT
67	BL-67	872366.7739	1781727.6372	799.26	281+36.77	48.44 RT
68	BL-68	872561.5422	1781312.8353	828.94	285+95.58	14.45 RT
69	BL-69	872757.8394	1780914.5442	852.88	290+37.97	22.23 LT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
101	BY1-101	851153.8756	1793955.9687	732.29	10+82.59	18.99 RT
102	BY1-102	851321.7742	1794381.3464	723.68	13+86.95	18.55 RT
3001	BY1-3001	851258.9414	1794868.7187	731.57	11+46.78	19.64 LT
A10	BL-10	851147.5113	1794087.4481	756.08	11+18.34	81.56 RT

BY2

POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
201	BY2-201	851472.7658	1793928.9998	734.42	10+56.57	88.15 RT
202	BY2-202	851541.8995	1794252.5561	731.52	13+58.59	15.34 RT
3002	BY2-3002	851433.7753	1794818.9886	748.69	10+42.35	169.91 RT
B10	BL-10	851147.5113	1794087.4481	756.08	10+75.89	8438.67 RT

BY3

POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
301	BY3-301	852372.4268	1793148.9862	756.07	10+18.96	51.88 LT
A11	BL-11	852480.8917	1793726.8878	758.08	15+96.64	55.48 LT
302	BY3-302	852394.1825	1794168.3121	753.63	20+39.41	36.66 LT
303	BY3-303	852415.3752	1794698.2414	750.41	25+68.76	38.62 LT

BY4

POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
401	BY4-401	857228.9632	1792754.6762	777.52	OUTSIDE PROJECT LIMITS	
402	BY4-402	857364.8089	1793397.6863	777.98	15+88.89	19.29 RT
403	BY4-403	857582.6622	1793996.2596	754.97	21+35.71	8.73 RT
A24	BL-24	857674.4863	1794314.6481	778.82	24+63.84	58.75 RT
404	BY4-404	857822.9516	1794488.8274	764.88	26+82.78	3.85 LT
405	BY4-405	857913.5267	1794688.4213	778.88	29+82.69	8.97 LT
406	BY4-406	858026.9081	1794934.8833	778.74	31+73.98	8.24 LT
407	BY4-407	858282.4195	1795310.1683	758.18	35+88.31	1.80 LT
408	BY4-408	858491.4426	1795641.8682	765.48	48+34.37	8.36 LT
409	BY4-409	858764.6764	1795882.5583	778.93	43+51.41	15.16 LT
410	BY4-410	858965.6459	1795932.3987	782.65	45+91.46	2.92 LT
411	BY4-411	859278.2888	1796103.1442	772.85	49+48.63	9.49 LT
412	BY4-412	859738.4522	1796324.7956	773.33	54+57.88	15.63 RT
413	BY4-413	868265.1447	1796372.6155	764.38	OUTSIDE PROJECT LIMITS	

BY5

POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
501	BY5-501	857878.5264	1793477.3144	777.58	OUTSIDE PROJECT LIMITS	
A482	BY5-482	857364.8089	1793397.6863	UNKNOWN	OUTSIDE PROJECT LIMITS	

BY6

POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
A411	BY4-411	859278.2888	1796103.1442	772.85	OUTSIDE PROJECT LIMITS	
601	BY6-601	859264.5726	1796359.9638	772.92	12+11.86	17.54 RT

BY7

POINT	DESC.	NORTH	EAST	ELEVATION	Y7 STATION	OFFSET
701	BY7-701	861946.8835	1791876.3682	711.14	10+00.47	14.85 RT
A35	BL-35	861991.5945	1792062.4491	786.85	11+91.84	18.83 RT
702	BY7-702	862039.1694	1792233.7937	786.74	13+69.64	14.74 RT

BY8

POINT	DESC.	NORTH	EAST	ELEVATION	Y8 STATION	OFFSET
801	BY8-801	863484.7838	1790813.3668	694.91	13+77.88	68.84 RT
A40	BL-40	863894.8811	1790973.9033	782.27	18+88.39	34.85 RT
802	BY8-802	864452.6472	1791817.3348	723.86	OUTSIDE PROJECT LIMITS	

BY9

POINT	DESC.	NORTH	EAST	ELEVATION	Y9 STATION	OFFSET
901	BY9-901	865899.2919	1789789.8551	727.54	11+83.12	14.98 RT
902	BY9-902	865992.4294	1790645.7262	748.12	14+54.36	15.57 RT
A46	BL-46	865812.6886	1789974.2887	754.98	13+32.38	173.97 RT

BY10

POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
A1102	BY11-1102	869494.8442	1786362.3986	758.98	10+19.71	21.35 LT
1001	BY10-1001	869395.8054	1786718.2462	755.69	13+88.87	14.16 LT
1002	BY10-1002	869152.2829	1787328.9729	729.78	20+23.54	14.53 LT
A6	BL-6	869042.8283	1787765.3254	746.11	24+92.58	15.94 LT
A53	BL-53	868924.5825	1788828.1781	756.78	27+78.58	14.78 RT
1003	BY10-1003	868895.5251	1788214.6988	766.99	29+68.85	27.31 RT
1004	BY10-1004	869057.8261	1788514.3461	762.74	33+84.84	13.39 LT

BY11

POINT	DESC.	NORTH	EAST	ELEVATION	Y11 STATION	OFFSET
1101	BY11-1101	868911.1443	1786315.6766	731.89	10+07.16	13.83 RT
1102	BY11-1102	869494.8442	1786362.3986	758.98	15+91.54	23.15 RT
A57	BL-57	870145.2878	1786381.7139	764.69	22+15.81	155.28 LT
1103	BY11-1103	870726.7758	1785649.9674	773.74	28+87.72	77.77 LT
1104	BY11-1104	871441.6806	1786796.3124	782.19	36+11.47	14.83 RT
1105	BY11-1105	871886.8253	1786828.7423	799.95	40+57.88	13.96 RT

BY12

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1201	BY12-1201	871427.2804	1782818.3374	825.47	267+47.02	335.24 LT
1202	BY12-1202	871595.8662	1782954.5743	838.63	266+96.07	129.18 LT
A63	BL-63	871681.3426	1783161.8288	836.87	265+46.73	41.47 RT
1202	BY12-1202	871637.2158	1783586.8703	826.67	261+43.94	184.21 RT
1201	BY12-1201	871547.7481	1784828.3451	886.46	257+86.12	293.48 RT

BY13

POINT	DESC.	NORTH	EAST	ELEVATION	Y13 STATION	OFFSET
1301	BY13-1301	869381.8789	1788817.4868	800.16	10+00.00	4.39 LT
1302	BY13-1302	869171.7434	1789130.7656	815.21	20+14.18	3.83 LT
1303	BY13-1303	869848.7532	1791737.9183	826.37	27+93.13	4.98 LT
1304	BY13-1304	870812.4211	1792314.8174	834.97	39+25.31	5.24 LT
C64	BL-64	871899.8373	1782831.2363	831.98	51+21.42	124.22 LT
1306	BY13-1306	872808.3869	1783514.7326	781.95	62+52.82	4.34 LT
1307	BY13-1307	873682.6637	1784837.9211	795.88	72+78.89	4.48 LT
1308	BY13-1308	874567.4582	1784565.1875	826.84	83+00.07	6.36 LT
1309	BY13-1309	875384.1754	1785854.4849	822.75	92+52.94	5.95 LT
1310	BY13-1310	876296.9145	1786583.8389	789.52	103+19.84	4.72 LT
1311	BY13-1311	877481.8292	1786318.5384	785.64	116+97.21	5.84 LT
1312	BY13-1312	878562.8581	1786957.7849	798.14	129+57.28	4.83 LT

BY14

POINT	DESC.	NORTH	EAST	ELEVATION	Y14 STATION	OFFSET
1401	BY14-1401	868727.8134	1788987.6467	807.88	10+76.54	28.68 LT
1402	BY14-1402	869379.8779	1791372.2978	817.73	18+83.28	98.86 RT
1403	BY14-1403	869997.1638	1791748.2788	827.34	25+93.57	185.45 RT
1404	BY14-1404	870771.8774	1792208.3588	834.68	34+75.42	2352.81 RT
1405	BY14-1405	871585.4785	1792642.3656	825.84	10+83.76	3285.17 RT
A64	BL-64	871899.8373	1782831.2363	831.98	OUTSIDE PROJECT LIMITS	

BY15

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1581	BY15-1581	871436.8490	1781836.9421	833.28	276+37.39	748.18 LT
1582	BY15-1582	871533.4879	1782374.8531	834.84	271+93.84	438.18 LT
A1405	BY14-1405	871585.4785	1792642.3656	825.84	269+34.95	348.15 LT

BY16

POINT	DESC.	NORTH	EAST	ELEVATION	Y16 STATION	OFFSET
1681	BY16-1681	872463.1568	1788211.7137	855.84	10+62.84	15.88 RT
A78	BL-78	872841.6183	1788683.7278	868.88	16+62.99	27.57 RT
A1781	BY17-1781	873081.5278	1788799.3122	861.52	10+55.94	27.14 RT
1682	BY16-1682	873299.7769	1788965.7843	858.52	21+96.62	25.71 RT

BY17

POINT	DESC.	NORTH	EAST	ELEVATION	Y17 STATION	OFFSET
1781	BY17-1781	873081.5278	1788799.3122	861.52	14+36.55	365.88 LT
1782	BY17-1782	872998.7334	1789464.8896	831.94	10+44.45	13.75 RT

BY18

POINT	DESC.	NORTH	EAST	ELEVATION	Y18 STATION	OFFSET
A1682	BY16-1682	873299.7769	1788965.7843	858.52	14+97.83	22.48 RT
1881	BY18-1881	873271.8118	1789144.7777	845.79	10+18.86	12.38 RT

BY19

POINT	DESC.	NORTH	EAST	ELEVATION	Y19 STATION	OFFSET
B64	BL-64	871899.8373	1782831.2363	831.98	OUTSIDE PROJECT LIMITS	
1901	BY19-1901	872584.4479	1783246.7191	791.72	OUTSIDE PROJECT LIMITS	
1902	BY19-1902	873863.8411	1783574.4178	778.99	28+45.33	90.35 LT
1903	BY19-1903	873673.5826	1783148.8818	794.17	21+33.98	97.68 LT
1904	BY19-1904	874155.7238	1784172.1292	823.42	16+83.82	48.82 LT
1905	BY19-1905	874748.2283	1784436.5754	843.48	10+34.13	259.59 LT

BY20

POINT	DESC.	NORTH	EAST	ELEVATION	Y20 STATION	OFFSET
2001	BY20-2001	873651.7445	1783314.4188	788.26	24+71.83	424.37 RT
A1902	BY19-1902	873863.8411	1783574.4178	778.99	28+45.33	90.35 LT

BY21

POINT	DESC.	NORTH	EAST	ELEVATION	Y21 STATION	OFFSET
A2203	BY22-2203	874798.1311	1785023.2861	852.13	12+27.33	452.54 RT
2104	BY21-2104	874326.4628	1784838.1487	833.83	18+58.72	141.69 RT
2103	BY21-2103	873984.9765	1784349.5631	811.25	24+22.32	89.59 RT
2102	BY21-2102	873335.9746	1783955.2198	784.83	30+92.22	122.88 RT
2101	BY21-2101	872699.7273	1783541.8663	783.38	31+58.45	821.47 RT

BY22

POINT	DESC.	NORTH	EAST	ELEVATION	Y22 STATION	OFFSET
2201	BY22-2201	874730.3818	1785200.3398	829.18	11+23.75	22.38 RT
2202	BY22-2202	874748.7418	1785745.9338	822.49	16+64.48	15.53 RT
A1905	BY19-1905	874748.2283	1784436.5754	843.48	23+68.82	28.49 RT
2203	BY22-2203	874798.1311	1785023.2861	852.13	29+27.86	25.63 LT
A2702	BY27-2702	874744.9198	1785403.6251	858.84	33+27.74	24.78 RT
2204	BY22-2204	874742.1888	1785778.9286	848.96	37+03.16	15.47 RT
2205	BY22-2205	874913.8443	1786566.2761	833.83	45+07.19	15.92 RT

BY23

POINT	DESC.	NORTH	EAST	ELEVATION	Y13 STATION	OFFSET
B1905	BY19-1905	874748.2283	1784436.5754	843.48	83+85.93	289.56 LT
2301	BY23-2301	875189.2583	1784581.8591	815.79	88+47.88	384.52 LT
2302	BY23-2302	875441.5884	1784898.6589	814.36	92+18.06	176.81 LT
2303	BY23-2303	875838.8762	1785226.7827	817.88	97+24.88	87.17 LT
2304	BY23-2304	876399.3459	1785578.4922	791.17	103+84.81	84.53 LT

BY23A

POINT	DESC.	NORTH	EAST	ELEVATION	Y23 STATION	OFFSET
2401	BY24-2401	876088.8696	1784538.8867	795.66	20+21.53	494.18 RT
2402	BY24-2402	875668.7153	1784548.3518	804.18	21+18.78	277.34 RT
A2302	BY23-2302	875441.5884	1784898.6589	814.36	18+78.89	63.61 LT

BY24

POINT	DESC.	NORTH	EAST	ELEVATION	Y24PA STATION	OFFSET
2481	BY24-2481	876088.8696	1784538.8867	795.66	20+21.53	494.18 RT
2482	BY24-2482	875668.7153	1784548.3518	804.18	21+18.78	277.34 RT
A2302	BY23-2302	875441.5884	1784898.6589	814.36	18+78.89	63.61 LT

BY25

POINT	DESC.	NORTH	EAST	ELEVATION	Y23 STATION	OFFSET
2581	BY25-2581	876587.2177	1785381.9626	822.51	33+64.98	231.43 RT
A2384	BY23-2304	876399.3459	1785578.4922	791.17	33+87.52	95.55 LT

BY26

POINT	DESC.	NORTH	EAST	ELEVATION	Y22RPO STATION	OFFSET
2683	BY26-2683	876657.1949	1785922.7998	779.59	OUTSIDE PROJECT LIMITS	
2682	BY26-2682	875944.4572	1785495.1766	748.86	14+61.98	28.45 RT
2681	BY26-2681	875377.1548	1785193.1232	825.74	28+12.18	268.28 RT
B2283	BY22-2283	874798.1311	1785823.3061	852.13	25+73.43	479.41 RT

BY27

POINT	DESC.	NORTH	EAST	ELEVATION	Y22RPO STATION	OFFSET
2701	BY27-2701	875219.5206	1785437.2635	841.46	21+84.83	34.52 RT
2702	BY27-2702	874744.9198	1785403.6251	858.84	OUTSIDE PROJECT LIMITS	

NOTES

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

   HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:

   U2525B_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

   PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM FROM EXISTING NCGS MONUMENTATION.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "WYRICK" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 886491.0682(ft) EASTING: 1771530.6138(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999956490 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "WYRICK" TO -L- STATION 11+22.00 IS S 32° 35' 20" E 42226.68 ft ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

BENCHMARK DATA

BM1 ELEVATION - 757.75'
N 852397 E 1793121
Y3 STATION 10+00
N 9° 14' 22.9" W DIST 67.99'
R/R SPIKE SET IN 10 INCH BLACK GUM

BM2 ELEVATION - 758.94'
N 852468 E 1794711
Y3 STATION 25-83 82' LEFT
R/R SPIKE SET IN 24 INCH PIN OAK

BM3 ELEVATION - 776.63'
N 857271 E 1792667
Y4 STATION 18-00
S 87° 23' 46.1" W DIST 236.48'
R/R SPIKE SET IN 24 INCH PINE

BM4 ELEVATION - 769.58'
N 858348 E 1796291
Y4 STATION 38-34
N 19° 46' 48.8" W DIST 229.74'
R/R SPIKE SET IN 36 INCH PIN OAK

BM5 ELEVATION - 786.08'
N 869077 E 1789513
Y18 STATION 33-89
N 24° 11' 47.3" W DIST 33'
R/R SPIKE SET IN 14 INCH DOUBLE MULBERRY

BM6 ELEVATION - 752.54'
N 869413 E 1786176
Y11 STATION 15-00 158' LEFT
R/R SPIKE SET IN 15 INCH WALNUT

BM7 ELEVATION - 804.28'
N 871932 E 1786771
Y11 STATION 48-68
N 53° 01' 84.7" W DIST 55.86'
R/R SPIKE SET IN 23 INCH PINE

BM8 ELEVATION - 749.86'
N 871267 E 1784927
Y21A STATION 25-09
N 43° 15' 53.4" E DIST 186'
R/R SPIKE SET IN 20 INCH SWEET GUM

BM9 ELEVATION - 838.95'
N 871343 E 1781848
Y15 STATION 18-84 71' RIGHT
R/R SPIKE SET IN 15 INCH PIN OAK

BM10 ELEVATION - 858.03'
N 872473 E 1781146
Y16 STATION 10-16 33' LEFT
R/R SPIKE SET IN 28 INCH PINE

BM11 ELEVATION - 837.02'
N 873012 E 1781522
Y17 STATION 10-00 25' RIGHT
N 19° 58' 51.1" E DIST 37.47'
R/R SPIKE SET IN 36 INCH OAK

BM12 ELEVATION - 859.66'
N 872531 E 1781849
Y16 STATION 23-44
N 18° 04' 34.9" E DIST 94'
R/R SPIKE SET IN 28 INCH OAK

BM13 ELEVATION - 783.79'
N 873689 E 1783288
Y13 STATION 68-91 651' LEFT
R/R SPIKE SET IN 15 INCH SWEET GUM

BM14 ELEVATION - 829.24'
N 874866 E 1783255
Y22 STATION 11-79 185' LEFT
R/R SPIKE SET IN 24 INCH STUMP

BM15 ELEVATION - 832.86'
N 874965 E 1786563
Y22 STATION 45-13
N 7° 18' 52.2" W DIST 35'
R/R SPIKE SET IN 15 INCH PINE

BM16 ELEVATION - 782.24'
N 854958 E 1793849
L STATION 48-87 283' LEFT
R/R SPIKE SET IN 24 INCH POPLAR

BM17 ELEVATION - 881.27'
N 878779 E 1786929
Y13 STATION 131-27 144' LEFT
R/R SPIKE SET IN 15 INCH PINE

BM18 ELEVATION - 732.68'
N 878377 E 1785388
L STATION 239+75 108' LEFT
R/R SPIKE SET IN 38 INCH BIRCH

BM19 ELEVATION - 729.67'
N 859887 E 1787486
L STATION 219+42 385' RIGHT
R/R SPIKE SET IN 11 INCH GUM

BM20 ELEVATION - 719.95'
N 862781 E 1788935
L STATION 189+98 185' LEFT
R/R SPIKE SET IN 18 INCH SWEET GUM

BM21 ELEVATION - 686.51'
N 862741 E 1792855
L STATION 135+69 396' RIGHT
R/R SPIKE SET IN 14 INCH GUM

BM22 ELEVATION - 786.88'
N 868638 E 1788778
Y13 STATION 12-64 218' LEFT
R/R SPIKE SET IN 12 INCH DOUBLE MULBERRY

BM23 ELEVATION - 757.45'
N 851158 E 1794832
Y1 STATION 18+78 55' RIGHT
X ON SOUTH CONCRETE BRIDGE WING

BM24 ELEVATION - 755.59'
N 852436 E 1793568
Y3 STATION 14+32 181' LEFT
R/R SPIKE SET IN 30 INCH OAK

BM25 ELEVATION - 737.34'
N 856151 E 1794178
Y49PB STATION 11+62 158' LEFT
R/R SPIKE SET IN 12 INCH PINE

BM26 ELEVATION - 773.52'
N 857625 E 1788513
L STATION 79+41 182' RIGHT
R/R SPIKE SET IN 12 INCH PINE

BM27 ELEVATION - 781.62'
N 858967 E 1790051
Y4 STATION 46+53 98' RIGHT
R/R SPIKE SET IN 20 INCH PINE

BM28 ELEVATION - 748.85'
N 859337 E 1793553
L STATION 98+98 169' LEFT
R/R SPIKE SET IN 19 INCH OAK

BM29 ELEVATION - 783.31'
N 868905 E 1793081
L STATION 115+63 273' RIGHT
R/R SPIKE SET IN 14 INCH RIVER BIRCH

BM30 ELEVATION - 787.62'
N 861891 E 1791867
Y7 STATION 10+00
S 4° 14' 00.4" W DIST 78'
R/R SPIKE SET IN 17 INCH POPLAR

BM31 ELEVATION - 677.32'
N 863482 E 1791459
L STATION 144+39 198' RIGHT
R/R SPIKE SET IN 12 INCH PINE

BM32 ELEVATION - 718.92'
N 864154 E 1791878
Y8 STATION 21+51 25' RIGHT
R/R SPIKE SET IN 20 INCH PINE

BM33 ELEVATION - 728.83'
N 865755 E 1789598
DRY2 STATION 15-00 DIST 79' LEFT
R/R SPIKE SET IN 18 INCH OAK

BM34 ELEVATION - 744.17'
N 868838 E 1787892
L STATION 209+56 187' LEFT
R/R SPIKE SET IN 18 INCH PINE

BM35 ELEVATION - 768.39'
N 869124 E 1786298
Y11 STATION 19-76 148' LEFT
R/R SPIKE SET IN 14 INCH PINE

BM36 ELEVATION - 821.46'
N 871988 E 1783179
Y13LPC STATION 10-55 85' RIGHT
R/R SPIKE SET IN 28 INCH OAK

BM37 ELEVATION - 838.98'
N 878396 E 1782265
Y13 STATION 35+48 162' RIGHT
R/R SPIKE SET IN 32 INCH OAK

BM38 ELEVATION - 798.68'
N 873659 E 1784353
Y21 STATION 26+94 91' LEFT
R/R SPIKE SET IN 14 INCH OAK

BM39 ELEVATION - 773.98'
N 877278 E 1785834
Y13 STATION 112+72 306' LEFT
R/R SPIKE SET IN 15 INCH OAK

BM40 ELEVATION - 813.31'
N 872188 E 1781624
L STATION 281+48 162' LEFT
R/R SPIKE SET IN 15 INCH OAK

BM41 ELEVATION - 861.47'
N 872966 E 1780031
L STATION 293+47 25' RIGHT
R/R SPIKE SET IN 20 INCH OAK

BM42 ELEVATION - 887.98'
N 875658 E 1784668
Y23 STATION 45+83 572' LEFT
R/R SPIKE SET IN 28 INCH MAGNOLIA

15-APR-2013 14:27
rs Hargrove
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6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

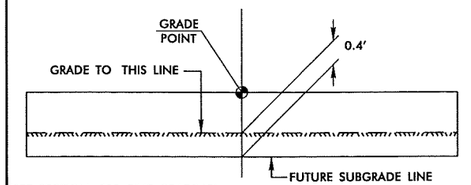
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PRELIMINARY PAVEMENT SCHEDULE

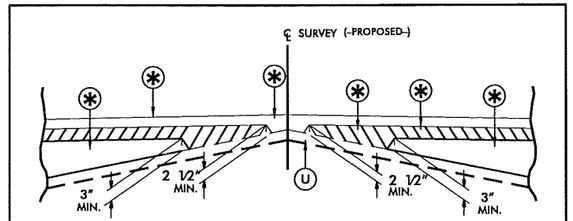
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.	E7	PROP. APPROX. 4½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E8	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E9	PROP. APPROX. 8½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 484.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E10	PROP. APPROX. 13" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 494 LBS. PER SQ. YD. IN EACH OF THREE LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E11	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	G	PROP. APPROX. 8" CEMENT TREATED BASE COURSE (PLANT MIXED).
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J1	PROP. 6" AGGREGATE BASE COURSE.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	J2	PROP. 8" AGGREGATE BASE COURSE.
D4	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	L	BASE TO BE STABILIZED WITH 200 TO 400 LBS PER SQ. YARD OF STABILIZER AGGREGATE MIXED WITH THE TOP 3" OF SUBGRADE SOIL AT LOCATIONS DIRECTED BY THE ENGINEER.
D5	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
D6	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R1	1'-6" CONCRETE CURB AND GUTTER.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R2	2'-6" CONCRETE CURB AND GUTTER.
E2	PROP. APPROX. 3½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN).
E3	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK
E4	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	T	EARTH MATERIAL
E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	U	EXISTING PAVEMENT
E6	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

DETAIL A
SUBGRADE DETAIL

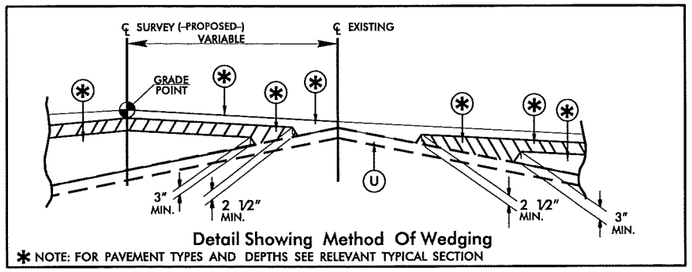


(SEE SECTION 500, FINE GRADING)



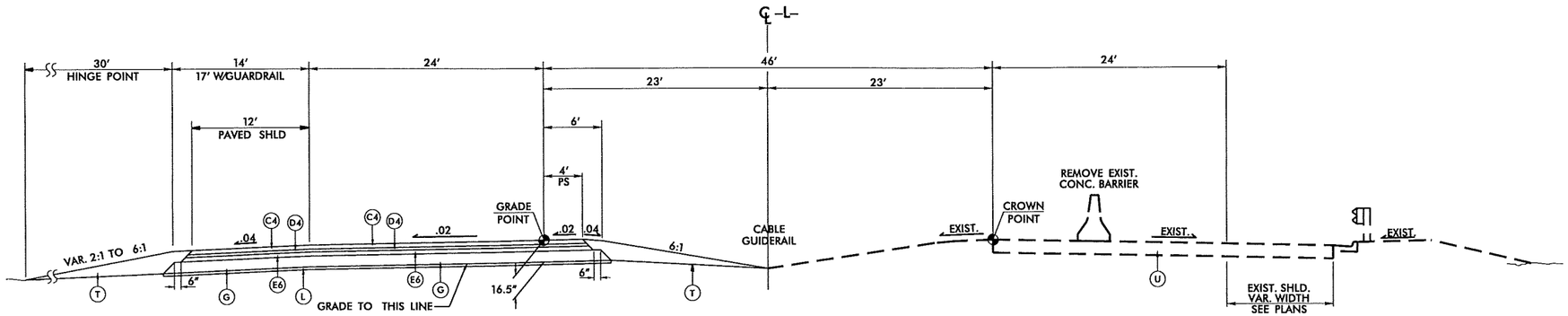
Detail Showing Method of Wedging

✱ NOTE: FOR PAVEMENT TYPES AND DEPTHS SEE RELEVANT TYPICAL SECTION



Detail Showing Method Of Wedging

✱ NOTE: FOR PAVEMENT TYPES AND DEPTHS SEE RELEVANT TYPICAL SECTION



NOTE: RESURFACE AND WIDEN -L- STA. 11+22.00 TO STA. 12+66.00 LT.

USE TYPICAL SECTION NO. 1 AS FOLLOWS
-L- STA. 11+22.00 TO STA. 14+34.00+/- (BEGIN BRIDGE)
-L- STA. 18+38.00+/- (END BRIDGE) TO STA. 23+10.00+/-

TYPICAL SECTION NO. 1

NOTE: USE MILLED RUMBLE STRIPS FOR MEDIAN AND OUTSIDE ASPHALT PAVED SHOULDER. SEE STD. 665.01

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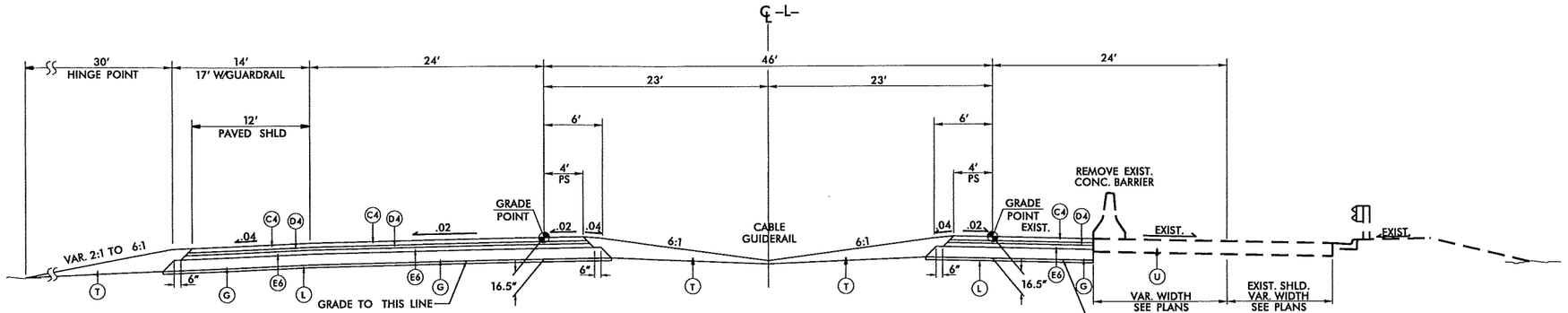
6/2/99

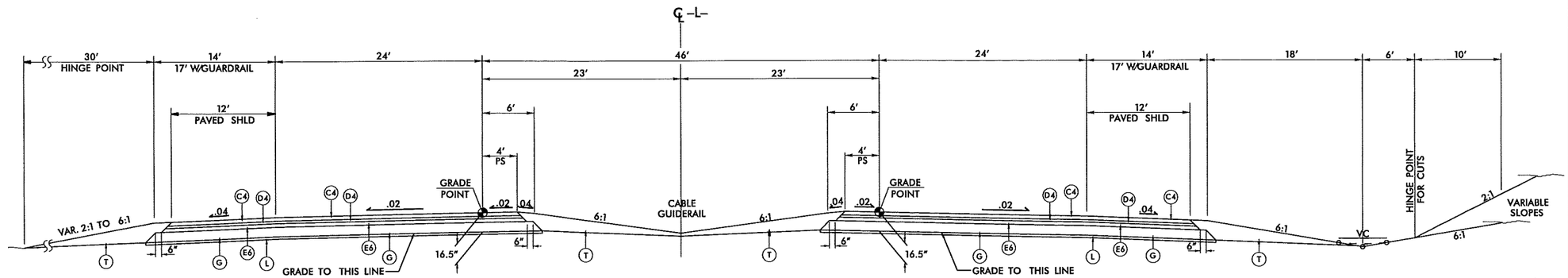
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



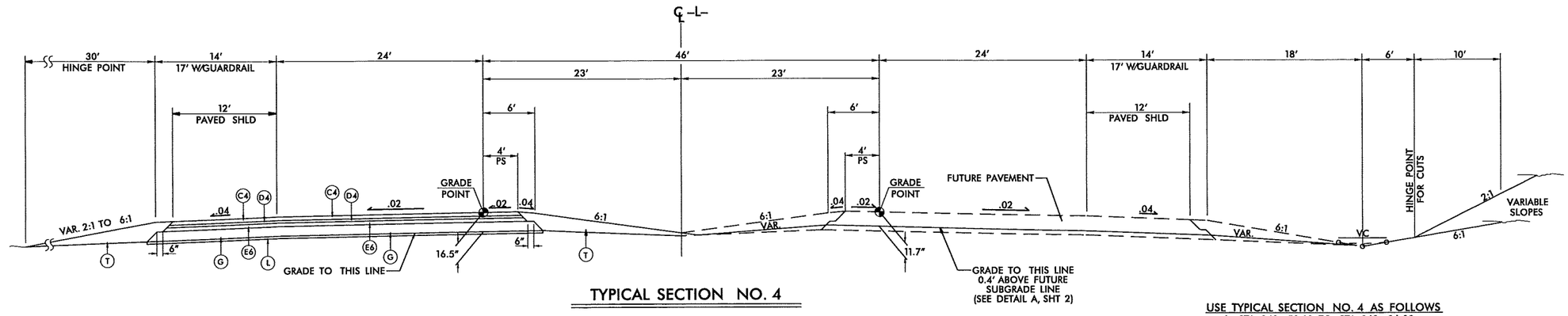
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS
-L- STA. 23+10.00+/- TO STA. 25+43.42 (BEGIN BRIDGE)
-L- STA. 27+07.68 (END BRIDGE) TO STA. 29+06.27



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS
-L- STA. 29+06.27 TO STA. 128+28.00+/- (BEGIN BRIDGE)
-L- STA. 130+21.00+/- (END BRIDGE) TO STA. 137+65.00+/- (BEGIN BRIDGE)
-L- STA. 152+19.00+/- (END BRIDGE) TO STA. 174+17.46 (BEGIN BRIDGE)
-L- STA. 175+27.46 (END BRIDGE) TO STA. 248+50.00



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS
-L- STA. 248+50.00 TO STA. 262+26.00

PAVEMENT SCHEDULE

C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

NOTE: USE MILLED RUMBLE STRIPS FOR MEDIAN AND OUTSIDE ASPHALT PAVED SHOULDER. SEE STD. 665.01

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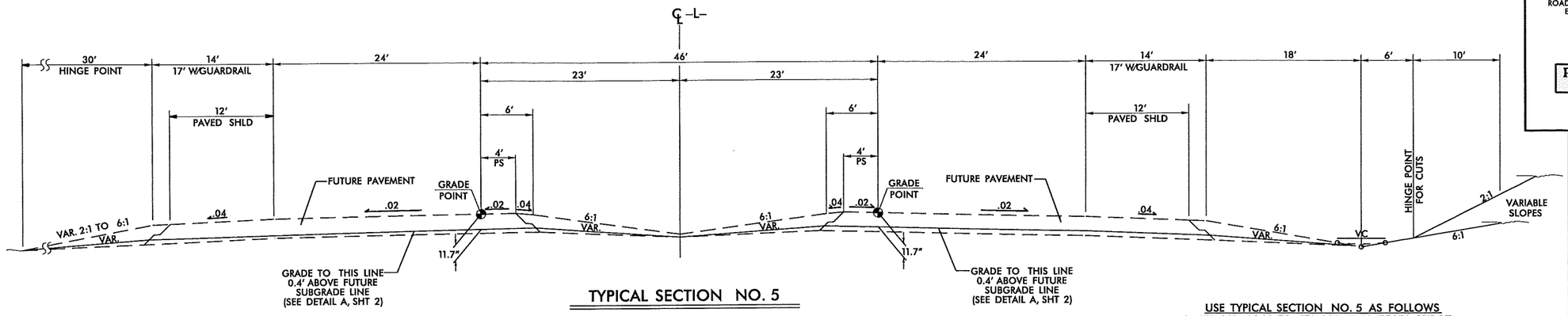
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

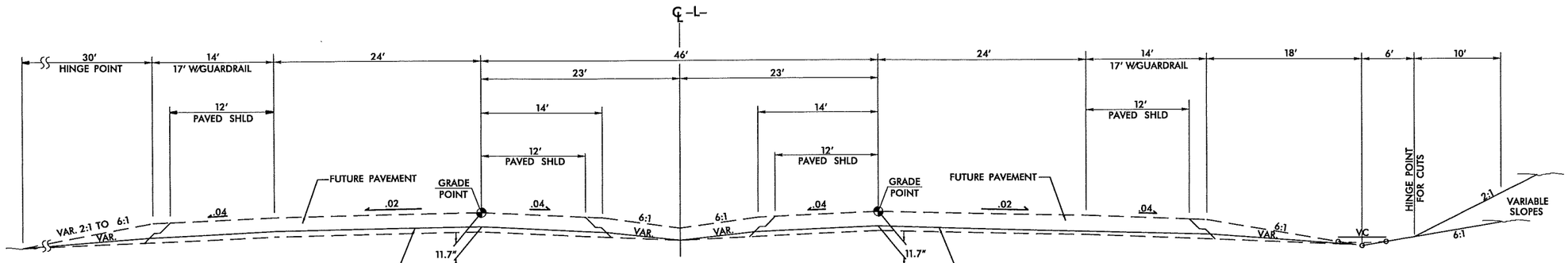
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS
-L- STA. 262+26.00 TO STA. 267+15.89 (BEGIN BRIDGE)

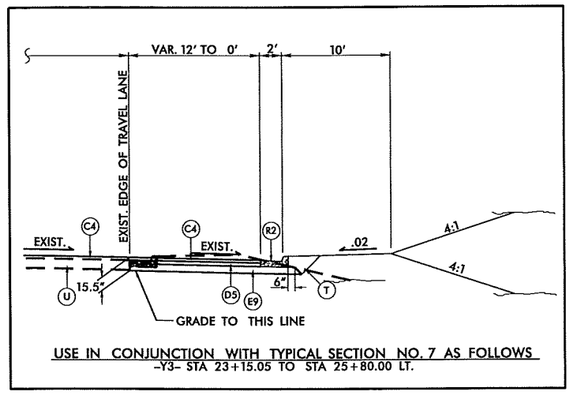
NOTE: SEE PLANS FOR AUXILIARY LANE WIDTHS FOR PAVING



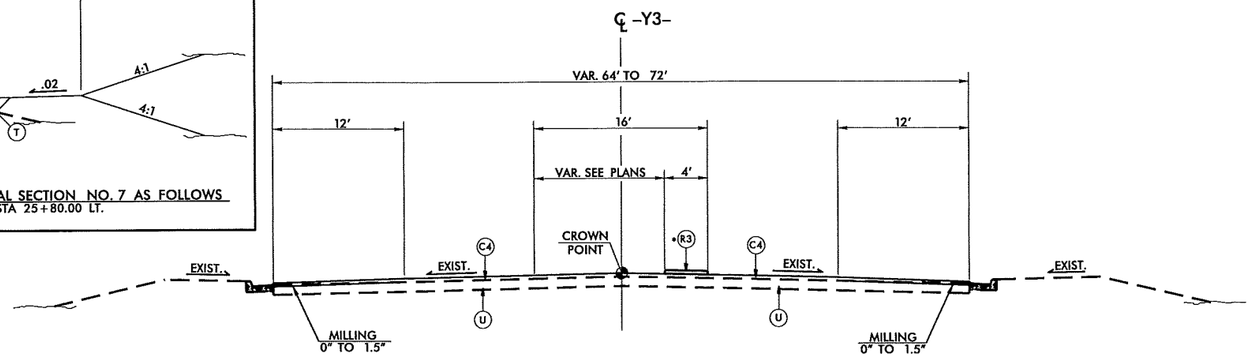
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS
-L- STA. 269+86.14 (END BRIDGE) TO STA. 274+00.00

NOTE: SEE PLANS FOR AUXILIARY LANE WIDTHS FOR PAVING AND LIMITS.



USE IN CONJUNCTION WITH TYPICAL SECTION NO. 7 AS FOLLOWS
-Y3- STA 23+15.05 TO STA 25+80.00 LT.



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS
-Y3- STA. 12+59.00 TO STA. 25+80.00
*-Y3- STA. 14+20.00 TO STA. 21+90.00

NOTE: USE MILLED RUMBLE STRIPS FOR MEDIAN AND OUTSIDE ASPHALT PAVED SHOULDER. SEE STD. 665.01

PAVEMENT SCHEDULE

C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

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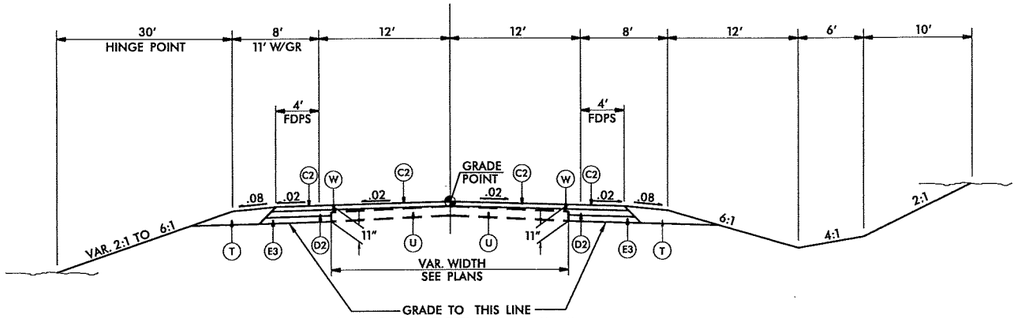
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ –Y4–



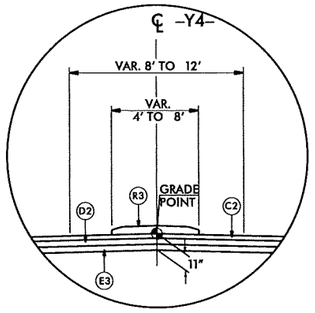
TYPICAL SECTION NO. 8

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 8
–Y4– STA. 12+00.00 TO STA. 12+50.00

USE TYPICAL SECTION NO. 8 AS FOLLOWS
–Y4– STA. 12+50.00 TO STA. 15+74.19
–Y4– STA. 50+54.16 TO STA. 55+50.00

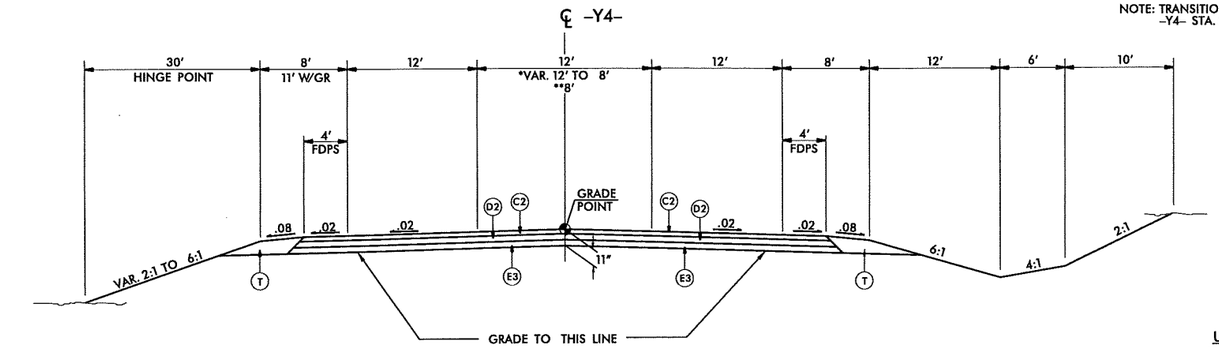
NOTE: TRANSITION FROM TYPICAL SECTION NO. 8 TO TYPICAL SECTION NO. 9
–Y4– STA. 15+74.19 TO STA. 18+74.19

NOTE: TRANSITION FROM TYPICAL SECTION NO. 8 TO EXISTING
–Y4– STA. 55+50.00 TO STA. 56+00.00



USE WITH TYPICAL SECTION NO. 8 AND 9 AS FOLLOWS
–Y4– STA. 18+21.48 TO STA. 19+76.00
–Y4– STA. 29+19.00 TO STA. 34+05.00

℄ –Y4–

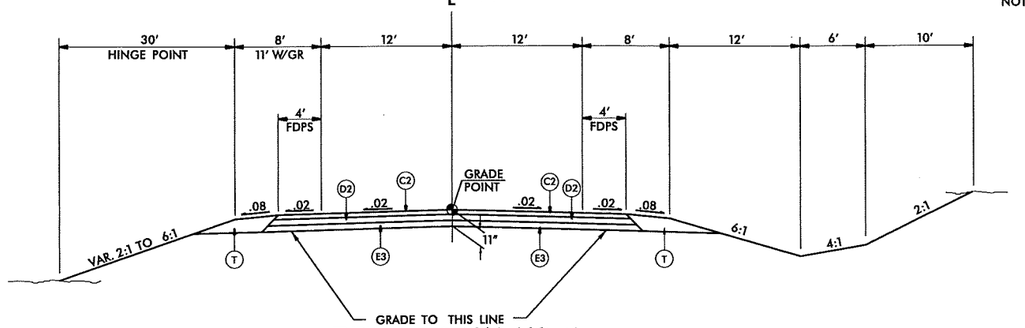


TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 AS FOLLOWS
–Y4– STA. 18+74.19 TO STA. 23+65.45 (BEGIN BRIDGE)
–Y4– STA. 25+47.95 (END BRIDGE) TO STA. 30+19.76
*–Y4– STA. 30+19.76 TO STA. 31+19.76
**–Y4– STA. 31+19.76 TO STA. 34+05.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 9 TO TYPICAL SECTION NO. 10
–Y4– STA. 34+05.00 TO STA. 36+05.00

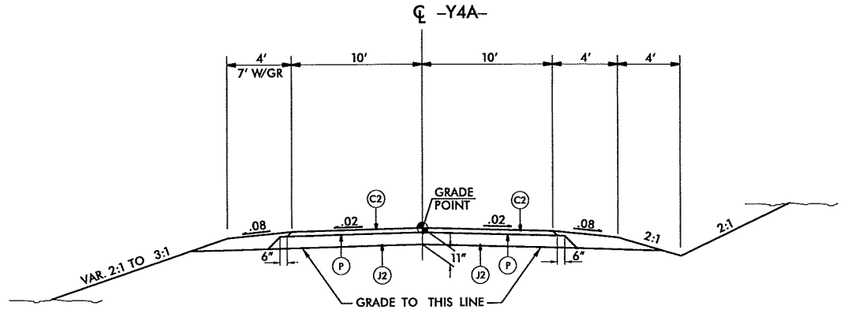
℄ –Y4–



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 AS FOLLOWS
–Y4– STA. 36+05.00 TO STA. 50+54.16

℄ –Y4A–



TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 AS FOLLOWS
–Y4A– STA. 10+00.00 TO STA. 14+55.58

NOTE: TRANSITION FROM 20' TO 30' PAVEMENT WIDTH
–Y4A– STA. 14+55.58 TO STA. 15+05.58

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

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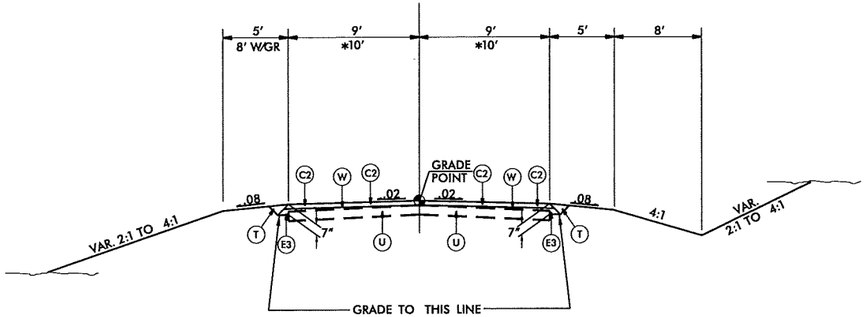
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ –Y5– & –Y23–

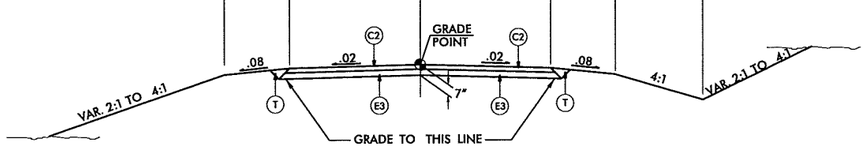


TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12 AS FOLLOWS
–Y5– STA. 10+58.88 TO STA. 11+50.00
*–Y23– STA. 41+25.00 TO STA. 45+50.00

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

℄ –Y5B– & –Y21–



TYPICAL SECTION NO. 13

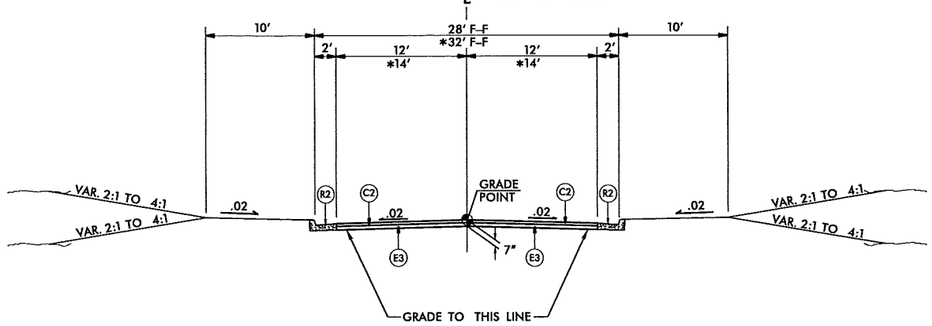
NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 13
–Y5B– STA. 12+00.00 TO STA. 12+50.00

NOTE: TRANSITION FROM 30' TO 24' PAVEMENT WIDTH
–Y21– STA. 11+42.21 TO STA. 11+92.21

USE TYPICAL SECTION NO. 13 AS FOLLOWS
–Y5B– STA. 12+50.00 TO STA. 15+71.37
*–Y21– STA. 11+92.21 TO STA. 31+00.00

NOTE: TRANSITION FROM 22' TO 30' PAVEMENT WIDTH
–Y5B– STA. 15+71.37 TO STA. 16+21.37

℄ –Y21– & –Y21B–



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 AS FOLLOWS
–Y21– STA. 31+00.00 TO STA. 35+25.15
*–Y21B– STA. 10+43.56 TO STA. 10+79.45

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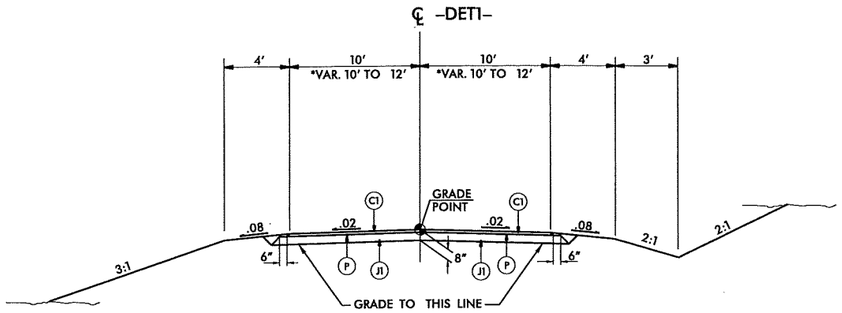
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

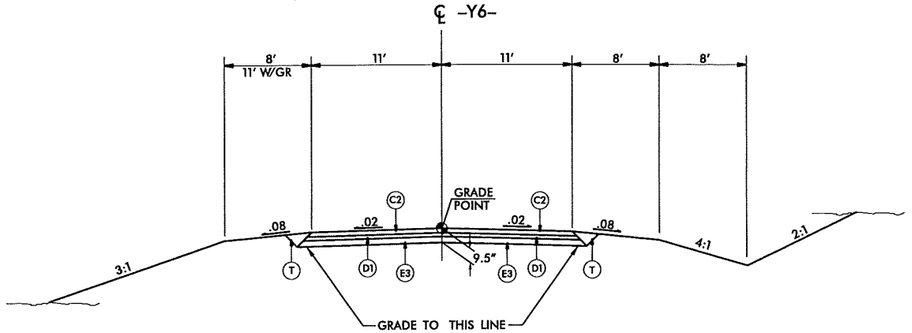
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 15

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 15
–DET1– STA. 10+23.26 TO STA. 11+31.69

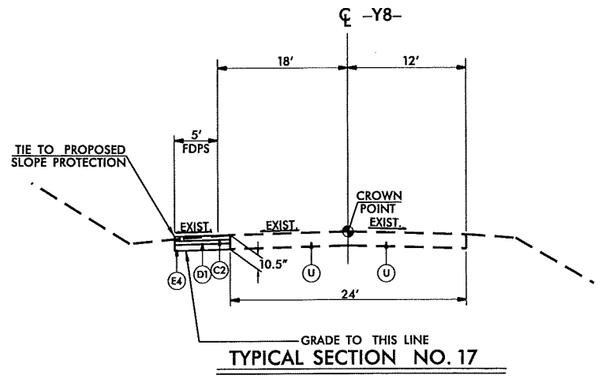
USE TYPICAL SECTION NO. 15 AS FOLLOWS
–DET1– STA. 11+31.69 TO STA. 20+94.12
*–DET1– STA. 20+94.12 TO STA. 21+44.12



TYPICAL SECTION NO. 16

NOTE: TRANSITION FROM 30' TO 22' PAVEMENT WIDTH
–Y6– STA. 10+49.97 TO STA. 10+99.97

USE TYPICAL SECTION NO. 16 AS FOLLOWS
–Y6– STA. 10+99.97 TO STA. 11+50.00



TYPICAL SECTION NO. 17

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 17
–Y8– STA. 17+41.00 TO STA. 17+91.00

USE TYPICAL SECTION NO. 17 AS FOLLOWS
–Y8– STA. 17+91.00 TO STA. 19+98.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 17 TO EXISTING
–Y8– STA. 19+98.00 TO STA. 20+48.00

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

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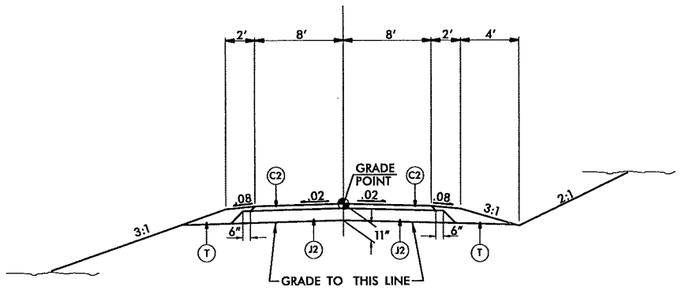
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-F
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

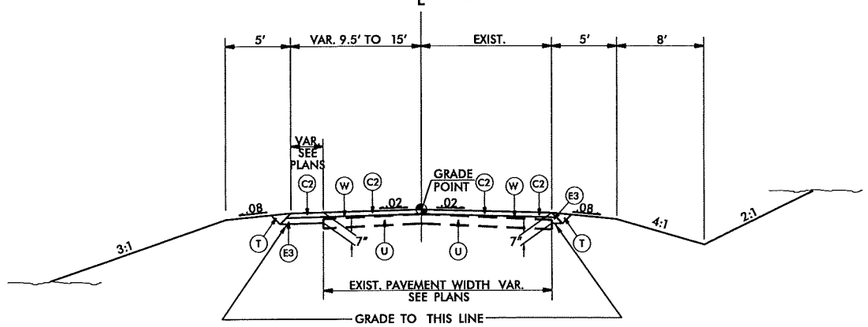
℄ –DRV3–



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18 AS FOLLOWS
–DRV3– STA. 10+24.77 TO STA. 13+77.40

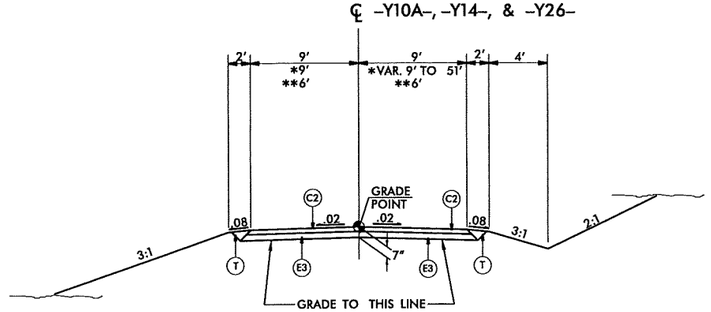
℄ –Y10–



TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19 AS FOLLOWS
–Y10– STA. 10+40.73 TO STA. 10+91.00

℄ –Y10A–, –Y14–, & –Y26–



TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20 AS FOLLOWS
–Y10A– STA. 10+33.87 TO STA. 13+50.10
*–Y10A– STA. 13+50.10 TO STA. 14+25.00
**–Y14– STA. 26+60.10 TO STA. 27+84.49
**–Y26– STA. 38+50.00 TO STA. 39+75.00 (USE (J1) FROM –Y26– STA. 38+85.00 TO STA. 39+75.00)

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

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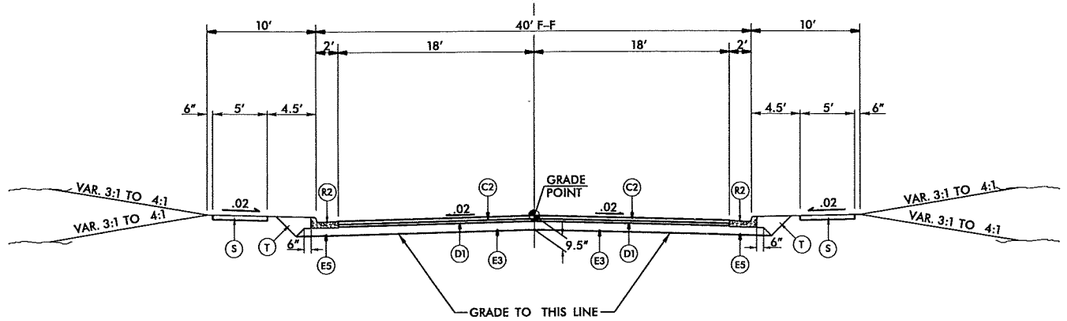
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-G
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ –Y11–



TYPICAL SECTION NO. 21

NOTE: RESURFACE EXISTING PAVEMENT
–Y11– STA. 15+16.00 TO STA. 16+22.55

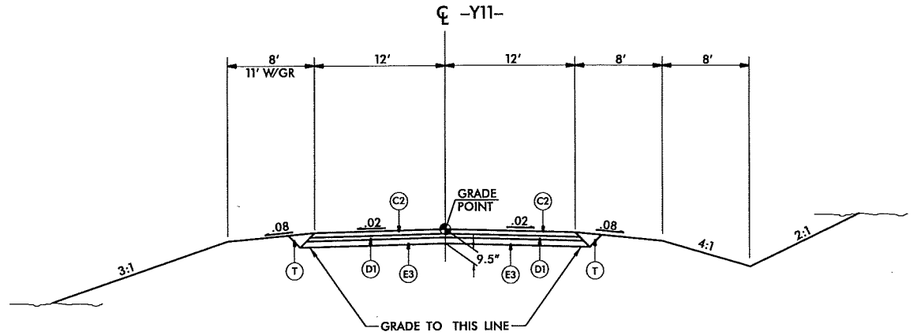
NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 21
–Y11– STA. 16+22.55 TO STA. 19+37.55

USE TYPICAL SECTION NO. 21 AS FOLLOWS
–Y11– STA. 19+37.55 TO STA. 20+73.58 (BEGIN BRIDGE)

NOTE: MILLING REQUIRED –Y11– STA. 16+22.55 TO STA. 17+00.00

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

℄ –Y11–

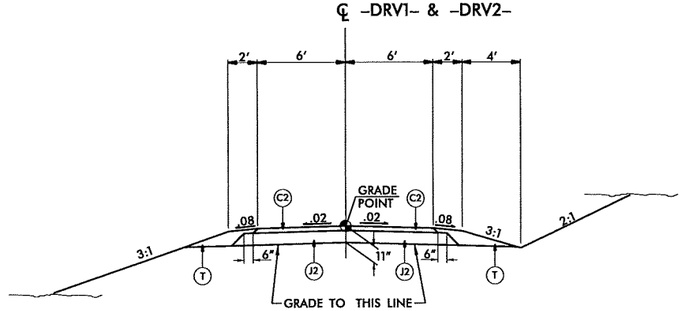


TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22 AS FOLLOWS
–Y11– STA. 22+64.58 (END BRIDGE) TO STA. 34+50.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 22 TO EXISTING
–Y11– STA. 34+50.00 TO STA. 35+00.00

℄ –DRV1– & –DRV2–



TYPICAL SECTION NO. 23

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 23
–DRV1– STA. 10+00.00 TO STA. 10+50.00

USE TYPICAL SECTION NO. 23 AS FOLLOWS
*–DRV1– STA. 10+50.00 TO STA. 11+84.78
*–DRV2– STA. 10+00.00 TO STA. 15+85.93

*(USE (J1) FROM –DRV1– STA. 10+00.00 TO STA. 11+38.00)
*(USE (J1) FROM –DRV2– STA. 10+00.00 TO STA. 15+00.00)

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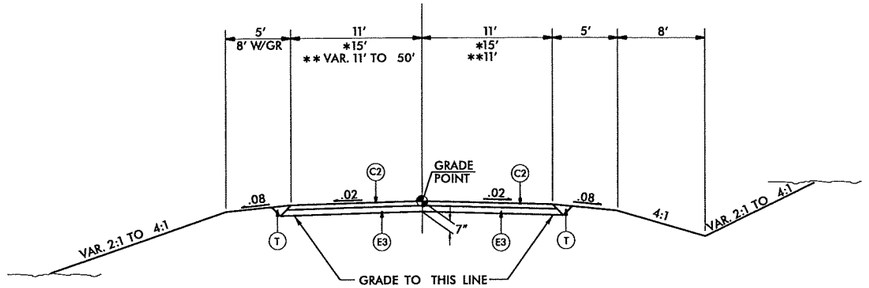
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-H
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ –Y14–

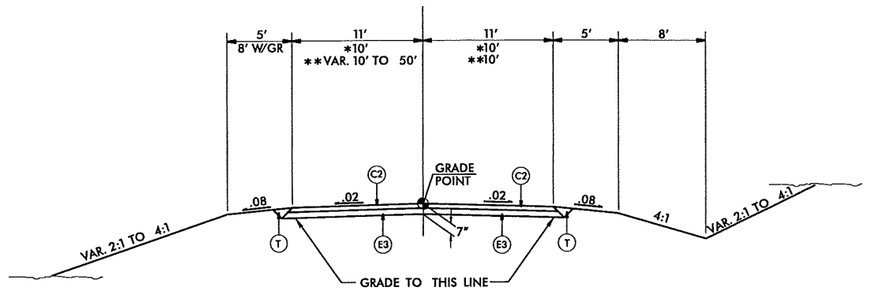


TYPICAL SECTION NO. 24

NOTE: TRANSITION FROM 30' TO 22' PAVEMENT WIDTH
–Y14– STA. 12+14.25 TO STA. 12+64.25

USE TYPICAL SECTION NO. 24 AS FOLLOWS
*–Y14– STA. 10+88.52 TO STA. 12+14.25
–Y14– STA. 12+64.25 TO STA. 25+85.01
**–Y14– STA. 25+85.01 TO STA. 26+60.10

℄ –Y– LINES



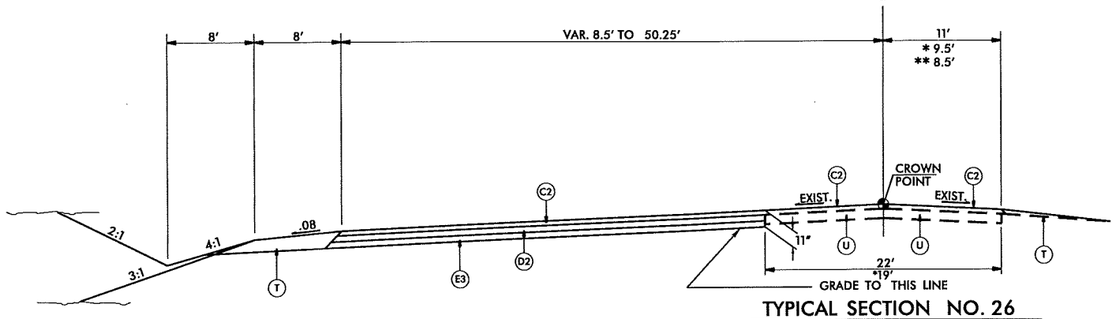
TYPICAL SECTION NO. 25

NOTE: TRANSITION FROM 30' TO 22' PAVEMENT WIDTH
–Y23– STA. 10+67.58 TO STA. 11+17.58
–Y26– STA. 10+69.85 TO STA. 11+19.85

USE TYPICAL SECTION NO. 25 AS FOLLOWS
*–Y21A– STA. 12+64.15 TO STA. 24+20.28
**–Y21A– STA. 24+20.28 TO STA. 24+95.00
–Y23– STA. 11+17.58 TO STA. 40+73.86
*–Y23– STA. 41+73.86 TO STA. 41+25.00
*–Y23– STA. 45+50.00 TO STA. 51+70.52
–Y26– STA. 11+19.85 TO STA. 37+80.95
*–Y29– STA. 11+05.48 TO STA. 16+71.59
–SRV1– STA. 10+12.34 TO STA. 25+50.00

NOTE: TRANSITION FROM 30' TO 20' PAVEMENT WIDTH
–Y29– STA. 10+55.48 TO STA. 11+05.48
NOTE: TRANSITION FROM 22' TO 20' PAVEMENT WIDTH
–Y23– STA. 40+73.86 TO STA. 41+73.86

℄ CUL–DE–SAC

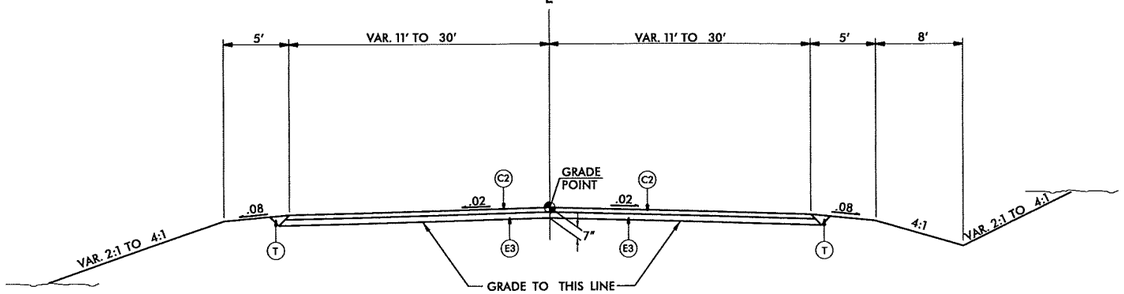


TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26 AS FOLLOWS
–EY4– STA. 33+25.52 TO STA. 34+03.09
*–Y10– STA. 30+29.75 TO STA. 31+07.49
–Y13– STA. 29+15.00 TO STA. 29+89.38 LT.
–Y13RPB– STA. 14+00.00 RT.
–Y15– STA. 11+29.16 TO STA. 12+02.67 LT.
**–EY24– STA. 13+49.81 TO STA. 14+25.22

NOTE: FOR –Y10– AND –Y13–PAVEMENT DESIGN USE –(C2)&(E3)

℄ –Y26– CUL–DE–SAC



TYPICAL SECTION NO. 27

USE TYPICAL SECTION NO. 27 AS FOLLOWS
–Y26– STA. 37+80.95 TO STA. 38+50.00

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

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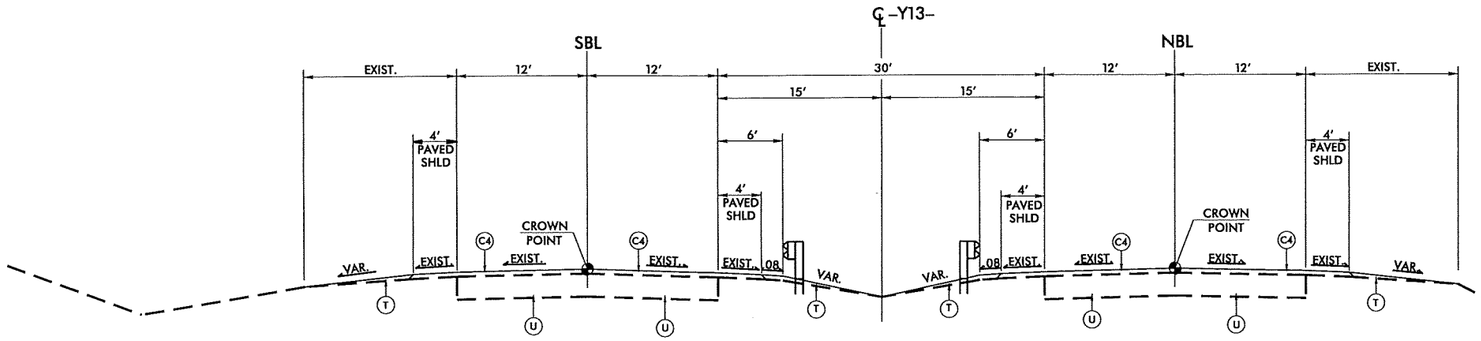
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

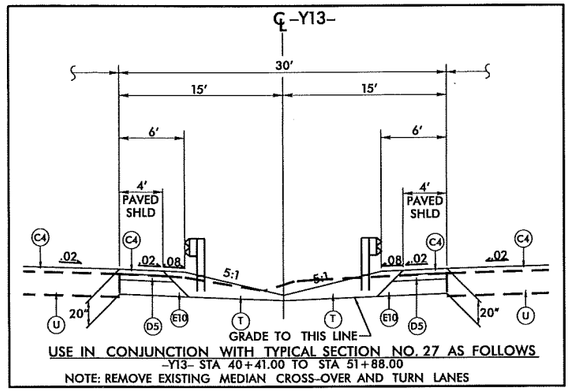
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



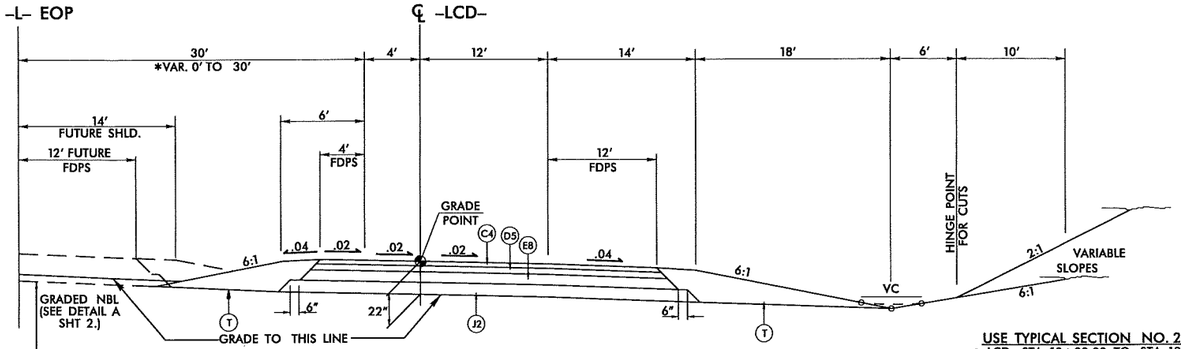
TYPICAL SECTION NO. 28

USE TYPICAL SECTION NO. 28 AS FOLLOWS
–Y13– STA 25+80.00 TO STA 112+00.00
–Y13– STA 112+00.00 TO STA 123+54.31 (NBL)
–Y13– STA 123+54.31 TO STA 128+09.00
–Y13– STA 128+09.00 TO STA 131+57.64 (SBL)

NOTE: SEE PLAN SHEETS 35 & 36 FOR LEFTOVER DESIGN
–Y13– STA. 120+05.64 TO STA. 131+57.64



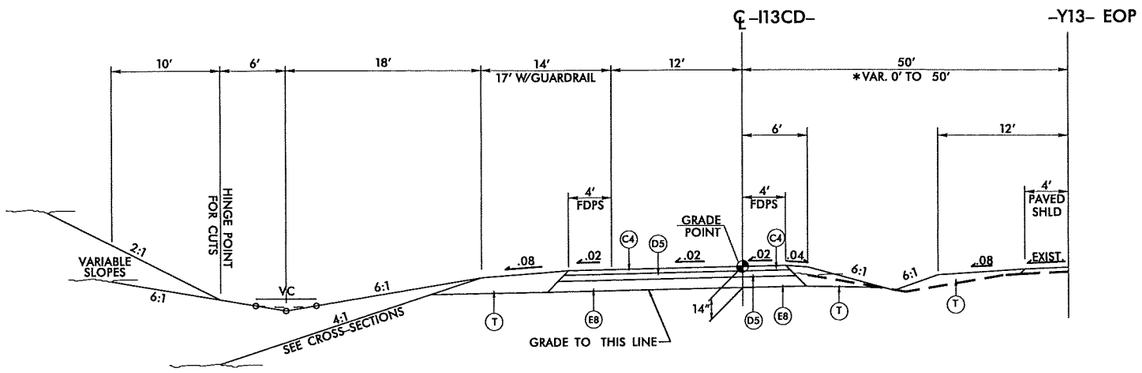
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 27 AS FOLLOWS
–Y13– STA 40+41.00 TO STA 51+88.00
NOTE: REMOVE EXISTING MEDIAN CROSS-OVER AND TURN LANES



TYPICAL SECTION NO. 29

USE TYPICAL SECTION NO. 29 AS FOLLOWS
*–LCD– STA 10+00.00 TO STA 19+23.34
–LCD– STA 19+23.34 TO STA 35+78.21 (BEGIN BRIDGE)
–LCD– STA 38+60.21 (END BRIDGE) TO STA 41+28.62

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1′-6" CURB AND GUTTER
R2	2′-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING



TYPICAL SECTION NO. 30

USE TYPICAL SECTION NO. 30 AS FOLLOWS
*–I13CD– STA 10+00.00 TO STA 22+65.24
–I13CD– STA 22+65.24 TO STA 31+74.63
*–I13CD– STA 31+74.63 TO STA 41+90.04

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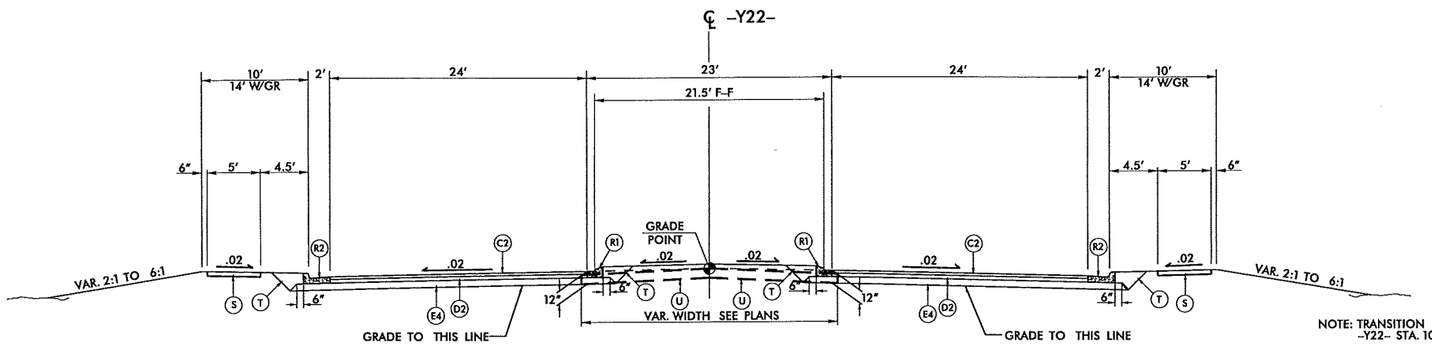
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-J
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C1	2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C4	3" S9.5C
C5	VAR. DEPTH S9.5C
D1	2½" I19.0B
D2	4" I19.0B
D3	VAR. DEPTH I19.0B
D4	2½" I19.0C
D5	4" I19.0C
D6	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	3½" B25.0B
E3	4" B25.0B
E4	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4½" B25.0C
E8	7" B25.0C
E9	8½" B25.0C
E10	13" B25.0C
E11	VAR. DEPTH B25.0C
G	8" CTBC (PLANT MIXED)
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" CONC. ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

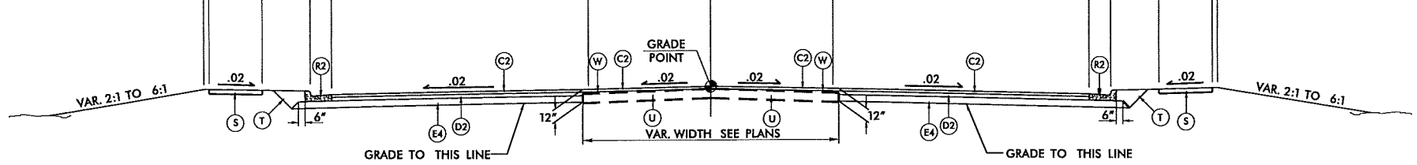


TYPICAL SECTION NO. 31

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 30
–Y22– STA. 10+00.00 TO STA. 16+25.00

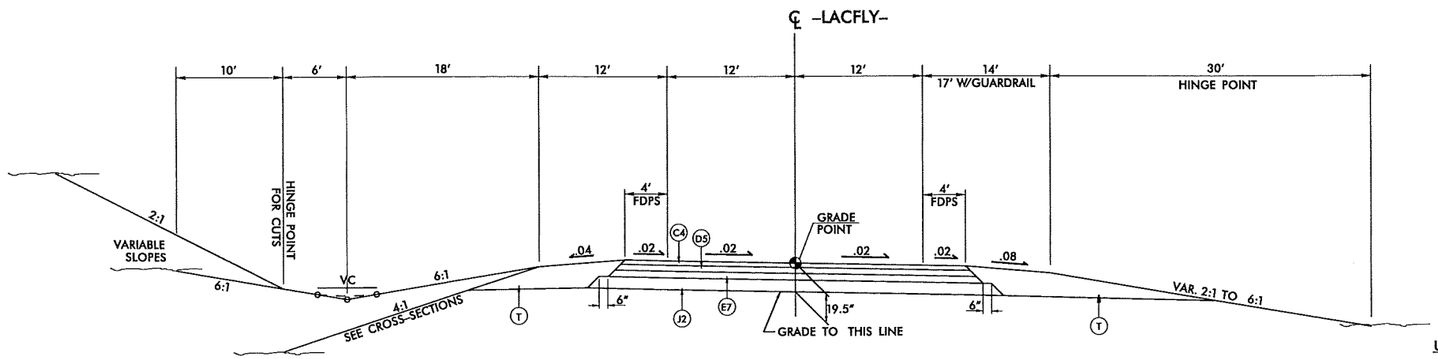
USE TYPICAL SECTION NO. 31 AS FOLLOWS
–Y22– STA. 16+25.00 TO STA. 20+65.25
–Y22– STA. 21+19.25 TO STA. 24+78.23 (BEGIN BRIDGE)
–Y22– STA. 27+60.80 (END BRIDGE) TO STA. 33+57.19
–Y22– STA. 34+96.25 TO STA. 38+75.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 30 TO EXISTING
–Y22– STA. 38+75.00 TO STA. 45+00.00



TYPICAL SECTION NO. 32

USE TYPICAL SECTION NO. 32 AS FOLLOWS
–Y22– STA. 20+65.25 TO STA. 21+19.25
–Y22– STA. 33+57.19 TO STA. 34+96.25



TYPICAL SECTION NO. 33

USE TYPICAL SECTION NO. 33 AS FOLLOWS
–LACFLY– STA. 46+05.71 TO STA. 60+53.54

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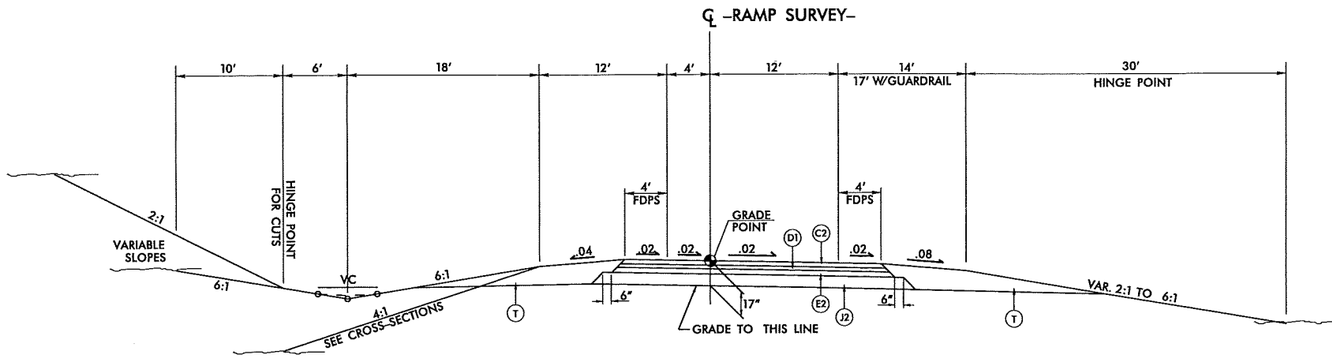
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-K
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

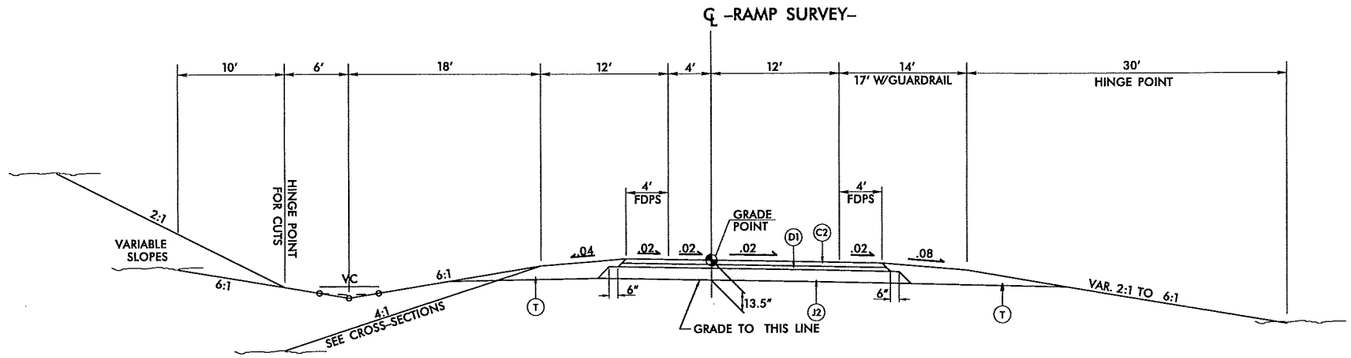
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 34

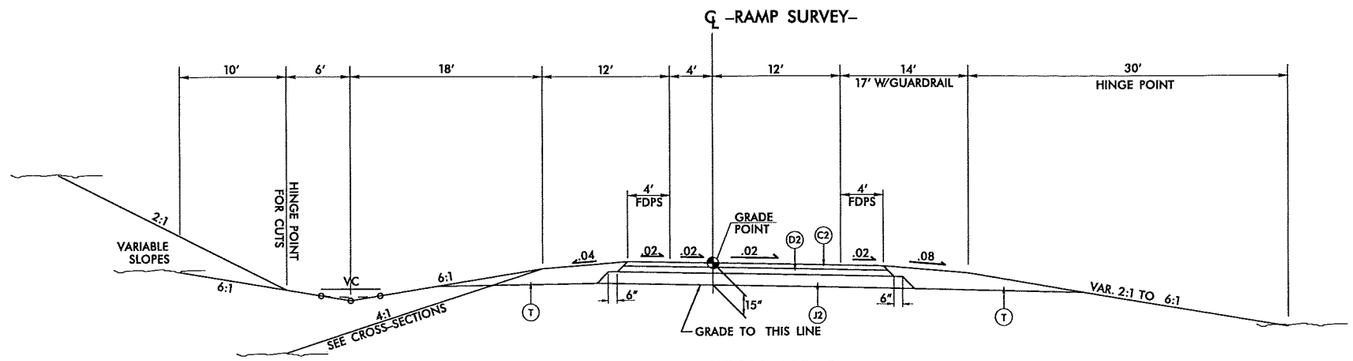
NOTE: CONC. MONO. ISLAND –Y3RPD– STA. 27+10.15 TO 30+39.83
SEE PLAN SHEET 4

USE TYPICAL SECTION NO. 34 AS FOLLOWS
–Y3RPA– STA. 10+00.00 TO STA. 22+51.14
–Y3RPD– STA. 10+00.00 TO STA. 29+98.63



TYPICAL SECTION NO. 35

USE TYPICAL SECTION NO. 35 AS FOLLOWS
–Y4RPA– STA. 10+00.00 TO STA. 26+55.64
–Y4RPB– STA. 10+00.00 TO STA. 25+52.07
–Y4RPC– STA. 10+00.00 TO STA. 25+41.63
–Y4RPD– STA. 10+00.00 TO STA. 24+31.78



TYPICAL SECTION NO. 36

USE TYPICAL SECTION NO. 36 AS FOLLOWS
–Y13RPB– STA. 10+00.00 TO STA. 31+71.04
–Y22RPA– STA. 10+00.00 TO STA. 29+13.15
–Y22RPD– STA. 20+96.54 TO STA. 25+41.55

PAVEMENT SCHEDULE

C1	2″ S9.5B
C2	3″ S9.5B
C3	VAR. DEPTH S9.5B
C4	3″ S9.5C
C5	VAR. DEPTH S9.5C
D1	2½″ I19.0B
D2	4″ I19.0B
D3	VAR. DEPTH I19.0B
D4	2½″ I19.0C
D5	4″ I19.0C
D6	VAR. DEPTH I19.0C
E1	3″ B25.0B
E2	3½″ B25.0B
E3	4″ B25.0B
E4	5″ B25.0B
E5	VAR. DEPTH B25.0B
E6	3″ B25.0C
E7	4½″ B25.0C
E8	7″ B25.0C
E9	8½″ B25.0C
E10	13″ B25.0C
E11	VAR. DEPTH B25.0C
G	8″ CTBC (PLANT MIXED)
J1	6″ AGGREGATE BASE COURSE
J2	8″ AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1′-6″ CURB AND GUTTER
R2	2′-6″ CURB AND GUTTER
R3	5″ CONC. ISLAND (KEYED IN)
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

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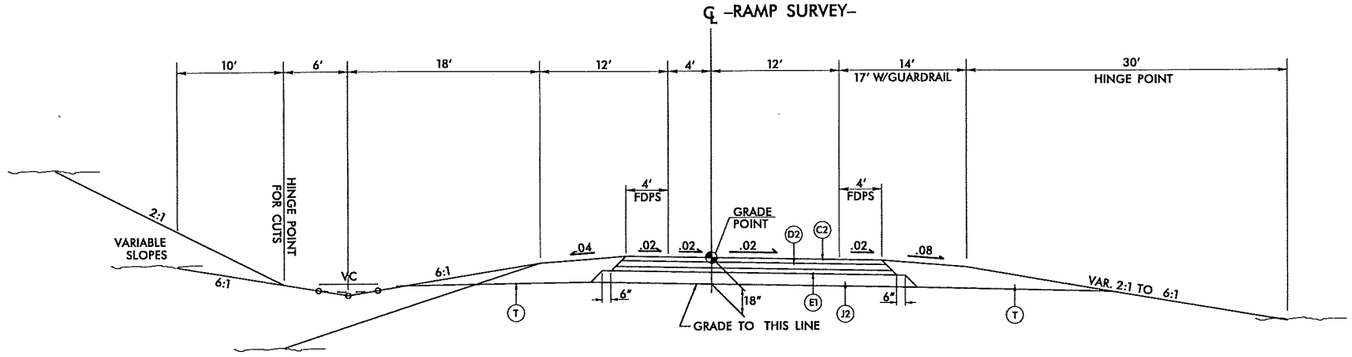
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-L
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

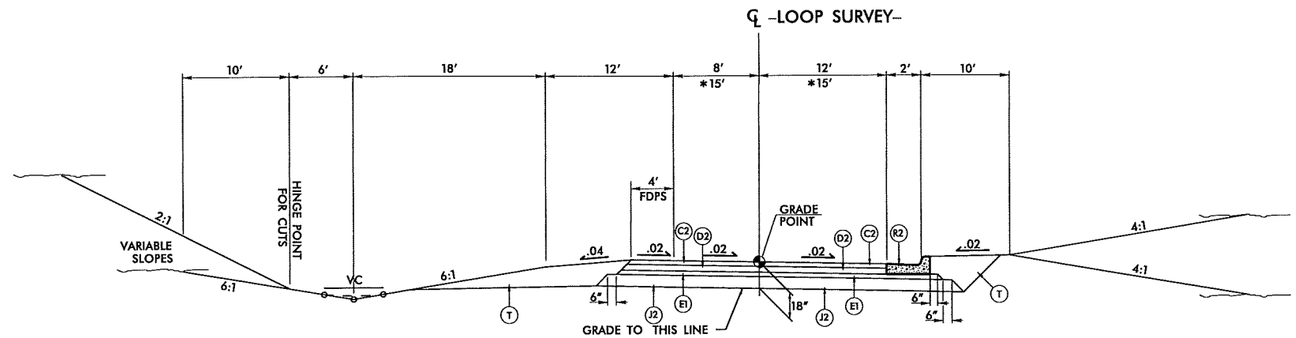
℄ –RAMP SURVEY–



TYPICAL SECTION NO. 37

USE TYPICAL SECTION NO. 37 AS FOLLOWS
–Y13RPC– STA. 10+00.00 TO STA. 30+99.11

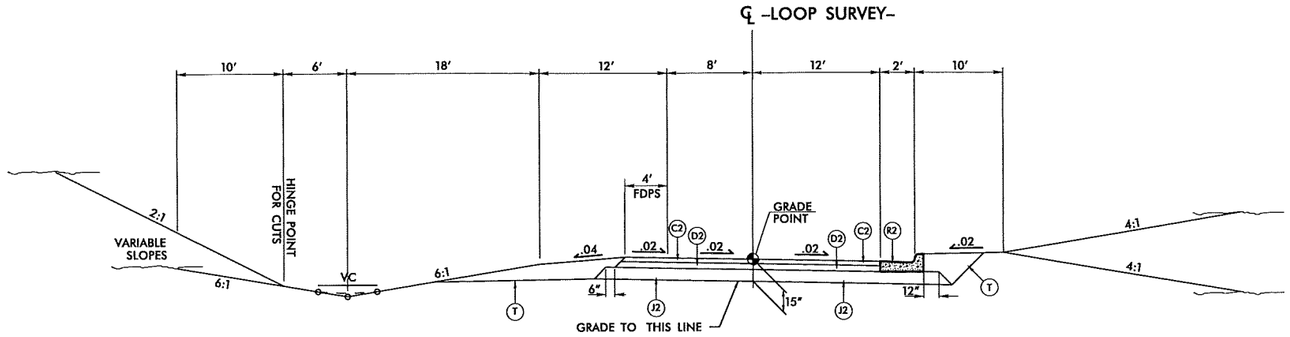
℄ –LOOP SURVEY–



TYPICAL SECTION NO. 38

USE TYPICAL SECTION NO. 38 AS FOLLOWS
–Y13LPA– STA. 10+00.00 TO STA. 23+54.27
–Y22LPA– STA. 11+21.67 TO STA. 22+56.20
*–Y22LPD– STA. 10+00.00 TO STA. 18+82.69

℄ –LOOP SURVEY–



TYPICAL SECTION NO. 39

USE TYPICAL SECTION NO. 39 AS FOLLOWS
–Y13LPC– STA. 10+00.00 TO STA. 23+54.27
–Y13LPD– STA. 10+00.00 TO STA. 24+01.92

PAVEMENT SCHEDULE	
C1	2″ S9.5B
C2	3″ S9.5B
C3	VAR. DEPTH S9.5B
C4	3″ S9.5C
C5	VAR. DEPTH S9.5C
D1	2½″ I19.0B
D2	4″ I19.0B
D3	VAR. DEPTH I19.0B
D4	2½″ I19.0C
D5	4″ I19.0C
D6	VAR. DEPTH I19.0C
E1	3″ B25.0B
E2	3½″ B25.0B
E3	4″ B25.0B
E4	5″ B25.0B
E5	VAR. DEPTH B25.0B
E6	3″ B25.0C
E7	4½″ B25.0C
E8	7″ B25.0C
E9	8½″ B25.0C
E10	13″ B25.0C
E11	VAR. DEPTH B25.0C
G	8″ CTBC (PLANT MIXED)
J1	6″ AGGREGATE BASE COURSE
J2	8″ AGGREGATE BASE COURSE
L	SUBGRADE STABILIZATION
P	PRIME COAT
R1	1′-6″ CURB AND GUTTER
R2	2′-6″ CURB AND GUTTER
R3	5″ CONC. ISLAND (KEYED IN)
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VAR. DEPTH WEDGING

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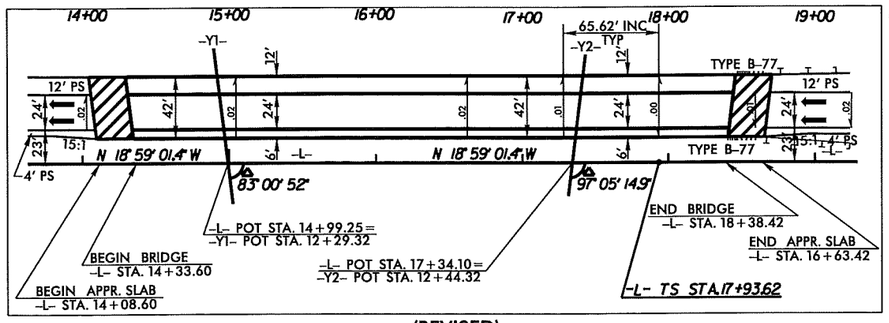
6/2/99

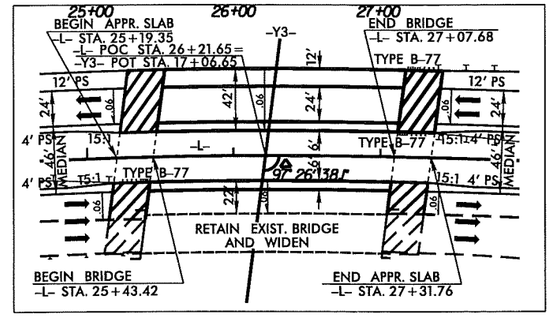
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-M
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

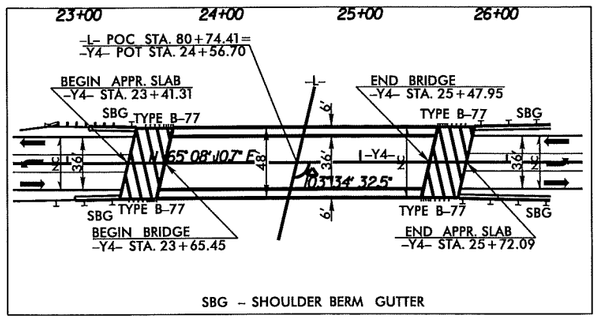
BRIDGE DETAILS
(NOT TO SCALE)



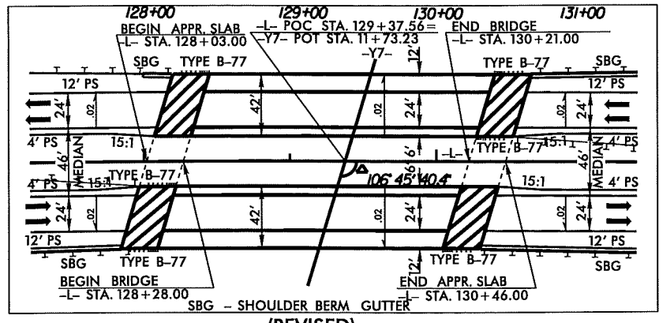
(REVISED)
SBL STRUCTURE AT -L- OVER -Y1- &-Y2-
(RETAIN EXISTING NBL BRIDGE; SEE SHEET 4 FOR PLANS)
(SEE SHEETS S- THRU S- FOR STRUCTURE PLANS)



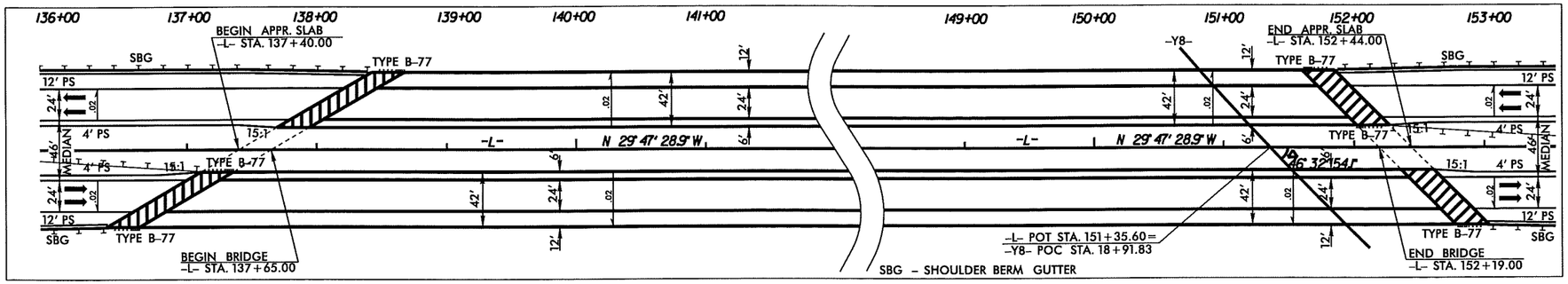
STRUCTURES AT -L- OVER -Y3-
(SEE SHEET 4 FOR PLANS)
(SEE SHEETS S- THRU S- FOR STRUCTURE PLANS)



STRUCTURE AT -Y4- OVER -L-
(SEE SHEET 7 FOR PLANS)
(SEE SHEETS S- THRU S- FOR STRUCTURE PLANS)



(REVISED)
STRUCTURES AT -L- OVER -Y7-
(SEE SHEET 10 FOR PLANS)
(SEE SHEETS S- THRU S- FOR STRUCTURE PLANS)



STRUCTURES AT -L- OVER BUFFALO CREEK AND -Y8-
(SEE SHEET 11 & 12 FOR PLANS)
(SEE SHEETS S- THRU S- FOR STRUCTURE PLANS)

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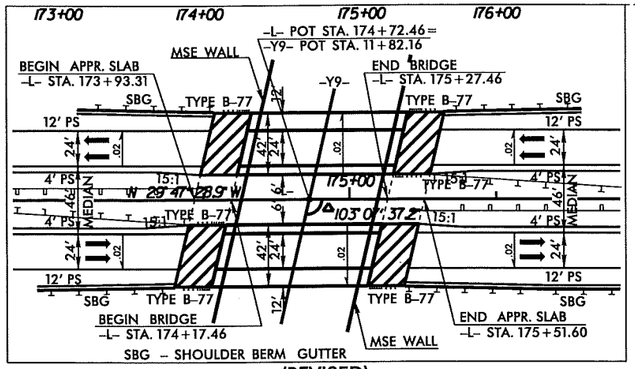
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-N
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

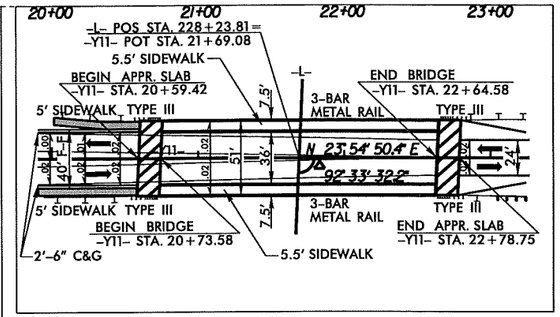
BRIDGE DETAILS
(NOT TO SCALE)



(REVISED)

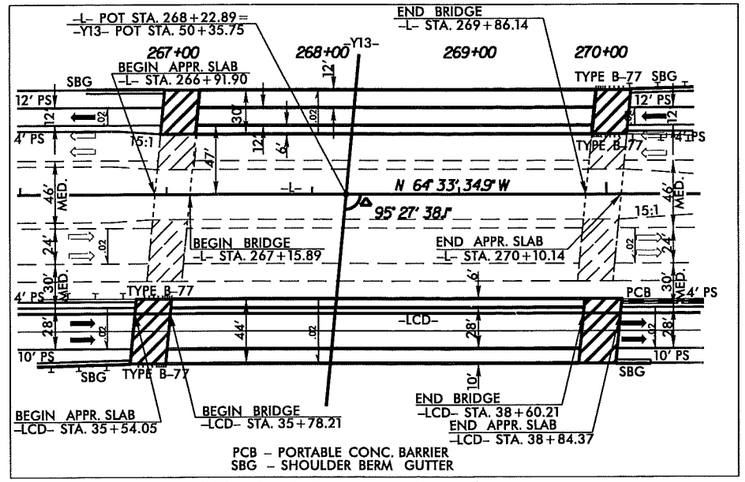
STRUCTURES AT –L– OVER –Y9–

(SEE SHEET 14 FOR PLANS)
(SEE SHEETS S– THRU S– FOR STRUCTURE PLANS)



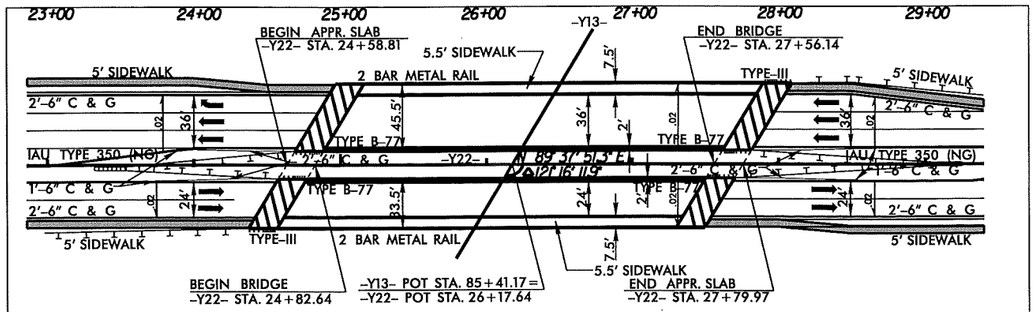
STRUCTURE AT –Y11– OVER –L–

(SEE SHEET 18 FOR PLANS)
(SEE SHEETS S– THRU S– FOR STRUCTURE PLANS)



STRUCTURES AT –L– OVER –Y13–

(SEE SHEET 21 FOR PLANS)
(SEE SHEETS S– THRU S– FOR STRUCTURE PLANS)



NOTE: 50' TRANSITION FROM 1'–6" TO 2'–6" C & G IN MEDIAN APPROCHING BRIDGE APPROACH SLAB

STRUCTURES AT –Y22– OVER –Y13–

(SEE SHEET 33 FOR PLANS)
(SEE SHEETS S– THRU S– FOR STRUCTURE PLANS)

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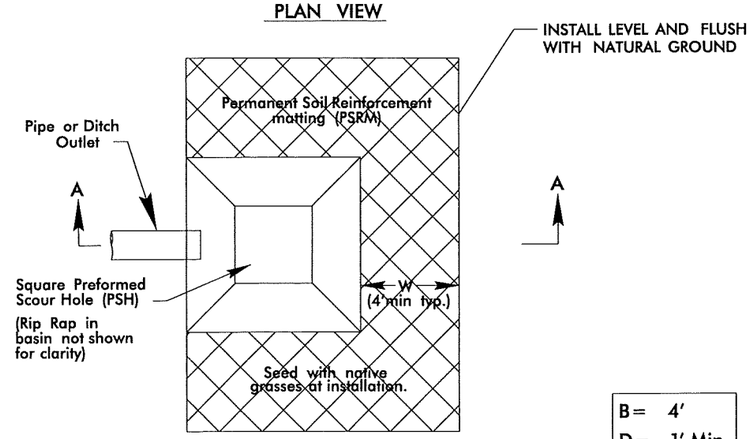
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	2-0
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PREFORMED SCOUR HOLE

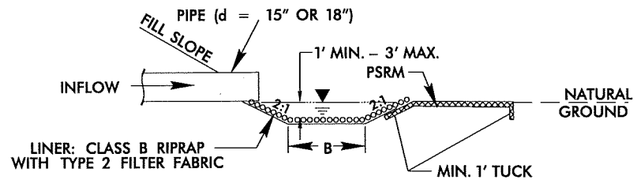
*NOT TO SCALE

PLAN VIEW



B = 4'
D = 1' Min.
W = 1"–3"

SECTION A–A



3/08

AT STA. 19+50 –Y3RPA– (RT)	AT STA. 14+50 –Y4A– (RT)	AT STA. 182+00 –L– (LT)
AT STA. 21+00 –Y3RPD– (LT)	AT STA. 20+20 –Y4RPB– (LT)	AT STA. 192+50 –L– (LT)
AT STA. 17+00 –Y4– (RT)	AT STA. 152+50 –L– (LT)	AT STA. 197+50 –L– (RT)
AT STA. 26+00 –Y4– (LT)	AT STA. 155+70 –L– (LT)	AT STA. 257+50 –L– (RT)
AT STA. 37+00 –Y4– (RT)	AT STA. 159+50 –L– (LT)	AT STA. 110+50 –Y13– (LT)

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REVISIONS

03-16-13 R/W REVISION (ORIG - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO).

PROJECT REFERENCE NO. U-2526 — SHEET NO. 4 — 94' SHEET NO.

ROADWAY DESIGN HYDRAULICS

PRELIMINARY PLANS — NO RIGHT-OF-WAY OR CONSTRUCTION

NAD 83/95

A

B

C

D

BEGIN -L- STA. 11+22.00 TIP PROJECT U-2526B

MATCHLINE -Y3RPD- STA. 19+00.00 SEE SHEET 5

MATCHLINE -L- STA. 38+00.00 SEE SHEET 5

★ PROPOSED SIGNAL

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-A4 FOR BRIDGE SKETCHES
SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 52 FOR -Y1-, -Y7-, & -Y3- PROFILE
SEE SHEET 53 FOR -Y1RA- PROFILE
SEE SHEETS 53 & 54 FOR -Y3RD- PROFILE
SEE SHEETS 5-1 THRU 5-41 FOR STRUCTURE PLANS

LOCATION:

TIP NO.: U-2526B — COUNTY:

DESIGNED BY:

CHECKED BY: — DATE:

GRAPHIC SCALE 50 25 0 50 100 — PLANS

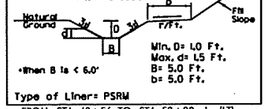
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

-L-		-Y3RPD-	
PI Sta 31+07.94	PIs Sta 41+25.41	PIs Sta 11+63.39	PI Sta 15+72.72
Δ = 27° 05' 05.5" (RT)	θs = 2° 57' 03.1"	θs = 4° 51' 38.2"	Δ = 25° 34' 24.0" (LT)
D = 1° 29' 56.5"	Ls = 393.70'	Ls = 245.00'	D = 3° 58' 04.3"
L = 1,806.82	LT = 262.50'	LT = 163.39'	L = 644.51'
T = 920.62'	ST = 131.27'	ST = 81.72'	T = 327.72'
R = 3,822.17'			R = 1,444.00'
SE = .06			SE = .08

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 5.0 Ft.
b= 5.0 Ft.

Type of Liner= PSRM
FROM STA. 48+56 TO STA. 52+00 -L- (LT)
PSRM = 544 SY

DETAIL C
TOE PROTECTION
(Not to Scale)

d= 1.0 Ft.

Type of Liner= CLASS "B" Rip-Rap
FROM STA. 12+70 TO STA. 20+00 -Y3RPD- (LT)
Est. 153 Tons
81 SQYDS FILTER FAB.

EIP
S05°24'20"W
400.00'

3
KOTIS COMPANY, LLC
DB 6299 PG 1551

5
FRED M. CLARK &
BETTIE B. CLARK
DB 2223 PG 578

6
ROCCO G. CHICKILLO,
RICHARD CHICKILLO &
CATHERINE M. CHICKILLO
DB 4769 PG 0995

4
CITY OF GREENSBORO
DB 2994 PG 481

CITY OF GREENSBORO
DB 2994 PG 481
4

OTHER OWNERSHIP UNKNOWN

15' CLAY

TOP OF BANK

TOE OF BANK

BM #16
SEE SHEET 1-D
ELEV. 702.24'

+80.00 -L-
225.00'
@ PROP. R/W

+80.00 -L-
184.00'
150.00'
C/A FENCE

+85.00 -L-
184.00'
150.00'

N05°30'44"E
890.00'

BL-17 43+19.43 PINC

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 5 TONS
EST. 14 SY FABRIC

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 2 TONS
EST. 7 SY FABRIC

CLASS "B"
SEE DETAIL "D"

LATERAL BASE DITCH
SEE DETAIL "A"

BEGIN C/A FENCE

END C/A FENCE

CLASS "I" RIPRAP

TDE

PDE

0515

0516

ROD AND LUG
W/ELBOWS

END SBG @
STA. 51+05 -L- (LT.)

GRAU 350

12' PS

2GI

@ 9' X 9' RCBC

50+00

15" N 14° 00' 10.2" E

4' PS

300' PROP. R/W

15" RCP-IV

0509

0510

0512

0511

CAT 7 8:1

END SBG @
STA. 50+25 -L- (RT.)

BEGIN C/A FENCE

CLASS "D"
SEE DETAIL "D"

ROD AND LUG
W/ELBOWS

0513

CLASS "BT"
SEE DETAIL "D"

LATERAL "V" DITCH
SEE DETAIL "B"

+05.00 -L-
168.00'

+00.00 -L-
150.00'

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 2 TONS
EST. 7 SY FABRIC

+05.00 -L-
207.00'

+05.00 -L-
245.00'

CLASS "I" RIPRAP

+15.00 -L-
175.00'

+40.00 -L-
175.00'

+40.00 -L-
207.00'

+15.00 -L-
245.00'

-Y3RPA- POT STA. 10+00.00=
-L- POC STA. 39+54.00 47.00' LT.
CHORD

-L- ST STA. 43+87.84

+87.84 -L-
180.00'

N05°30'44"E
108.86'

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 1 TON
EST. 5 SY FABRIC

LATERAL BASE DITCH
SEE DETAIL "JM"

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 3 TONS
EST. 10 SY FABRIC

EIP LATERAL BASE DITCH
SEE DETAIL "JM"

BL-15 35+74.26 PINC

BL-16 39+55.80 PINC

MATCHLINE -L- STA. 38+00.00 SEE SHEET 4

MATCHLINE -L- STA. 52+00.00 SEE SHEET 6

ROD AND LUG
W/ELBOWS

0502

0503

0504

0505

0506

0507

0508

300' TAPER

S05°24'20"W
674.25'

65.62'
INC. TYP.

25'
INC
TYP.

+54.00

94.14

S 12° 46' 51.4" W

40+00

45+00

-L-

-Y3RPA-

-L- CS STA. 39+94.14

BL-14 31+07.92 PINC

30.63'
INC.
TYP.

+10.88

-Y3RPD- 15+00

-Y3RPD- SC Sta. 12+45.00

-L- POT Sta. 47+13.14 47.00' RT.

-Y3RPD- ST Sta. 10+00.00 =

CHORD

+05.00 -Y3RPD-
90.00'

+50.00 -L-
175.00'

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 1 TON
EST. 5 SY FABRIC

TOE PROTECTION
CLASS "B" RIPRAP
SEE DETAIL "C"

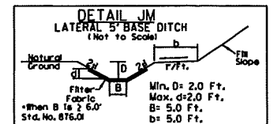
+89.51 -Y3RPD-
90.00'

-Y3RPD- CS Sta. 18+89.51

MATCHLINE -Y3RPD- STA. 19+00.00 SEE SHEET A

SOIL

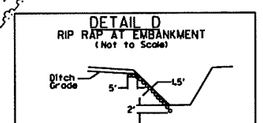
DETAIL JM
LATERAL 'S' BASE DITCH
(Not to Scale)



*When B is ≥ 6.0'
Std. No. 876.01
Min. D= 2.0 Ft.
Max. d=2.0 Ft.
B= 5.0 Ft.
b= 5.0 Ft.

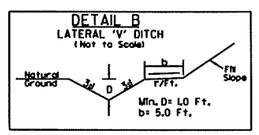
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 36+50 TO STA. 48+39 -L- (LT)
Est. 59 Tons
117 SQYDS FILTER FAB.

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CLASS "B" Rip-Rap
FROM STA. 48+55 TO STA. 48+75 -L- (LT) (Est. Qty 22 tons)
FROM STA. 48+36 TO STA. 48+56 -L- (RT) (Est. Qty 23 tons)
FROM STA. 48+95 TO STA. 49+15 -L- (RT) (Est. Qty 23 tons)

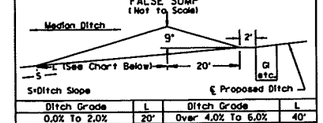
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



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

FROM STA. 44+00 TO STA. 48+56 -L- (RT)
FROM STA. 48+95 TO STA. 52+00 -L- (RT)

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 42+02 -L- (MED) SEE SHEET 41 FOR -L- PROFILE
@ STA. 47+52 -L- (MED) SEE SHEET 53 FOR -Y3RPA- PROFILE
@ STA. 50+02 -L- (MED) SEE SHEETS 53 & 54 FOR -Y3RPD- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

REVISIONS
03-19-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO).
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

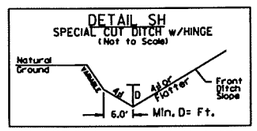
03-19-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO).

NAD 83/95

-L-	
Pls Sta 55+78.47	PI Sta 79+71.67
Θs = 0° 59' 59.7"	Δ = 44° 11' 48.7" (LT)
Ls = 200.00'	D = 0° 59' 59.7"
LT = 133.34'	L = 4,420.01'
ST = 66.67'	T = 2,326.53'
	R = 5,730.00'
	SE = .04

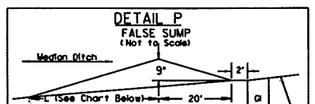
-Y4RPB-	
Pls Sta 11+26.24	PI Sta 15+64.37
Θs = 1° 03' 28.8"	Δ = 28° 24' 32.2" (LT)
Θs = 4° 17' 52.0"	D = 4° 05' 33.2"
Ls = 210.00'	L = 694.16'
LT = 126.24'	T = 354.37'
ST = 83.90'	R = 1,400.00'
	SE = .08

DETAIL SH
SPECIAL CUT DITCH w/HINGE
(Not to Scale)



FROM STA. 53+00 TO STA. 56+00 -L- (LT)

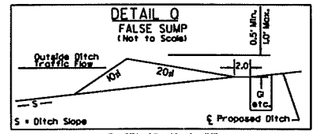
DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 61+48 -L- (MED)
@ STA. 65+48 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)



@ STA. 65+48 -L- (LT)

4
CITY OF GREENSBORO
DB 2994 PG 481

SEE ON-SITE MITIGATION PLANS SHEETS 6 - 7

-Y4RPB- ST Sta. 10+00.00 =
-L- POC Sta. 63+17.47 47.00' LT.

-Y4RPB- SC Sta. 12+10.00

+83.00 -Y4RPB-
148.00'

BM #25
SEE SHEET 1-D
ELEV. 737.34'

SPECIAL CUT DITCH W/HINGE
SEE DETAIL "SH"

-L- TS STA. 54+45.14

+45.14 -L-
150.00'

CHORD

+00.00 -L-
@ PROP. RW

-L- SC STA. 56+45.14

+45.14 -L-
150.00'

+25.00 -L-
159.00'

+50.00 -L-
150.00'

+00.00 -L-
150.00'

+50.00 -L-
180.00'

BZ 2

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 11 TONS
EST. 28 SY FABRIC

300' TAPER

+36.12

50' INC. TYP.

580' FULL LANE

4' PS

36'

N 14° 00' 10.2" E

55+00

60+00

65+00

+05.00 -L-

+00.00 -L-

SEE SHEET 7

MATCHLINE -L- STA. 52+00.00 SEE SHEET 5

MATCHLINE -L- STA. 66+00.00

8:1

12' PS

24"

18" RCP-III

300' PROP. RW

MEDIAN

2GI

2G

0601

0602

0603

0604

0605

0606

0607

0608

0609

0610

0611

0612

0613

0614

15" RCP-IV

BL-18 47+19.05 PINC

BL-19 49+22.43 PINC

BL-20 52+82.58 PINC

BL-21 56+68.85 PINC

GRAU-350

CAT-1

END SBG @
STA. 60+00 -L- (RT.)

BEGIN SBG @
STA. 57+96 -L- (RT.)

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 1 TON
EST. 5 SY FABRIC

CLASS "B"
SEE DETAIL "D"

CLASS "B"
SEE DETAIL "V"

CLASS "B" RIP RAP
W/FILTER FABRIC
EST. 3 TONS
EST. 10 SY FABRIC

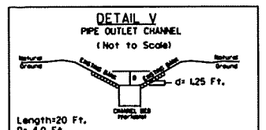
LATERAL 5' BASE DITCH
SEE DETAIL "E"

TDE

+60.00 -L-
185.00'

4
CITY OF GREENSBORO
DB 2994 PG 481

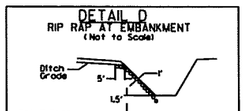
DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)



Length=20 Ft.
D= 4.0 Ft.
Est.= 8 Tons of Class 'I' Rip-Rap

STA. 59+88 -L- (RT)

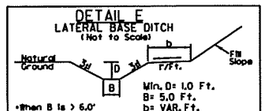
DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



Est. 7 Tons
Type of Liner= CLASS "B" Rip-Rap

AT STA. 59+87 -L- (RT)

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



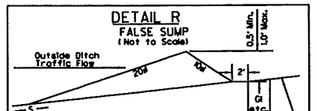
*When B is > 6.0'
Std. No. 876.01

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

Type of Liner= GRASS

FROM STA. 59+87 TO STA. 61+00 -L- (RT)

DETAIL R
FALSE SUMP
(Not to Scale)



@ STA. 61+48 -L- (RT)
@ STA. 65+48 -L- (RT)

SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 57 FOR -Y4RPB- PROFILE

REVISIONS

PROJECT REFERENCE NO. U-2519D | SHEET NO. 7
SW SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

HUFFINE MILL RD
OAKLEIGH ROAD
HARVEST ROAD
CAMP BURTON ROAD
HUFFINE MILL RD

DETAIL Q
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
10d
20d
2.0'
0.5' Min. 1.0' Max.
S = Ditch Slope
℄ Proposed Ditch

DETAIL H
STANDARD 2' BASE DITCH
(Not to Scale)
Natural Ground
Natural Ground
Min. D= 2.5 Ft.
B= 2.0 Ft.
FROM STA. 74+28 TO STA. 79+12 -L- (LT)

DETAIL L
STANDARD "V" DITCH
(Not to Scale)
Natural Ground
Natural Ground
Min. D= 0.5 Ft.
FROM STA. 12+77 TO STA. 14+16 -Y4RPD- (LT)
FROM STA. 13+36 TO STA. 14+45 -Y4RPA- (RT)
FROM STA. 25+72 TO STA. 27+00 -Y4- (LT)

@ STA. 14+98 -Y4RPB- (LT)
@ STA. 72+48 -L- (LT)

SEE ON-SITE MITIGATION PLANS SHEETS 6 - 7

MATCHLINE -L- STA. 66+00.00 SEE SHEET 6

MATCHLINE -Y4- STA. 16+00.00 SEE SHEET 24

MATCHLINE -L- STA. 31+50.00 SEE SHEET 25

B

A

C

D

DETAIL R
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
2:1
2'
0.5' Min. 1.0' Max.
S=Ditch Slope
℄ Proposed Ditch

@ STA. 15+48 -Y4RPA- (RT)
@ STA. 18+98 -Y4RPC- (LT)
@ STA. 74+98 -L- (RT)
@ STA. 14+98 -Y4RPC- (RT)

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch
9'
2'
-L- (See Chart Below)
20'
S=Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 72+48 -L- (MED)
@ STA. 81+98 -L- (MED)
@ STA. 92+02 -L- (MED)

DETAIL VV
PIPE OUTLET CHANNEL
(Not to Scale)
Natural Ground
Natural Ground
d= LO Ft.
CHANNEL BED
Length= 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap
STA. 21+00 -Y4RPB- (LT)

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-A FOR BRIDGE SKETCH
SEE SHEET 42 FOR -L- PROFILE
SEE SHEETS 54 & 55 FOR -Y4- PROFILE
SEE SHEETS 56 & 57 FOR -Y4RPA- PROFILE
SEE SHEETS 57 & 58 FOR -Y4RPB- PROFILE
SEE SHEETS 58 & 59 FOR -Y4RPC- PROFILE
SEE SHEETS 59 & 60 FOR -Y5- PROFILE
SEE SHEET 60 FOR -Y5- PROFILE
SEE SHEETS S-1 THRU S-11 FOR STRUCTURE PLANS

★ PROPOSED SIGNAL

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

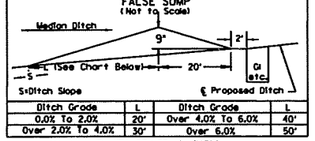
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

-L-	
PI Sta 79+71.67	PIs Sta 101+31.82
Δ = 44° 11' 48.7" (LT)	Θs = 0° 59' 59.7"
D = 0° 59' 59.7"	Ls = 200.00'
L = 4,420.01'	LT = 133.34'
T = 2,326.53'	ST = 66.67'
R = 5,730.00'	
SE = .04	

-Y4RPA-	
PIs Sta 11+26.24	PI Sta 15+72.22
Θs = 1° 03' 28.8"	Δ = 29° 00' 41.5" (RT)
Θs = 4° 17' 52.0"	D = 4° 05' 33.2"
Ls = 210.00'	L = 708.89'
LT = 126.24'	T = 362.22'
ST = 83.90'	R = 1,400.00'
	SE = .08

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 95+52 -L- (MED)
@ STA. 99+02 -L- (MED)
@ STA. 102+02 -L- (MED)

-Y4RPD-	
PIs Sta 11+33.35	PI Sta 14+41.55
Θs = 3° 10' 59.2"	Δ = 15° 17' 09.4" (LT)
Ls = 200.00'	D = 3° 10' 59.2"
LT = 133.35'	L = 480.22'
ST = 66.69'	T = 241.55'
	R = 1,800.00'
	SE = .07

-Y4RPA- SC Sta. 12+10.00

-Y4RPA- CS Sta. 10+00.00 =
-L- POC Sta. 96+88.35 47.00' LT.

-L- CS STA. 100+65.15

-L- ST STA. 102+65.15

-Y4RPD- CS Sta. 10+00.00 =
-L- POC Sta. 95+78.58 47.00' RT.

BL-29 90+81.91 PINC

BL-30 95+56.85 PINC

MATCHLINE -L- STA. 94+00.00 SEE SHEET 7

MATCHLINE -L- STA. 107+00.00 SEE SHEET 9

18 ALBERT L. RHEW LIVING TRUST DB 6547 PG 0404

25 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 5964 PG 1742

26 NC PRISON DEPT. DB 942 PG 204

Charles C. Drye Sr. DB 2739 PG 596 PB 98 PG 85

CLASS "B" RIP RAP W/FILTER FABRIC EST. 15 TONS EST. 37 SY FABRIC 300' TAPER

340' FULL LANE

580' FULL LANE

300' TAPER

50' INC. TYP.

300' PROP. R/W

4' PS

12' PS

24' MEDIAN

60' DUKE POWER EASEMENT

POND WE 1467

BM #26 STA. SHEET-I-D ELEV. 948.05'

SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 56 FOR -Y4RPA- PROFILE
SEE SHEET 59 FOR -Y4RPD- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

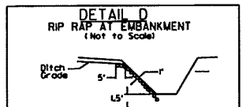
REVISIONS

5/14/99

6-24-13 R/W REVISION (DWG) - ADDED PUE AT -L- STA.116+57.00 RT. ON PARCEL 27 (CITY OF GREENSBORO).

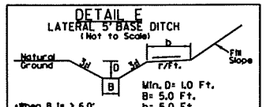
NAD 83/95

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



Est. ? Tons
Type of Liner= CLASS 'B' Rip-Rap
AT STA. 113+70 -L- (LT) Est. 11 Tons
AT STA. 113+95 -L- (LT) Est. 11 Tons

DETAIL E
LATERAL 5' BASE DITCH
(Not to Scale)



*When B is > 6.0'
Std. No. 876.01
Min. D= 1.0 Ft.
B= 5.0 Ft.
b= 5.0 Ft.
Type of Liner= GRASS
FROM STA. 113+95 TO STA. 115+50 -L- (LT)

MATCHLINE -L- STA. 107+00.00 SEE SHEET 8

MATCHLINE -L- STA. 119+00.00 SEE SHEET 10

BL-31 99+44.92 PINC

BL-32 106+05.97 PINC

110+00

115+00

N 32° 11' 38.0" W

N03°36'12"E 280.89'

NC PRISON DEPT.
DB 942 PG 204
(26)

City Of Greensboro
DB 2120 PG 87
(27)

CLASS "B" SEE DETAIL "D"

CLASS "B" SEE DETAIL "D"

+25.00 -L- 150.00' C/A FENCE

+60.00 -L- 170.00' 150.00'

+10.00 -L- 170.00' 150.00'

+58.00 -L- 170.00'

+69.00 -L- 150.00'

+82.00 -L- 170.00'

+93.00 -L- 150.00'

+50.00 -L- 150.00' C/A FENCE

PUE

LATERAL 5' BASE DITCH SEE DETAIL E

LATERAL 5' BASE DITCH SEE DETAIL EE

+34.00 -L- 150.00'

+00.00 -L- 161.00'

LATERAL 5' BASE DITCH SEE DETAIL "EE"

CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC (0903)

CLASS "I" RIPRAP

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC (0912)

END C/A FENCE

BEGIN C/A FENCE

END SBG @ STA. 116+27 -L- (LT.)

BEGIN SBG @ STA. 113+50 -L- (LT.)

CAT-1 8:1

GRAU-350 8:1

2 @ 7' X 8' RCBC

12' PS

4' PS

24' MEDIAN

300' PROP. R/W

(0809) (0807) (0806) (0902) (0901) (0911) (0908)

BEGIN SBG @ STA. 114+00 -L- (RT.)

GRAU-350 8:1

CAT-1 8:1

END SBG @ STA. 116+27 -L- (RT.)

ROD AND LUG W/ELBOWS

(0910) (0909) (0904) (0905) (0907)

END C/A FENCE

BEGIN C/A FENCE

CROSS VANE LATERAL 'V' DITCH SEE DETAIL BC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 4 TONS EST. 12 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FABRIC

+95.00 -L- 150.00' 170.00'

+75.00 -L- 150.00' C/A FENCE

+51.00 -L- 170.00'

+39.00 -L- 150.00'

+63.00 -L- 150.00'

+74.00 -L- 170.00'

+75.00 -L- 150.00' C/A FENCE

CLASS "I" RIPRAP

+25.00 -L- 150.00' 170.00'

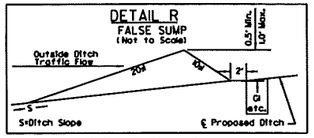
TOP OF BANK

BM #29
SEE SHEET I-D
ELEV. 703.31'

+00.00 -L- 155.00'

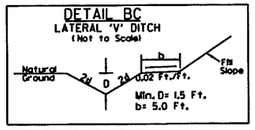
+50.00 -L- 150.00'

DETAIL R
FALSE SUMP
(Not to Scale)



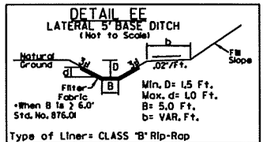
@ STA. 112+02 -L- (LT)
@ STA. 107+02 -L- (LT)

DETAIL BC
LATERAL 'V' DITCH
(Not to Scale)



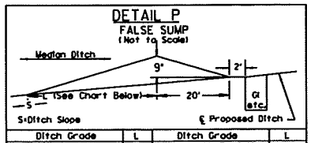
Min. D= 1.5 Ft.
b= 5.0 Ft.
FROM STA. 115+39 TO STA. 116+50 -L- (RT)

DETAIL EE
LATERAL 5' BASE DITCH
(Not to Scale)



*When B is ≥ 6.0'
Std. No. 876.01
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
B= 5.0 Ft.
b= VAR. Ft.
Type of Liner= CLASS 'B' Rip-Rap
FROM STA. 112+50 TO STA. 113+65 -L- (LT)
FROM STA. 115+50 TO STA. 116+23 -L- (LT)
Est. 96 Tons
159 SQYDS FILTER FAB.

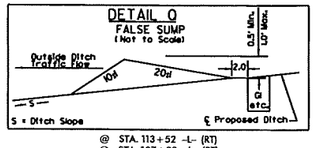
DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 107+02 -L- (MED)
@ STA. 112+02 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)



@ STA. 113+52 -L- (RT)
@ STA. 107+02 -L- (RT)

SEE SHEET 43 FOR -L- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

03-19-13 R/W REVISION (DNG) - PARCEL 29 (JAMES L.GOODWIN) WAS SUBDIVIDED; ADDING PARCEL 29A (NCDOT, FORMERLY BETTY JEAN GOODWIN) PARCEL 29C (MICHAEL A.FOWLER); CHANGED THE SOUTHERN PROPERTY LINE ON PARCEL 29A AND THE NORTHERN PROPERTY LINE ON PARCEL 29C (MICHAEL A.FOWLER) DUE TO R/W DELETED PARCEL 29B (DUKE POWER COMPANY) DUE TO PROPERTY LINE DELINEATION CHANGING TO EASEMENT ON PARCELS 26, 27 (CITY OF GREENSBORO) AND THE ADJOINING SOUTHERN PROPERTY LINES ON PARCELS 26, REVISED THE NORTHERN PROPERTY LINE ON PARCEL 27 (CITY OF GREENSBORO) AND 29A (NCDOT FORMERLY BETTY JEAN GOODWIN). REVISED THE LOCATION OF THE R/W AND C/A TO THE WESTERN PROPERTY LINE ON PARCEL 29B (NCDOT).

-L-
PI Sta 130+34.85
Δ = 2°24'09.0" (RT)
D = 0°14'56.8"
L = 964.43'
T = 482.29'
R = 23,000.00'
SE = NC

DETAIL F
LATERAL 2' BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, FIL Slope, b, B, 2 Ft.
Min. D= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
*When B is > 6.0' Std. No. 876.01
Type of Liner= GRASS
FROM STA. 127+50 TO STA. 128+97 -L- (LT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade, 5', r, 1.5'
Type of Liner= CLASS "B" Rip-Rap
AT STA. 128+97 -L- (LT) Est. Qty. 11 Tons
AT STA. 129+78 -L- (RT) Est. Qty. 11 Tons

DETAIL FF
LATERAL 2' BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, FIL Slope, d, Filter Fabric, B, b
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
*When B is ≥ 6.0' Std. No. 876.01
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 129+78 TO STA. 130+65 -L- (RT)
EST. 34 TONS
72 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch, 9', 2', L (See Chart Below), 20', G etc., S
S=Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 119+98 -L- (MED)
@ STA. 130+48 -L- (MED)

DETAIL R
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow, 0.5' Min., 1.0' Max., 20', 4%, 2', G etc., S
S=Ditch Slope
℄ Proposed Ditch
@ STA. 119+98 -L- (RT)

DETAIL C
TOE PROTECTION
(Not to Scale)
Natural Ground, d, 2.5H:1V FLATTER, FIL Slope, Filter Fabric
d= 1.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 125+00 TO STA. 128+25 -L- (RT)
EST. 97 TONS
42 SQYDS FILTER FAB.

NAD 83/95

MATCHLINE -L- STA. 119+00.00 SEE SHEET 9

MATCHLINE -L- STA. 132+00.00 SEE SHEET 11

DUKE POWER COMPANY
DB 2583 PG 551

City Of Greensboro
DB 2720 PG 187
(27)

JAMES L. GOODWIN
DB 4638 PG 193
DB 835 PG 314
(29)

MICHAEL A. FOWLER
DB 7152 PG 2398
(29C)

NCDOT
FORMERLY BETTY JEAN GOODWIN
DB 4230 PG 2028
(29A)

NC PRISON DEPT.
DB 942 PG 204
(26)

NCDOT
DB 6746 PG 236
(29B)

-L- PC Sta. 125+52.57

-Y7- POT Sta. 10+00.00

BY7-701 5+08.00 POT

BY7 6+91.40 PINC

BL-35 120+52.79 PINC

BY7-702 8+69.22 POT

-L- POC STA. 129+37.56=
-Y7- POT STA. 11+73.23

-Y7- POT Sta. 13+75.58

BL-36 123+26.84 PINC

BL-34 114+64.77 PINC

BL-33 111+29.11 PINC

N 38°11'38.0" W

M-350

GRAU-350

BEGIN SPECIAL GRADING
-L- POT STA. 122+68.63
SEE STD. 862.01 AND 865.01

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC

TOE PROTECTION CLASS "B" RIPRAP SEE DETAIL "C"

LATERAL 2' BASE DITCH SEE DETAIL "F"

BM -30 SEE SHEET 1-D ELEV. 707.62'

50' DUKE POWER EASEMENT

50' DUKE POWER EASEMENT LATERAL 2' BASE DITCH SEE DETAIL "FF"

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-M FOR BRIDGE SKETCH
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 61 FOR -Y7- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

03-19-13 R/W REVISION (DNG) - PARCEL 29 (JAMES L GOODWIN) WAS SUBDIVIDED, ADDING PARCEL 29A (NCDOT FORMERLY BETTY JEAN GOODWIN), PARCEL 29B (NCDOT) AND PARCEL 29C (MICHAEL A FOWLER).
REVISED THE PROPERTY OWNER NAME ON PARCEL 30 (NCDOT) TO (NCDOT FORMERLY BETTY JEAN GOODWIN).
REVISED THE NORTHERN PROPERTY LINES ON PARCELS 29B AND 29C AND THE ADJOINING SOUTHERN PROPERTY LINE ON PARCEL 30.
REVISED THE LOCATION OF THE R/W AND C/A TO THE WESTERN PROPERTY LINE ON PARCEL 29B (NCDOT).

-L-
PI Sta 130+34.85
Δ = 2° 24' 09.0" (RT)
D = 0° 14' 56.8"
L = 964.43'
T = 482.29'
R = 23,000.00'
SE = NC

NAD 83/95

29C
MICHAEL A. FOWLER
DB 7132 PG 2398

-L- PT Sta. 135+17.00

+17.00 -L-
175.00'

+81.00 -L-
175.00'
C/A FENCE

N 30°24'33" W 499.85'
R 23175' L 499.86'

N 29°47'29" W
1087.67'

CLASS "A" RIP RAP W/FILTER FABRIC
EST. 1 TON
EST. 5 SY FABRIC

ROD AND LUG W/ELBOWS

BL-37 128+70.06 PINC

END C/A FENCE

END SBG @ BEGIN APP. SLAB -L- (LT.)

BL-38 133+49.80 PINC

MATCHLINE -L- STA. 132+00.00 SEE SHEET 10

12' PS
24'
.02
M-350
MEDIAN
4' PS
4' PS
24'
.02
12' PS
32.5' PROP. R/W

135+00
140+00
-L- N 29° 47' 28.9" W

15:1
2GI
2GI (1102)
2GI (1101)

MATCHLINE -L- STA. 144+00.00 SEE SHEET 12

NCDOT
DB 6741 PG 296
29B

+17.00 -L-
150.00'

+52.00 -L-
150.00'

+66.00 -L-
150.00'
C/A FENCE

+36.00 -L-
180.00

NCDOT
FORMERLY BETTY JEAN GOODWIN
DB 4230 PG 2028
30

50' DUKE POWER EASEMENT

BM #21
SEE SHEET 1-D
ELEV. 686.51'

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.02, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-M FOR BRIDGE SKETCH
SEE SHEET 44 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

06-24-13 R/W REVISION (DNG) - REVISED THE PUE AT -L- STA.156+10.00 LT./RT.ON PARCEL 32 (NCDOT).

-Y8-	
PI Sta 11+53.78	PI Sta 19+49.58
Δ = 20° 52' 11.2" (LT)	Δ = 13° 41' 44.2" (LT)
D = 6° 51' 42.4"	D = 2° 17' 30.6"
L = 304.15'	L = 597.58'
T = 153.78'	T = 300.22'
R = 835.00'	R = 2,500.00'

NAD 83/95

-Y8- PT Sta. 13+04.15

-BY8- 801 POT 5+00.00

-Y8- PC Sta. 16+49.35

-Y8- PT Sta. 22+46.94

-BY8- 802 POT 15+75.17

BEGIN CONSTRUCTION
-Y8- STA. 17+41.00

END CONSTRUCTION
-Y8- STA. 20+48.00

BL-39 139+76.33 PINC

-BL-40- PINC 142+45.95
-BY8- PINC 10+15.72

-L- POT STA 151+35.50 =
-Y8- POC STA 18+91.83

BL-40 146+50.02 PINC

MATCHLINE -L- STA. 144+00.00 SEE SHEET 11

MATCHLINE -L- STA. 156+00.00 SEE SHEET 13

NCDOT
DB 5851 PG 1022
FORMERLY: LARRY H. MITCHELL
(31)

NCDOT
FORMERLY BETTY JEAN GOODWIN
DB 4230 PG 2028
(30)

NCDOT
DB 5839 PG 1564
FORMERLY: Donald L. Crosby
(33)

NCDOT
DB 5899 PG 0990
FORMERLY: Katherine J. Brooks
(34)

NCDOT
DB 4727 PG 388
(32)

MICHAEL A. FOWLER
DB 7152 PG 2398
(29C)

NCDOT
DB 6746 PG 296
(29B)

REMOVE AND RESET
EXISTING GUARDRAIL
L = 75'

RAMAH MILL RD 22' BST

BUFFALO CREEK

POND
WE= 691.8

ISFD (ABAND)

BM #31
SEE SHEET 1-D
ELEV. 697.32'

BM #32
SEE SHEET 1-D
ELEV. 710.92'

PSH
SEE DETAIL SHEET 2-L

ROD AND LUG W/ELBOWS

ISBKD

15" RCP-IV

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.
SEE SHEET 2-M FOR BRIDGE SKETCHES
SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 61 FOR -Y8- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
5/14/99
06-24-13 R/W REVISION (DWG) - REVISED THE PUE AT -L- STA.156+10.00 LT./RT. ON PARCEL 32 (NCDOT).

MATCHLINE -L- STA. 156+00.00 SEE SHEET 12

MATCHLINE -L- STA. 168+00.00 SEE SHEET 14

NAD 83/95

DETAIL P
FALSE SUMP
(Not to Scale)

Median Ditch
9" 2"
S (See Chart Below) 20' G etc.
S=Ditch Slope ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 159+48 -L- (MED)
@ STA. 163+98 -L- (MED)

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)

Natural Ground — Fabric Reinforcement — Natural Ground
d= 1.25 Ft.
Channel Bed Profile Grade

Length= 10 Ft.
D= 3.25 Ft.
Est.= 1.5 Tons of Class "I" Rip-Rap

STA. 156+78 -L- (LT)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

Natural Ground — 3H D 1H — b — F/Ft. — Fill Slope
Min. D= 1.0 Ft.
b= 5.0 Ft.

FROM STA. 157+15 TO STA. 161+50 -L- (RT)

NCDOT
DB 4727 PG 388
32

DAVID E. DICK
ELLEN L. DICK
DB 7340 PG 1569
35

CURRIE LIVING TRUST
DB 7324 PG 239
36

+21.00 -L- 170.00' 150.00'
+60.00 -L- 160.00' 150.00'
+25.00 -L- 160.00' 150.00'

PUE
PDE
PSH SEE DETAIL SHEET 2-L
CLASS "A" SEE DETAIL "V"
END SPECIAL GRADING -L- POT STA. 157+96.30 SEE STD. 862.01 AND 865.01
ROD AND LUG W/ELBOWS
FILL IN POND
GRADE TO DRAIN
CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC
CLASS "B" RIP RAP W/FILTER FABRIC EST. 5 TONS EST. 16 SY FABRIC
METHOD B INST.
CSP
RCP
FES
EIP
POND WE=722±
12' PS
2.4' .02 4' MEDIAN 4' 2.4' .02
300' PROP. R/W
160+00
165+00
-L-
N 29° 47' 28.9" W
CAT-1 8:1 END SBG @ STA. 159+50 -L- (RT.)
BEGIN C/A FENCE
END C/A FENCE
CLASS "A" SEE DETAIL "B"
LATERAL "V" DITCH SEE DETAIL "B"
LATERAL "V" DITCH SEE DETAIL "BB"
BL-42 149+33.23 PINC
BL-43 153+15.18 PINC
BL-44 156+76.93 PINC
W/LT
+75.00 -L- 150.00' C/A FENCE
+21.00 -L- 150.00' 170.00'
CONC FOUND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 6694 PG 2255
37
2SFD
JOYCE LYNETTE DOMESS, WILLARD JONES
DB 7320 PG 1864
35A
38

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

Ditch Grade — 5' — r — 1.5'
Type of Liner= CLASS "B" Rip-Rap
AT STA. 157+15 -L- (RT) Est. Qty. 6 Tons

DETAIL BB
LATERAL "V" DITCH
(Not to Scale)

Natural Ground — 3H To 1H — b — F/Ft. — Fill Slope — Filter Fabric
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 163+00 TO STA. 164+70 -L- (RT)
Est. 80 Tons
169 SQYDS FILTER FAB.
FROM STA. 165+80 TO STA. 168+00 -L- (RT)
Est. 94 Tons
235 SQYDS FILTER FAB.

NOTE: SEE CROSS SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01 SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 45 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

07-01-13 R/W REVISION (DMG) - THE PUE WAS ADDED BACK ON PARCEL 35B (ROY E. DONNELL II AND WIFE, NANCY S. DONNELL) AND PARCEL 40 (DAVID E. DICK) DUE TO THESE CLAIMS HAVE BEEN PURCHASED.

-DRV2-
PI Sta 10+78.12
Δ = 37° 32' 24.9" (LT)
D = 57° 17' 44.8"
L = 65.52'
T = 33.98'
R = 100.00'

PI Sta 15+76.54
Δ = 13° 07' 37.2" (RT)
D = 57° 17' 44.8"
L = 22.91'
T = 11.51'
R = 100.00'

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade, 5', r, L5'
Est. 8 Tons
Type of Liner= CLASS "B" Rip-Rap
AT STA. 10+46 -Y9- (RT)

DETAIL VV
PIPE OUTLET CHANNEL
(Not to Scale)
Natural Ground, Existing Ditch, Pipe Size, d= L0 Ft., Channel Bed Width
Length= 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap

STA. 174+52 -L- (LT) Est. 4.0 Tons Class "B" RipRap
STA. 15+26 -DRV2- (LT) Est. 4.5 Tons Class "B" RipRap

NAD 83/95

36 CURRIE LIVING TRUST DB 7324 PG 239

BEGIN CONSTRUCTION -Y9- STA. 10+00.00 @ EXIST. R/W 210.00'

-DRV2- POT Sta. 10+00.00 BEGIN CONSTRUCTION
-DRV2- PCSta. 10+44.13
-DRV2- PTSta. 11+09.65
-DRV2- PTSta. 15+87.94
-DRV2- PCSta. 15+65.03
-DRV2- STA. 15+00 BEGIN PAVEMENT
-Y9- POT Sta. 10+00.00
-Y9- POT Sta. 10+14.50 =
-DRV2- POT Sta. 16+06.04
BY9-901 5+00.00 POT
BM #33 SEE SHEET 1-D ELEV. 720.83'
PROPOSED MSE WALL 1 -Y9- STA 10+80.25 TO STA 12+96.00 RT.
PROPOSED MSE WALL 2 -Y9- STA 10+56.19 TO STA 12+79.72 LT.
-L- POT STA. 174+72.46 = -Y9- POT STA. 11+82.16
N 29° 47' 28.9" W
N 39° 51' E
CLASS "B" SEE DETAIL
LATERAL "V" DITCH SEE DETAIL "BB"
CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC
BEGIN SPECIAL GRADING -L- POT STA. 168+14.70 SEE STD. 862.01 AND 865.01
CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC
ROD AND LUG W/ELBOWS
END C/A FENCE
BEGIN C/A FENCE
BEGIN SBG @ 173+05 -L- (LT.)
END SBG @ STA. 168+65 -L- (LT.)
END SBG @ BEGIN APP. SLAB -L- (RT.)
BEGIN SBG @ END APP. SLAB -L- (RT.)
REMOVE 21' OF 18" RCP PIPE
FILL W/ FLOWABLE FILL
COLLAR AND EXTEND 18" RCP
RETAIN
CLASS "B" RIP RAP W/FILTER FABRIC EST. 1 TON EST. 5 SY FABRIC
GRAU-350 8:1
M-350 15:1
12' PS
4' PS
2SBKD
2SFD
2GI
1SGI
1SDI
1SCBD
1SCBU
24" RCP
18" RCP
15" RCP
300' PROP. R/W
MEDIAN 24'
MATCHLINE -L- STA. 168+00.00 SEE SHEET 13
MATCHLINE -L- STA. 180+00.00 SEE SHEET 15
N 14° 20' 08.3" E
-Y9-
-L-
PUE
20' UTILITY EASEMENT
BL-45 161+71.67 PINC
BL-46 164+13.18 PINC
BL-47 170+54.77 PINC
BY9-10+51.22 POT
BY9-902 8+51.25 POT
BY9 6+82.88 POT
BL 165+78.49 POT
END CONSTRUCTION -Y9- STA. 13+00
-Y9- PC Sta. 14+79.29
-Y9- PT Sta. 16+21.63
-Y9-
PI Sta 15+50.46
Δ = 1° 05' 14.4" (RT)
D = 0° 45' 50.2"
L = 142.33'
T = 71.17'
R = 7,500.00'
NCDOT DB 5949 PG 1499 PB 62 PG 140
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 5573 PG 091
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 6654 PG 2255
N.C.D.O.T. DB 5903 PG 1226
LLOYD F. SHAW DB 5877 PG 0420 DB 5007 PG 3071 PB 16 PG 30
JOYCE LYNETTE DONNELL WILLIAMS JONES DB 7340 PG 1564
JANICE D. CURL ELLEN L. DICK JOYCE D. JONES ROY E. DONNELL II DB 1150 PG 219
ROY E DONNELL II and wife, NANCY S. DONNELL DB 3253 PG 295
DAVID E. DICK DB 6816 PG 2683
37 38 39 40 41 42 35A 35B
C/A R/W W

DETAIL BB
LATERAL "V" DITCH
(Not to Scale)
Natural Ground, Fill Slope, Filter Fabric, 1D to 1d, b, d, F/Ft.
Min. D= L5 Ft.
Max. d= L5 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap

FROM STA. 168+00 TO STA. 169+00 -L- (RT)
Est. 37 Tons
75 SQYDS FILTER FAB.
FROM STA. 173+00 TO STA. 174+35 -L- (LT)
Est. 37 Tons
75 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch, 9', 2', 20', Qi etc., L (See Chart Below), S=Ditch Slope, ℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	50'	Over 6.0%	50'

@ STA. 168+48 -L- (MED)
@ STA. 170+98 -L- (MED)
@ STA. 173+23 -L- (MED)
@ STA. 176+24 -L- (MED)

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 61 FOR -Y9- PROFILE
SEE SHEET 62 FOR -DRV2- PROFILE
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
5/14/99
07-01-13 R/W REVISION (DWGI - AN ADDITIONAL TAKE OF PUE HAS BEEN ADDED TO PARCEL 432 (CLAYTON G.MICHAEL).

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)
Ditch Grade
5'
1'
1.5'
Est. 9 Tons
Type of Liner= CLASS "B" Rip-Rap
AT STA. 189+70 -L- (LT) Est. 9 Tons

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)
Remove Ground
Remove Ground
d= 1.25 Ft.
Channel Bed Horizontal
Length= 20 Ft.
D= 5.0 Ft.
Est.= 10.5 Tons of Class "I" RipRap
STA. 182+27 -L- (LT)
STA. 189+74 -L- (LT)

TREES IN WATER
NAD 83/95
SUBSTATE 1193.4'
SUBSTATE 1193.4'

LLOYD F. SHAW
DB 5877 PG 0420
DB 6007 PG 3071
PB 16 PG 30
42

+51.00 -L- 170.00'
+56.00 -L- 150.00'
+75.00 -L- 170.00' 150.00'
+50.00 -L- 170.00' 150.00'
END SPECIAL GRADING
12' POT STA. 181+30.73
SEE STD. 862.01 AND 865.01
PUE
PDE
PSH
SEE DETAIL SHEET 2-L
CLASS "I" RIP RAP
SEE DETAIL "V"
ROD AND LUG W/ELBOWS
1504
1503
1502
1501
1505
48" CLASS IV NAMETOO B INST.
1515
HW
1509
1508
1507
1506
1510
1514
1513
1512
1511
1516
2GI
FS
12' PS
4' PS
2.4'
.02
MEDIAN
300' PROP. R/W
15' RCP-HV
18' RCP-HV
24" RCP-HV
-L-
N 29°47' 28.9" W
185+00
190+00
MATCHLINE -L- STA. 180+00.00 SEE SHEET 14
MATCHLINE -L- STA. 193+00.00 SEE SHEET 16

LATERAL 2' BASE DITCH
SEE DETAIL "FF"
CLASS "B" RIP RAP W/FILTER FABRIC
EST. 2 TONS
EST. 7 SY FABRIC
CLASS "B" RIP RAP
SEE DETAIL "W"
BM #20
SEE SHEET 1-D
ELEV. 719.85'
+25.00 -L- 170.00' 150.00'
+00.00 -L- 170.00' 150.00'
+62.00 -L- 170.00' 150.00'
+83.00 -L- 170.00'
+80.50 -L- 150.00'
END C/A FENCE
BEGIN C/A FENCE
+00.00 -L- 150.00' C/A FENCE
+60.00 -L- 150.00' C/A FENCE
+21.00 -L- 150.00'
+18.00 -L- 170.00'
+41.00 -L- 150.00'
+38.00 -L- 170.00'
BL-48 178+59.62 PINC
BL-49 184+08.58 PINC

H.W. HATCHER & WANNE R. HATCHER
DB 1907 PG 572
45
N01°18'E 99.00'
N01°29'28"E 825.43'
N89°59'50"W 57.16'
N89°59'50"W 399.47'

N.C.D.O.T.
DB 5103 PG 1226
41
43Z
+35.00 -L- 150.00'
+40.00 -L- 170.00'
+56.00 -L- 150.00'
+67.90 -L- 170.00'
150.00' N88°01'27"W
150.24' N88°01'27"W
599.20' N88°01'27"W
EP
S

DAVID E. DICK
DB 5366 PG 2623
40
692.37' S01°09'31"E

Clayton G. Micheal
DB 3322 PG 221
43
683.3' N01°00'4"W

Robert K. Micheal
DB 3322 PG 227
44
398.37' N88°59'29"W

DETAIL P
FALSE SUMP
(Not to Scale)
Median Ditch
9'
2'
L (See Chart Below)
20'
CI etc.
S=Ditch Slope
℄ Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 182+02 -L- (MED)
@ STA. 188+02 -L- (MED)
@ STA. 192+52 -L- (MED)

DETAIL FF
LATERAL 2' BASE DITCH
(Not to Scale)
Natural Ground
b
F/Ft.
fill Slope
D
dl
B
Filter Fabric
*When B is > 6.0' Std. No. 876.01
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 2.0 Ft.
b= 5.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
Est. Qty. 100 Tons
Est. 202 Sqyds Fit.Fab.
FROM STA. 187+50 TO STA. 189+70 -L- (LT)

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

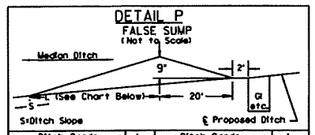
SEE SHEET 46 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
5/14/99
06-24-13 R/W REVISION (DWG) - ADDED PUE AT -L- STA.194+60.00 LT. AND -L- STA.198+57.00 RT. ON PARCEL 45 (H.W. HATCHER & MINNIE R. HATCHER).

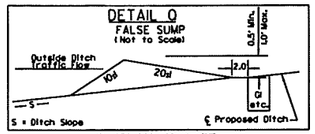
DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

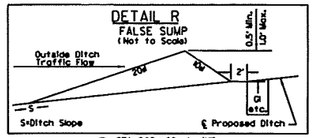
@ STA. 197+52 -L- (MED)
@ STA. 202+02 -L- (MED)

DETAIL Q
FALSE SUMP
(Not to Scale)



@ STA. 202+02 -L- (RT)

DETAIL R
FALSE SUMP
(Not to Scale)



@ STA. 202+02 -L- (LT)

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)

Length= 10 Ft.
D= 5.0 Ft.
Est.= 5.25 Tons of Class 'I' Rip-Rap

-L-

Pls Sta 200+53.92	PI Sta 215+01.73
Θs = 1°12'13.3"	Δ = 32°21'39.4" (LT)
Ls = 200.00'	D = 1°12'13.3"
LT = 133.34'	L = 2,688.47'
ST = 66.67'	T = 1,381.15'
	R = 4,760.00'
	SE = .04

SCHOOLFIELD-HATCHER FARM
ELIGIBLE FOR NATIONAL REGISTRY
OF HISTORIC PLACES

NAD 83/95

H.W. HATCHER &
MINNIE R. HATCHER
DB 1207 PG 572
45

-L- TS Sta. 199+20.58
-L- SC Sta. 201+20.58
CHORD
STA. 193+65 -L- (LT)
+21.00 -L- 170.00'
+54.00 -L- 170.00'
+47.00 -L- 150.00'
+80.00 -L- 150.00'
+20.58 -L- 150.00'
PUE
CLASS "I" RIP RAP SEE DETAIL "V"
12' PS
4' PS
2.4'
.02
MEDIAN
30' PROP. R/W
15" RCP
N 29°47' 28.9" W
GRAU-350
2GI
15"
END SBG @ STA. 197+55 -L- (LT.)
CAT-1 8:1
ROD AND LUG W/ELBOWS BEGIN C/A FENCE
END C/A FENCE
HWP
PSH
SEE DETAIL SHEET 2-L
50' INC. TYP.
FS
15" CSP W/ELBOW
BDO
PROP. BERM DITCH FROM -L- STA. 201+85 TO STA. 205+70 SEE DETAIL "U"
MATCHLINE -L- STA. 193+00.00 SEE SHEET 15
MATCHLINE -L- STA. 205+00.00 SEE SHEET 17
+30.00 -L- 150.00' C/A FENCE
+75.00 -L- 150.00' C/A FENCE
+40.00 -L- 160.00'
+66.00 -L- 170.00'
+73.00 -L- 150.00'
+99.00 -L- 170.00'
+50.00 -L- 150.00'
+50.00 -L- 180.00'
BL-50 188+41.16 PINC
BL-51 192+33.99 PINC

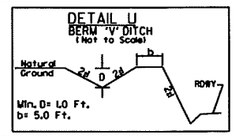
44
Robert K. Michael
DB 3322 PG 227

SCHOOLFIELD-HATCHER FARM
ELIGIBLE FOR NATIONAL REGISTRY
OF HISTORIC PLACES

45
H.W. HATCHER &
MINNIE R. HATCHER
DB 1207 PG 572

SEE SPECIAL LANDSCAPING
PLAN FOR HISTORIC PROPERTY

DETAIL U
BERM "V" DITCH
(Not to Scale)



FROM STA. 201+85 TO STA. 205+70 -L- (RT)

N01°28'08"E
855.17'

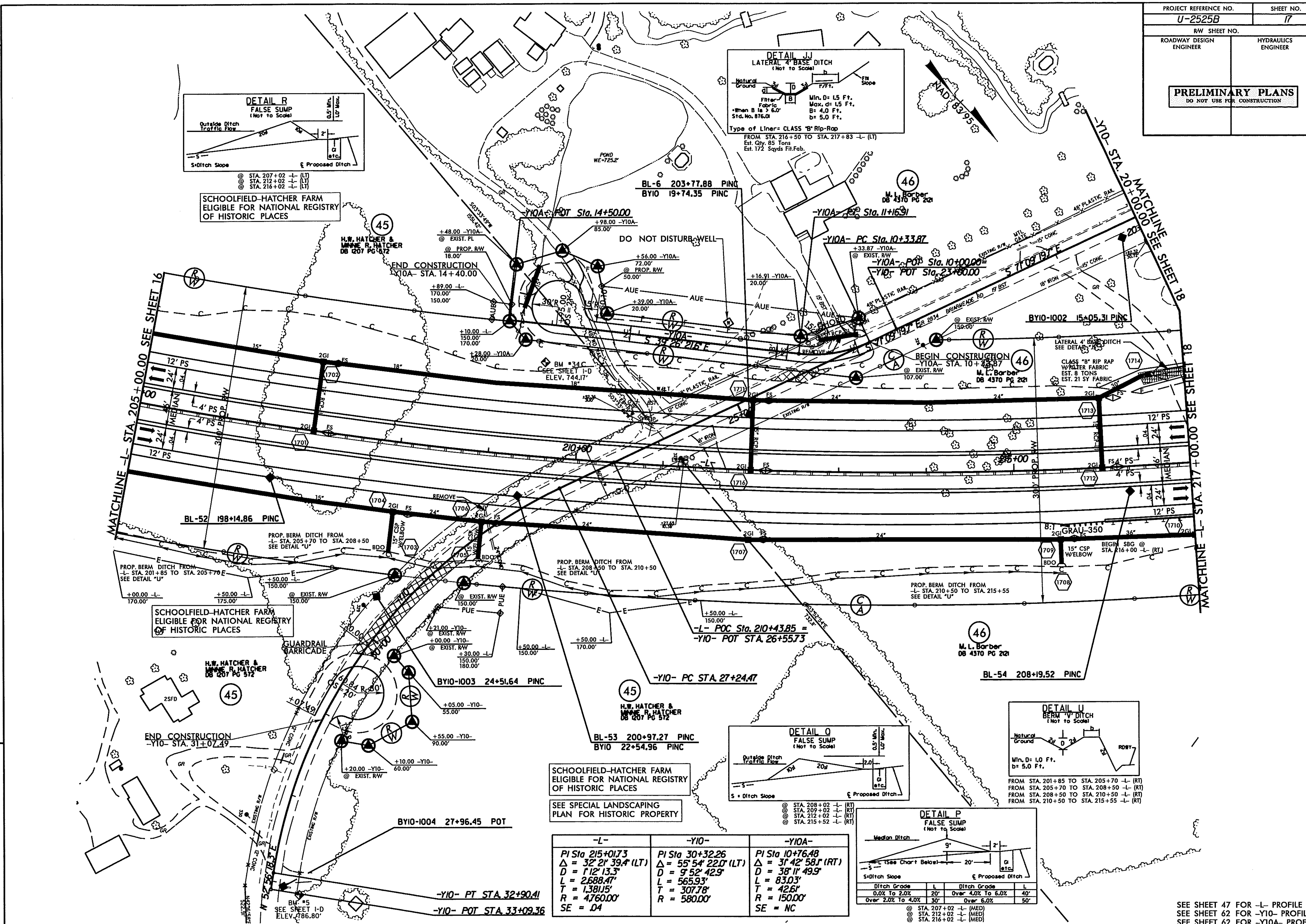
SEE SHEET 47 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS



-L-	-Y10-	-Y10A-
PI Sta 215+01.73	PI Sta 30+32.26	PI Sta 10+76.48
Δ = 32°21'39.4" (LT)	Δ = 55°54'22.0" (LT)	Δ = 31°42'58.1" (RT)
D = 1°12'13.3"	D = 9°52'42.9"	D = 38°11'49.9"
L = 2,688.47'	L = 565.93'	L = 83.03'
T = 1,381.15'	T = 307.78'	T = 42.61'
R = 4,760.00'	R = 580.00'	R = 150.00'
SE = .04		SE = NC

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 62 FOR -Y10- PROFILE
SEE SHEET 62 FOR -Y10A- PROFILE

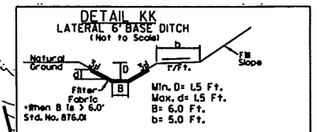
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

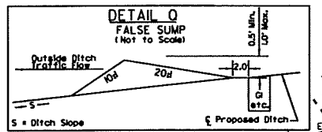
REVISIONS

DETAIL KK
LATERAL 6' BASE DITCH
(Not to Scale)



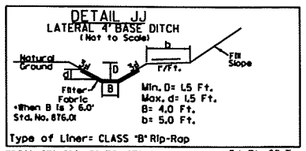
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 218+33 TO STA. 219+00 -L- (LT) Est. Qty. 85 Tons
Est. 172 Sqyds Fit.Fab.

DETAIL Q
FALSE SUMP
(Not to Scale)



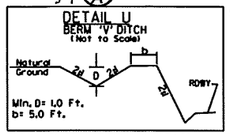
@ STA. 219+98 -L- (LT)
@ STA. 223+98 -L- (LT)
@ STA. 229+48 -L- (LT)
@ STA. 217+02 -L- (RT)

DETAIL JJ
LATERAL 4' BASE DITCH
(Not to Scale)



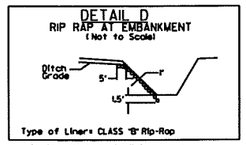
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 216+50 TO STA. 217+83 -L- (LT) Est. Qty. 85 Tons
Est. 172 Sqyds Fit.Fab.

DETAIL U
BERM "V" DITCH
(Not to Scale)



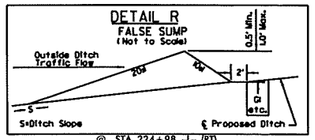
FROM STA. 224+57 TO STA. 227+50 -L- (RT)
FROM STA. 223+50 TO STA. 225+50 -L- (LT)
FROM STA. 228+50 TO STA. 230+50 -L- (RT)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



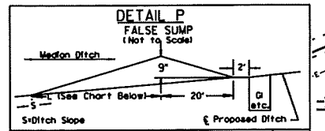
AT STA. 218+35 -L- (LT) Est. 9 Tons
AT STA. 217+80 -L- (RT) Est. 9 Tons
AT STA. 217+82 -L- (LT) Est. 22 Tons

DETAIL R
FALSE SUMP
(Not to Scale)



@ STA. 224+98 -L- (RT)
@ STA. 220+48 -L- (RT)

DETAIL P
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 223+98 -L- (MED)
@ STA. 229+48 -L- (MED)

-L-	-Y11-	-Y10-
PI Sta 215+01.73	PI Sta 17+92.52	PI Sta 26+80.11	PI Sta 13+38.21
Δ = 32° 21' 39.4" (LT)	Δ = 20° 42' 51.8" (RT)	Δ = 19° 38' 06.2" (LT)	Δ = 5° 31' 37.6" (RT)
D = 1° 12' 13.3"	D = 6° 09' 39.0"	D = 6° 09' 39.0"	D = 1° 30' 28.0"
L = 2,688.47'	L = 336.23'	L = 318.71'	L = 366.57'
T = 1,381.15'	T = 169.97'	T = 160.93'	T = 183.43'
R = 4,760.00'	R = 930.00'	R = 930.00'	R = 3,800.00'
SE = .04	SE = .04	SE = .04	
	RO = SEE PLANS	RO = 96'	

Pls Sta 228+75.73
Θs = 1° 12' 13.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

NOTE: MCF – MODIFIED CONCRETE FLUME

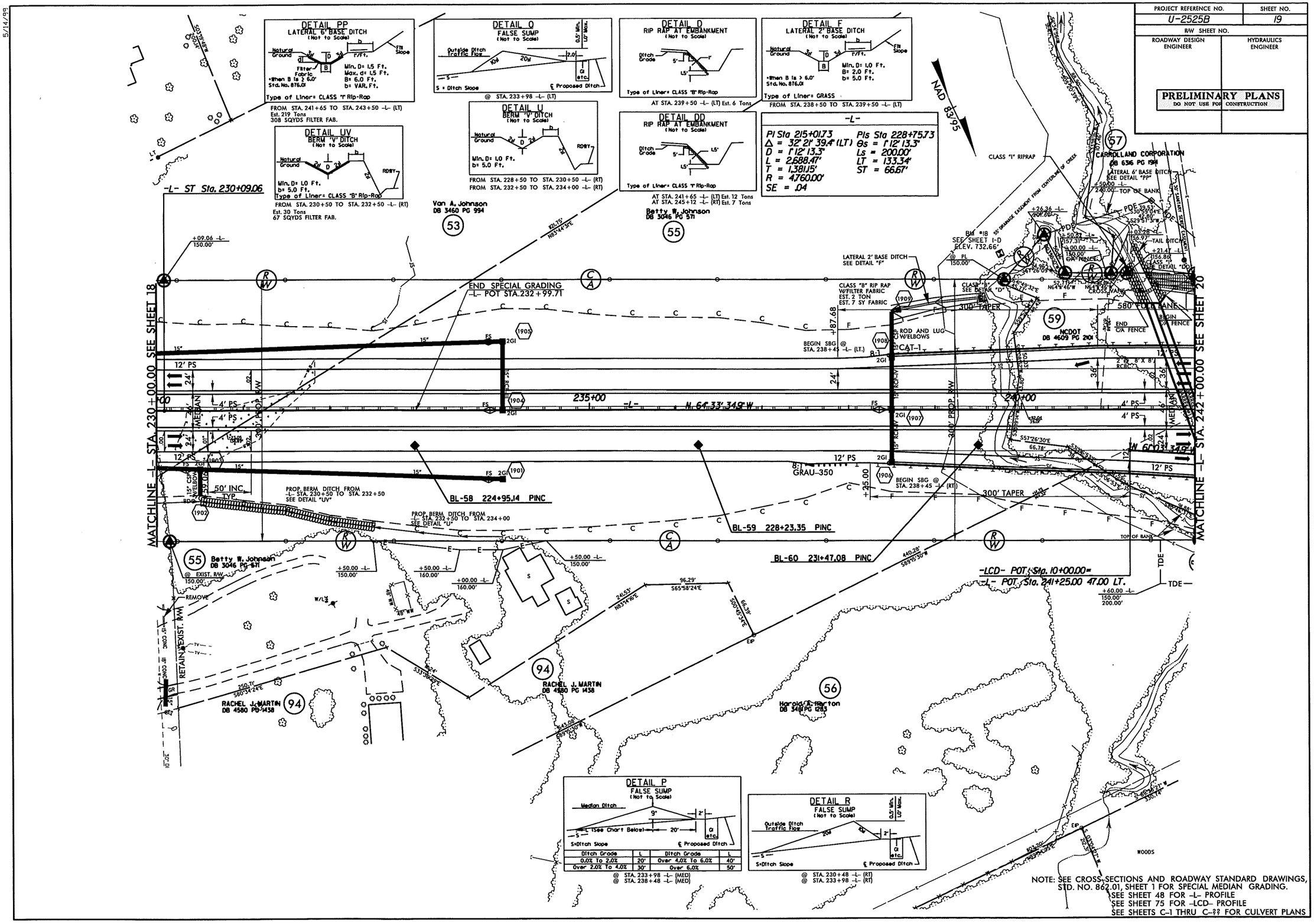
NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEET 48 FOR -L- PROFILE
SEE SHEET 62 FOR -Y10- PROFILE
SEE SHEET 63 FOR -Y11- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS
SEE SHEETS S-1 THRU S-?? FOR STRUCTURE PLANS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
SEE SHEET 48 FOR -L- PROFILE
SEE SHEET 75 FOR -LCD- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

06-03-13 R/W REVISION (DMG) - PARCEL 58 (ROBERT & CATHY BRENNAN) AND PARCEL 101 (CATHY BRENNAN) WERE COMBINED INTO PARCEL 101.

-Y13RPC-			-LCD-
PIs Sta 11+81.52	PI Sta 22+25.70	PIs Sta 29+93.79	PI Sta 15+56.93
θs = 3°22' 49.5"	Δ = 73°02' 24.8" (RT)	θs = 3°22' 49.5"	Δ = 3°30' 00.0" (LT)
Ls = 158.00'	D = 4°16' 44.4"	Ls = 158.00'	D = 0°28' 38.9"
LT = 105.35'	L = 1,706.95'	LT = 105.35'	L = 733.04'
ST = 52.68'	T = 991.54'	ST = 52.68'	T = 366.63'
	R = 1,339.00'		R = 12,000.00'
	SE = .07		SE = NC
	RO = 158'		

DETAIL DD
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner= CLASS 'I' Rip-Rap

AT STA. 241+65 -L- (LT) Est. 12 Tons
AT STA. 245+12 -L- (RT) Est. 7 Tons

DETAIL PP
LATERAL 6' BASE DITCH
(Not to Scale)

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 6.0 Ft.
b= VAR. Ft.

Type of Liner= CLASS 'I' Rip-Rap

FROM STA. 241+65 TO STA. 243+50 -L- (LT)
Est. 219 Tons
308 SQYDS FILTER FAB.

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)

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

FROM STA. 10+00 TO STA. 13+75 -Y13RPC- (RT)

DETAIL C
TOE PROTECTION
(Not to Scale)

d= 1.0 Ft.

Type of Liner= CLASS 'B' Rip-Rap

FROM STA. 243+50 TO STA. 249+00 -L- (LT)
Est. 116 Tons
244 SQYDS FILTER FAB.

DETAIL P
FALSE SUMP
(Not to Scale)

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

@ STA. 242+98 -L- (MED)
@ STA. 247+48 -L- (MED)
@ STA. 252+48 -L- (MED)

DETAIL I
LATERAL 5' BASE DITCH
(Not to Scale)

Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 5.0 Ft.
b= 5 Ft.

Type of Liner= CLASS 'I' Rip-Rap

FROM STA. 245+12 TO STA. 250+50 -L- (RT)
Est. 311 Tons
658 SQYDS FILTER FAB.

NAD 83/95

CARROLLAND CORPORATION
DB 6316 PG 1914

NCDOT
DB 4609 PG 2101

Harold A. Horton
DB 3461 PG 1283

CATHY BRENNAN
DB 4755 PG 1029
PB 37 PG 17

TOMMIE SUZANNE TAYLOR
DB 6435 PG 2034

ROBERT & CATHY BRENNAN
DB 4030 PG 2149
PB 37 PG 17

ARVID A. WHITE
DB 3689 PG 1866

JAMES R. FLINCHUM
DB 3543 PG 1087

-LCD- PC Sta. 11+90.30
-LCD- PT Sta. 19+23.34=
-Y13RPC- POT Sta. 10+00.00 12' RT.
-Y13RPC- TS Sta. 10+76.16
-Y13RPC- SC Sta. 12+34.16
BL-61 238+49.24 PINC

MATCHLINE -L- STA. 242+00.00 SEE SHEET 19
MATCHLINE -L- STA. 255+00.00 SEE SHEET 21
MATCHLINE SEE SHEET 39
MATCHLINE -Y13RPC- STA. 14+50.00 SEE SHEET 21

SEE ON SITE MITIGATION PLANS SHEET: OSM-09.

SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 74 FOR -Y13RPC- PROFILE
SEE SHEET 75 & 76 FOR -LCD- PROFILE
SEE SHEETS C-1 THRU C-?? FOR CULVERT PLANS

REVISIONS

PROJECT REFERENCE NO. U-2525B | SHEET NO. 2F
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

US 29
54676
88100
1660
2550
11076
15300
EASTERN LOOP
9380
12900
64396
98700
US 29
2014
2630
ADT

A

B

C

D

MATCHLINE -Y13NPB- SEE SHEET 31

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 31

MATCHLINE -Y13PA- SEE SHEET 31

REMOVE EXISTING MEDIAN CROSSOVER

BEGIN SPECIAL GRADING -L- POT STA. 261+00.68

STUB OUT SBL RECUT CHANNEL -L- STA. 262+21.00

MATCHLINE -L- STA. 255+00.00 SEE SHEET 20

MATCHLINE -L- STA. 260+50.00 SEE SHEET 21

MATCHLINE -L- STA. 265+00.00 SEE SHEET 22

MATCHLINE -L- STA. 269+50.00 SEE SHEET 23

MATCHLINE -L- STA. 274+00.00 SEE SHEET 24

MATCHLINE -Y13PC- SEE SHEET 32

MATCHLINE -L- STA. 44+00.00 SEE SHEET 32

MATCHLINE -Y13- STA. 57+50.00 SEE SHEET 32

MATCHLINE -Y13PD- SEE SHEET 32

END -L- STA. 275+00.00 TIP PROJECT U-2525B

END CONSTRUCTION END GRADING NBUSBL -L- STA. 274+00.00

TEMPORARY GUARDRAIL

PORTABLE CONCRETE BARRIER (ANCHORED) END CONSTRUCTION -LCD- STA. 41+28.83

GUARDRAIL BARRICADE

DETAIL A
-L- STA. 255+00.00 TO STA. 261+00.68
Type of Liner: CLASS 'B' Rip-Rap
Min. Thk. 1.5 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.
-L- STA. 274+00.00 TO STA. 275+00.00
-Y13PA- STA. 10+00.00 TO STA. 12+00.00

DETAIL B
-L- STA. 261+00.68 TO STA. 262+21.00
Type of Liner: CLASS 'B' Rip-Rap
Min. Thk. 1.5 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL C
-L- STA. 262+21.00 TO STA. 265+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL D
-L- STA. 265+00.00 TO STA. 274+00.00
Type of Liner: CLASS 'B' Rip-Rap
Min. Thk. 1.5 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL E
-L- STA. 261+00.68 TO STA. 262+21.00
-Y13PC- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL F
-L- STA. 262+21.00 TO STA. 265+00.00
Type of Liner: CLASS 'B' Rip-Rap
Min. Thk. 1.5 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL G
-L- STA. 265+00.00 TO STA. 274+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL H
-L- STA. 261+00.68 TO STA. 262+21.00
-Y13PD- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL I
-L- STA. 262+21.00 TO STA. 265+00.00
Type of Liner: CLASS 'B' Rip-Rap
Min. Thk. 1.5 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL J
-L- STA. 265+00.00 TO STA. 274+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL GC
-L- STA. 261+00.68 TO STA. 262+21.00
-Y13PC- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL GD
-L- STA. 262+21.00 TO STA. 265+00.00
-Y13PD- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL GJ
-L- STA. 265+00.00 TO STA. 274+00.00
-Y13PD- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL K
-L- STA. 261+00.68 TO STA. 262+21.00
-Y13PC- STA. 10+00.00 TO STA. 12+00.00
-Y13PD- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL L
-L- STA. 262+21.00 TO STA. 265+00.00
-Y13PC- STA. 10+00.00 TO STA. 12+00.00
-Y13PD- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'B' Rip-Rap
Min. Thk. 1.5 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

DETAIL M
-L- STA. 265+00.00 TO STA. 274+00.00
-Y13PC- STA. 10+00.00 TO STA. 12+00.00
-Y13PD- STA. 10+00.00 TO STA. 12+00.00
Type of Liner: CLASS 'A' Rip-Rap
Min. Thk. 1.0 Ft.
Min. Wd. 10 Ft.
Slope 2:1
D 50 FT.

	STA.	OFFSET	ELEV.
1	255+00.00	-L-	1000.00
2	255+00.00	-L-	1000.00
3	255+00.00	-L-	1000.00
4	255+00.00	-L-	1000.00
5	255+00.00	-L-	1000.00
6	255+00.00	-L-	1000.00
7	255+00.00	-L-	1000.00
8	255+00.00	-L-	1000.00

DETAIL OF SHEET PILES

(-L-) NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

(-Y13-) NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-A FOR BRIDGE SKETCHES
SEE SHEET 50 FOR -L- PROFILE
SEE SHEET 69 FOR -Y13PB- PROFILE
SEE SHEET 70 FOR -Y13PD- PROFILE
SEE SHEET 71 FOR -Y13PA- PROFILE
SEE SHEET 72 FOR -Y13NPC- PROFILE
SEE SHEET 73 FOR -Y13PC- PROFILE
SEE SHEET 73 FOR -Y13NPB- PROFILE
SEE SHEET 74 FOR -Y13NPC- PROFILE
SEE SHEET 76 FOR -LCD- PROFILE
SEE SHEET 78 FOR -Y13- PROFILE
SHEETS S-1 THRU S-11 FOR STRUCTURE PLANS

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

-L-	-Y16-	-Y17-	-LACFLY-	
PIs Sta 278+83.43	PI Sta 288+11.64	PI Sta 16+65.48	PI Sta 13+97.04	PIs Sta 11+33.34	PI Sta 13+31.37	PIs Sta 15+29.24
θs = 0° 34' 22.6"	Δ = 9° 50' 53.9" (RT)	Δ = 23° 02' 41.3" (LT)	Δ = 91° 48' 47.7" (RT)	θs = 1° 54' 35.5"	Δ = 5° 00' 52.5" (RT)	θs = 1° 54' 35.5"
Ls = 200.00'	D = 0° 34' 22.6"	D = 4° 58' 56.1"	D = 22° 55' 05.9"	Ls = 200.00'	D = 1° 54' 35.5"	Ls = 200.00'
LT = 133.33'	L = 1,718.85'	L = 462.54'	L = 400.61'	LT = 133.34'	L = 262.56'	LT = 133.34'
ST = 66.67'	T = 861.55'	T = 234.44'	T = 258.04'	ST = 66.67'	T = 131.37'	ST = 66.67'
	R = 10,000.00'	R = 1,150.00'	R = 250.00'		R = 3,000.00'	
	SE = .02	SE = .04	SE = XX		SE = .05	
		RO = SEE PLANS				

-LCD-			-Y13RPD-	
PIs Sta 50+30.03	PI Sta 58+58.43	PIs Sta 66+82.36	PI Sta 34+59.64	PIs Sta 37+27.55
θs = 0° 15' 42.9"	Δ = 10° 28' 13.4" (RT)	θs = 0° 15' 42.9"	Δ = 19° 47' 05.8" (RT)	θs = 0° 33' 04.5"
Ls = 80.00'	D = 0° 39' 17.3"	Ls = 80.00'	D = 4° 46' 28.7"	θs = 4° 00' 39.7"
LT = 53.33'	L = 1,599.00'	LT = 53.33'	L = 414.38'	Ls = 168.00'
ST = 26.67'	T = 801.73'	ST = 26.67'	T = 209.27'	LT = 105.27'
	R = 8,750.00'		R = 1,200.00'	ST = 62.81'
	SE = NC		SE = .07	

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS
07-01-13 R/W REVISION (DNG) - ELIMINATED THE R/W CLAIM ON PARCEL 74 (JERRY WAYNE GREGORY).

MATCHLINE -L- STA. 20+00.00 SEE SHEET 21

MATCHLINE -L- STA. 283+00.00 SEE SHEET 21

MATCHLINE -L- STA. 296+00.00 SEE SHEET 23

SEE SHEET 51 FOR -L- PROFILE

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLUE ROCK CT. (NON-SYSTEM) 26.2' BST

CHATOYANCY, LLC DB 6585 PG 3005 PB 175 PG 8

TRIFECTA SQUARE, LLC DB 6903 PG 2924 PB 175 PG 7

PELAGIC PROPERTIES NORTH CAROLINA, LLC DB 6954 PG 2942 PB 175 PG 10

MICHAEL JORDAN & M. JORDAN DB 6954 PG 2944 PB 175 PG 11

PAM HOMES, INC. DB 6903 PG 2941 PB 175 PG 6

DIAMONDBACK, INC. DB 6903 PG 0303 PB 175 PG 5

ELIZABETH W. MOSELEY DB 2433 PG 0224

CRYSTAL R. WRIGHT-POOLE DB 6939 PG 2760 PB 175 PG 9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 5776 PG 1760

MABEL L. CHILTON DB 1042 PG 606

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 6604 PG 586

N.C.D.O.T. DB 2470 PG 206 DB 4376 PG 1241 DB 4447 PG 994

ROBERT D. & HOPE F. SCALES DB 4008 PG 142

CHATOYANCY, LLC DB 6505 PG 3005 PB 129 PG 147 PB 172 PG 130

MATCHLINE -L- STA. 296+00.00 SEE SHEET 22

-LCD- CS Sta. 66+55.70

-L- CS Sta. 296+68.95

-LCD- ST Sta. 67+35.69 = -L- POT Sta. 298+11.44 47' RT.

-L- ST Sta. 298+66.95

-L-		-LCD-		
PI Sta 288+11.64	PIs Sta 297+35.61	PIs Sta 50+30.03	PI Sta 58+58.43	PIs Sta 66+82.36
Δ = 9° 50' 53.9" (RT)	Θs = 0° 34' 22.6"	Θs = 0° 15' 42.9"	Δ = 10° 28' 13.4" (RT)	Θs = 0° 15' 42.9"
D = 0° 34' 22.6"	Ls = 200.00'	Ls = 80.00'	D = 0° 39' 17.3"	Ls = 80.00'
L = 1,718.85'	LT = 133.33'	LT = 53.33'	L = 1,599.00'	LT = 53.33'
T = 861.55'	ST = 66.67'	ST = 26.67'	T = 801.73'	ST = 26.67'
R = 10,000.00'			R = 8,750.00'	
SE = .02			SE = NC	

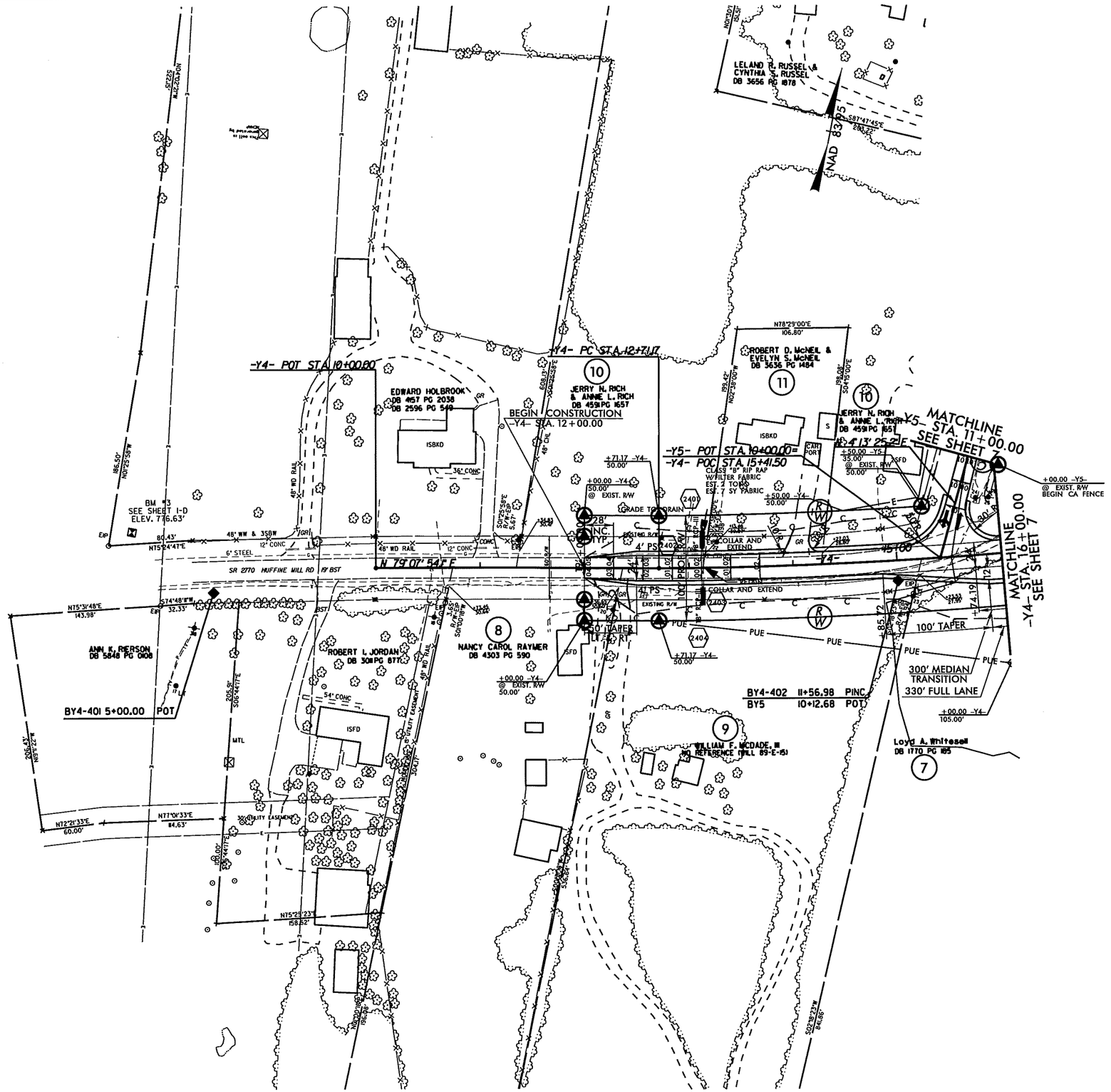
SEE SHEET 51 FOR -L- PROFILE

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4-
PI Sta 17+37.59
Δ = 13° 59' 43.4" (LT)
D = 1° 30' 28.0"
L = 928.21'
T = 466.43'
R = 3,800.00'
SE = .02
RO = SEE PLANS



SEE SHEET 54 FOR -Y4- PROFILE
SEE SHEET 60 FOR -Y5- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS
5/14/99
06-24-13 R/W REVISION (DMG) - REVISED PDE TO PUE AT -Y4- STA.36+00.00 RT., -Y4A- STA.14+50.00 RT., AND REVISED TCE TO PUE FROM -Y4- STA.35+60.00 TO STA.36+81.00 RT. ON PARCEL 4 (CITY OF GREENSBORO).

DETAIL C
TOE PROTECTION
(Not to Scale)
Natural Ground
d
2:1 OR FLATTER
Fill Slope
Filter Fabric
d= 1.0 Ft.
Type of Liner= CLASS "B" Rip-Rap
FROM STA. 38+50 TO STA. 39+00 -Y4- (LT)
Est. 25 Tons
83 SQYDS FILTER FAB.

DETAIL B
LATERAL "V" DITCH
(Not to Scale)
Natural Ground
1V
D
1H
b
T/Ft.
Fill Slope
Min. D= 1.0 Ft.
b= 5.0 Ft.
FROM STA. 12+89 TO STA. 14+50 -Y4A- (LT)

-DRVI-	-Y4-	-Y4A-	-DRV3-	
PI Sta 10+59.14	PI Sta 38+56.26	PI Sta 14+51.52	PI Sta 10+92.41	PI Sta 12+09.36
Δ = 60° 28' 50.9" (RT)	Δ = 34° 47' 19.0" (LT)	Δ = 25° 45' 31.5" (LT)	Δ = 43° 07' 09.3" (RT)	Δ = 17° 13' 52.6" (LT)
D = 63° 39' 43.5"	D = 5° 56' 14.6"	D = 14° 19' 26.2"	D = 28° 38' 52.4"	D = 19° 05' 54.9"
L = 95.00'	L = 585.92'	L = 179.83'	L = 150.51'	L = 90.22'
T = 52.47'	T = 302.31'	T = 91.46'	T = 79.02'	T = 45.45'
R = 90.00'	R = 965.00'	R = 400.00'	R = 200.00'	R = 300.00'
	SE = 04			
	RO = 100'			

SEE SHEET 55 FOR -Y4- PROFILE
SEE SHEET 60 FOR -Y4A- PROFILE
SEE SHEET 60 FOR -DRVI- PROFILE
SEE SHEET 60 FOR -DRV3- PROFILE
SEE SHEET 61 FOR -Y5B- PROFILE

NOTE: SEE SHEET 25A FOR -DET1-

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	25A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET1-

5/14/99

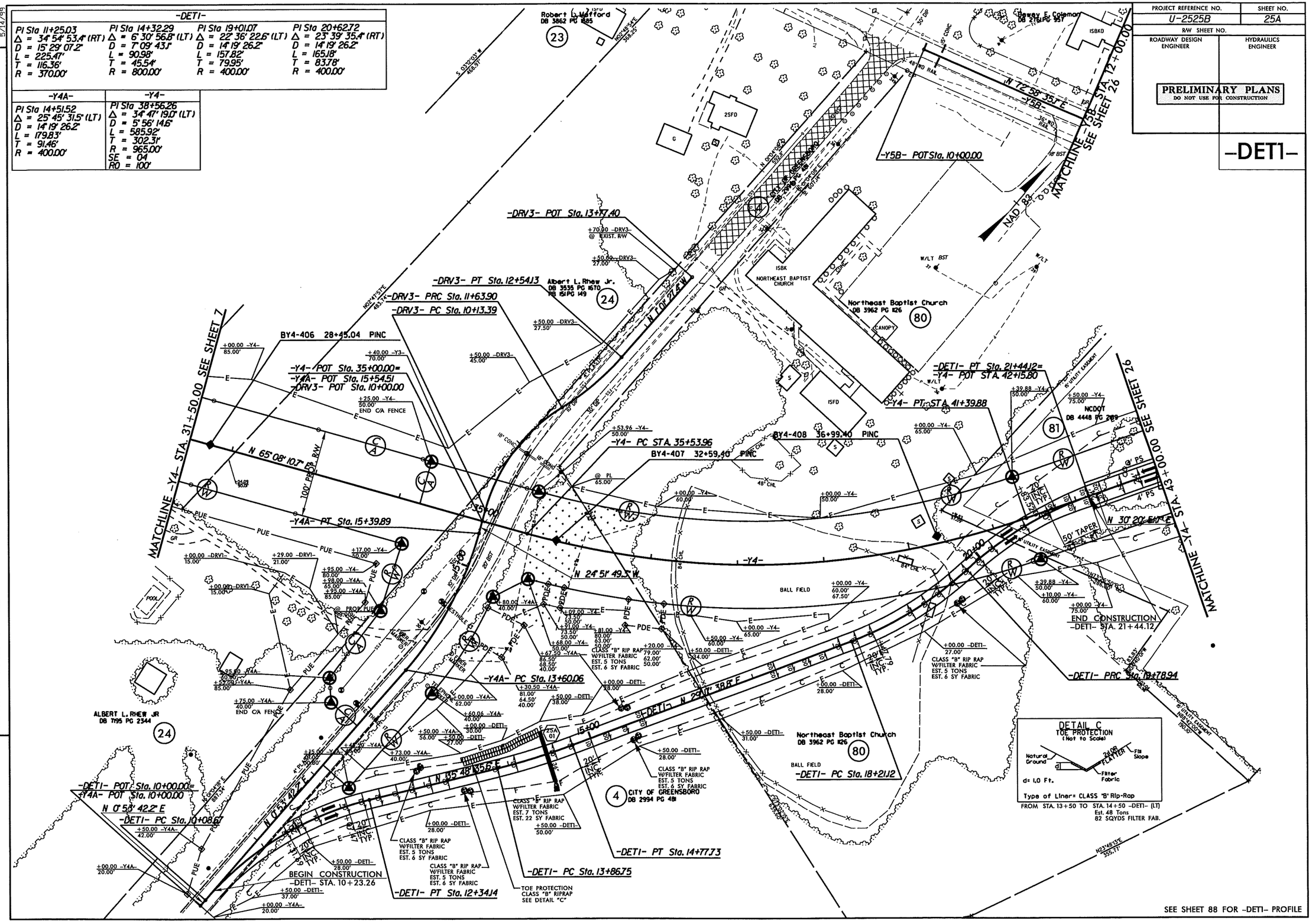
REVISIONS

03-19-13 R/W REVISION (DWG) - COMBINED PARCELS 4 AND 79 INTO PARCEL 4 (CITY OF GREENSBORO), REVISED THE PROPERTY OWNER NAME ON PARCEL 24 (ALBERT L.RHEW JR.) AND REVISED THE SOUTHERN PROPERTY LINE CHANGED, THE EXISTING R/W LINES TO PROPERTY LINES BETWEEN PARCEL 24 (ALBERT L.RHEW JR.) AND PARCEL 80 (NORTHEAST BAPTIST CHURCH) - THIS AREA IS DEEDED TO PARCEL 4 (CITY OF GREENSBORO).

-DET1-

PI Sta 11+25.03	PI Sta 14+32.29	PI Sta 19+01.07	PI Sta 20+62.72
Δ = 34° 54' 53.4" (RT)	Δ = 6° 30' 56.8" (LT)	Δ = 22° 36' 22.6" (LT)	Δ = 23° 39' 35.4" (RT)
D = 15° 29' 07.2"	D = 7° 09' 43.3"	D = 14° 19' 26.2"	D = 14° 19' 26.2"
L = 225.47'	L = 90.98'	L = 157.82'	L = 165.18'
T = 116.36'	T = 45.54'	T = 79.95'	T = 83.78'
R = 370.00'	R = 800.00'	R = 400.00'	R = 400.00'

-Y4A-	-Y4-
PI Sta 14+51.52	PI Sta 38+56.26
Δ = 25° 45' 31.5" (LT)	Δ = 34° 47' 19.0" (LT)
D = 14° 19' 26.2"	D = 5° 56' 14.6"
L = 179.83'	L = 585.92'
T = 91.46'	T = 302.31'
R = 400.00'	R = 965.00'
	SE = 04
	RO = 100'



5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	26
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

MATCHLINE -Y5B- STA. 12+00.00 SEE SHEET 25

MATCHLINE -Y4- STA. 43+00.00 SEE SHEET 25

-Y5B-
PI Sta 15+20.47
Δ = 47° 22' 16.8" (RT)
D = 13° 38' 30.7"
L = 347.25'
T = 184.24'
R = 420.00'
SE = .04
RO = 80'

-Y4-
PI Sta 53+26.80
Δ = 27° 17' 33.6" (LT)
D = 5° 56' 14.6"
L = 459.67'
T = 234.28'
R = 965.00'
SE = .04
RO = SEE PLANS

DETAIL O
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 2d, D, 44.0° Flatter, Front Ditch Slope
Min. D= 1.5 Ft.
FROM STA. 15+50 TO STA. 16+50 -Y5B- (LT)

DETAIL N
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 4d, D, 44.0° Flatter, Front Ditch Slope
Min. D= 1.0 Ft.
FROM STA. 48+00 TO STA. 55+00 -Y4- (LT)
FROM STA. 14+00 TO STA. 15+50 -Y5B- (LT)
FROM STA. 52+00 TO STA. 54+50 -Y4- (RT)

DETAIL M
SPECIAL CUT DITCH w/HINGE
(Not to Scale)
Natural Ground, 4d, D, 44.0° Flatter, Front Ditch Slope, 6.0', Min. D= 1.0 Ft.
FROM STA. 46+50 TO STA. 47+50 -Y4- (LT)

BEGIN CONSTRUCTION -Y5B- STA. 12+00.00

END CONSTRUCTION -Y4- STA. 56+00.00

-Y4- PT STA. 55+52.19

-Y5B- PC Sta. 13+36.23

-Y5B- PT Sta. 16+83.48

-Y4- POT Sta. 50+27.75=
-Y6- POT Sta. 10+00.00

-Y4- PC STA. 50+02.51

-Y4- POT Sta. 45+88.16=
-Y5B- POT Sta. 16+93.17

-Y6- PC Sta. 10+06.67

-Y6- PT Sta. 11+35.90

END CONSTRUCTION -Y6- STA. 11+50.00

BY4-411 46+84.91 PINC
BY6 5+00.00 POT

BY4-408 40+15.32 PINC

BY4-410 42+55.68 PINC

BY6-601 7+57.22 POT

-Y6- POT Sta. 12+23.06

BY4-412 51+21.11 PINC

N 72° 58' 35" E

N 30° 20' 51" E

S 59° 39' 09" E

S 89° 16' 16" E

N 3° 07' 18" E

BM # 27
SEE SHEET 1-D
ELEV. 783.62'

-Y6-
PI Sta 10+72.77
Δ = 29° 37' 05.3" (LT)
D = 22° 55' 05.9"
L = 129.23'
T = 66.10'
R = 250.00'
SE = SEE PLANS

SEE SHEETS 55 & 56 FOR -Y4- PROFILE
SEE SHEET 61 FOR -Y5B- PROFILE
SEE SHEET 61 FOR -Y6- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

-Y10-	-Y11-
PI Sta 13+38.21	PI Sta 17+92.52
Δ = 5° 31' 37.6" (RT)	Δ = 20° 42' 51.8" (RT)
D = 1° 30' 28.0"	D = 6° 09' 39.0"
L = 366.57'	L = 336.23'
T = 183.43'	T = 169.97'
R = 3,800.00'	R = 930.00'
	SE = .04
	R0 = SEE PLANS

NAD 83/95

-Y10- POT STA. 10+00.00 =
-Y11- POT STA. 15+73.98

-Y11- POT Sta. 10+00.00

BEGIN CONC. SIDEWALK
-Y11- STA. 15+93.21 LT.

-Y11- PC Sta. 16+22.55

MATCHLINE -Y11- STA. 17+00.00 SEE SHEET 18

MATCHLINE -Y10- STA. 14+00.00 SEE SHEET 18

BEGIN CONSTRUCTION
-Y11- STA. 15+16.00

BEGIN CONC. SIDEWALK
-Y11- STA. 15+88.00 RT.

END CONSTRUCTION
-Y10- STA. 10+91.00

-Y10- PC STA. 11+54.78

BY11-1101 5+60.00 POT

BY11-1102 10+84.46 PINC

BY10 5+00.00 POT

BY10-1001 8+69.36 PINC

-Y11- RETAIN 15+00

N 3°11'58.5" E

SEE SHEET 63 FOR -Y11- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS 5/14/99

MATCHLINE -Y11- STA. 26+00.00 SEE SHEET 18

-Y11-
PI Sta 26+80.11
Δ = 19° 38' 06.2" (LT)
D = 6° 09' 39.0"
L = 318.71'
T = 160.93'
R = 930.00'
SE = .04
RO = 96'

DETAIL VV
PIPE OUTLET CHANNEL
(Not to Scale)
Length= 10 Ft.
D=4.0 Ft.
Est.= 4 Tons of Class "B" Rip-Rap
STA. 32+79 -Y11- (RT) Est. 4.0 Tons Class "B" RipRap

DETAIL CD
SPECIAL CUT DITCH
(Not to Scale)
Min. D= 1.0 Ft.
FROM STA. 29+50 TO STA. 31+50 -Y11- (LT)

DETAIL CC
SPECIAL CUT DITCH w/HINGE
(Not to Scale)
Min. D= 1.0 Ft.
FROM STA. 32+00 TO STA. 32+86 -Y11- (LT)

RACHEL J. MARTIN
DB 4580 PG 1438
94

ALICE PATTERSON HAYES
DB 3858 PG 971
54

Harold A. Horton
DB 3401 PG 285
56

Thomas G. Hayes Jr.
DB 1397 PG 87
96

THOMAS G. HAYES
DB 3858 PG 955
95

Katherine G. Moore
DB 2583 PG 890

ROBERT R. & MICHELLE L. PORTER
DB 6426 PG 290

JOHN R. CHANDLER
DB 3788 PG 290

PAULINE C. R. IRVING
DB 3858 PG 95
PB 99 PG 17

BY11-1103 23+76.74 PINC

BY11-1104 31+06.39 PINC

-Y11- PT Sta. 28+37.88

-Y11- N 4°16'44.2" E

END CONSTRUCTION
-Y11- POT STA. 35+00.00

RETAIN EXIST R/W

RETAIN EXISTING R/W

GRADE TO DRAIN

COLLAR AND EXTEND

REMOVE

50' TAPER LT. & RT.

24' INC. TYP.

Y.C. GRAU-350

SPECIAL CUT DITCH SEE DETAIL "CD"

SPECIAL CUT DITCH SEE DETAIL "CC"

POND WE=755.0

ISBKD

ISFD

NAD 83/95

SEE SHEET 63 FOR -Y11- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y14-
PI Sta 11+80.00
Δ = 90° 00' 00.0" (RT)
D = 95° 29' 34.7"
L = 94.25'
T = 60.00'
R = 60.00'
SE = .02
RO = SEE PLANS

5/14/99

REVISIONS

03-19-13 R/W REVISION (DWG) - ADDED PARCEL 196 (VERNICE H.FULLER); PARCEL 197 (SUE J.COUNCIL) AND PARCEL 198 (REECE B.KENT, JR.) FOR THE R/W AND TCE NEEDED FOR THE NEW -Y14- SERVICE ROAD. ALSO, REVISED THE C/A LOCATION ALONG THESE PARCELS.

NAD 83/95

VERGE M. COX
PB 26 PG 22

CARL SCHOOLFIELD
PB 26 PG 22
LOT 14

AH M. WHITAKER
6580 PG 2050

PATRICIA C. ROCKBURN
DB 5338 PG 1018

VERNICE H. FULLER
DB 6716 PG 0491
(196)

Reece B. Kent Jr.
DB 2369 PG 485
(198)

Sue J. Council
DB 4632 PG 545
(197)

-Y14- PT Sta. 12+14.25

-Y14- PC Sta. 11+20.00

BM #22
SEE SHEET I-D
ELEV. 786.00'

BY14-1401 5+00.00 POT

-Y14- POT Sta. 10+00.00=
-Y13- POT Sta. 14+80.87

BY13-1301 5+00.00 POT

MTL GUARDRAIL

US 29 SBL BST

US 29 NBL BST

BEGIN CONSTRUCTION
-Y13- STA. 14+00.00

-Y13- N 30°54'032"E

STA. 18+00.00 SEE SHEET 30

MATCHLINE -Y13- STA. 18+00.00 SEE SHEET 30

REMOVE

+50.00 -Y13-
BEGIN C/A FENCE
125.00' (LT.)

NAEGELE OUTDOOR ADVERTISING
DB 4164 PG 1490

JORDAN DONNA R TRUSTEE
DB 6570 PG 858

JORDAN DONNA R TRUSTEE
DB 6570 PG 859

R. LYNN GOFORTH SUE B. HEDRICK & DEBORAH GOFORTH-TRAYLOR, TRUSTEES FOR ETHEL P. GOFORTH ASSET PRESERVATION TRUST, UTD
DB 5520 PG 0541

Beulah S. Witherspoon
DB 2097 PG 445

ELEANOR L. LINEBERRY
DB 1784 PG 652

Shane Odell
DB 1442 PG 358

Wilford Bishop
DB 1841 PG 38

ARCM 06, LLC
DB 6569 PG 1939
(104)

SEE SHEET 65 FOR -Y13- PROFILE
SEE SHEET 75 FOR -Y14- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y14-	-Y13CD-	
PI Sta 25+87.56	PI Sta 12+45.06	PI Sta 17+35.04
Δ = 9°02' 43.5" (LT)	Δ = 3° 30' 33.1" (LT)	Δ = 3° 30' 33.1" (RT)
D = 2° 17' 30.6"	D = 0° 42' 58.3"	D = 0° 42' 58.3"
L = 394.68'	L = 489.97'	L = 489.97'
T = 197.75'	T = 245.06'	T = 245.06'
R = 2,500.00'	R = 8,000.00'	R = 8,000.00'
SE = .02	SE = NC	SE = NC
RO = 41'		

REVISIONS

03-19-13 R/W REVISION (DWG) - ADDED PARCEL 198 (REECE B.KENT,JR.) PARCEL 199 (VINCENT WHITT & GWENDA WHITT) PARCEL 200 (PAT'SY A.MOORE), PARCEL 201(ALAN R.CLARK & IASLIN D.CLARK) FOR THE R/W AND TCE NEEDED THE NEW -Y14- SERVICE ROAD. ALSO, REVISED THE C/A LOCATION ALONG THESE PARCELS. REVISED THE R/W,C/A,AND ADDED TCE ON PARCEL 106 (JAMES H.SCALES) FOR THE NEW -Y14- SERVICE ROAD.

5/14/99

MATCHLINE -Y13- STA. 18+00.00 SEE SHEET 29

MATCHLINE -Y13- STA. 30+00.00 SEE SHEET 31

Reese B. Kent Jr. DB 2369 PG 485 (198)

Vincent Whitt & Gwenda Whitt DB 6179 PG 229 PB 159 PG 48 (199)

Patsy A. Moore DB 3674 PG 2029 (200)

ALAN R. CLARK & IASLIN D. CLARK DB 5912 PG 2241 (201)

James H. Scales DB 4911 PG 1630 DB 4288 PG 1365 (106)

ARC 8106, LLC DB 6569 PG 1939 (104)

GLADE PROPERTIES OF THE TRIAD, LLC DB 6147 PG 1276 (105)

-Y14- PC Sta. 23+89.81

BY14-1402 12+57.65 PINC

BY14-1403 19+76.30 PINC

BY13-1302 15+14.10 PINC

BY13-1303 22+93.13 PINC

-SRV- POT Sta. 10+00.00 = -Y13- POT Sta. 23+46.41

-SRV1- POT Sta. 10+00.00 = -SRV- POT Sta. 11+80.00

-SRV- POT Sta. 12+40.00

-SRV1- POT Sta. 10+12.34

BEGIN CONSTRUCTION

REMOVE -Y13- STA. 25+80.00 BEGIN RESURFACING

REMOVE 86' OF 18" RCP PIPE

CLASS "B" RIP RAP W/FILTER FABRIC EST. 2 TONS EST. 7 SY FABRIC

TIE TO EXISTING FENCE

DO NOT DISTURB BUILDINGS

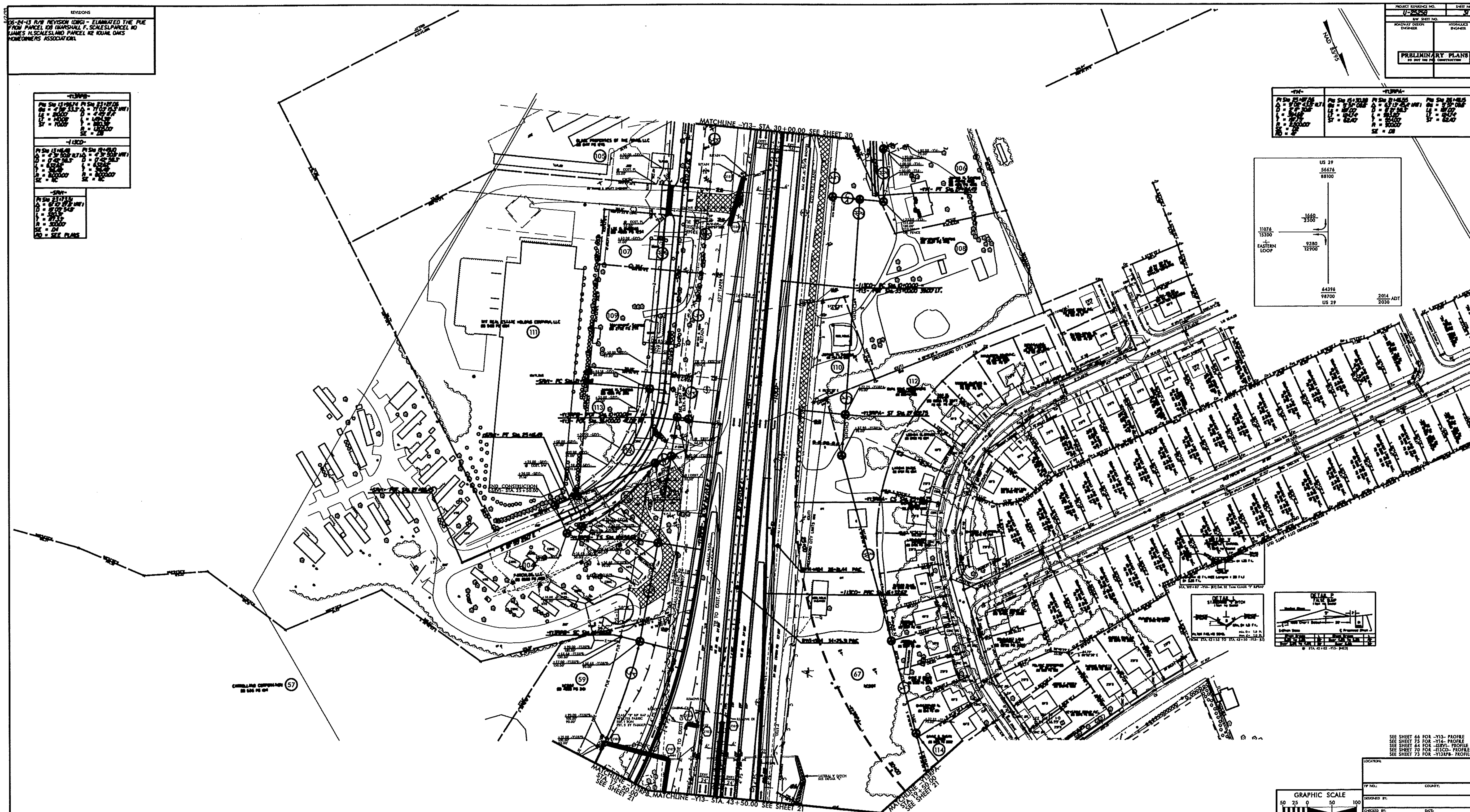
SEE SHEET 65 FOR -Y13- PROFILE
SEE SHEET 75 FOR -Y14- PROFILE
SEE SHEET 64 FOR -SRV- PROFILE
SEE SHEET 64 FOR -ISRV1- PROFILE

REVISIONS

06-24-13 R/W REVISION (DWG) - ELIMINATED THE PUE FROM PARCEL 108 (MARSHALL F. SCALES), PARCEL 110 (JAMES H. SCALES), AND PARCEL 112 (QUAIL OAKS HOMEOWNERS ASSOCIATION).

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 66 FOR -Y13- PROFILE
SEE SHEET 75 FOR -Y14- PROFILE
SEE SHEET 64 FOR -ISRV1- PROFILE
SEE SHEET 70 FOR -I13CD- PROFILE
SEE SHEET 73 FOR -Y13RPB- PROFILE

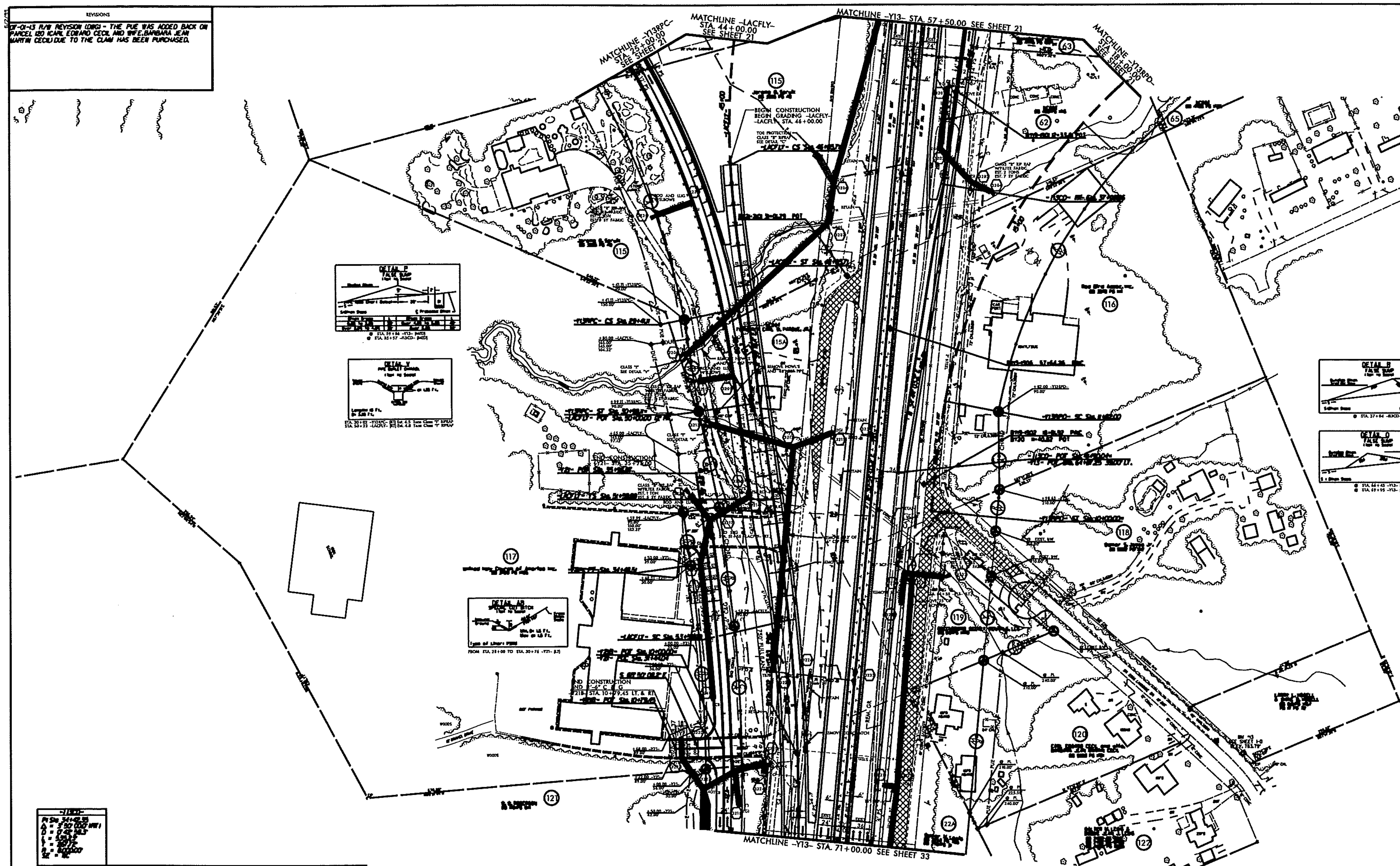
GRAPHIC SCALE
50 25 0 50 100
PLANS

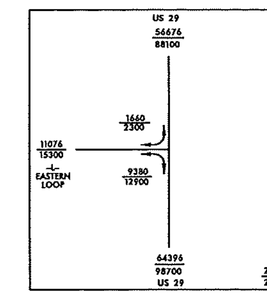
LOCATION:	
TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

REVISIONS
07-01-13 R/W REVISION (DBG) - THE PUE WAS ADDED BACK ON PARCEL 120 (CARL EDWARD CECIL AND WIFE, BARBARA JEAN MARTIN CECIL) DUE TO THE CLAIM HAS BEEN PURCHASED.

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	32
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





-I13CD-
PI Sta 34+42.35
Δ = 3°50'00.0" (RT)
D = 0°42'58.3"
L = [illegible]
T = [illegible]
R = 8,000.00'
SE = NC

-Y21-
PI Sta [illegible]
Δ = [illegible] (LT)
D = [illegible]
L = [illegible]
T = [illegible]
R = 2,680.00'
SE = [illegible]
RO = SEE PLANS

-Y13RPC-
PI Sta 29+25.70
Δ = 73°02'54.8" (RT)
D = [illegible]
L = [illegible]
T = [illegible]
R = 1,330.00'
SE = .07
PIs Sta [illegible]
θs = [illegible]
Ls = [illegible]
LT = [illegible]
ST = [illegible]

-Y13RPD-
PIs Sta [illegible]
θs = [illegible]
Ls = [illegible]
LT = [illegible]
ST = [illegible]
PI Sta [illegible]
Δ = [illegible] (RT)
D = [illegible]
L = [illegible]
T = [illegible]
R = [illegible]
SE = .08

-LACFLY-
PI Sta [illegible]
Δ = [illegible] (LT)
D = [illegible]
L = [illegible]
T = [illegible]
R = [illegible]
SE = .06
PIs Sta [illegible]
θs = [illegible]
Ls = 200.00
LT = [illegible]
ST = [illegible]
PIs Sta [illegible]
θs = [illegible]
Ls = 200.00
LT = [illegible]
ST = [illegible]
PI Sta [illegible]
Δ = [illegible] (RT)
D = [illegible]
L = [illegible]
T = [illegible]
R = 3,000.00'
SE = .05
PIs Sta [illegible]
θs = [illegible]
Ls = 200.00
LT = [illegible]
ST = [illegible]

SEE SHEET 67 FOR -Y13- PROFILE
SEE SHEET 76 FOR -LACFLY- PROFILE
SEE SHEETS 70 & 71 FOR -I13CD- PROFILE
SEE SHEET 74 FOR -Y13RPC- PROFILE
SEE SHEET 78 FOR -Y21- PROFILE
SEE SHEET 79 FOR -Y21B- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:	
TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

REVISIONS

12-13-13 R/W REVISION (080)- THE R/W WAS ADDED BACK ON PARCEL 123 (ROBERT V. LOVE) PARCEL 124 (WILLIAM H. HUTCHENS & NANCY V. HUTCHENS) PARCEL 125 (ELI F. PERDUE & WANE G. PERDUE) PARCEL 126 (SCOTT D. GLOVER) & PARCEL 127 (JAMES P. WILLIAMS & JANE K. WILLIAMS) AND PARCEL 128 (FLOYD E. ANDREWS & WANDA B. ANDREWS) DUE TO THESE CLAIMS HAVE BEEN PURCHASED.

PROJECT REFERENCE NO.	SHEET NO.
U-2508	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 32

MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 34

MATCHLINE -Y22- STA. 19+00.00 SEE SHEET 37

MATCHLINE -Y22- STA. 36+00.00 SEE SHEET 38

NAD 1983

A

D

-Y22- HICONE ROAD
10204
14300
2497
3900
3424
2000
44396
98700
-Y13- US 29
14656
21000
1460
2100
49923
77900
-Y13- US 29
23648
34400
-Y22- HICONE ROAD
2014 ADT
2030

DETAIL AB
SPECIAL CUT DITCH
Type of Liner: FABRIC
FROM STA. 29+00 TO STA. 30+72 -Y13- (LT)

DETAIL YY
SPECIAL CUT DITCH
Type of Liner: FABRIC
FROM STA. 23+00 TO STA. 24+60 -Y13- (RT)

-L(LT)-
-TB-
-TB(FA)-
-TB(FB)-
-TB(FC)-
-TB(FA)-
-TB(FD)-
-TB-

★ PROPOSED SIGNAL

SEE SHEET 2-N FOR BRIDGE SKETCH
SEE SHEETS 67 & 68 FOR -Y13- PROFILE
SEE SHEET 78 FOR -Y21- PROFILE
SEE SHEET 80 FOR -Y21- PROFILE
SEE SHEET 81 FOR -Y21FA- PROFILE
SEE SHEET 83 FOR -Y21FD- PROFILE
SEE SHEETS 82 A & B3 FOR -Y22FA- PROFILE
SEE SHEETS 83 & 84 FOR -Y22FD- PROFILE
SEE SHEETS S-1 THRU S-11 FOR STRUCTURE PLANS

NOTE: USE INTERIM GRADE -I22LPA- FOR -Y22LPA- ALIGNMENT
NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS STD. NO. 862.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS

06-24-13 R/W REVISION (DWG) - REVISED THE TCE TO INCLUDE THE POND ON PARCEL 150 (THOMAS W.PASCHALI AND PARCEL 152 (JANICE J.WILES). ADDED DUE AT -Y23- STA.26+68.00 RT.ON PARCEL 163 (ANTHONY B.HURDLE). REVISED PUE TO TCE FROM -Y26- STA.34+80.00 TO STA.36+15.00 LT. ON PARCEL 156 (R.WAYNE JONES).PARCEL 154 (ROY B.JONES & MARY LOU JONES).AND PARCEL 152 (JANICE J.WILES).

MATCHLINE -Y23- STA. 39+00.00 SEE SHEET 37

MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 33

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 35

-Y23- PC Sta. 38+76.09

-Y23- PT Sta. 38+12.80

-Y23- PC Sta. 35+77.75

-Y22RPA- POT Sta. 10+00.00 = -Y13- POT Sta. 10+00.00 5.00 LT.

-Y22RPA- S 33°54'03.2"W

-Y22RPD- S 22°32'00.5"W

-Y22RPD- SC Sta. 12+00.00

-Y22RPD- ST Sta. 10+00.00= -Y13- POT Sta. 104+23.27 59.00 RT.

-Y26- PC Sta. 33+90.42

-Y26- PRC Sta. 36+23.55

-Y26- PT Sta. 38+23.14

-Y26- POT Sta. 38+50.37

-Y26- PC Sta. 39+34.45

BY25-2501 5+00.00 POT

BY23-2304 25+38.21 POT

BY25 8+27.73 POT

BY13-1310 98+31.28 PINC

BY26-2602 13+31.18 PUE PINC

BY26-2603 5+00.00 POT

S 30°54'03.2"W -Y23-

S 33°54'03.2"W -Y22RPA-

S 22°32'00.5"W -Y22RPD-

N 30°54'03.2"E -Y13-

S 30°54'03.2"W -Y26-

610.91' TAPER

1000' LANE SHIFT

300' TAPER

BEGIN SBG @ STA. 26+45 -Y23- (RT.)

END SBG @ STA. 28+75 -Y23- (RT.)

BEGIN SBG @ STA. 108+85 -Y13- (LT.)

END SBG @ STA. 110+55 -Y13- (RT.)

BEGIN SBG @ STA. 29+00 -Y26- (LT & RT)

END SBG @ STA. 27+00 -Y26- (LT & RT)

END RESURFACING SBL -Y13- STA. 112+00.00

END PAVEMENT -Y26- STA. 38+84.85

END CONSTRUCTION -Y26- STA. 39+75.00

BM #39 SEE SHEET I-D ELEV. 772.90'

BOBBY R. SUMMERS DB 1768 PG 152 DB 2794 PG 859 DB 3609 PG 1679 GR

ALBERT LANDSPERGER, R. & PHYLLIS LANDSPERGER DB 5525 PG 1859

BOBBY WAYNE JONES & LOU ELLA LEVAN DB 3660 PG 1863

ROBERT WAYNE JONES & CAROLYN JEAN JONES DB 3666 PG 1765

BARRY G. HOLYFIELD DB 3728 PG 571 DB 480 PG 1801

BOBBY C. TEAGUE & LINDA C. TEAGUE DB 686/PG 0320

R.L.& JEANETTE D. SPRING DB 4262 PG 327

JACK WILSON BOYLES, III & SUSAN HILLIARD BOYLES DB 6761/PG 010

GREGG A. ALBERT & EDITH H. ALBERT DB 6300 PG 0996

ANTHONY B. HURDLE DB 6396 PG 0539

WILLIAM THEODORE HOLLAND HEIRS DB 6068 PG 0084

N.C.D.O.T. DB 4514 PG 424

R. WAYNE JONES DB 636 PG 527

SARAH KNIGHT JESSE L/T & JUDY CAROL JESSE DB 5678 PG 0014

THOMAS W. PASCHAL REVOCABLE TRUST DB 5056 PG 580

ROY B. JONES & MARY LOU JONES DB 4022 PG 490

JANICE J. WILES DB 2492 PG 121

JOSE GUADALUPE TOLEDO GARCIA & MARGEJA HERNANDEZ PEREZ DB 6902 PG 2724

DETAIL R
FALSE SUMP
(Not to Scale)

DETAIL JJ
LATERAL BASE DITCH
(Not to Scale)

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)

DETAIL J
LATERAL 4' BASE DITCH
(Not to Scale)

DETAIL V
PIPE OUTLET CHANNEL
(Not to Scale)

DETAIL B
LATERAL "V" DITCH
(Not to Scale)

DETAIL C
TOE PROTECTION
(Not to Scale)

DETAIL K
ROCK FILL IN POND
(Not to Scale)

DETAIL TT
LATERAL BASE DITCH
(Not to Scale)

DETAIL T
LATERAL 4' BASE DITCH
(Not to Scale)

Type of Liner= CLASS "B" RIPRAP Est.152 Tons
FROM STA. 27+56 TO STA. 29+00 -Y23- (RT)

Type of Liner= CLASS "B" Rip-Rap
AT STA. 27+40 -Y23- (RT) Est. 9 Tons

Type of Liner= GRASS
FROM STA. 25+50 TO STA. 27+50 -Y23- (RT)

FROM STA. 33+70 TO STA. 34+70 -Y26-

FROM STA. 103+18 TO STA. 105+33 -Y13- (RT)

FROM STA. 105+33 TO STA. 109+87 -Y13- (RT)
FROM STA. 109+87 TO STA. 110+50 -Y13- (RT)

FROM STA. 27+50 TO STA. 28+66 -I26- LT.
FROM STA. 110+50 TO STA. 111+00 -Y13- RT.

FROM STA. 26+50 TO STA. 27+89 -Y23- (LT)

STA. 109+87 -Y13- (RT) Est. 12 Tons CLASS "I" RIPRAP
STA. 109+84 -Y13- (LT) Est. 12 Tons CLASS "I" RIPRAP
STA. 28+02 -Y26- (RT) Est. 12 Tons CLASS "I" RIPRAP
STA. 27+55 -Y23- (RT) Est. 24 Tons CLASS "I" RIPRAP (Lenigh = 20 Ft.)

-Y26-	
PI Sta 35+18.11	PI Sta 37+30.12
Δ = 58°04'38.9" (LT)	Δ = 49°43'06.3" (RT)
D = 24°54'40.4"	D = 24°54'40.4"
L = 233.14'	L = 199.58'
T = 127.69'	T = 106.56'
R = 230.00'	R = 230.00'
SE = .03	SE = .03

-Y23-	
PI Sta 37+29.97	PI Sta 39+81.56
Δ = 94°15'54.2" (RT)	Δ = 49°16'01.7" (LT)
D = 39°30'51.6"	D = 24°54'40.4"
L = 238.56'	L = 197.77'
T = 156.22'	T = 105.47'
R = 145.00'	R = 230.00'
SE = .06	SE = .06

SEE SHEET 68 FOR -Y13- PROFILE
SEE SHEET 82 FOR -Y22RPA- PROFILE
SEE SHEET 83 FOR -Y22RPD- PROFILE
SEE SHEET 85 FOR -Y23- PROFILE
SEE SHEET 87 FOR -Y26- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

REVISIONS
06-24-13 R/W REVISION (DWG) – ADDED PUE AT –Y23– STA.21+17.00 RT. ON PARCEL 165 (WILLIAM HOLLAND & DOROTHY R.HOLLAND), ELIMINATED THE PUE AND ADDED TCE FROM –Y26– STA.11+50.00 TO STA.20+82.00 LT. ON PARCEL 171(FRED D.CURL & SYLVIA C.CURL), PARCEL 170 (JAMES GOURLEY), PARCEL 168 (WILLIAM R.CLYMER), AND PARCEL 166 (DUKE POWER COMPANY).

DETAIL R
FALSE SUMP
(Not to Scale)
Outside Ditch Traffic Flow
2:1
4%
2'
0.5' Min.
1.0' Max.
S=Ditch Slope
℄ Proposed Ditch
@ STA. 22+52 –Y23– (LT)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
3:1
D
3:1
b
F/F Ft.
FIN. Slope
Min. D= 1.0 Ft.
b= 5.0 Ft.
FROM STA. 14+50 TO STA. 16+15 –Y23– (RT)
FROM STA. 14+50 TO STA. 15+90 –Y23– (LT)

NAD 83/99

WILLIAM THEODORE HOLLAND HEIRS
DB 6068 PG 0084
(164)

WILLIAM HOLLAND &
DOROTHY R. HOLLAND
DB 3937 PG 553
DB 2599 PG 45
(165)

(167)
WORSHAM REALTY L.L.C.
DB 4958 PG 1432

KEELEY REALTY
GREENSBORO, LLC
DB 7412 PG 2324
(169)

–Y23– PT Sta. 14+89.22
–Y23– PRC Sta. 13+37.62
–Y26– PC Sta. 11+30.00
–Y26– PT Sta. 15+09.00
–Y26– PRC Sta. 13+42.56
–Y13– POT Sta. 125+81.64 =
–Y26– PT Sta. 10+00.00
–Y23– PT Sta. 10+00.00
BEGIN RESURFACING SBL
–Y13– STA. 123+54.31
–Y13– PT Sta. 120+00.00
BY13-13II 112+09.45 PINC

S 30°54'03.2"W
N 30°54'03.2"E
N 59°05'57.0"W
S 59°05'57.0"E

GRAU-350
GRAU-850
CAT-1
RETAIN
GRADE TO DRAIN
DITCH BLOCK
REMOVE 55' OF 24" RCP PIPE
REMOVE 520' OF 15" RCP AND EXIST. DI
REMOVE 29' OF 18" RCP PIPE
420' FULL LANE
300' TAPER
REMOVE 90' OF 18" RCP PIPE
COLLAR AND EXTEND
REMOVE HW COLLAR AND EXTEND GRADE TO DRAIN
5'X10' RIPRAP PAD CLASS B Est. Qty. 5.0 Tons 6 SY Fabric
CLASS "B" RIP RAP W/FILTER FABRIC EST. 5 TONS EST. 6 SY FABRIC
CLASS "I" RIP RAP W/FILTER FABRIC EST. 20 TONS EST. 20 SY FABRIC
CLASS "B" RIPRAP PAD
LATERAL "V" DITCH SEE DETAIL "B"
END OF INFORMATION
270.00' 210' DUKE POWER EASEMENT
POWER SUB - STATION

MATCHLINE –Y13– STA. 113+00.00 SEE SHEET 34
MATCHLINE –Y13– STA. 127+00.00 SEE SHEET 36

–Y26–		–Y23–	
PI Sta 13+09.62	PI Sta 14+27.99	PI Sta 12+99.61	PI Sta 14+15.08
Δ = 121° 47' 18.2" (RT)	Δ = 31° 47' 18.0" (LT)	Δ = 118° 57' 17.9" (LT)	Δ = 28° 57' 18.1" (RT)
D = 57° 17' 44.8"	D = 19° 05' 54.9"	D = 57° 17' 44.8"	D = 19° 05' 54.9"
L = 212.56'	L = 166.44'	L = 207.62'	L = 151.61'
T = 179.62'	T = 85.42'	T = 169.61'	T = 77.46'
R = 100.00'	R = 300.00'	R = 100.00'	R = 300.00'
SE = .03	SE = .03	SE = .03	SE = .03

SEE SHEET 69 FOR –Y13– PROFILE
SEE SHEET 84 & 85 FOR –Y23– PROFILE
SEE SHEET 86 & 87 FOR –Y26– PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS
03-19-13 R/W REVISION (DMG) - REVISED THE PROPERTY OWNER NAME ON PARCEL 169 (CHARLES A.S.KEELEY) TO (KEELEY REALTY GREENSBORO,LLC).
5/14/99

KEELEY REALTY GREENSBORO, LLC
DB 7412 PG 2324
169

ISBKBUS

12" CONIF

BST

-Y13- POT Sta. 131+60.00

EXISTING R/W

FLAG POLE

GR

BM #17
SEE SHEET 1-D
ELEV. 801.27'

END CONSTRUCTION
-Y13- STA. 131+60.00

2" PLASTIC

5' BST

EOT

REMOVE 15" OR 15" RCP

US 29 SBL BST

+57.64

PARTIAL

-Y13- UTIL

131+60
N 30°54'03.2" E

C Slab Std.

3603

3602

US 29 NBL BST

CONC

RETAIN

3601

END RESURFACING NBL
-Y13- STA. 128+09.00

MATCHLINE -Y13- STA. 127+00.00 SEE SHEET 35

END RESURFACING SBL
-Y13- STA. 131+57.64

EDGE WOOD

EDGE WOOD

BY13-1312 124+69.44 POT

PLANTER

FRED D. CURL &
SYLVIA C. CURL
DB 6461 PG 0623
PB 32 PG 93
171

ISMTL

SEPTIC TANKS

ISMTL

S04°52'20"W
320.85'

S30°56'03"W
201.37'

N83°36'50"W
150.00'

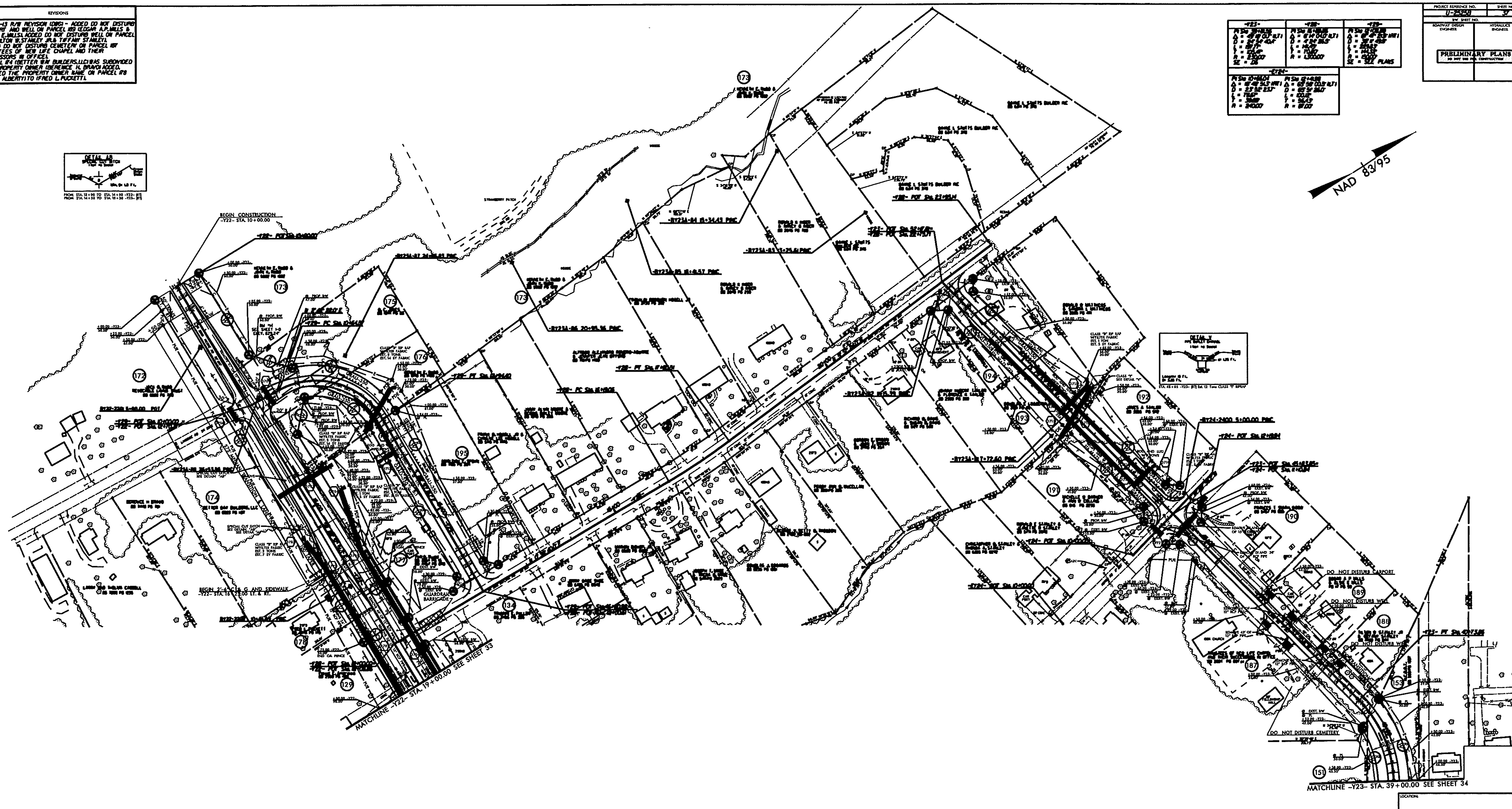
S56°11'40"E
159.58'

SEE SHEET 69 FOR -Y13- PROFILE

REVISIONS
06-03-13 R/W REVISION (DBG) - ADDED DO NOT DISTURB CARPORT AND WELL ON PARCEL 189 (EDGAR A.P. WILLS & ELSIE E. WILLS). ADDED DO NOT DISTURB WELL ON PARCEL 188 (TILTON W. STANLEY JR. & TIFFANY STANLEY). ADDED DO NOT DISTURB CEMETERY ON PARCEL 187 (TRUSTEES OF NEW LIFE CHAPEL AND THEIR SUCCESSORS IN OFFICE). PARCEL 174 (BETTER WAY BUILDERS, LLC) WAS SUBDIVIDED AND PROPERTY OWNER (BERENICE H. BRAVO) ADDED. REVISED THE PROPERTY OWNER NAME ON PARCEL 178 (POLLY ALBERTY) TO (FRED L. PUCKETT).

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 80 FOR -Y22- PROFILE
SEE SHEET 85 FOR -Y23- PROFILE
SEE SHEET 86 FOR -Y24- PROFILE
SEE SHEET 88 FOR -Y28- AND -Y29- PROFILE

LOCATION:	
TIP NO.:	COUNTY:
DESIGNED BY:	
CHECKED BY:	DATE:

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

06-03-13 R/W REVISION (DWG) - SUBDIVIDED PARCEL 139 (H.G.OAKLEY), ADDING PARCEL 139A (H.G.OAKLEY).

NAD 83/95

-Y22- POT Sta. 45+12.75

JERRY L. SHELTON & CAROLINE C. SHELTON
DB 4806 PG 0613
PB 145 PG 47

BM #15
SEE SHEET I-D
ELEV. 832.86'

END CONSTRUCTION
-Y22- STA. 45+00.00

BY22-2205 38+90.21 POT

-Y22- PC Sta. 36+56.20

-Y22- PT Sta. 39+70.29

-Y22- MATCHLINE -Y22- STA. 36+00.00 SEE SHEET 33

END 2'-6" C & G AND SIDEWALK
-Y22- STA. 39+30.00 LT. & RT.

BY22-2204 30+84.51 PINC

-Y22-
PI Sta 38+34.27
Δ = 17°04'11.5" (LT)
D = 6°13'40.1"
L = 274.09'
T = 138.07'
R = 920.00'
SE = .04

H. G. Oakley
DB 471 PG 955

H. G. Oakley
DB 206 PG 139

Tom T. McLaughlin
DB 3010 PG 193

THOMAS W. PASCHAL REVOCABLE TRUST
DB 5056 PG 580

HILLARY L. MCLAURIN
DB 6786 PG 2442

Meredith C. Shelton
DB 5460 PG 1549

Ruth B. Scott
DB 2280 PG 148

Eddy M. Oakley
DB 3563 PG 1869

ELEANOR R. WARE, WIDOW
DB 1642 PG 240

Constance S. Cooke
DB 2239 PG 478

JONATHON JAY BRIGMAN & SANDIE LEIGH BRIGMAN
DB 585 PG 2893

SEE SHEETS 80 & 81 FOR -Y22- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

REVISIONS
5/14/99
06-24-13 R/W REVISION (DWG) - REVISED THE PUE TO TCE FROM -Y21A- STA.12+75.00 TO STA.21+50.00 LT AND -Y21A- STA.23+95.00 TO STA.25+08.88 LT ON PARCEL 98 (CARAVANNA,LLC),PARCEL 96 (THOMAS G.HAYES JR.),PARCEL 97 (TOMMIE SUZANNE TAYLOR),AND PARCEL 101(ROBERT & CATHY BRENNAN). REVISED PUE FROM -Y21A- STA.21+50.00 TO STA.23+95.00 LT.ON PARCEL 97 (TOMMIE SUZANNE TAYLOR) AND PARCEL 101(CATHY BRENNAN).

-Y21A-
PI Sta 17+90.26
Δ = 96°08'12.0" (RT)
D = 14°19'26.2"
L = 671.16'
T = 445.31'
R = 400.00'
SE = .04
SE = SEE PLANS

-Y21A- PT Sta. 25+08.88
END CONSTRUCTION

-Y21A- PT Sta. 20+16.31

-Y21A- PC Sta. 13+44.95

-Y21A- STA. 12+64.35
BEGIN CONSTRUCTION

-Y12A- POT Sta. 10+00.00

MATCHLINE SEE SHEET 20

SEE SHEET 79 FOR -Y21A- PROFILE

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

—L—

BEGIN GRADE -L- STA 11+22.00
ELEV. = 744.21'

-11.27'30%

+13.27'30%

PVI = 12+72.00
ELEV. = 758.00'

SEE SHEET 4 FOR PLAN VIEW

PI = 26+89.63
EL = 798.5216'
VC = 1,804.46'
K = 285 (DS > 70 MPH)

-13.27'30%

+11.27'30%

PVI = 24+61.00
ELEV. = 739.70'

BEGIN LATERAL BASE DITCH LT
STA 25+00.00 -L-
ELEV. = 739.90'

38" RCP
(-L- 25+00.00)

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.0425

DRAINAGE AREA	= 6.95	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 23	CFS
DESIGN HW ELEVATION	= 739.70	FT
100 YEAR DISCHARGE	= 27	CFS
100 YEAR HW ELEVATION	= 739.90	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

DITCH LEGEND

LEFT DITCH — - - — -

SEE SHEET 4 FOR PLAN VIEW

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1200	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 703.50	FT
BASE DISCHARGE	= 1300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 704.90	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 730.90	FT

BM • 16 ELEVATION = 702.24'
N 854550 E 1793849
-L- STA 48+07 203' LEFT
R/R SPIKE SET IN 24" POPLAR

PI = 50+51.00
EL = 726.1385'
VC = 645'
K = 181 (DS = 70 MPH)

℄ STA 48+66.00
2 @ 9' X 9' RCBC (11 BURY)

BEGIN LATERAL 'C' DITCH RT
48+00.00 EL = 720.55'

END LATERAL BASE DITCH LT
52+00.00 EL = 725.68'

BEGIN LATERAL 'C' DITCH RT
48+95.00 EL = 69.00'

BEGIN LATERAL BASE DITCH LT
48+56.00 EL = 699.00'

END LATERAL 'C' DITCH RT
48+56.00 EL = 699.00'

TOP SLAB

W 000 K WSE

IONIC SILL ACROSS INLET
END OF BARREL
(2' HEIGHT X 1' WIDTH)

END LATERAL BASE DITCH LT
48+39.00 EL = 698.02'

CRYSTALLINE ROCK

SEE SHEET 5 FOR PLAN VIEW

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.0606

DRAINAGE AREA	= 70	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 160	CFS
DESIGN HW ELEVATION	= 723.60	FT
100 YEAR DISCHARGE	= 185	CFS
100 YEAR HW ELEVATION	= 724.10	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

66" RCP

UNSUITABLE EXCAVATION

CRYSTALLINE ROCK

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - —

SEE SHEET 6 FOR PLAN VIEW

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BM # 26 ELEVATION = 773.52'
N 857625 E 1794488
-L- STA 79+41.82' RIGHT
R/R SPIKE SET IN 12" PINE

PI = 66+88.00
EL = 734.34'
VC = 300'
K = 185 (DS > 70 MPH)

1+0.50%
(+)1.21256%
(+)4.60%
-1.49%
BEGIN BASE PITCH
END BASE PITCH
CRYSTALLINE ROCK
SEE SHEET 7 FOR PLAN VIEW

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.0719

DRAINAGE AREA	= 14.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 43	CFS
DESIGN HW ELEVATION	= 765.40	FT
100 YEAR DISCHARGE	= 49	CFS
100 YEAR HW ELEVATION	= 765.90	FT
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING DISCHARGE	= 78	CFS
OVERTOPPING ELEVATION	= 767.4	FT

PI = 89+50.00
EL = 782.42'
VC = 1,500'
K = 304 (DS > 70 MPH)

(+)1.21256%
(-)2.81256%
-1.02750%
35" RCP
DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - - —
CRYSTALLINE ROCK
SEE SHEET 7 FOR PLAN VIEW

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

—L—

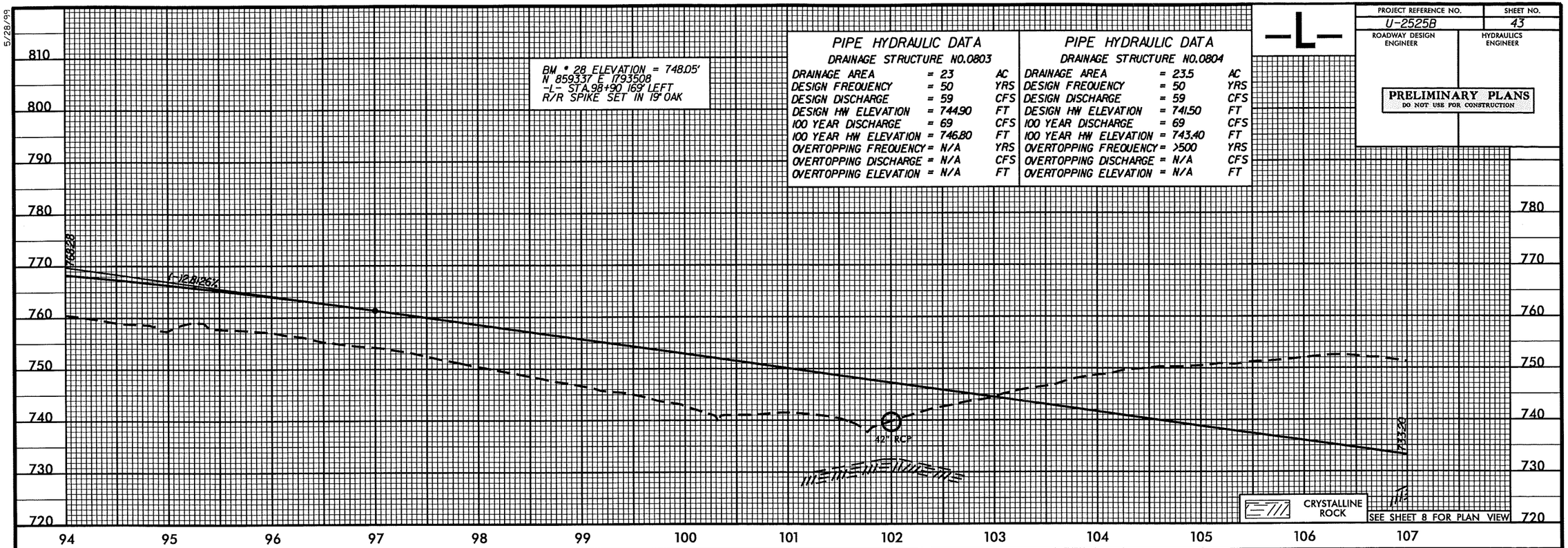
BM • 28 ELEVATION = 748.05'
N 859337 E 1793508
-L- STA.98+90 169' LEFT
R/R SPIKE SET IN 19" OAK

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.0803

DRAINAGE AREA	= 23	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 59	CFS
DESIGN HW ELEVATION	= 744.90	FT
100 YEAR DISCHARGE	= 69	CFS
100 YEAR HW ELEVATION	= 746.80	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.0804

DRAINAGE AREA	= 23.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 59	CFS
DESIGN HW ELEVATION	= 741.50	FT
100 YEAR DISCHARGE	= 69	CFS
100 YEAR HW ELEVATION	= 743.40	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT



—L—

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 700	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 706.50	FT
BASE DISCHARGE	= 800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 707.10	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 713.30	FT

PI = 116+50.00
EL = 706.48'
VC = 850'
K = 182 (DS > 70 MPH)

℄ STA 114+55.00
2 @ 7' X 8' RCBC (1' BURY)

BM • 29 ELEVATION = 703.31'
N 860985 E 1793001
-L- STA.115+63 273' RIGHT
R/R SPIKE SET IN 14" RIVER BIRCH

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — -

CRYSTALLINE ROCK

SEE SHEET 9 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PROPOSED GRADE

735.29

(+)1.85%

(+)1.93%

(-)1.93%

(-)1.64%

BEGIN VERT. BASE DITCH RT. STA. 128+00.00 EL. = 697.91

PI = 128+92.00 EL. = 699.69

END VERT. BASE DITCH RT. STA. 129+84.00 EL. = 697.91

BEGIN VERT. BASE DITCH RT. STA. 129+84.00 EL. = 697.91

735.29

CRYSTALLINE ROCK

SEE SHEET 10 FOR PLAN VIEW

PI = 135+20.00
EL = 741.24'
VC = 620'
K = 247 (DS = 70 MPH)

-L-

735.29

(+)1.85%

(-)0.64%

PROPOSED GRADE

735.29

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 9804	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 694.80	FT
BASE DISCHARGE	= 11460	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 696.60	FT
OVERTOPPING DISCHARGE	= 15398	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 701.20	FT
	=	FT
DATE OF SURVEY	= 03/12/08	
W.S. ELEVATION AT DATE OF SURVEY	= 677.00	FT

BM # 21 ELEVATION = 686.51'
N 862741 E 1792055
-L- STA 135+69 386' RIGHT
R/R SPIKE SET IN 14" GUM

CLASS II RIP RAP (1.5:1 NORMAL)

BEGIN VERT. BASE DITCH RT. STA. 135+69.00 EL. = 686.51

100-YR WSE

50-YR WSE

MW

THEORETICAL 100-YR SCOUR (TYPICAL)

CRYSTALLINE ROCK

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEET 11 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

—L—

℄ STA 144+92 -L-
G.P. ELEV. = 735.41
SKEW VARIES (SEE TABLES)
SPANS VARY (SEE RECOMMENDED STRUCTURE)

735.53

728.34

-L- 1064932

℄ RANKIN MILL ROAD

CONC. ABUTMENT
11.5:1 NORMAL

NATURAL GROUND

DS ONLY

DS ONLY

US ONLY

DS ONLY

US ONLY

DS ONLY

BM # 31 ELEVATION = 697.32'
N 863402 E 1791459
-L- STA 144+39 198 RIGHT
R/R SPIKE SET IN 12" PINE

CRYSTALLINE ROCK

SEE SHEET 12 FOR PLAN VIEW

750 740 730 720 710 700 690 680 670 660

144 145 146 147 148 149 150 151 152 153 154 155 156

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1310

DRAINAGE AREA	= 70	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 160	CFS
DESIGN HW ELEVATION	= 701.20	FT
100 YEAR DISCHARGE	= 180	CFS
100 YEAR HW ELEVATION	= 701.70	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 728.80	FT

—L—

728.34

-L- 1064932 (+)1150044

PI = 156+50.00
EL = 727.41'
VC = 400'
K = 186 (DS > 70 MPH)

66" RCP

DESIGN HW EL=701.20'
EL=695.00'

PI=153+00.00
EL=724.00'

PI=154+00.00
EL=727.00'

DESIGN HW EL=729.10'
EL=722.00'

PI=154+50.00
EL=727.41'

PI=155+00.00
EL=732.81'

PI=155+50.00
EL=736.20'

PI=156+00.00
EL=736.32'

PI=156+50.00
EL=735.46'

PI=157+00.00
EL=733.89'

PI=157+50.00
EL=731.89'

PI=158+00.00
EL=730.40'

744.97'

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1308

DRAINAGE AREA	= 3.34	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 10	CFS
DESIGN HW ELEVATION	= 729.10	FT
100 YEAR DISCHARGE	= 12	CFS
100 YEAR HW ELEVATION	= 729.50	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

CRYSTALLINE ROCK

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - -

SEE SHEET 13 FOR PLAN VIEW

760 750 740 730 720 710 700 690 680 670

156 157 158 159 160 161 162 163 164 165 166 167 168

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1309

DRAINAGE AREA	= 9.16	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 27	CFS
DESIGN HW ELEVATION	= 734.70	FT
100 YEAR DISCHARGE	= 31	CFS
100 YEAR HW ELEVATION	= 735.00	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PI = 179+10.00
EL = 761.32'
VC = 550'
K = 254 (DS > 70 MPH)

(+)1.500%
(-)1.066667%
760.054
744.69
30" RCP
PI = 168+00.000
EL = 736.67
PI = 168+50.000
EL = 734.66
END 30" RCP EL=732.59
BEGIN 18" RCP EL=732.59
PI = 169+00.000
EL = 732.09
PI = 169+50.000
EL = 731.59
BEGIN 18" RCP EL=731.59
END 18" RCP EL=729.59
PI = 179+00.000
EL = 761.32
PI = 180+00.000
EL = 760.99
BEGIN 18" RCP EL=760.99
END 18" RCP EL=758.99

CRYSTALLINE ROCK

SEE SHEET 14 FOR PLAN VIEW

168 169 170 171 172 173 174 175 176 177 178 179 180

-L-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1505

DRAINAGE AREA	= 20	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 50	CFS
DESIGN HW ELEVATION	= 729.10	FT
100 YEAR DISCHARGE	= 60	CFS
100 YEAR HW ELEVATION	= 729.60	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1516

DRAINAGE AREA	= 40	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 90	CFS
DESIGN HW ELEVATION	= 723.00	FT
100 YEAR DISCHARGE	= 110	CFS
100 YEAR HW ELEVATION	= 723.60	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

BM # 20 ELEVATION = 719.85'
N 867201 E 1788935
-L- STA.189+90 105' LEFT
R/R SPIKE SET IN 18" SWEET GUM

760.054
(-)1.066667%
752.04
48" RCP
PI = 189+00.000
EL = 750.39
BEGIN 48" RCP EL=748.39
PI = 189+50.000
EL = 748.39
PI = 190+00.000
EL = 746.39
END 48" RCP EL=744.39
60" RCP

CRYSTALLINE ROCK

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — -

SEE SHEET 15 FOR PLAN VIEW

180 181 182 183 184 185 186 187 188 189 190 191 192 193

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.1614

DRAINAGE AREA	= 70	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 160	CFS
DESIGN HW ELEVATION	= 730.90	FT
100 YEAR DISCHARGE	= 180	CFS
100 YEAR HW ELEVATION	= 731.40	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

752.04

(-)0.667%

744.05

65" RCP

CRYSTALLINE ROCK

SEE SHEET 16 FOR PLAN VIEW

BM # 34 ELEVATION = 744.17'
N 868838 E 1787892
-L- STA.209+56 107' LEFT
R/R SPIKE SET IN 18" PINE

744.01

(-)0.667%

736.02

CRYSTALLINE ROCK

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEET 17 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 727.80	FT
BASE DISCHARGE	= 750	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 728.70	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 736.10	FT

PI = 219+00.00
EL = 734.68'
VC = 400'
K = 228 (DS > 75 MPH)

℄ STA. 218+00.00
2 @ 7' x 8' RCBC (1' BURY)

(-)0.66777%
(+)0.08549%
(-)0.54695%
(+)1.04466%
735.02
734.29
TOP SLAB
50-YR WSE
100-YR WSE
INVERT
CONC. SILL ACROSS INLET END OF BARREL (12" HEIGHT x 1' WIDTH)
END OF BASE DITCH
BEGIN LAT. BASE DITCH
END LAT. BASE DITCH

BM • 19 ELEVATION = 729.67'
N 869887 E 1787486
-L- STA 219+42 385 RIGHT
R/R SPIKE SET IN 11" GUM

UNSUITABLE EXCAVATION
CRYSTALLINE ROCK

SEE SHEET 18 FOR PLAN VIEW

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 750.00	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 737.6	FT
BASE DISCHARGE	= 850	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 738.20	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 759.40	FT

BM • 18 ELEVATION = 732.66'
N 870377 E 1785388
-L- STA 239+75 180' LEFT
R/R SPIKE SET IN 30" BIRCH

-L-

℄ STA. 241+66.00 -L-
2 @ 8' x 8' RCBC (1' BURY)

(+)0.08549%
760.23
759.29
TOP SLAB
100-YR WSE
50-YR WSE
CONC. SILL ACROSS INLET END OF BARREL (1'-2" HEIGHT x 1' WIDTH)
BEGIN LAT. BASE DITCH
END LAT. BASE DITCH
(-)0.54695%
(-)1.66666%
(-)2.00000%
(-)2.33333%
(-)2.66666%
(-)3.00000%
(-)3.33333%
(-)3.66666%
(-)4.00000%
(-)4.33333%
(-)4.66666%
(-)5.00000%
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(-)6.00000%
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UNSUITABLE EXCAVATION
CRYSTALLINE ROCK

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - - —

SEE SHEET 19 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	49

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 243+15.00
EL = 760.88'
VC = 525'
K = 181 (DS = 70 MPH)

(+)1.08492%

(+)1.50876%

(+)1.68900%

(+)1.68900%

(+)0.68818%

(+)1.62625%

(+)5.04005%

(+)10.00000%

(+)12.00000%

(+)45.00000%

(+)100.00000%

PI = 242+00.00 LT
EL = 74.28

PI = 242+50.00 LT
EL = 74.29

PI = 243+00.00 LT
EL = 75.23

BEGIN LAT. BASE DITCH LT
243+50.00 EL = 75.07

END LAT. BASE DITCH LT
245+50.00 EL = 75.23

BEGIN LAT. BASE DITCH RT
245+38.00 EL = 75.38

PI = 246+00.00
EL = 75.49

PI = 246+50.00
EL = 74.56

END LAT. BASE DITCH RT
250+50.00 EL = 77.20

PI = 251+50.00
EL = 77.05

PI = 253+00.00
EL = 77.05

BEGIN LAT. DITCH RT
253+00.00 EL = 77.05

PI = 254+50.00
EL = 78.22

PI = 255+00.00
EL = 78.80

	CRYSTALLINE ROCK
DITCH LEGEND	
RIGHT DITCH	- - - - - - -
LEFT DITCH	— - - — -

SEE SHEET 20 FOR PLAN VIEW

870 860 850 840 830 820 810 800 790 780 770 760 750 740 730 720 710 700

242 243 244 245 246 247 248 249 250 251 252 253 254 255

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI = 267+25.00
EL = 856.98'
VC = 1,880'
K = 277 (DS > 70 MPH)

865 855 845 835 825 815 805 795 785

255 256 257 258 259 260 261 262 263 264 265 266 267 268 269

(+)3.98%

(-)2.79%

84+54

80+93

SEE SHEET 21 FOR PLAN VIEW

END CONSTRUCTION -L- STA.274+00.00
ELEV.= 856.87'

-L-

BM # 40 ELEVATION = 813.31'
N 872188 E 1781624
-L- STA.281+48 166' LEFT
R/R SPIKE SET IN 15" OAK

PI = 283+00.00
EL = 813.02'
VC = 865'
K = 181 (DS = 70 MPH)

84+54

(-)2.79%

(FUTURE GRADE)

850 840 830 820 810 800 790 780 770 760

269 270 271 272 273 274 275 276 277 278 279 280 281 282 283

SEE SHEET 21 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI = 283+00.00
EL = 813.02'
VC = 865'
K = 181 (DS = 70 MPH)

(+)1.39%

(FUTURE GRADE)

(-)3.74%

BM # 41 ELEVATION = 861.47'
N 872966 E 1780681
-L- STA 293+47 25' RIGHT
R/R SPIKE SET IN 28" OAK

SEE SHEET 22 FOR PLAN VIEW

-L-

END GRADE -L- STA 308+00.00 (U-2525B)
BEGIN GRADE -L- STA 308+00.00 (U-2525C)
ELEV. = 862.96'

SEE SHEET 23 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y1-

BM • 23 ELEVATION = 757.45'
N 851150 E 1794032
-Y1- STA.10+70 55' RIGHT
"X" ON SOUTH CONCRETE BRIDGE WING

SEE SHEET 4 FOR PLAN VIEW

-Y2-

SEE SHEET 4 FOR PLAN VIEW

-Y3-

BM • 1 ELEVATION = 757.75'
N 852387 E 1793121
-Y3- STA.10+00
N 9 14' 22.9" W DIST.67.99'
R/R SPIKE SET IN 18" BLACK GUM

BM • 24 ELEVATION = 755.59'
N 852436 E 1793660
-Y3- STA.14+32 101' LEFT
R/R SPIKE SET IN 30" OAK

BM • 2 ELEVATION = 750.94'
N 852460 E 1794111
-Y3- STA.25+83 DIST.82' LT
R/R SPIKE SET IN 24" PIN OAK

BEGIN RESURFACING -Y3- STA.12+59.00

END RESURFACING -Y3- STA.25+80.00

SEE SHEET 4 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y3RPA-

PI = 15+50.00
EL = 778.18'
VC = 660'
K = 94 (DS > 50 MPH)

+3.0855%

-1.9692%

PI = 22+00.00
EL = 752.38'
VC = 270'
K = 50 (DS > 35 MPH)

-1.9692%

-1.4094%

BEGIN GRADE -Y3RPA- STA 10+00.00
ELEV.= 762.21'

END GRADE -Y3RPA- STA 23+36.92
ELEV.= 754.31'

SEE SHEETS 4 & 5 FOR PLAN VIEW

760 750 740 730 720 710

10 11 12 13 14 15 16 17 18 19 20 21 22 23

-Y3RPD-

BEGIN GRADE -Y3RPD- STA 10+00.00
ELEV.= 736.01'

PI = 12+15.00
EL = 742.61'
VC = 225'
K = 307 (DS > 70 MPH)

+3.0699%

+2.3380%

PI = 15+70.00
EL = 750.91'
VC = 300'
K = 211 (DS > 65 MPH)

+2.3380%

+0.9132%

756.54

SEE SHEETS 4 & 5 FOR PLAN VIEW

760 750 740 730 720 710 700 690

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y3RPD-

PI = 26+10.00
EL = 760.47'
VC = 260'
K = 76 (DS > 45 MPH)

PI = 28+00.00
EL = 755.68'
VC = 120'
K = 70 (DS > 40 MPH)

END GRADE -Y3RPD- STA. 30+64.26
ELEV. = 761.56'

760.85'

(+)0.91%

(-)2.52%

(-)2.52%

(-)0.79%

(+)16.36%

(+)4.46%

(+)2.82%

(+)1.38%

(+)1.80%

BEGIN GRADE -Y3RPD- STA. 24+64.26
ELEV. = 765.85'

PI = 28+00.00
EL = 755.68'

PI = 25+00.00
EL = 760.39'

PI = 23+00.00
EL = 762.13'

PI = 22+00.00
EL = 763.33'

END GRADE -Y3RPD- STA. 21+64.26
ELEV. = 763.56'

SEE SHEET 4 FOR PLAN VIEW

760 750 740 730 720 710 700

24 25 26 27 28 29 30

-Y4-

BM • 3 ELEVATION = 776.63'
N 85727.1 E 1792667
-Y4- STA. 10+00
S 87° 23' 46.1" W DIST. 236.40'
R/R SPIKE SET IN 24" PINE

BEGIN GRADE -Y4- STA. 12+00.00
ELEV. = 779.44'

PI = 12+91.00
EL = 779.00'
VC = 180'
K = 179 (DS > 65 MPH)

PI = 22+80.00
EL = 784.18'
VC = 300'
K = 205 (DS > 70 MPH)

786.59'

(-)0.48.35%

(+)0.52.38%

(+)0.52.38%

(+)1.96.86%

42" RCP

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 0712

DRAINAGE AREA	= 28.68	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 74	CFS
DESIGN HW ELEVATION	= 761.40	FT
100 YEAR DISCHARGE	= 86	CFS
100 YEAR HW ELEVATION	= 762.10	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

CRYSTALLINE ROCK

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - -

SEE SHEETS 7 & 24 FOR PLAN VIEW

790 780 770 760 750 740 730 720

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4-

PI = 29+80.00
EL = 798.10'
VC = 850'
K = 124 (DS > 55 MPH)

(+)1.9886%
(-)1.9842%
786.58
786.92
(-)1.2054%
24" RCP
25' @ 0.5% SLOPE
240' @ 0.5% SLOPE

PI = 37+40.00
EL = 760.98'
VC = 670'
K = 114 (DS = 55 MPH)
(-)1.9842%
(-)1.1805%

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.0721

DRAINAGE AREA	= 3.41	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 11	CFS
DESIGN HW ELEVATION	= 769.50	FT
100 YEAR DISCHARGE	= 13	CFS
100 YEAR HW ELEVATION	= 769.80	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

CRYSTALLINE ROCK

SEE SHEETS 7 & 25 FOR PLAN VIEW

720 730 740 750 760 770 780 790

24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

-Y4-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.2601

DRAINAGE AREA	= 1.34	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5	CFS
DESIGN HW ELEVATION	= 767.80	FT
100 YEAR DISCHARGE	= 5	CFS
100 YEAR HW ELEVATION	= 767.90	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PI = 50+50.00
EL = 774.33'
VC = 160'
K = 94 (DS > 50 MPH)
(+)1.0191%
(-)1.6800%
(+)0.3108%
774.33
766.92
18" RCP
REMOVE EXISTING 24" RCP & DITCH
BM • 27 ELEVATION = 783.62'
N 858967 E 1796051
-Y4- STA 46+53 99' RIGHT
R/R SPIKE SET IN 20" PINE

UNSUITABLE EXCAVATION
UNDERCUT EXCAVATION

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - -

SEE SHEETS 25 & 26 FOR PLAN VIEW

720 730 740 750 760 770 780 790

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4-

END GRADE -Y4- STA.56+00.00
ELEV.= 773.42'

BM # 4 ELEVATION = 769.58'
N 860340 E 1796291
-Y4- STA.58+34
N 10 46' 40.8" W DIST.229.74'
R/R SPIKE SET IN 36" PIN OAK

PI = 52+75.00
EL = 772.80'
VC = 170'
K = 101 (DS > 50 MPH)

PI = 54+79.00
EL = 774.84'
VC = 185'
K = 85 (DS > 50 MPH)

(+)1.0000%
(-)1.1736%
(+)2.4000%
(+)0.5200%
(+)0.9600%
(+)2.3000%
(+)1.0000%
(-)0.8000%

BEGIN SPECIAL OUT DITCH RT
STA.52+00.00
EL.= 771.40'

PI = 52+00.00 RT
EL = 771.60'

PI = 53+00.00 LT
EL = 771.80'

PI = 53+00.00 RT
EL = 771.80'

PI = 54+00.00 LT
EL = 772.00'

PI = 54+00.00 RT
EL = 772.00'

END SPECIAL OUT DITCH RT
STA.56+00.00
EL.= 773.42'

END SPECIAL OUT DITCH LT
STA.56+00.00
EL.= 773.42'

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.2602

DRAINAGE AREA	= 1.10	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 3	CFS
DESIGN HW ELEVATION	= 771.40	FT
100 YEAR DISCHARGE	= 4	CFS
100 YEAR HW ELEVATION	= 771.50	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

SEE SHEET 26 FOR PLAN VIEW

-Y4RPA-

BEGIN GRADE -Y4RPA- STA.10+00.00
ELEV.= 760.69'

PI = 11+35.00
EL = 764.44'
VC = 200'
K = 162 (DS > 60 MPH)

PI = 13+35.00
EL = 767.52'
VC = 200'
K = 192 (DS > 60 MPH)

PI = 21+72.00
EL = 771.70'
VC = 200'
K = 133 (DS > 55 MPH)

(+)2.7778%
(+)1.5400%
(+)1.5400%
(+)0.4994%
(-)0.2752%
+0.4994%
(+)2.0003%

BEGIN 4" DITCH RT
STA.13+00.00
EL.= 767.52'

END 4" DITCH RT
STA.15+66.66
EL.= 771.64'

DITCH LEGEND	
RIGHT DITCH	- - - - - - -
LEFT DITCH	— - - — -

SEE SHEETS 7 & 8 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

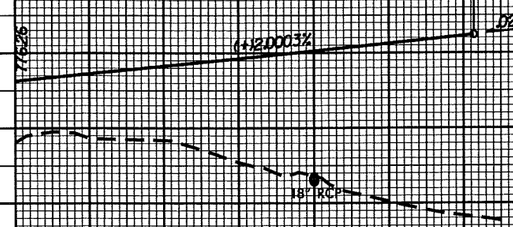
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4RPA-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.0731

DRAINAGE AREA	= 3.12	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 8	CFS
DESIGN HW ELEVATION	= 767.60	FT
100 YEAR DISCHARGE	= 9	CFS
100 YEAR HW ELEVATION	= 767.90	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

END GRADE -Y4RPA- STA 27+06.91
ELEV. = 782.40'



SEE SHEET 7 FOR PLAN VIEW

-Y4RPB-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.0711

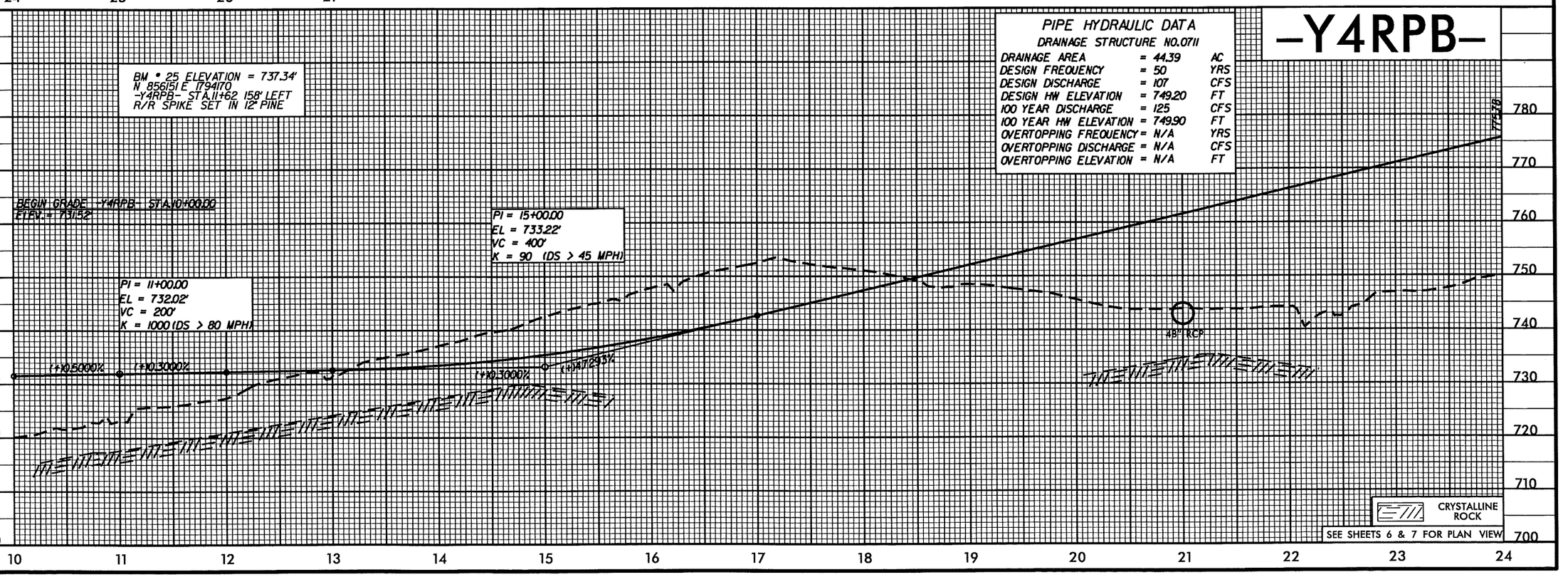
DRAINAGE AREA	= 44.39	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 107	CFS
DESIGN HW ELEVATION	= 749.20	FT
100 YEAR DISCHARGE	= 125	CFS
100 YEAR HW ELEVATION	= 749.90	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

BM • 25 ELEVATION = 737.34'
N 856151 E 1794170
-Y4RPB- STA 11+62 158' LEFT
R/R SPIKE SET IN 12" PINE

BEGIN GRADE -Y4RPB- STA 10+00.00
ELEV. = 731.52'

PI = 11+00.00
EL = 732.02'
VC = 200'
K = 1000 (DS > 80 MPH)

PI = 15+00.00
EL = 733.22'
VC = 400'
K = 90 (DS > 45 MPH)



CRYSTALLINE ROCK

SEE SHEETS 6 & 7 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

–Y4RPB–

PI = 25+49.00
EL = 782.83'
VC = 170'
K = 38 (DS > 35 MPH)

END GRADE -Y4RPB- STA 26+34.58
ELEV. = 783.09

782.78

(+)1.7293%

(+)0.3038%

42

790 780 770 760 750 740 730 720 710 700

24 25 26

CRYSTALLINE ROCK

SEE SHEET 7 FOR PLAN VIEW

–Y4RPC–

BEGIN GRADE -Y4RPC- STA 10+00.00
ELEV. = 736.02

PI = 11+00.00
EL = 737.38'
VC = 200'
K = 181 (DS = 70 MPH)

PI = 13+15.00
EL = 742.68'
VC = 230'
K = 117 (DS > 55 MPH)

PI = 15+80.00
EL = 744.00'
VC = 300'
K = 67 (DS > 40 MPH)

(+)1.3600%

(+)2.465%

(+)2.465%

(+)0.4981%

(+)0.4981%

(+)0.4981%

(+)0.4981%

784.04

790 780 770 760 750 740 730 720

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

UNSUITABLE EXCAVATION

UNDERCUT EXCAVATION

CRYSTALLINE ROCK

SEE SHEET 7 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4RPC-

END GRADE -Y4RPC- STA 2549269
ELEV. = 791.44'

PI = 24+92.00
EL = 789.43'
VC = 200'
K = 67 (DS > 45 MPH)

(+)1.8962%

784.84'

(+)1.9914%

18" RCP

PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO.0722		
DRAINAGE AREA	= 1.28	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4	CFS
DESIGN HW ELEVATION	= 774.30	FT
100 YEAR DISCHARGE	= 5	CFS
100 YEAR HW ELEVATION	= 774.50	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

SEE SHEET 7 FOR PLAN VIEW

-Y4RPD-

BEGIN GRADE -Y4RPD- STA 10+00.00
ELEV. = 765.46'

PI = 12+50.00
EL = 771.21'
VC = 310'
K = 169 (DS > 60 MPH)

PI = 15+80.00
EL = 772.74'
VC = 260'
K = 171 (DS > 65 MPH)

(+)2.5000%

(+)0.4636%

(+)0.4636%

(+)1.9655%

(+)1.9282%

BEGIN Y DITCH LT
STA 1270.00 LT = 18.00'

END Y DITCH LT
STA 1460.82 LT = 18.37'

789.92

CRYSTALLINE ROCK

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEETS 7 & 8 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y4RPD-

PI = 10+89.02
EL = 791.39'
VC = 200'
K = 18 (DS > 35 MPH)

(+)11.9855%

.02

END GRADE -Y4RPD- STA.25+19.30
ELEV.= 791.39'

SEE SHEET 7 FOR PLAN VIEW

-Y4A-

END GRADE -Y4A- STA.15+40.41
EL = 775.01'

PI = 14+88.00
EL = 773.43'
VC = 100'
K = 21 (DS > 30 MPH)

BEGIN GRADE -Y4A- STA.10+00.00
ELEV.= 756.47'

PI = 11+00.00
EL = 757.13'
VC = 200'
K = 56 (DS > 35 MPH)

(+)4.20%

(+)10.496%

.005

(+)4.20%

(+)0.6600%

(-)2.07+2%

BEGIN VERTICAL CURVE
STA.12+50.22
EL = 765.88'

END VERTICAL CURVE
STA.15+50.22
EL = 765.28'

SEE SHEET 25 FOR PLAN VIEW

-DRV1-

BEGIN GRADE -DRV1- STA.10+00.00
ELEV.= 770.25'

PI = 10+50.00
EL = 766.25'
VC = 100'
K = 19 (DS > 20 MPH)

PI = 11+63.00
EL = 763.05'
VC = 50'
K = 11 (DS > 15 MPH)

(-)6.00%

(-)12.83%

(+)11.8385%

-DRV1- STA.11+38.00 BEGIN PAVEMENT

END GRADE -DRV1- STA.11+93.46
ELEV.= 763.61'

SEE SHEET 25 FOR PLAN VIEW

-DRV3-

PI = 10+60.00
EL = 770.44'
VC = 85'
K = 42 (DS > 35 MPH)

END GRADE -DRV3- STA.13+17.40
EL = 763.54'

PI = 12+45.00
EL = 757.14'
VC = 260'
K = 22 (DS > 20 MPH)

D2(-)5.0852%

(-)7.1692%

(-)7.1692%

(+)4.8538%

BEGIN GRADE -DRV3- STA.10+14.10
EL = 772.82'

SEE SHEET 25 FOR PLAN VIEW

-Y5-

BEGIN GRADE -Y5- STA.10+12.71
ELEV.= 780.09'

PI = 10+93.00
EL = 778.73'
VC = 110'
K = 30 (DS > 25 MPH)

(-)1.4939%

(+)1.3649%

END GRADE -Y5- STA.11+50.00
ELEV.= 779.85

DITCH LEGEND
LEFT DITCH — - - — -

SEE SHEETS 7 & 24 FOR PLAN VIEW

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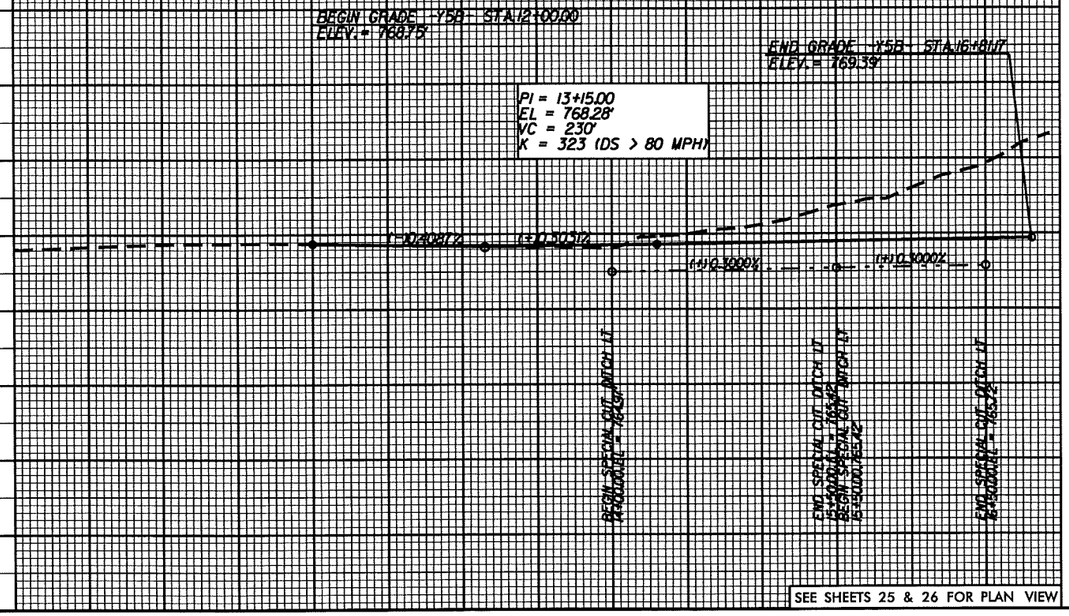
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	61

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

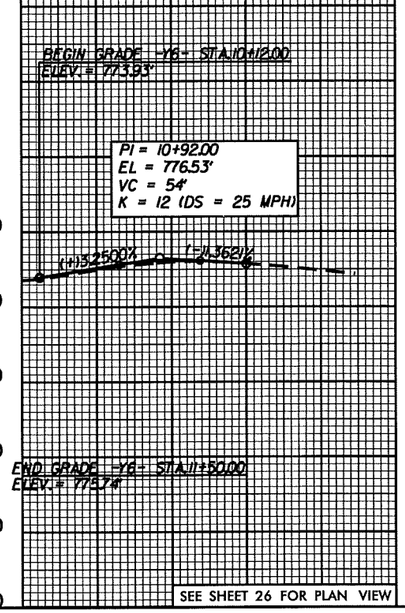
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5B-



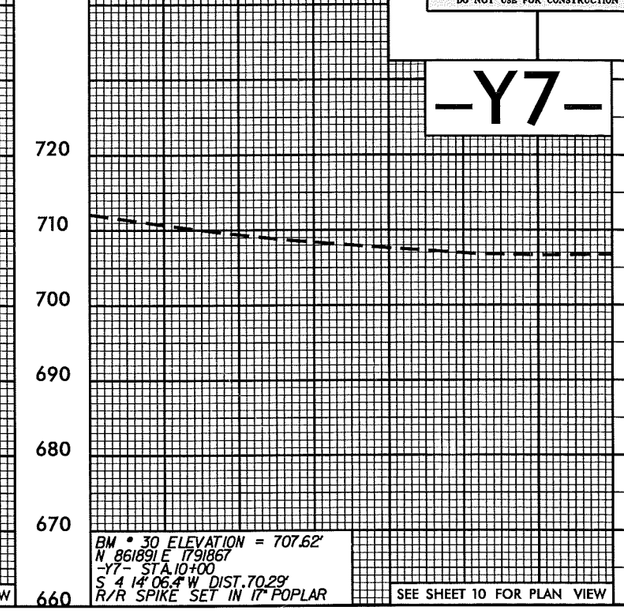
SEE SHEETS 25 & 26 FOR PLAN VIEW

-Y6-



SEE SHEET 26 FOR PLAN VIEW

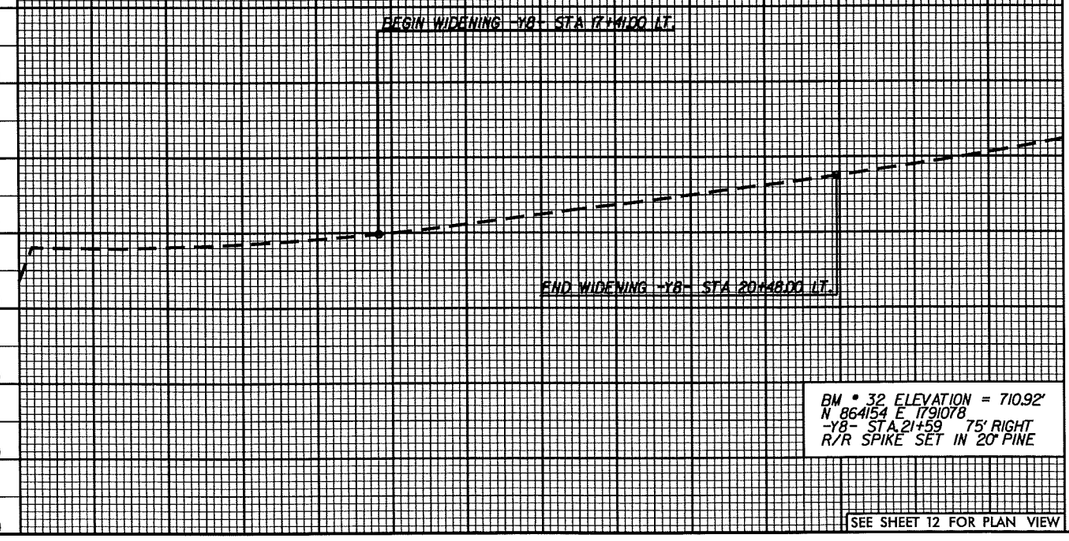
-Y7-



BM • 30 ELEVATION = 707.62'
N 861891 E 1791867
-Y7- STA 10+00
S 4 14' 06.4" W DIST. 70.29'
R/R SPIKE SET IN 17" POPLAR

SEE SHEET 10 FOR PLAN VIEW

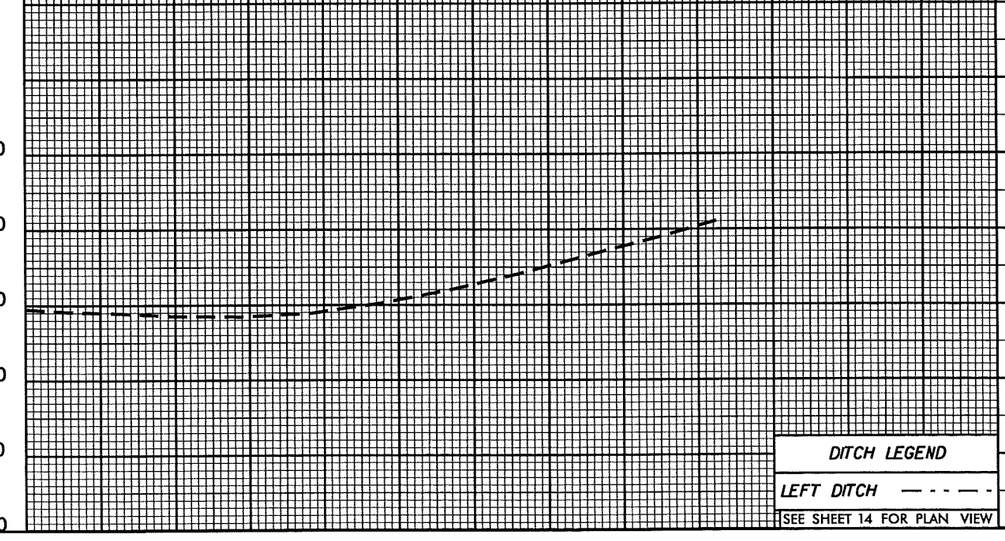
-Y8-



BM • 32 ELEVATION = 710.92'
N 864154 E 1791078
-Y8- STA 21+59 75' RIGHT
R/R SPIKE SET IN 20" PINE

SEE SHEET 12 FOR PLAN VIEW

-Y9-



DITCH LEGEND

LEFT DITCH — - - — -

SEE SHEET 14 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	62
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DRV2-

PI = 11+60.00
EL = 751.63'
VC = 200'
K = 14 (DS > 25 MPH)

PI = 14+75.00
EL = 726.50'
VC = 200'
K = 20 (DS > 20 MPH)

BM # 33 ELEVATION = 720.83'
N 865755 E 1789598
-DRV2- STA 15+00 DIST.79' LEFT
R/R SPIKE SET IN 18" OAK

+6.68% (PVI) -12.09% (PVI) -7.39% (PVI) +2.00% 42" RCP

-DRV2- STA 15+00.00
BEGIN PAVEMENT

BEGIN GRADE -DRV2- STA 10+00.00
ELEV. = 741.50'

BEGIN GRADE -DRV2- STA 15+96.38
ELEV. = 728.33'

SEE SHEET 14 FOR PLAN VIEW

-Y10A-

BEGIN GRADE -Y10A- STA 10+33.82
ELEV. = 739.18'

PI = 12+80.00
EL = 749.56'
VC = 170'
K = 15 (DS > 25 MPH)

+3.91% (PVI) -1.42% (PVI)

END GRADE -Y10A- STA 14+25.00
ELEV. = 738.79'

SEE SHEET 17 FOR PLAN VIEW

-Y10-

BM # 5 ELEVATION = 786.80'
N 869077 E 1788513
-Y10- STA 33+09
N 34 11' 47.3" W DIST. 33.20'
R/R SPIKE SET IN 14" DOUBLE MULBERRY

SEE SHEETS 17 AND 18 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y11-

BM # 6 ELEVATION = 752.54'
N 869413 E 1786176
-Y11- STA 15+00 158' LEFT
R/R SPIKE SET IN 15" WALNUT

BM # 35 ELEVATION = 768.35'
N 869924 E 1786298
-Y11- STA 19+76 140' LEFT
R/R SPIKE SET IN 14" PINE

BEGIN GRADE -Y11- STA 16+22.55
ELEV.= 760.78
INCLUDES 3" RESURFACING

BEGIN RESURFACING
-Y11- STA 15+16.00

PI = 18+90.00
EL = 765.54'
VC = 100'
K = 106 (DS > 50 MPH)

(+)1.0052%

(-)1.0518%

(+)1.0052%

(+)1.0052%

UNDERCUT EXCAVATION

SEE SHEETS 18 & 27 FOR PLAN VIEW

-Y11-

BM # 7 ELEVATION = 804.20'
N 871932 E 1786771
-Y11- STA 40+68
N 53 01' 04.7" DIST. 55.86'
R/R SPIKE SET IN 23" PINE

END GRADE -Y11- STA 35+00.00
ELEV.= 777.71

PI = 28+60.00
EL = 775.29'
VC = 160'
K = 99 (DS > 50 MPH)

PI = 33+42.00
EL = 772.36'
VC = 315'
K = 79 (DS = 45 MPH)

(+)1.0052%

(-)1.0807%

(-)10.000%

(+)0.0000%

(-)10.500%

(-)1.0807%

(+)3.586%

(+)3.264%

BEGIN SPECIAL DITCH -LT-
STA 29+09.89
EL = 768.89

PI -3+19.00 -LT-
EL = 768.49

PI -3+19.00 -LT-
EL = 768.66

PI -32+19.00 -LT-
EL = 767.82

END SPECIAL DITCH -LT-
STA 33+00.00
EL = 768.05

UNDERCUT EXCAVATION

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEET 28 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SRV-

-ISRV1-

BEGIN GRADE -ISRV1- STA.10+42.92
ELEV.= 825.95'

PI = 11+85.00
EL = 822.51'
VC = 240'
K = 68 (DS > 40 MPH)

-1.42% -1.68%

855.45

SEE SHEET 30 FOR PLAN VIEW

SEE SHEETS 30 & 31 FOR PLAN VIEW

-ISRV1-

PI = 23+25.00
EL = 839.48'
VC = 350'
K = 46 (DS > 40 MPH)

END GRADE -ISRV1- STA.25+50.00
ELEV.= 825.64'

-1.68% -1.42%

855.45

SEE SHEET 31 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	65

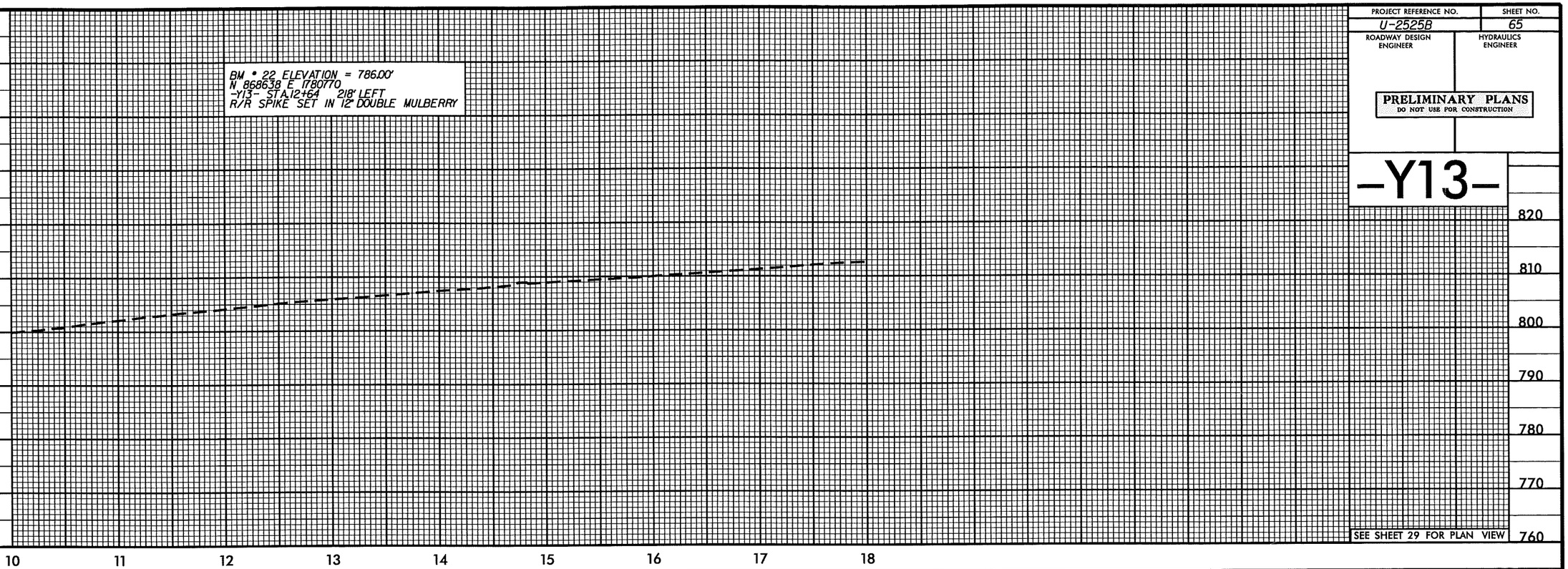
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

–Y13–

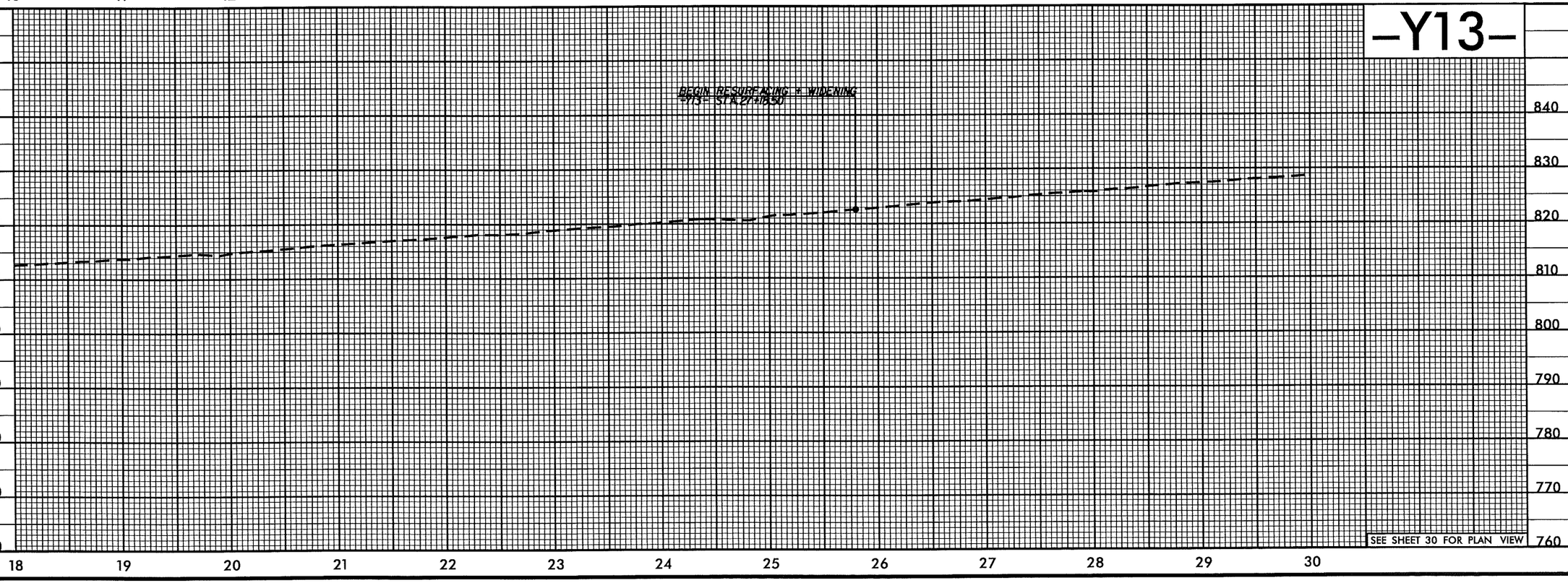
BM • 22 ELEVATION = 786.00'
N 868638 E 1780770
-Y13- STA 12+64 218' LEFT
R/R SPIKE SET IN 12" DOUBLE MULBERRY



SEE SHEET 29 FOR PLAN VIEW

–Y13–

BEGIN RESURFACING & WIDENING
-Y13- STA 27+850



SEE SHEET 30 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	66
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y13-

BM • 37 ELEVATION = 838.98'
N 870396 E 1782265
-Y13- STA 35+40 162' RIGHT
R/R SPIKE SET IN 32" OAK

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.1301

DRAINAGE AREA	= 5.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 15	CFS
DESIGN HW ELEVATION	= 807.90	FT
100 YEAR DISCHARGE	= 17	CFS
100 YEAR HW ELEVATION	= 808.20	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

BEGIN DITCH LT
PI =43+50.000
EL= 807.93

PI =43+50.000
EL= 812.86

24" CMP
RC

PI =41+50.000
EL= 812.86

END DITCH LT
PI =41+68.200
EL= 806.27

SEE SHEET 31 FOR PLAN VIEW

-Y13-

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEET 21 FOR PLAN VIEW

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PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.3207

DRAINAGE AREA	= 92.25	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 205	CFS
DESIGN HW ELEVATION	= 777.00	FT
100 YEAR DISCHARGE	= 239	CFS
100 YEAR HW ELEVATION	= 778.00	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.3212

DRAINAGE AREA	= 99.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 224	CFS
DESIGN HW ELEVATION	= 776.50	FT
100 YEAR DISCHARGE	= 260	CFS
100 YEAR HW ELEVATION	= 778.30	FT
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING DISCHARGE	= 313	CFS
OVERTOPPING ELEVATION	= 781.60	FT

BM • 13 ELEVATION = 783.79'
N 873689 E 1783288
-Y13- STA 68+91 65' LEFT
R/R SPIKE SET IN 15" SWEET GUM

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	67
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y13-

60" RCP

54" RCP

SEE SHEET 32 FOR PLAN VIEW

-Y13-

SEE SHEET 33 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	68

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

–Y13–

840 830 820 810 800 790 780

85 86 87 88 89 90 91 92 93 94 95 96 97 98 99

SEE SHEET 33 FOR PLAN VIEW

–Y13–

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.3435

DRAINAGE AREA	= 36.16	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 109	CFS
DESIGN HW ELEVATION	= 774.20	FT
100 YEAR DISCHARGE	= 127	CFS
100 YEAR HW ELEVATION	= 775.10	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.3422

DRAINAGE AREA	= 39.81	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 98	CFS
DESIGN HW ELEVATION	= 764.10	FT
100 YEAR DISCHARGE	= 114	CFS
100 YEAR HW ELEVATION	= 764.8	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

BM • 39 ELEVATION = 772.90'
N 877270 E 1785834
–Y13– STA.112+72 306' LEFT
R/R SPIKE SET IN 15" OAK

END RESURFACING + WIDENING
–Y13– STA.112+00.00 SBL

(-)145.00'Z
(-)139.24'Z
(-)112.40'Z
(-)134.40'Z
(-)150.60'Z
(-)139.24'Z
(-)112.40'Z

BEGIN LAT BASE DITCH RT
STA.99+33.00 Lt
EL = 772.36

PI=104+66.00 RT
EL = 772.36

END LAT BASE DITCH RT
STA.105+33.00 Lt
EL = 764.10

PI=105+50.00 RT
EL = 771.21

42" RCP

PI=108+00.00
EL = 763.61

PI=109+50.00
EL = 761.99

PI=109+90.00
EL = 763.36

PI=109+50.00 RT
EL = 762.25

END FLOW LAT
BASE DITCH RT
STA.109+90.00
44.41' Lt OF
–Y13– STA.

PI=110+00.00 RT
EL = 762.36

PI=110+50.00
EL = 766.51

END LAT BASE DITCH RT
STA.111+00.00
EL = 769.15

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEET 34 FOR PLAN VIEW

99 100 101 102 103 104 105 106 107 108 109 110 111 112 113

830 820 810 800 790 780 770 760 750 740

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 3515

DRAINAGE AREA	= 35	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 88	CFS
DESIGN HW ELEVATION	= 772.60	FT
100 YEAR DISCHARGE	= 102	CFS
100 YEAR HW ELEVATION	= 773.3	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

BEGIN RESURFACING & WIDENING
-Y13- STA 123+54.31 SBL

-Y13-

48" RCP

SEE SHEET 35 FOR PLAN VIEW

BM # 17 ELEVATION = 801.27'
N 878779 E 1786925
-Y13- STA 131+27 144' LEFT
R/R SPIKE SET IN 15" PINE

-Y13-

END RESURFACING & WIDENING
-Y13- STA 128+09.00 NBL

END RESURFACING & WIDENING
-Y13- STA 131+57.24 SBL

SEE SHEET 36 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	70

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE -I13CD- STA 10+00.00
ELEV.= 834.31

PI = 11+25.00
EL = 835.56'
VC = 250'
K = 377 (DS > 75 MPH)

PI = 18+76.00
EL = 838.09'
VC = 1,211'
K = 396 (DS > 80 MPH)

(+)1.0000%

(+)0.3369%

(+)0.3369%

(-)2.1350%

823.67

794.55

-I13CD-

SEE SHEETS 21 AND 31 FOR PLAN VIEW

840 830 820 810 800 790

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

-I13CD-

823.67

794.55

SEE SHEETS 21 AND 32 FOR PLAN VIEW

840 830 820 810 800 790 780 770 760

24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	71
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-I13CD-

END GRADE -I13CD- STA 41+90.94
ELEV.= 781.61'

PI = 39+70.00
EL = 780.82'
VC = 435'
K = 143 (DS > 60 MPH)

-1.22735%

-1.19136%

SEE SHEET 32 FOR PLAN VIEW

-Y13LPA-

BEGIN GRADE -Y13LPA- STA 10+00.00
ELEV.= 820.86'

PI = 10+55.00
EL = 822.36'
VC = 40'
K = 94 (DS > 50 MPH)

PI = 11+25.00
EL = 823.97'
VC = 100'
K = 60 (DS > 40 MPH)

PI = 13+50.00
EL = 825.37'
VC = 150'
K = 466 (DS > 80 MPH)

PI = 18+80.00
EL = 826.96'
VC = 300'
K = 96 (DS = 50 MPH)

PI = 22+20.00
EL = 838.57'
VC = 100'
K = 51 (DS > 40 MPH)

PI = 23+05.00
EL = 839.80'
VC = 70'
K = 107 (DS > 50 MPH)

+2.72734%
+1.24090%
+0.65222%
+0.65222%
+0.13000%
+0.13000%
+1.34147%
+1.44712%
+1.07962%

END GRADE -Y13LPA- STA 23+54.27
ELEV.= 840.18'

SEE SHEET 21 FOR PLAN VIEW

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-Y13LPC-

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	72

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 21+87.00
EL = 835.85'
VC = 135'
K = 40 (DS > 35 MPH)

PI = 22+92.00
EL = 837.99'
VC = 75'
K = 81 (DS > 45 MPH)

BEGIN GRADE -Y13LPC- STA.10+00.00
ELEV. = 807.89'

PI = 10+95.00
EL = 805.28'
VC = 100'
K = 85 (DS > 50 MPH)

PI = 14+00.00
EL = 793.32'
VC = 345'
K = 371 (DS = 30 MPH)

(-)1.87417%
(-)3.92217%
(-)5.92133%
(+)5.40417%
(+)12.03817%
(+)11.00617%

END GRADE -Y13LPC- STA.23+54.27
ELEV. = 858.68'

BM # 36 ELEVATION = 821.46'
N 871980 E 1783179
-Y13LPC- STA.10+55 85' RIGHT
R/R SPIKE SET IN 20" OAK

SEE SHEET 21 FOR PLAN VIEW

-Y13LPD-

PI = 10+40.00
EL = 839.72'
VC = 60'
K = 119 (DS > 55 MPH)

PI = 11+80.00
EL = 838.21'
VC = 195'
K = 43 (DS > 35 MPH)

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.2155

DRAINAGE AREA	= 3.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 13	CFS
DESIGN HW ELEVATION	= 792.50	FT
100 YEAR DISCHARGE	= 14	CFS
100 YEAR HW ELEVATION	= 792.60	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

(-)0.57150%
(-)1.17786%
(-)1.67786%
(-)5.58433%
(-)1.43333%
(+)2.98417%
(+)4.15417%
(+)7.31417%

BEGIN GRADE -Y13LPD- STA.10+00.00
ELEV. = 839.95'

PI = 19+93.00
EL = 792.81'
VC = 475'
K = 49 (DS = 35 MPH)

PI = 23+05.00
EL = 805.70'
VC = 70'
K = 50 (DS > 40 MPH)

END GRADE -Y13LPD- STA.24+01.92
ELEV. = 808.35'

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — · — · —

SEE SHEET 21 FOR PLAN VIEW

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-Y13RPB-

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 3102

DRAINAGE AREA	= 7.87	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 22	CFS
DESIGN HW ELEVATION	= 800.10	FT
100 YEAR DISCHARGE	= 25	CFS
100 YEAR HW ELEVATION	= 800.30	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PI = 10+90.00
EL = 836.89'
VC = 180'
K = 222 (DS > 65 MPH)

PI = 13+50.00
EL = 835.53'
VC = 275'
K = 157 (DS > 60 MPH)

PI = 19+00.00
EL = 823.03'
VC = 460'
K = 136 (DS = 60 MPH)

BEGIN GRADE -Y13RPB- STA 10+00.00
ELEV. = 836.63'

1+10.2889% 1-10.5231% 1-10.5231% 1-12.2727% 1-12.2727% 1+11.1103%

36" RCP

837.36

UNSUITABLE EXCAVATION

SEE SHEETS 21 & 31 FOR PLAN VIEW

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

840 830 820 810 800 790 780 770

-Y13RPB-

PI = 26+25.00
EL = 831.08'
VC = 850'
K = 167 (DS > 60 MPH)

837.36

1+11.1103% 1-13.9870%

24" RCP

END GRADE -Y13RPB- STA 31+47.03
ELEV. = 809.34'

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 2111

DRAINAGE AREA	= 3.66	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 15	CFS
DESIGN HW ELEVATION	= 821.60	FT
100 YEAR DISCHARGE	= 17	CFS
100 YEAR HW ELEVATION	= 821.90	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

UNSUITABLE EXCAVATION

SEE SHEET 21 FOR PLAN VIEW

24 25 26 27 28 29 30 31

840 830 820 810 800 790 780 770

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-Y13RPC-

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	74
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 20+20.00
EL = 822.78'
VC = 350'
K = 127 (DS > 55 MPH)

BEGIN GRADE -Y13RPC- STA 10+00.00
ELEV. = 768.80'

PI = 11+30.00
EL = 794.02'
VC = 200'
K = 255 (DS > 70 MPH)

(+)4.0154%
(+)3.2315%
(+)2.9251%
(+)2.3536%
(+)1.9761%
(+)4.4005%
(+)1.9837%
(-)1.6780%
(-)1.6000%
(+)1.0536%
(+)0.4830%

BEGIN TC DITCH RT
10+00.00 EL = 771.20'

PI = 12+50.00
EL = 778.50'

PI = 12+52.00
EL = 778.45'

PI = 13+44.80
EL = 785.55'

PI = 14+05.76
EL = 786.98'

PI = 14+56.30
EL = 787.80'

PI = 15+30.00
EL = 794.11'

PI = 15+50.00
EL = 794.91'

END TC DITCH RT
16+00.02 = 800.01'

SEE SHEETS 20 & 21 FOR PLAN VIEW

-Y13RPC-

PI = 25+50.00
EL = 825.34'
VC = 582'
K = 85 (DS > 50 MPH)

(+)0.4830%
(-)0.4288%
(-)1.6288%
(-)1.3702%

PI = 29+70.00
EL = 798.51'
VC = 258'
K = 96 (DS = 50 MPH)

END GRADE -Y13RPC- STA 30+99.11
ELEV. = 795.73'

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - -

SEE SHEETS 21 & 32 FOR PLAN VIEW

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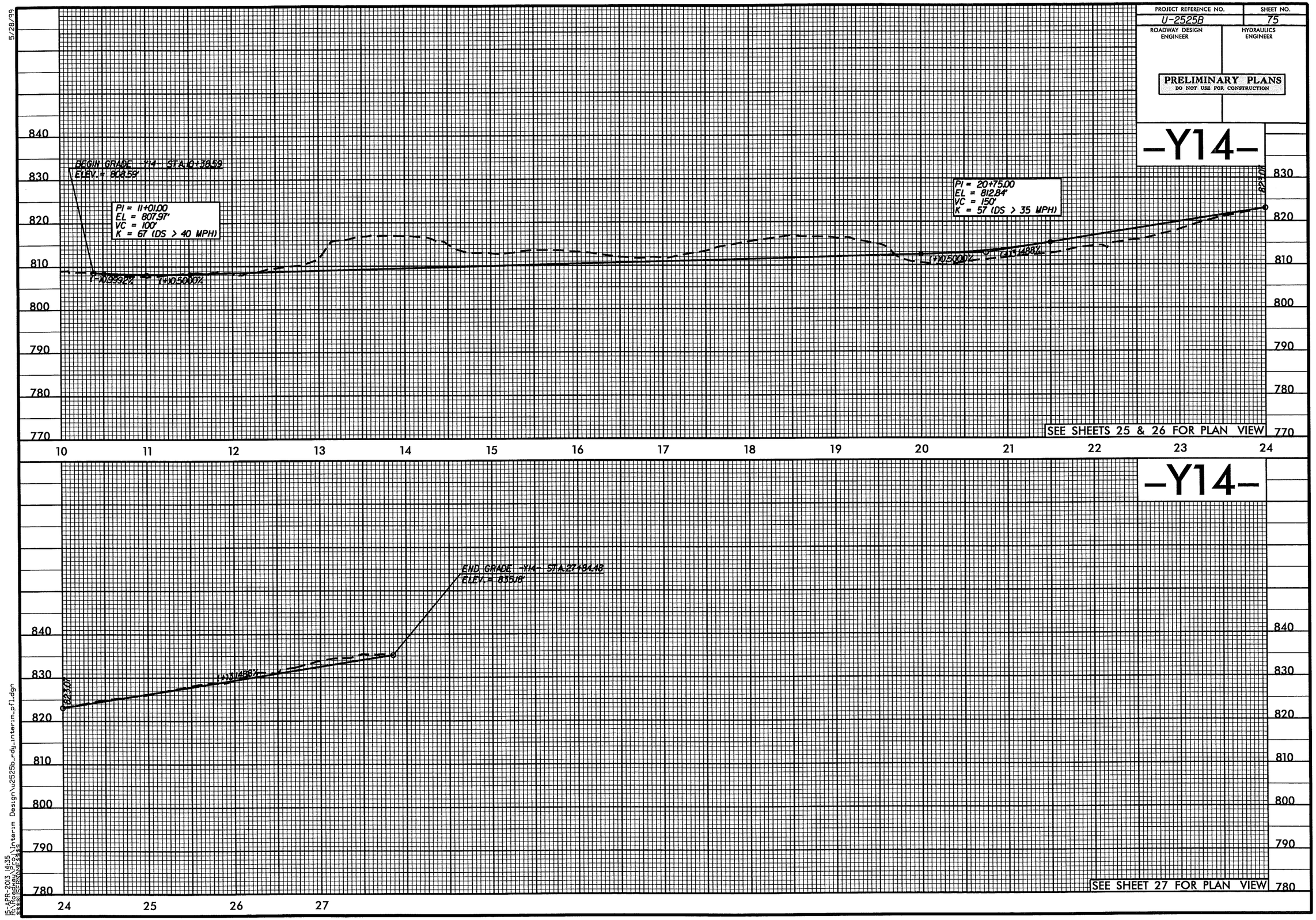
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y14-



-Y14-

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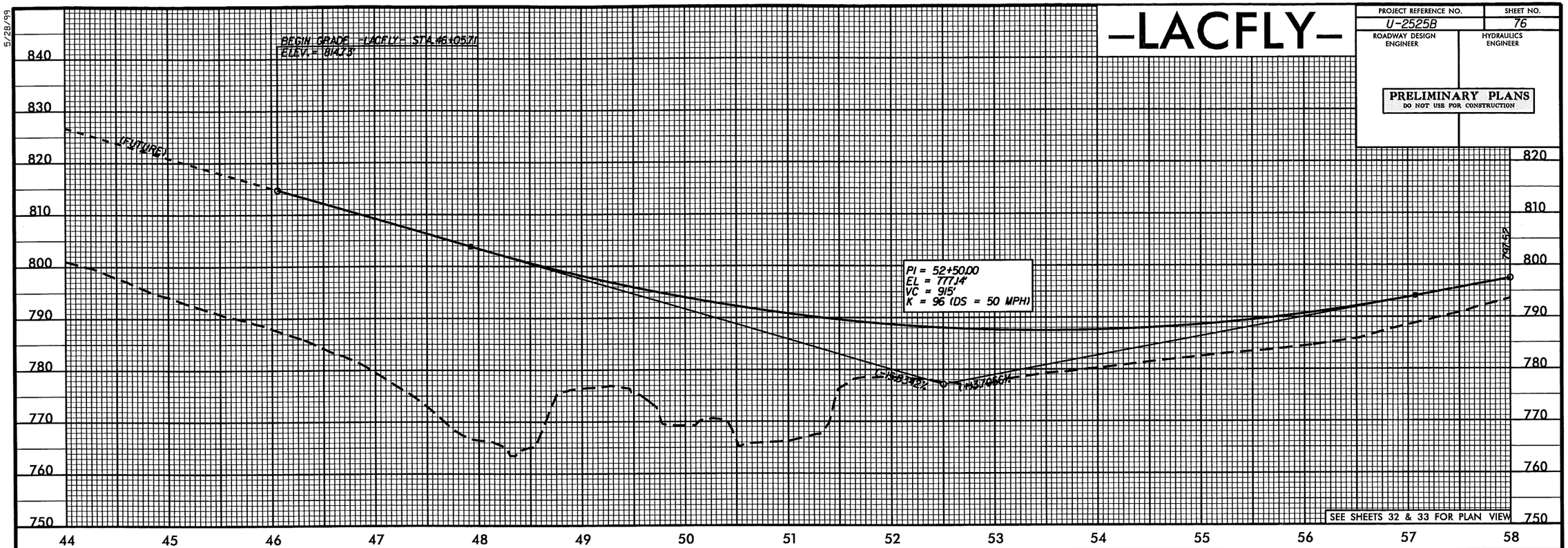
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	76
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

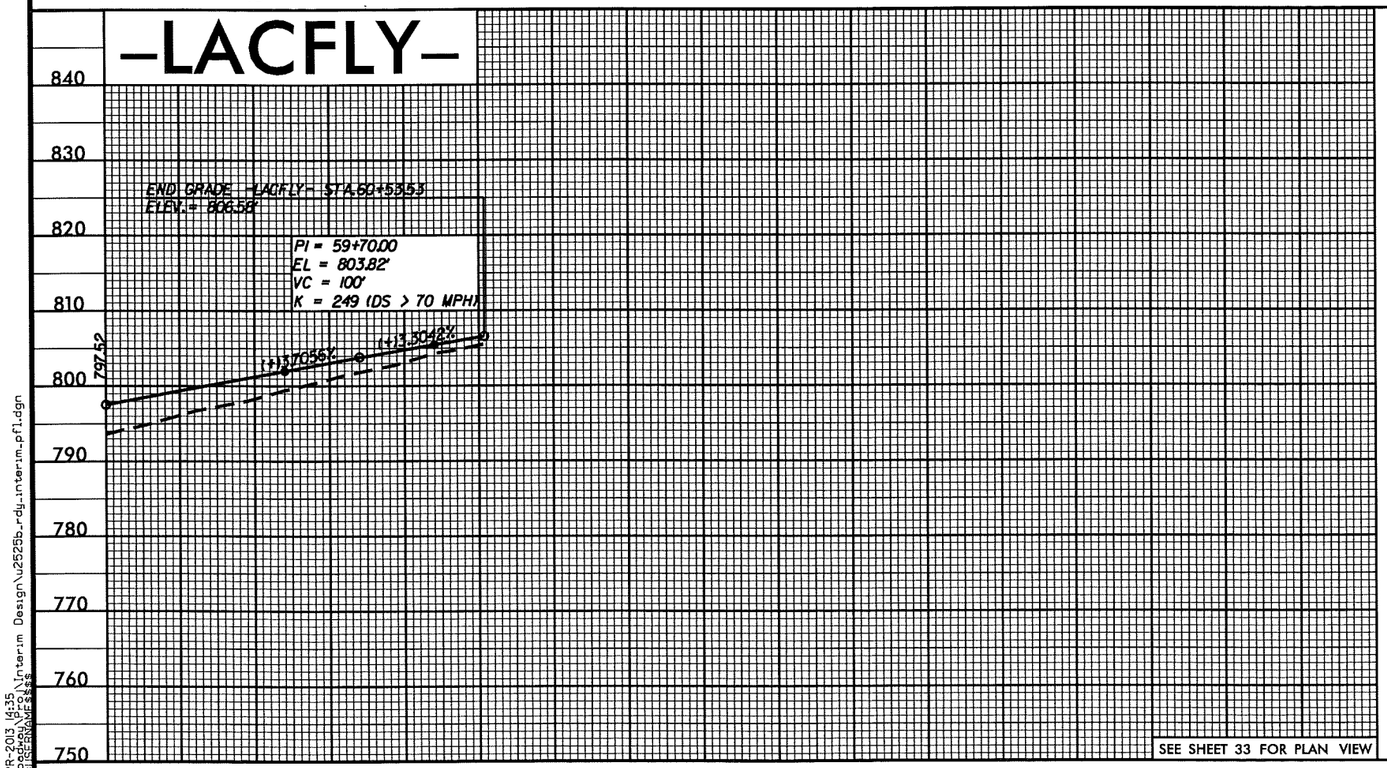
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-LACFLY-



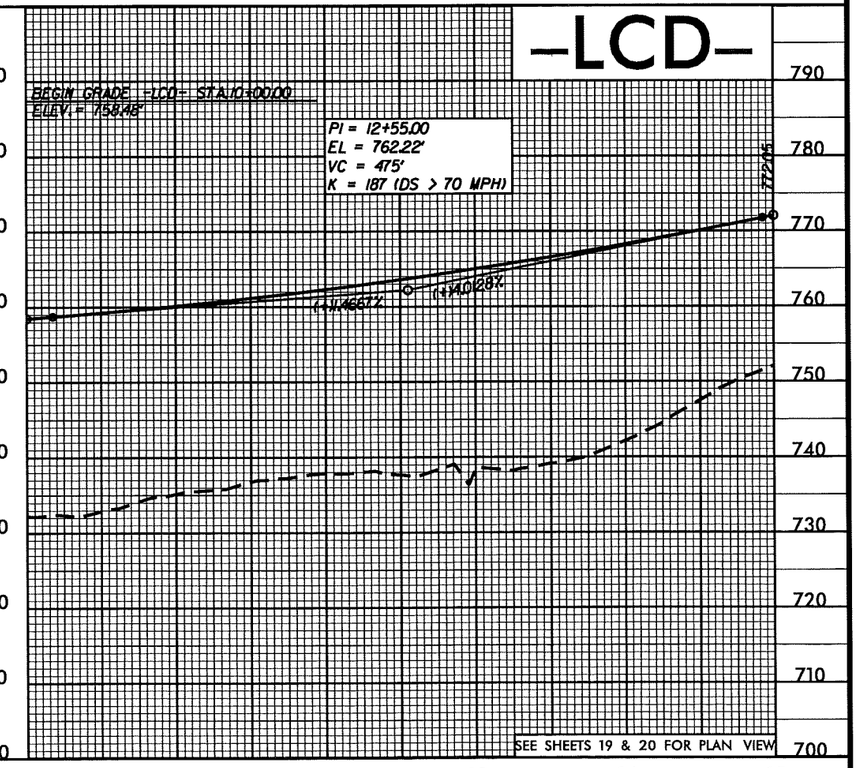
SEE SHEETS 32 & 33 FOR PLAN VIEW

-LACFLY-



SEE SHEET 33 FOR PLAN VIEW

-LCD-



SEE SHEETS 19 & 20 FOR PLAN VIEW

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-LCD-

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	77
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

(+)4.01128%

827.11

772.05

SEE SHEETS 20 & 21 FOR PLAN VIEW

PI = 36+00.00
EL = 856.32'
VC = 1,900'
K = 279 (DS > 70 MPH)

-LCD-

(+)4.01128% & (-)2.80702%

827.11

835.45

(FUTURE)

END GRADE -LCD- STA 41+28.62
ELEV. = 838.30'

SEE SHEET 21 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	78
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y21-

BEGIN GRADE -Y2I- STA.10+36.80
ELEV. = 851.25'

PI = 20+50.00
EL = 825.50'
VC = 100'
K = 95 (DS > 50 MPH)

UNSUITABLE EXCAVATION
UNDERCUT EXCAVATION

SEE SHEET 33 FOR PLAN VIEW

-Y21-

BM # 38 ELEVATION = 798.60'
N 873659 E 1784353
-Y2I- STA.26+94 91' LEFT
R/R SPIKE SET IN 14" OAK

PI = 31+40.00
EL = 786.34'
VC = 200'
K = 51 (DS > 35 MPH)

PI = 32+90.00
EL = 786.79'
VC = 100'
K = 46 (DS > 40 MPH)

END GRADE -Y2I- STA.34+76.77
ELEV. = 783.27'

UNDERCUT EXCAVATION

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - -

SEE SHEETS 32 & 33 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	79

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 3901

DRAINAGE AREA	= 73	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 167	CFS
DESIGN HW ELEVATION	= 748.90	FT
100 YEAR DISCHARGE	= 194	CFS
100 YEAR HW ELEVATION	= 750.20	FT
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING DISCHARGE	= 268	CFS
OVERTOPPING ELEVATION	= 754.00	FT

-Y21A-

PI = 13+50.00
EL = 762.51'
VC = 170'
K = 37 (DS = 30 MPH)

PI = 15+35.00
EL = 760.66'
VC = 115'
K = 28 (DS > 30 MPH)

PI = 17+60.00
EL = 749.25'
VC = 335'
K = 37 (DS = 30 MPH)

PI = 21+90.00
EL = 766.63'
VC = 195'
K = 19 (DS = 30 MPH)

BEGIN GRADE -Y21A- STA.12+64.15
ELEV.= 767.28'

54" RCP

CRYSTALLINE ROCK

SEE SHEET 39 FOR PLAN VIEW

-Y21A-

PI = 24+29.00
EL = 751.63'
VC = 135'
K = 27 (DS > 25 MPH)

BM • 8 ELEVATION = 745.86'
N 871367 E 1784927
-Y21A- STA.25+09
N 43° 15' 53.0" W DIST. 106.33'
R/R SPIKE SET IN 20" SWEET GUM

END GRADE -Y21A- STA.24+96.65
ELEV.= 750.79'

SEE SHEET 39 FOR PLAN VIEW

-Y21B-

BEGIN GRADE -Y21B- STA.10+12.00
ELEV.= 787.01'

PI = 10+55.00
EL = 787.81'
VC = 30'
K = 10 (DS > 20 MPH)

END GRADE -Y21B- STA.10+79.44
ELEV.= 787.69'

SEE SHEET 32 FOR PLAN VIEW

-Y15-

BEGIN CONSTRUCTION
-Y15- STA.11+29.96

END CONSTRUCTION
-Y15- STA.12+41.87

BM • 9 ELEVATION = 838.99'
N 871343 E 1781840
-Y15- STA.10+04 DIST. 71' RT
R/R SPIKE SET IN 15" PIN OAK

SEE SHEET 21 FOR PLAN VIEW

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-Y22-

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	80
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM # 14 ELEVATION = 829.24'
N 874866 E 1783255
-Y22- STA.11+79 105' LEFT
R/R SPIKE SET IN 24" STUMP

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.3707

DRAINAGE AREA	= 3.62	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 12	CFS
DESIGN HW ELEVATION	= 816.70	FT
100 YEAR DISCHARGE	= 14	CFS
100 YEAR HW ELEVATION	= 816.90	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

BEGIN GRADE -Y22- STA.10+00.00
ELEV. = 830.51'

PI = 10+88.00
EL = 831.36'
VC = 150'
K = 27 (DS > 30 MPH)

PI = 14+45.00
EL = 815.82'
VC = 295'
K = 37 (DS > 30 MPH)

PI = 16+75.00
EL = 823.95'
VC = 125'
K = 66 (DS > 45 MPH)

PI = 19+55.00
EL = 828.51'
VC = 380'
K = 96 (DS > 50 MPH)

(+)1.932%
(-)4.362%
(-)12.557%
(-)7.866%
(-)1.228%
(+)3.348%
(+)6.286%
(+)5.528%
(+)5.605%
(+)5.605%

24" RCP

SEE SHEETS 33 & 37 FOR PLAN VIEW

-Y22-

PI = 25+00.00
EL = 859.06'
VC = 640'
K = 93 (DS > 50 MPH)

PI = 31+45.00
EL = 851.01'
VC = 165'
K = 98 (DS > 50 MPH)

PI = 34+00.00
EL = 852.12'
VC = 150'
K = 160 (DS > 60 MPH)

PI = 37+10.00
EL = 850.57'
VC = 260'
K = 66 (DS > 45 MPH)

(+)5.605%
(-)4.248%
(-)12.486%
(+)10.435%
(+)10.435%
(-)10.500%
(-)10.500%
(-)4.447%

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEETS 33 & 38 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	81
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BM • 15 ELEVATION = 832.86'
N 874965 E 1786563
-Y22- STA 45+13
N 7° 18' 52.2" W DIST. 35.43'
R/R SPIKE SET IN 15" PINE

-Y22-

BEGIN GRADE -Y22- STA 45+45.45
ELEV.= 846.45'

PI = 41+75.00
EL = 829.89'
VC = 300'
K = 51 (DS > 35 MPH)

PI = 44+00.00
EL = 833.20'
VC = 150'
K = 245 (DS > 65 MPH)

END GRADE -Y22- STA 45+00.00
ELEV.= 834.06'

-1.447.3%
-1.447.3%
+1.147.11%
+1.147.11%
+1.08600%

SEE SHEET 38 FOR PLAN VIEW

-I22LPA-

BEGIN GRADE -I22LPA STA 10+35.77
ELEV.= 836.74'

PI = 16+60.00
EL = 824.33'
VC = 200'
K = 66 (DS > 45 MPH)

PI = 21+48.00
EL = 829.33'
VC = 175'
K = 106 (DS > 45 MPH)

-1.93600%
+1.102462%
+1.102462%
+1.05192%

END GRADE -I22LPA- STA 22+56.9
ELEV.= 828.66'

SEE SHEET 33 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	82

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y22LPD-

PI = 11+00.00
EL = 827.80'
VC = 100'
K = 46 (DS > 40 MPH)

PI = 13+30.00
EL = 820.67'
VC = 300'
K = 37 (DS = 30 MPH)

PI = 18+99.00
EL = 849.20'
VC = 90'
K = 62 (DS > 45 MPH)

BEGIN GRADE -Y22LPD- STA 10+00.00
ELEV. = 828.7'

END GRADE -Y22LPD- STA 19+56.11
ELEV. = 851.2'

(-)3.09%

(-)3.00%

(-)3.00%

(+)5.04%

(+)5.01%

(+)5.68%

SEE SHEET 33 FOR PLAN VIEW

-Y22RPA-

PI = 10+75.00
EL = 800.25'
VC = 150'
K = 618 (DS > 80 MPH)

PI = 16+15.00
EL = 816.94'
VC = 600'
K = 370 (DS > 75 MPH)

BEGIN GRADE -Y22RPA- STA 10+00.00
EL = 797.75'

(+)3.33%

(+)3.09%

(+)3.09%

(+)4.68%

(+)4.68%

SEE SHEETS 33 & 34 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	83
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y22RPA-

PI = 25+00.00
EL = 829.94'
VC = 200'
K = 713 (DS > 80 MPH)

PI = 28+50.00
EL = 834.10'
VC = 200'
K = 1285 (DS > 80 MPH)

828.47'

(+)1.4589%

(+)1.1886%

(+)1.1886%

(+)1.3442%

-.02'

END GRADE -Y22RPA- STA 29+68.29
ELEV. = 835.69'

840 830 820 810 800 790 780 770 760

24 25 26 27 28 29 30

SEE SHEET 33 FOR PLAN VIEW

-Y22RPD-

BEGIN GRADE -Y22RPD- STA 10+00.00
ELEV. = 787.49'

PI = 10+75.00
EL = 789.46'
VC = 150'
K = 284 (DS > 80 MPH)

PI = 12+75.00
EL = 795.77'
VC = 200'
K = 336 (DS > 75 MPH)

PI = 15+50.00
EL = 802.81'
VC = 210'
K = 97 (DS > 50 MPH)

(+)2.6267%

(+)3.1550%

(+)2.5600%

(+)2.5600%

(+)1.7180%

.02'

860 850 840 830 820 810 800 790 780 770

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

SEE SHEETS 33 & 34 FOR PLAN VIEW

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PROJECT REFERENCE NO.	SHEET NO.
U-2525B	84

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y22RPD-

END GRADE -Y22RPD- STA 25+05.68
ELEV. = 851.20'

PI = 25+15.00
EL = 848.34'
VC = 150'
K = 96 (DS > 50 MPH)

-2.00%
-1.47%
-0.93%

860 850 840 830 820 810 800

24 25 26

SEE SHEET 33 FOR PLAN VIEW

-Y23-

BEGIN GRADE -Y23- STA 10+39.00
ELEV. = 795.88'

18" RCP

PI = 14+50.00
EL = 786.62'
VC = 300'
K = 323 (DS > 80 MPH)

-1.27%
-2.04%
-2.80%
-3.57%

BEGIN LT. Y-DITCH
BEGIN LT. Y-DITCH
BEGIN LT. Y-DITCH
END LT. Y-DITCH
PI = 15+00.00
EL = 779.56'
END LT. Y-DITCH

820 810 800 790 780 770 760 750 740

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 3503

DRAINAGE AREA	= 2.06	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 4	CFS
DESIGN HW ELEVATION	= 794.30	FT
100 YEAR DISCHARGE	= 5	CFS
100 YEAR HW ELEVATION	= 794.40	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

CRYSTALLINE ROCK

DITCH LEGEND

RIGHT DITCH - - - - - - -

LEFT DITCH — - - — - -

SEE SHEET 35 FOR PLAN VIEW

15-APR-2013 14:35
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$$$$USERNAME$$$$

5/28/99

-Y23-

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	85
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 27+00.00
EL = 770.68'
VC = 600'
K = 113 (DS > 50 MPH)

PI = 38+15.00
EL = 815.45'
VC = 950'
K = 120 (DS > 55 MPH)

BEGIN LAT. BASE DITCH RT.
25+50.00, EL = 769.51'

PI = 26+00.00 RT.
EL = 766.20'

END LAT. BASE DITCH RT.
27+50.00, EL = 755.00'

PI = 26+50.00 RT.
EL = 758.52'

PI = 27+00.00 RT.
EL = 755.81'

BEGIN LAT. BASE DITCH RT.
27+55.00, EL = 749.12'

PI = 29+00.00 RT.
EL = 777.22'

END LAT. BASE DITCH RT.
29+00.00, EL = 778.29'

SEE SHEETS 34 & 35 FOR PLAN VIEW

-Y23-

BM # 42 ELEVATION = 807.90'
N 875658 E 1784668
-Y23- STA. 45+03.572' LEFT
R/R SPIKE SET IN 20" MAGNOLIA

PI = 38+15.00
EL = 815.45'
VC = 950'
K = 120 (DS = 55 MPH)

PI = 43+45.00
EL = 794.81'
VC = 110'
K = 48 (DS > 40 MPH)

PI = 46+35.00
EL = 776.89'
VC = 370'
K = 37 (DS = 30 MPH)

PI = 51+50.00
EL = 797.01'
VC = 110'
K = 57 (DS > 40 MPH)

END GRADE -Y23- STA. 52+07.46
ELEV. = 798.15'

UNSUITABLE EXCAVATION
UNDERCUT EXCAVATION

DITCH LEGEND
RIGHT DITCH - - - - - - -
LEFT DITCH — - - — - -

SEE SHEETS 34 & 37 FOR PLAN VIEW

15-APR-2013 14:35
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$$$$USERNAME$$$$

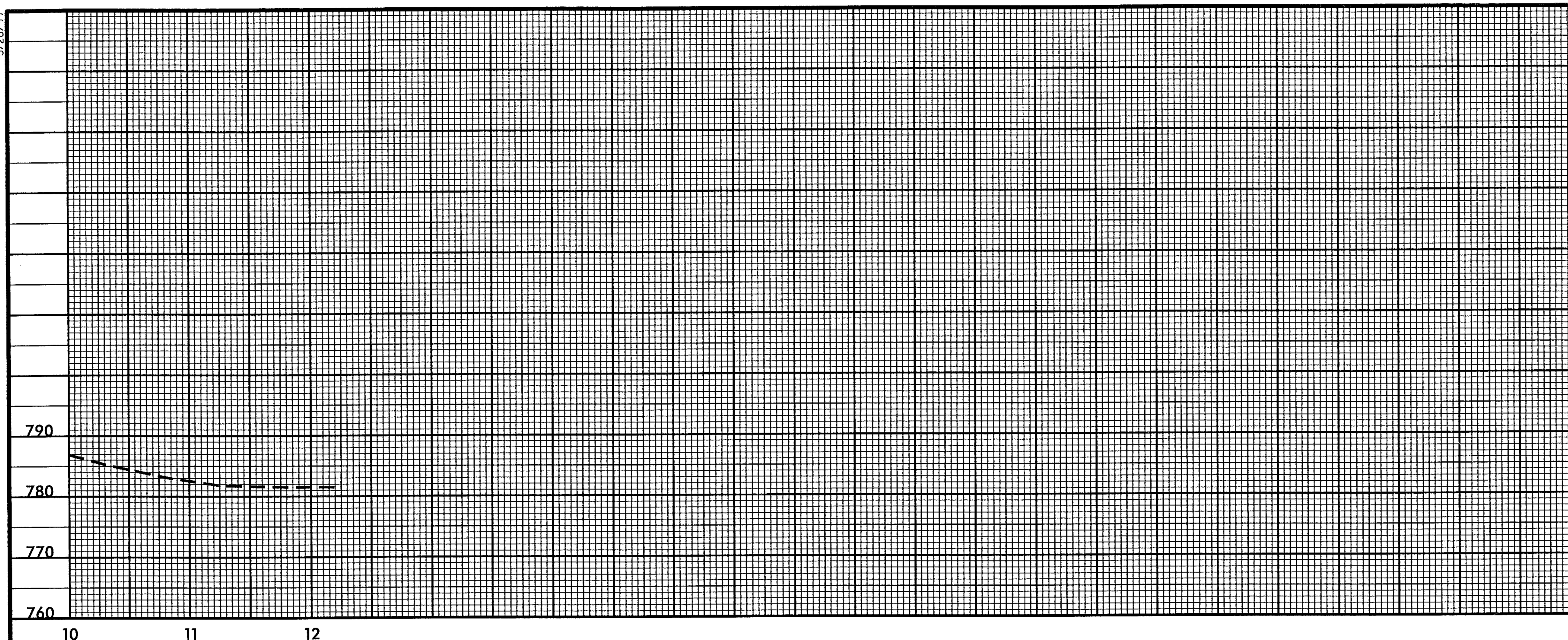
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	86

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y24-



SEE SHEET 37 FOR PLAN VIEW

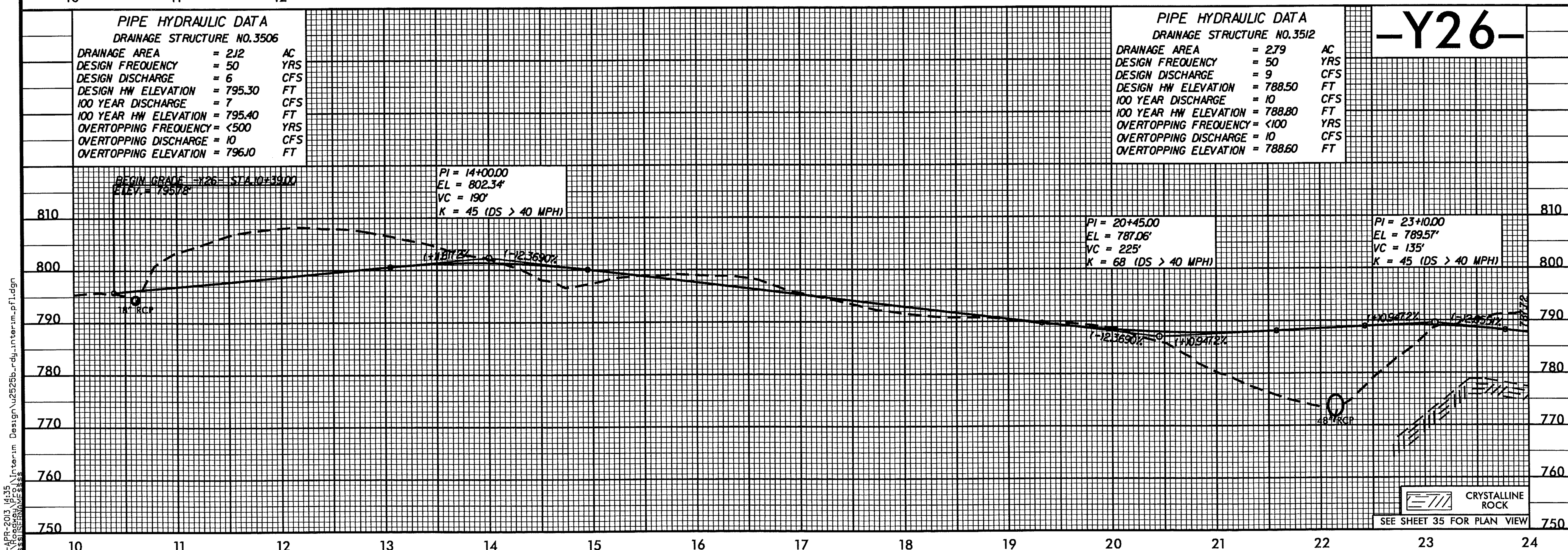
-Y26-

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.3506

DRAINAGE AREA	= 2.12	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 6	CFS
DESIGN HW ELEVATION	= 795.30	FT
100 YEAR DISCHARGE	= 7	CFS
100 YEAR HW ELEVATION	= 795.40	FT
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING DISCHARGE	= 10	CFS
OVERTOPPING ELEVATION	= 796.10	FT

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.3512

DRAINAGE AREA	= 2.79	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9	CFS
DESIGN HW ELEVATION	= 788.50	FT
100 YEAR DISCHARGE	= 10	CFS
100 YEAR HW ELEVATION	= 788.80	FT
OVERTOPPING FREQUENCY	= <100	YRS
OVERTOPPING DISCHARGE	= 10	CFS
OVERTOPPING ELEVATION	= 788.60	FT



SEE SHEET 35 FOR PLAN VIEW

5/28/99

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	87
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y26-

PI = 28+00.00
EL = 779.50'
VC = 250'
K = 105 (DS > 50 MPH)

PI = 32+50.00
EL = 780.92'
VC = 400'
K = 136 (DS = 60 MPH)

PI = 36+45.00
EL = 793.76'
VC = 200'
K = 213 (DS > 75 MPH)

-2.055%
+0.356%
+0.356%
+3.506%
+3.250%
+4.187%
800.25

SEE SHEETS 34 & 35 FOR PLAN VIEW

-Y26-

BEGIN DRIVEWAY
-Y26- STA 38+50.97
ELEV. = 802.55'

END PAVEMENT
-Y26- STA 38+85.00

END GRADE -Y26- STA 39+75.00
ELEV. = 808.22'

800.25
+4.376%
+6.145%
+12.319%

PI = 39+28.00
EL = 807.13'
VC = 75'
K = 20 (DS > 30 MPH)

SEE SHEETS 34 & 35 FOR PLAN VIEW

15-APR-2013 14:35
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5/28/99

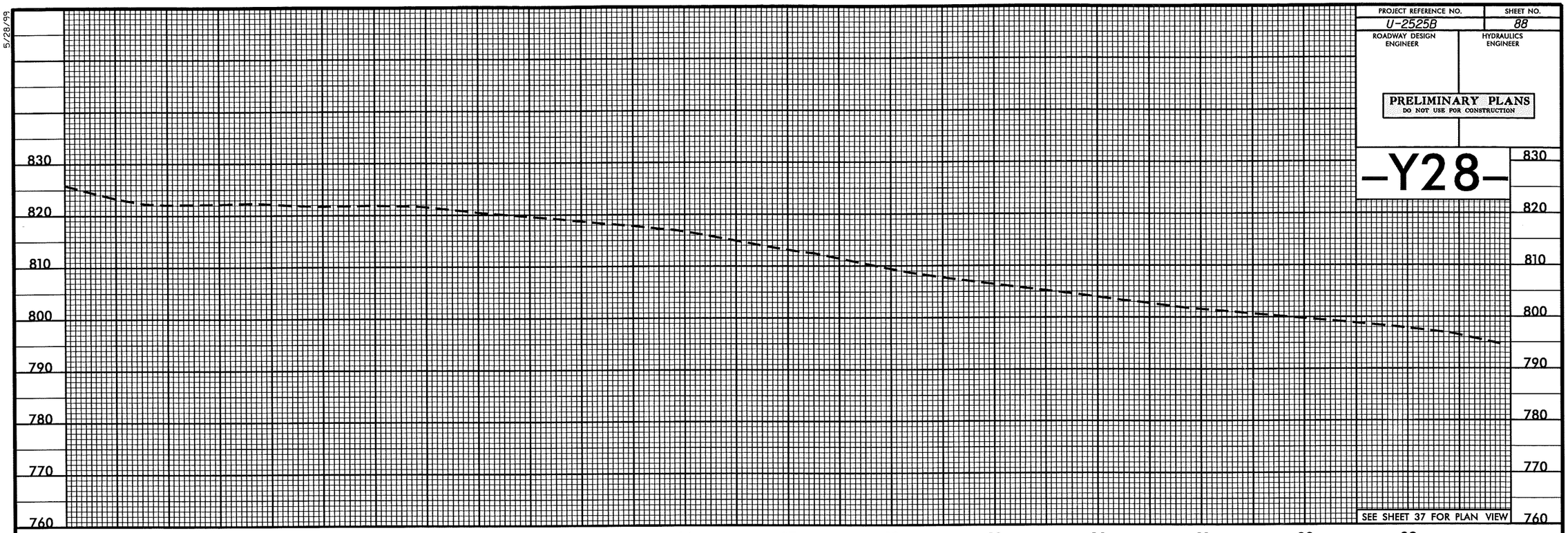
PROJECT REFERENCE NO.	SHEET NO.
U-2525B	88

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

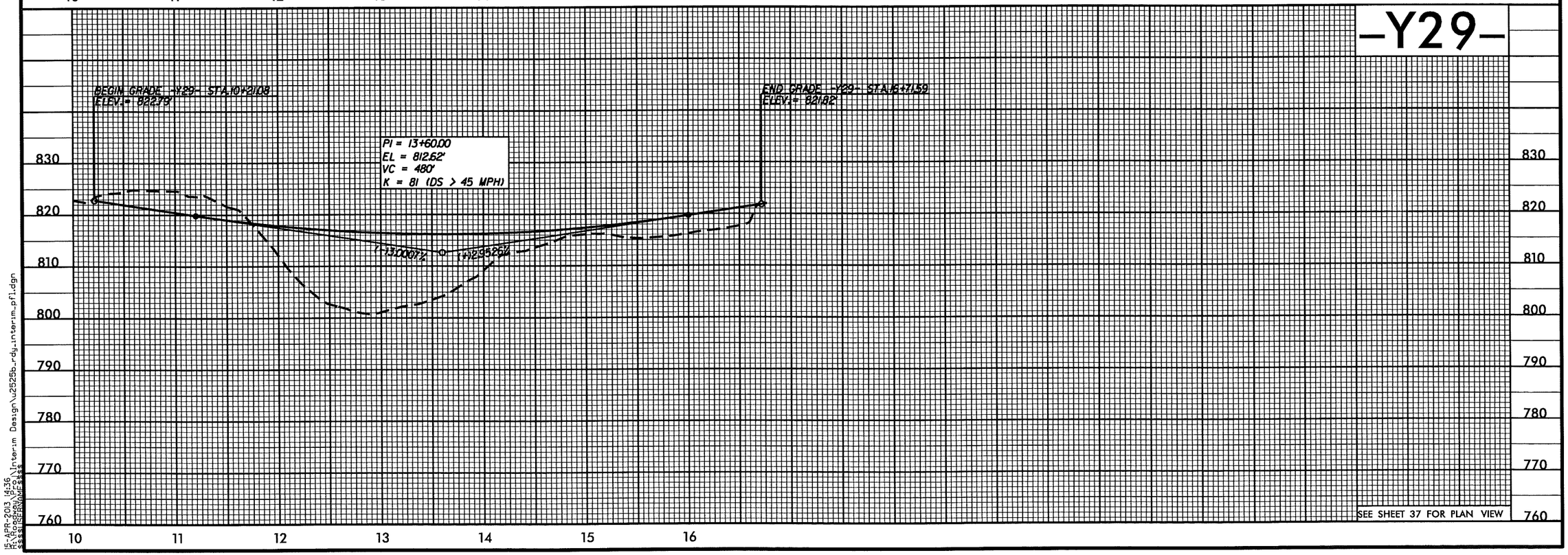
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y28-



SEE SHEET 37 FOR PLAN VIEW

-Y29-



SEE SHEET 37 FOR PLAN VIEW

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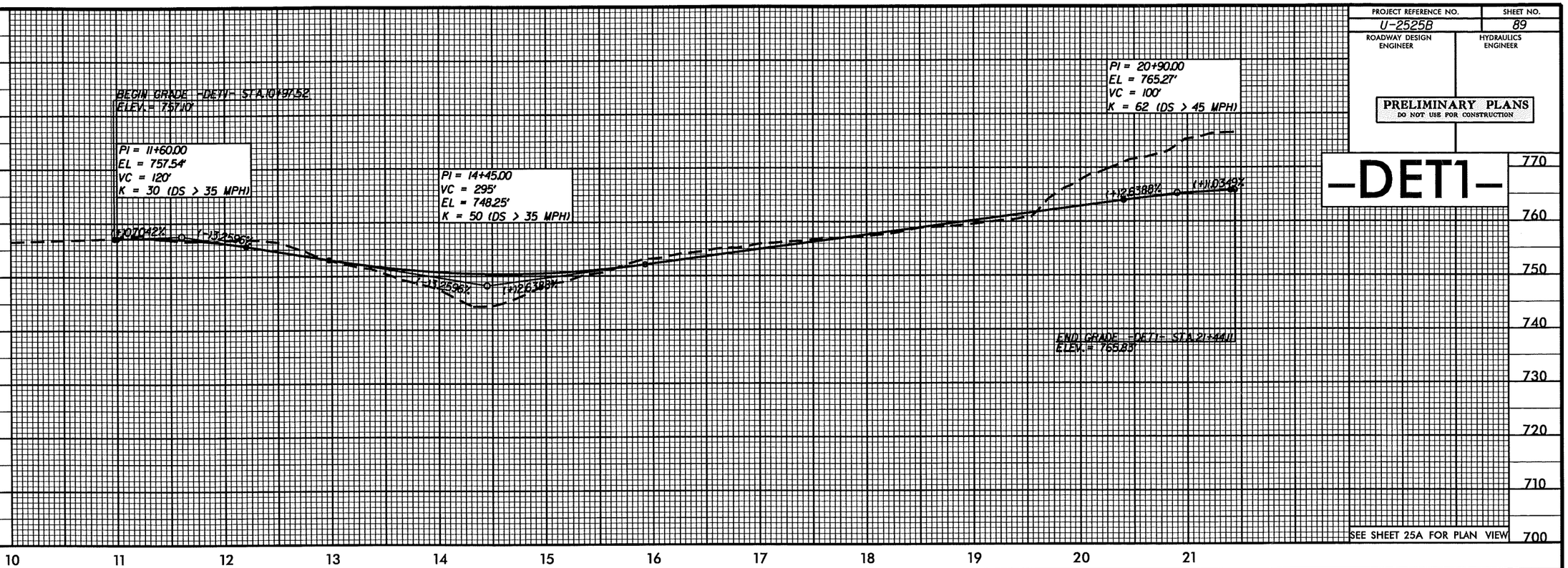
$$$$USERNAME$$$$

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	89
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET1-



SEE SHEET 25A FOR PLAN VIEW

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Mitigation Plan
Greensboro Eastern Loop
Guilford County, North Carolina
T.I.P. Number U-2525B
WBS No. 34821.1.1
August 12, 2013

1.0 BASELINE INFORMATION

Transportation Improvement Project (TIP) U-2525B involves the construction of a new section of highway known as the Greensboro Eastern Loop in Guilford County (Appendix A-Figure 1). The proposed construction of U-2525B involves unavoidable impacts to jurisdictional resources within USGS Hydrologic Unit 03030002 of the Cape Fear River Basin. NCDOT proposes to offset a portion of these impacts with on-site mitigation.

TIP U-2525B is located in the Central Piedmont Ecoregion. The topography in the project study area is generally characterized as rolling hills with moderately steep slopes along the drainage ways. Elevations in the study area range from 700 to 750 feet above mean sea level (USGS 1968). The project study area and surrounding area consists of low density rural, residential, commercial, agricultural, and forested areas.

The mitigation site selection and mitigation work plan sections of this plan will refer to the identification labels given the affected jurisdictional resources in the onsite mitigation review.

2.0 OBJECTIVES

The goal of the proposed onsite mitigation is to offset and mitigate for impacts due to U-2525B by relocating and/or restoring adjacent stream systems to their natural conditions through the removal of structures, restoration of channel dimensions and profiles, and establishment of riparian buffer areas. This will be achieved on three individual sites described below on a total of 2055 linear feet of stream.

3.0 SITE SELECTION

All sites are located within the proposed, new right-of-way for U-2525B. Each site was evaluated both internally as well as discussed and reviewed with regulatory personnel during concurrence meetings and field visits. Existing conditions for each site is provided in this section. Additional information on existing conditions, geomorphology parameters, and proposed stream measurements are provided in Appendix D.

SITE 2-UT to South Buffalo Creek-ONEID 041-029

Site 2 (Site 5 in the Permit Drawings) is located approximately from Station 61+50 to 73+70 and scored 59 on the USACE Stream Quality Assessment Worksheet (Appendix G). Site 2 includes the relocation and restoration of 1307 linear feet of UT to South Buffalo Creek. UT to South Buffalo Creek has a NCDWQ Best Usage Classification of WS-V; NSW. Within Site 2, UT to South Buffalo Creek flows from its headwaters toward a confluence with a larger reach through two distinct valley sections (Appendix A-Figure 2A). Within the upper section, the west side (river

right) valley wall is relatively steep. The east side valley wall and surrounding valley of the lower section are relatively flat. The riparian buffer of the upper section has been cleared within the last 5-10 years. The subsequent revegetation has led to a landscape with a high density of scrub-shrub successional species. Within the lower section, the riparian buffer consists of more widely spaced, larger mature woody vegetation. Throughout both valley sections, the channel is incised and entrenched and exhibits signs of instability. These moderately sinuous channels classify as Rosgen B5 streams. Sand materials dominate the channel, but there are also inclusions of gravel and bed rock. The watershed for this UT to South Buffalo Creek is 0.10 square miles at the downstream end of the site. The watershed is approximately 55% forested, 40% agricultural fields, and 5% impervious. Future zoning of the watershed is split between low (3 to 5 dwelling units/acre), interim, and moderate (5 to 12 dwelling units/acre) residential.

SITE 4-UT to North Buffalo Creek- ONEID 041-031

Site 4 (Site 18 in the Permit Drawings) is located approximately from Station 217+00 to 220+10 and scored 52 on the USACE Stream Quality Assessment Worksheet (Appendix G). Site 4 includes restoration of approximately 386 linear feet of UT to North Buffalo Creek. UT to North Buffalo Creek has a best usage classification WS-V; NSW. UT to North Buffalo Creek flows through Site 4 within a broad and gently sloping valley (Appendix A-Figure 2B). The riparian area has been greatly disturbed with some portions remaining cleared of woody vegetation and other areas consisting of scattered large woody vegetation. For most of the stream length, the riparian buffer is densely vegetated with a mix of shrubs and trees. The channel is incised and the upper section is moderately entrenched. The channel appears to have been modified. An earthen dam is located within the bottom third of the reach. This moderately sinuous reach classifies as a Rosgen B5 stream type. An existing 15 foot wide sanitary sewer line is located along the left bank (east side) of the existing channel approximately 25 to 30 feet from the left bank. The watershed is 0.57 square miles at the downstream end of the site. The watershed is 50% forested, 40% agricultural fields, 5% light residential, and 5% impervious. Future zoning of the watershed is primarily low residential (3 to 5 dwelling units/acre) with some moderate residential (5 to 12 dwelling units/acre).

SITE 5-UT to North Buffalo Creek- ONEID 041-032

Site 5 (Site 20 in the Permit Drawings) is located approximately from Station 242+08 to 245+03 and scored 57 on the USACE Stream Quality Assessment Worksheet (Appendix G). Site 5 includes relocation and restoration of approximately 362 linear feet of North Buffalo Creek. UT to North Buffalo Creek has a best usage classification WS-V; NSW. UT to North Buffalo Creek flows within Site 5 from its headwaters to confluence with a larger reach (Appendix A-Figure 2C). The stream valley is relatively broad with a flat down valley slope. The immediate riparian buffer consists of mature woody vegetation and kudzu on portions of the hillside that are located outside of the proposed right of way. The channel is slightly to moderately incised and appears relatively stable with the exception of about 100 feet of channel that is cutting through a meander bend. This moderately sinuous reach classifies as a Rosgen E5 stream type. The channel bed includes a significant amount of artificially introduced large stone. The watershed is 0.51 square miles at the downstream end of the site. The watershed is 50% forested, 5% agricultural fields, 30% light residential, and 15% impervious.

4.0 MITIGATION WORK PLAN

Each mitigation site will be constructed in conjunction with the construction of the roadway project. Following the successful completion of site grading and stabilization, each site will be reforested with a mix of bare-root tree species and live stakes as described in the Streambank Reforestation Specifications in Appendix F. The stream channels will be stabilized by planting live stakes on three foot centers and matting with coir fiber on the banks as necessary. Morphological characteristics of the proposed streams are provided in Appendix D.

In accordance with the guidance and standard procedures of NCDOT's Roadside Environmental Unit (REU), seeding and mulching will be performed on all disturbed areas within the mitigation sites for stabilization purposes. All floodplains and floodplain slopes will be over-excavated 6 inches starting 3 feet from top of stream bank and backfilled with topsoil to final grade (see detail on OSM-2 in design plan sheets). Additionally, per NCDOT's Native Seeding and Mulching Provision, 4000 lbs/acre of lime will be applied and 500 lbs/acre of 10-20-20 fertilizer will be applied. An as-built report will be submitted within 60 days of completion of the project. On sites that have kudzu present within the ROW limits, NCDOT proposes to minimize the potential spread of this species from construction-related activities. NCDOT will attempt to suppress the Kudzu within the ROW of the mitigation sites by herbicide applications prior to reforestation and during the required post construction monitoring period.

The Natural Environment Section shall be contacted to provide construction assistance to ensure that each mitigation area is constructed appropriately.

SITE 2-UT to South Buffalo

This site includes the relocation and restoration of 1307 feet of UT to South Buffalo Creek that is currently located within the footprint of the proposed roadway through a priority II restoration approach. The channel is currently an incised B5 Rosgen stream type channel that will be restored to a stable B5 channel by establishing a lower valley at the bankfull elevation. Proper sinuosity and radius of curvature will be restored to the channel to provide stability. The channel will be elevated to its historic floodplain in some locations where possible, improving its dimension and allowing bankfull and higher flows to access the floodplain. Proper riffle-pool sequencing will also be restored to the channel with corrected pattern and the installation of rock and log structures. The installation of these structures will increase stability of the profile and banks while allowing time for vegetation to establish and natural bed materials to be transported throughout the system.

Special attention was given to the possible change in flow regime in this system as it may be influenced by storm water runoff from the proposed roadway. To account for this change the stream design uses dimensionless ratios that lean toward natural channel systems with a more urban watershed than a rural watershed. For instance, the radius of curvature tends to be on the larger side to ensure that the bends in the stream channel will be gradual enough to accommodate the flashy flows that come with increased impervious area. Additionally, the belt width of the proposed channels were designed slightly more narrow than a system with no development in its watershed and the curvature of floodplains were reduced to account for increased flood flows over time as the watersheds develop. Designing the floodplain to be less sinuous allows for the new system to convey flood flows without excessively increasing shear stress along the edges of the newly constructed floodplain. The buffer for this channel will extend 50 feet from the top of bank

on both sides and totals approximately 3.14 acres, all of which lies within the proposed U-2525B right-of-way.

SITE 4-UT to North Buffalo Creek
This site includes the restoration of 386 linear feet of UT to North Buffalo Creek through a Priority II restoration approach. The appropriate dimension, pattern, and profile will be restored to the channel. The dimension will be corrected by connecting the bankfull stream channel to a floodplain bench. A C5 Rosgen stream type channel is proposed. The pattern will be re-adjusted to return the proper pool to pool spacing and radius of curvature to the channel. This channel is confined along the left bank by the adjacent sanitary sewer line. The right bank is densely wooded. Therefore, it is necessary for the proposed stream channel to cross over the existing channel location several times to create the desired pattern. The profile will be corrected and stabilized by using rock structures. These structures will hold the profile in place and prevent head cuts until the proper bed material has had a chance to be distributed through the stream channel and vegetation has had a chance to stabilize the banks. Proposed design parameters for the proposed stream can be found in the morphological table in Appendix C. The buffer for this channel will extend 50 feet from the top of bank on both sides and totals approximately 1.01 acres, all of which lies within the proposed U-2525B right-of-way. Currently, an existing 15 foot wide sewer easement encroaches on the left side of the 50 foot wide buffer.

SITE 5-UT to North Buffalo Creek
This site includes the relocation and restoration of 362 linear feet of UT to North Buffalo Creek with a Priority II restoration approach. The stream will be relocated outside of the fill slope of the proposed roadway. The appropriate dimension, pattern, and profile will be constructed on the relocated channel. A Rosgen type C5 channel is proposed for this stream. A lower belt width ratio is proposed due to the urbanized watershed with potential for flashy flows. The proposed channel profile will be stabilized by rock structures. The structures will provide stability and allow time for native bed materials to be transported through the newly constructed stream and for vegetation to stabilize the banks. Proposed design parameters for the proposed stream can be found in the morphological table in Appendix D. The buffer for this channel will extend 50 feet from the top of bank on both sides and totals approximately 0.91 acres, all of which lies within the proposed U-2525B right-of-way. An existing 15 foot wide sewer easement will make a perpendicular crossing of the stream near the culvert inlet.

During the "4C" Meeting held on March 21, 2013 there was a discussion about the "potential road" shown on the plans at Site 5 and if NCDOT could acquire right of way between the road and mitigation site. There is a no future road planned at this location. That information was from old plans and has been removed from the plans.

5.0 PERFORMANCE STANDARDS

An As-built will be submitted within 60 days of completion of the project. The As-built will document changes in the dimension, pattern, profile, vegetation plantings, and structures of the constructed channels.

Success for vegetation monitoring within the riparian buffer areas are based on the survival of at least 260 stems of five year old trees at year five. Assessment of channel stability will be based on

the survival of riparian vegetation and visual observation of channel dimensions, pattern or profile as well as inspection of in stream structure.

6.0 MONITORING REQUIREMENTS

All of the mitigation sites will be monitored according to the April 2003 Stream Mitigation Guidelines. The following components of Level 1 monitoring will be performed each year of the 5-year monitoring period: reference photos, plant survival (identification of specific problem areas, estimated causes and proposed/required remedial action); visual inspection of channel stability. Physical measurements of channel stability/morphology will not be performed. A monitoring report will be submitted within 60 days after completing the monitoring.

7.0 OTHER INFORMATION: STREAM REFERENCE RESTORATION STUDIES

A reference reach is a stream segment that represents a stable channel within a particular valley morphology. A stable stream is defined as a stream, which over time and in the present climate transports the flows and sediment produced by its watershed in such a manner that the dimension, pattern, and profile are maintained without either aggrading or degrading (Rosgen, 1996, 1998).

The methodology used for the reference reach analysis consisted of the following tasks: (1) identify reference quality sections of the project reaches that could be used for dimension and/or pattern analysis, (2) identify nearby reference reaches that have been previously located and surveyed and can be used to provide pattern data, (3) survey and classify the stream morphology for the on-site reference reaches, and (4) develop dimensionless ratios based on reference reach data and past project data under similar morphological conditions.

Several locations were identified and surveyed (Appendix C) within the project reaches where stable bankfull features had developed and provided information regarding bankfull dimension. These locations were identified by the presence of a consistent bankfull indicator, typically a well formed bankfull bench, and stable, vegetated stream banks. Cross-section surveys were conducted in these locations to evaluate stream dimension. The bankfull cross-section areas were then plotted versus drainage area and compared to published Rural Piedmont regional curve data, provided by the North Carolina Stream Restoration Institute (SRI) (See Appendix C-Figure 3).

As illustrated in Figure 3, the cross sectional areas surveyed at stable on-site reference reach locations correlates with the Rural Piedmont Regional Curve Data. Also, three of the four off-site reference reach locations correspond with the Rural Piedmont Regional Curve Data. More consideration is given to the cross sectional data gathered at stable reaches on-site because they more accurately reflect the conditions that will provide stability for that particular stream's flow regime. The three off-site reference reaches that correlate with the Rural Piedmont Regional Curve Data have been used previously in other natural channel designs. The stream designs were based on the collected data since this data was verified by the Rural Piedmont Regional Curve Data.

Shear stress calculations were completed for all reaches and are included in Appendix D. The data shows that the shear stresses for the proposed designs will be able to move the bed material of the streams. Shear stress is reduced on Sites 2 and 5, and slightly increased on site 4. Although most reaches have decreases in shear stress, incorporation of in-stream structures for grade control is implemented on all reaches. This is especially important since all restoration/relocation sites

will be excavated on new location and will not immediately have the properly sorted materials transported in from upstream immediately after construction. Constructed riffles and harvesting of existing bed material will be used to the extent feasible to provide this immediate supply of properly sorted bed material.

8.0 DETERMINATION OF CREDITS

NCDOT proposes to supplement mitigation provided by EEP with 2055 feet of onsite stream mitigation. All of the proposed mitigation sites exhibit some form of degradation. Site 2 and Site 5 include relocation of the channels that would be under fill slopes of the original roadway design.

Based on field and meeting discussions with agency representatives and per the NCDOT plans and 401/404 permit application for U-2525B; NCDOT proposes a 1:1 mitigation ratio for a total of 2055 feet of stream credits.

An as-built report will be submitted within 60 days of completion of the each mitigation site to verify actual mitigation areas constructed and planted. The success of the mitigation areas and determination of final credits will be based upon successful completion and closeout of the monitoring period.

8.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed mitigation to offset the unavoidable impacts associated with U-2525B.

9.0 GEOGRAPHIC SERVICE AREA

The proposed Geographic Service Area (GSA) for the mitigation sites is composed of the 8-digit Hydrologic Cataloging Unit (HUC) 03030002.

10.0 SITE PROTECTION INSTRUMENT

The mitigation areas are within the NCDOT Right-of-Way for the project. They will be managed to prohibit all use inconsistent with their use as mitigation properties, including any activity that would materially alter the biological integrity or functional and educational value of the sites, consistent with the mitigation plan.

The sites will be placed on the Natural Environment Section's (NES) Mitigation GeoDatabase. This database is provided to all NCDOT personnel as a record of mitigation sites and their attributes, including prohibited activities. NCDOT is held by virtue of the permit associated with these mitigation sites and the associated roadway impacts to protect the sites in perpetuity.

11.0 MAINTENANCE PLAN

The mitigation sites will be held by NCDOT and placed on the NES Mitigation GeoDatabase. Once monitoring is completed and the sites are closed out, they will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

If an appropriate third party recipient is identified in the future, then the transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

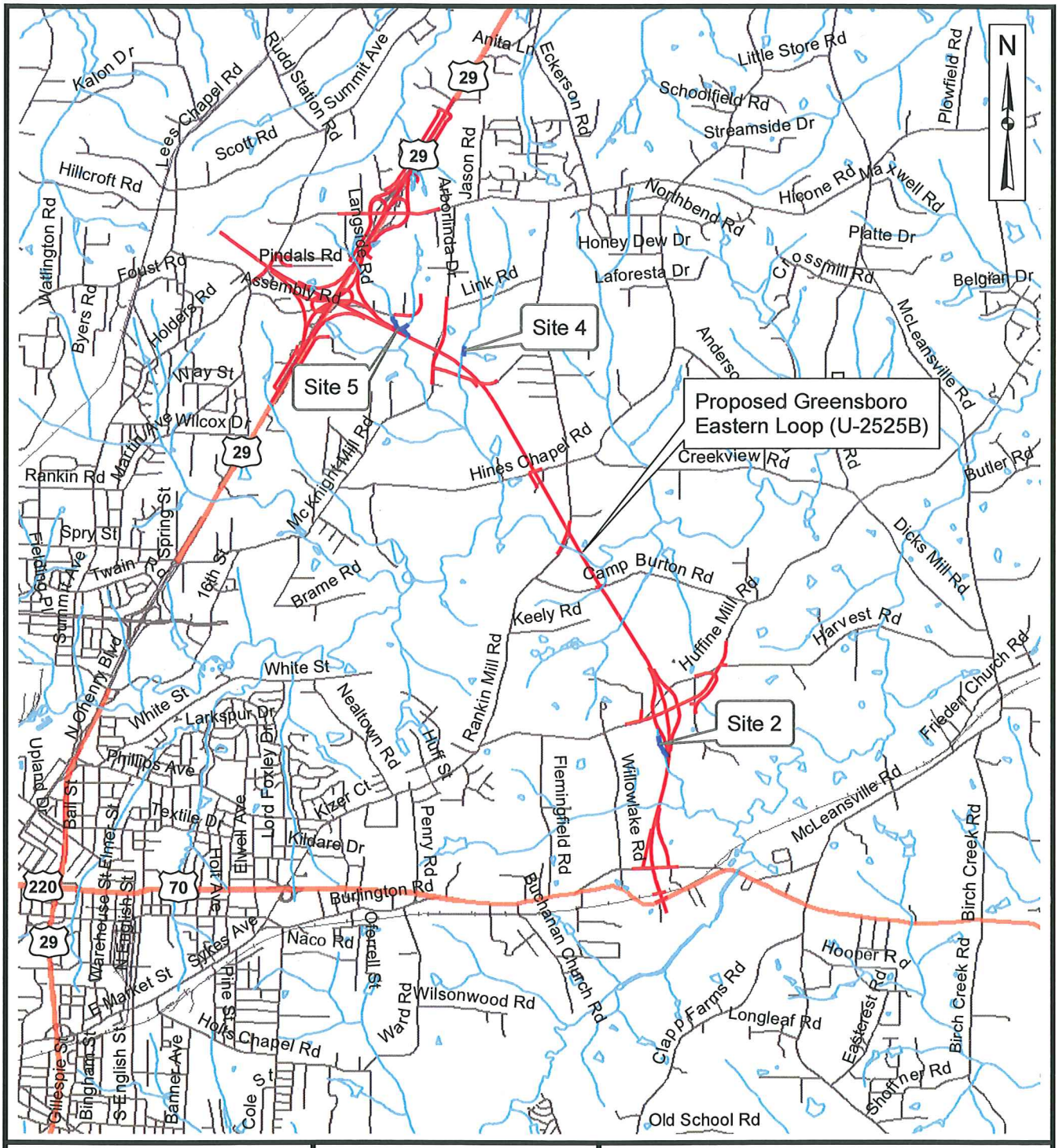
The sites will be managed by NCDOT according to the mitigation plan. Encroachments into the areas will be investigated and appropriate measures taken to minimize any negative effects. In the event that unforeseen issues arise that affect the management of the site, any remediation will be addressed by NCDOT in coordination with the Interagency Review Team.

13.0 FINANCIAL ASSURANCES

NCDOT is held by permit conditions associated with U-2525B to construct, monitor, and steward the mitigation sites. NCDOT has established funds for each project and within each Division to monitor mitigation sites and protect them in perpetuity.

APPENDIX A

FIGURES

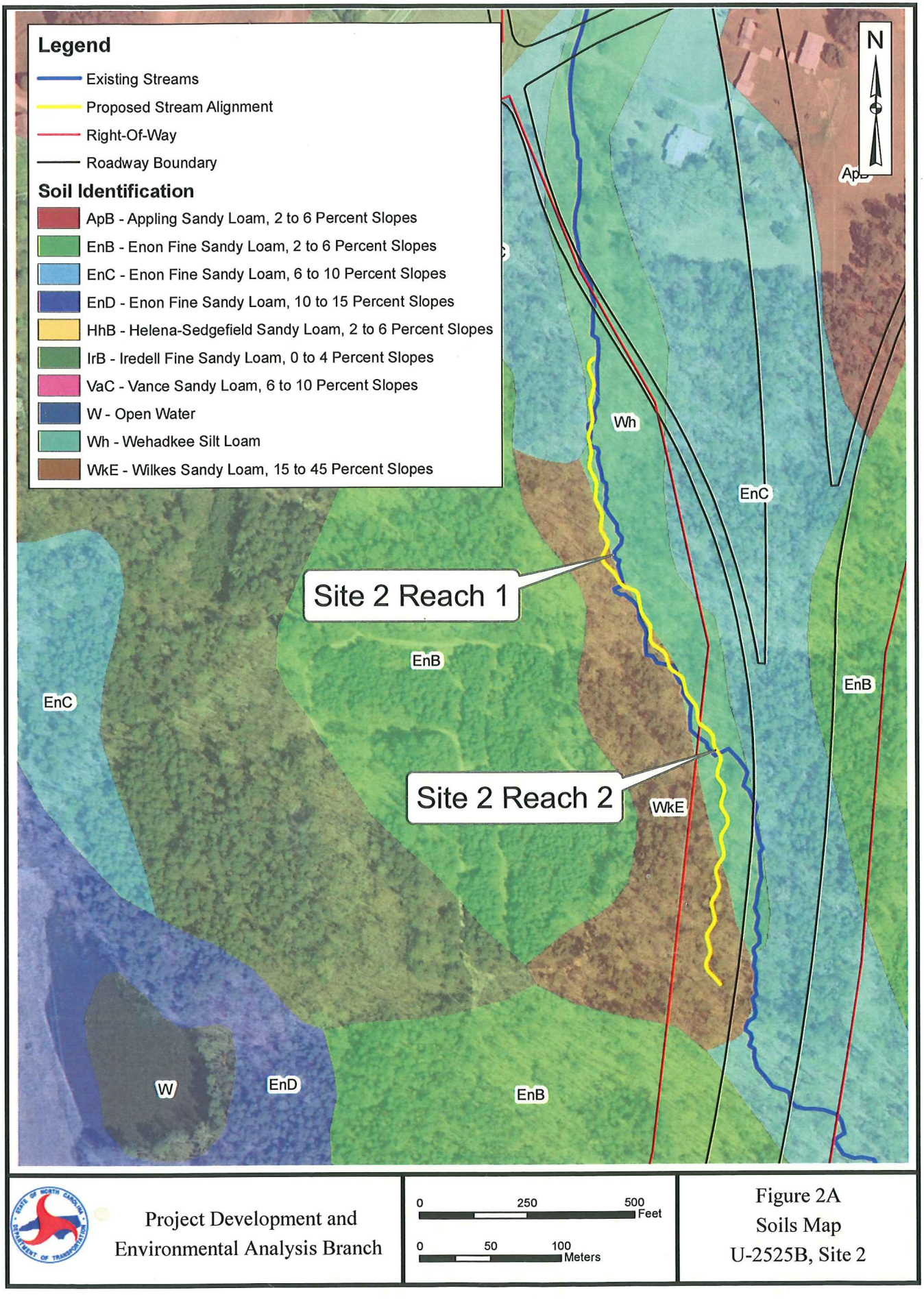


Project Development and
Environmental Analysis Branch

Figure 1. Project Vicinity Map
U-2525B

0 1 2 Miles

0 1 2 Kilometers

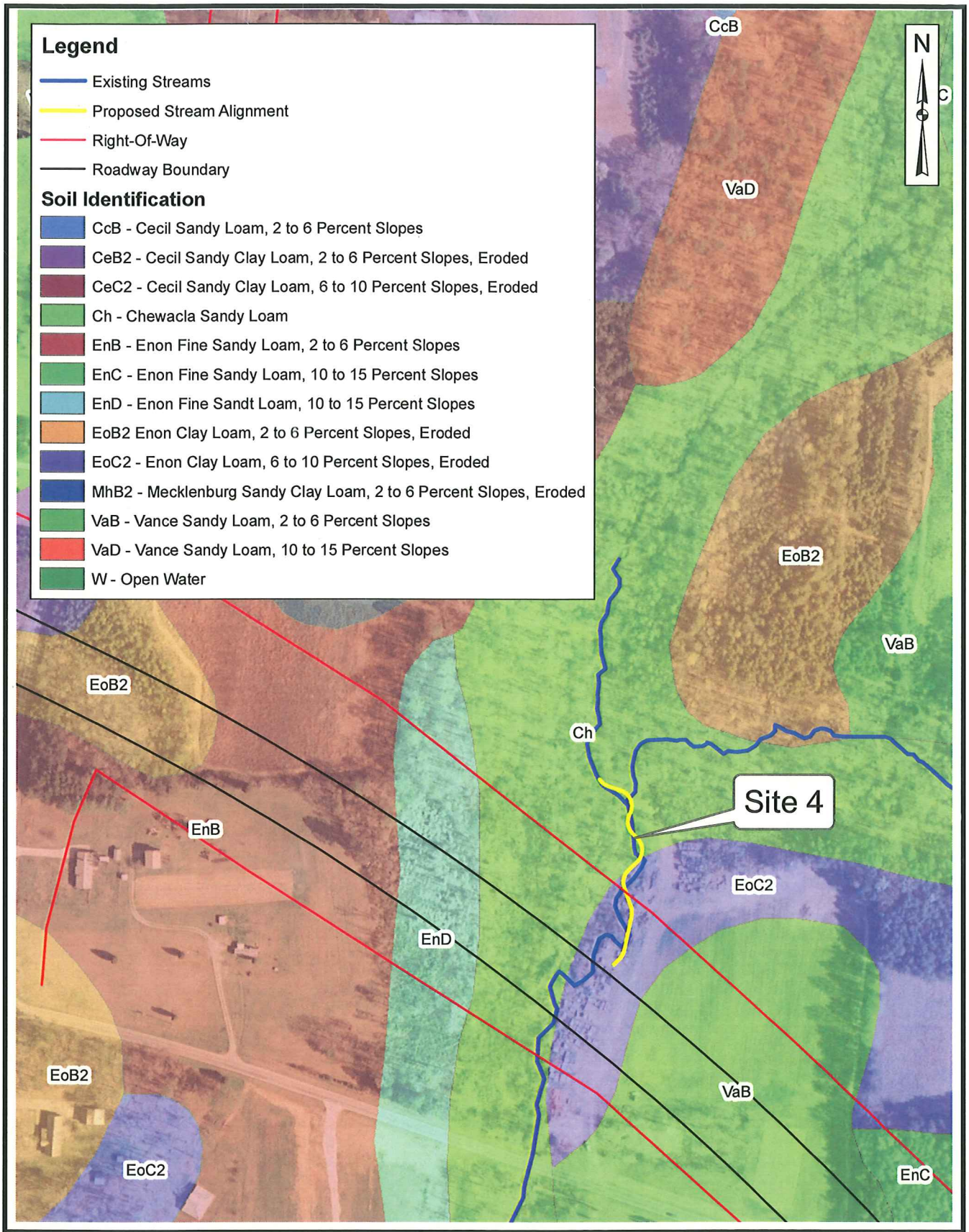


Project Development and Environmental Analysis Branch

0 250 500 Feet

0 50 100 Meters

Figure 2A
Soils Map
U-2525B, Site 2

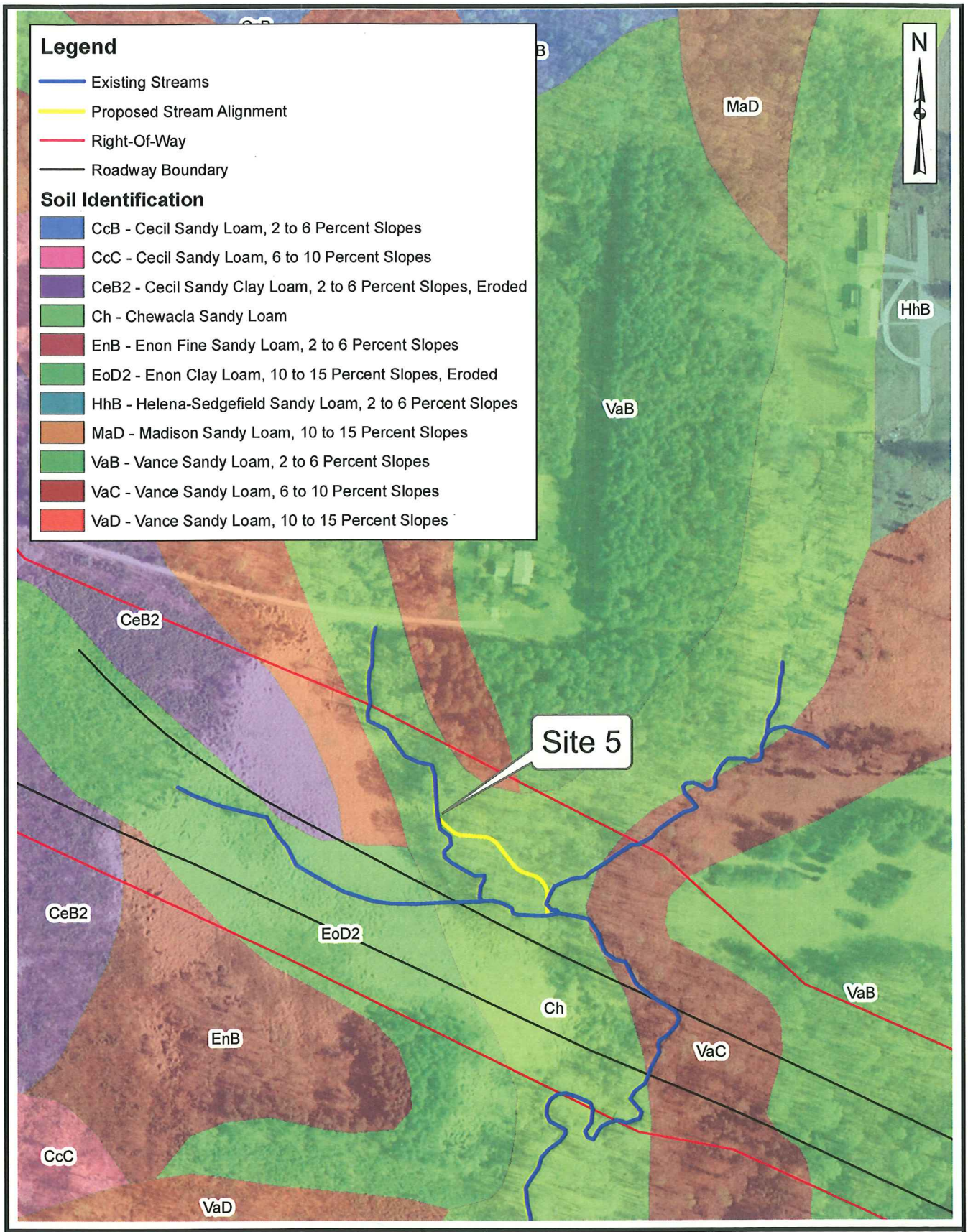


Project Development and Environmental Analysis Branch

0 250 500 Feet

0 50 100 Meters

Figure 2B
Soils Map
U-2525B, Site 4



Project Development and Environmental Analysis Branch

0 250 500 Feet

0 50 100 Meters

Figure 2C
Soils Map
U-2525B, Site 5

APPENDIX B

ONSITE MITIGATION PERMIT DRAWINGS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	NO.	SHEETS
N.C.	U-2525B	OSM-1	30

STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION
34821.1.3		PE
34821.2.3		ROW

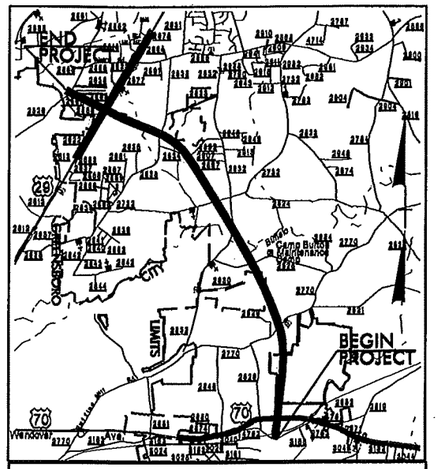
PLAN FOR ON-SITE MITIGATION GUILFORD COUNTY

LOCATION: GREENSBORO EASTERN LOOP FROM NORTH OF US 70 TO US 29 NORTH OF GREENSBORO

TYPE OF WORK: STREAM RELOCATION, STREAM RESTORATION, STREAM ENHANCEMENT

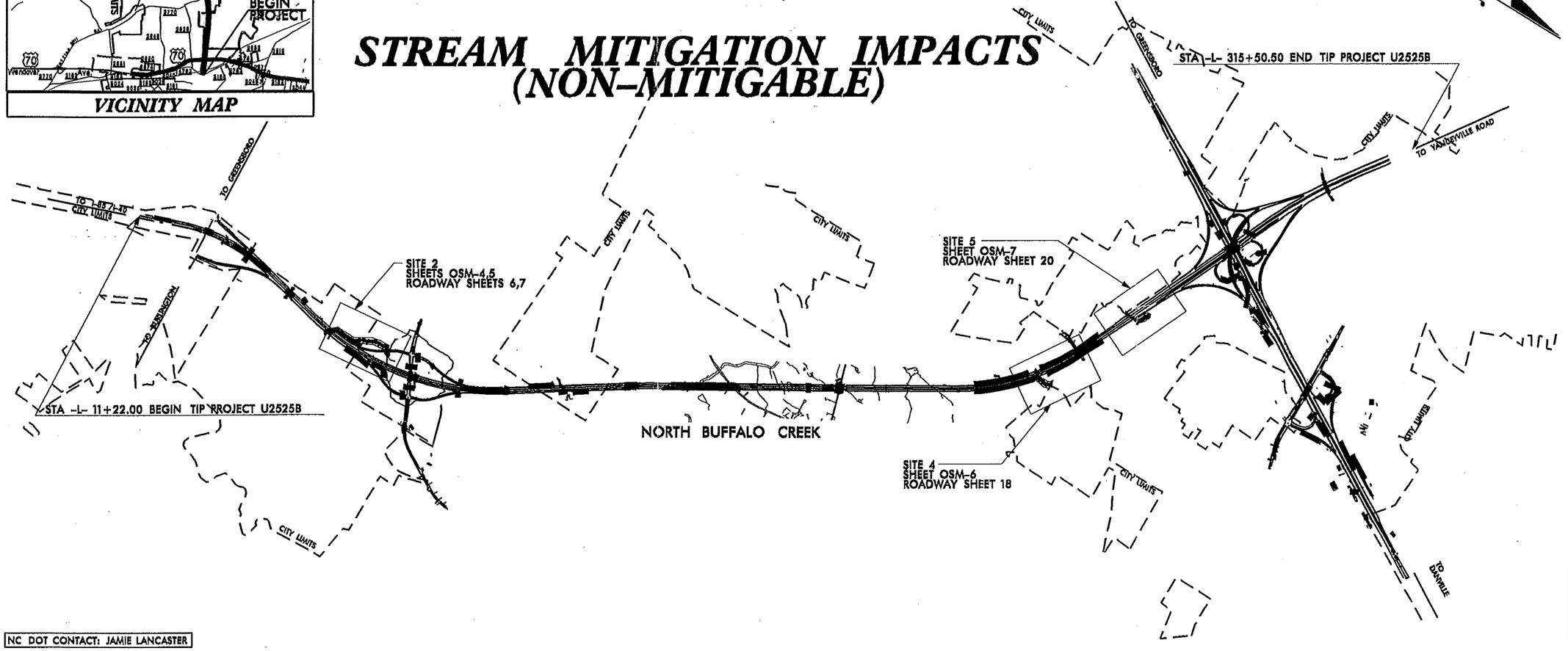
TIP PROJECT: U-2525B

CONTRACT:



VICINITY MAP

STREAM MITIGATION IMPACTS (NON-MITIGABLE)



NC DOT CONTACT: JAMIE LANCASTER

GRAPHIC SCALES

30 15 0 30 60
PLANS

30 15 0 30 60
PROFILE (HORIZONTAL)

6 3 0 6 12
PROFILE (VERTICAL)

DESIGN DATA

PROJECT LENGTH

MITIGATION SITE	MITIGATION TYPE	LENGTH
SITE 2	RESTORATION/RELOCATION	1,307LF
SITE 4	RESTORATION	386LF
SITE 5	RELOCATION	362LF

2006 STANDARD SPECIFICATIONS

DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

U2525B | OSM-4

PROJECT ENGINEER

APPROVED BY:

DATE:

SITE 2

NAD 83

Impacts Associated with Mitigation (Non-mitigable)

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S — DENOTES IMPACTS IN SURFACE WATER

Surface Water Impacts

BACKFILL, TYP.

END RESTORATION/RELOCATION STA 213+07

Impacts included in Site 5 on the Wetland Impact Summary Sheet

CITY OF GREENSBORO DB 2994 PG 481

+50.00 -L- 180.00'

+83.00 -Y4RPB- 148.00'

CHORD

N 6° 36' 13.6" E

N 2° 28' 14.0" E

65+00

205+00

207+00

210+00

211+00

212+00

213+00

36"

24"

18" RCP-III

STREAM PLUG, TYP.

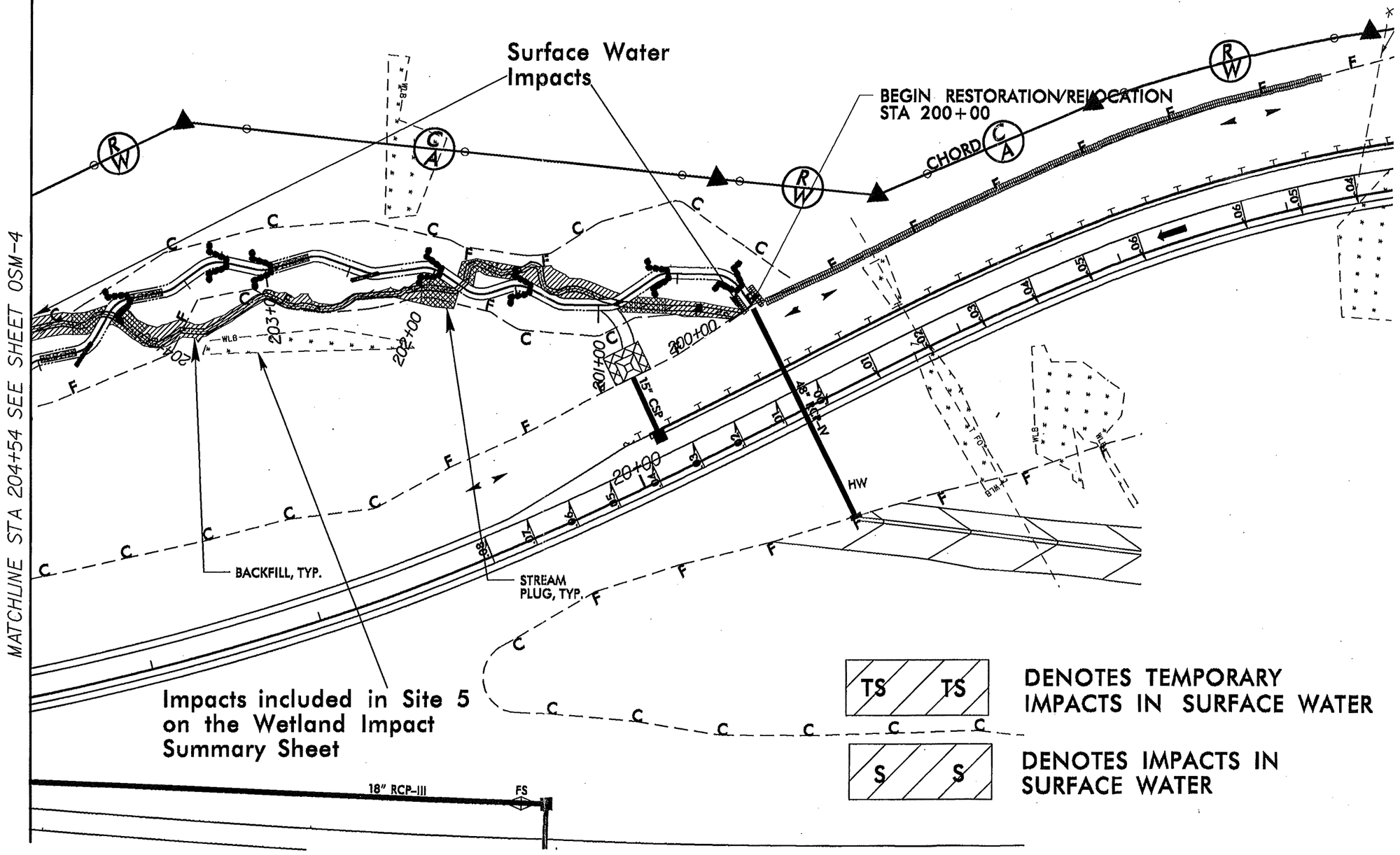
Impacts included in Site 5 on the Wetland Impact Summary Sheet

MATCHLINE STA 204+54 SEE SHEET OSM-5

Impacts Associated with Mitigation (Non-mitigable)

U2525B	OSM-5
PROJECT ENGINEER	
SITE 2	APPROVED BY:
	DATE:

NAD 83



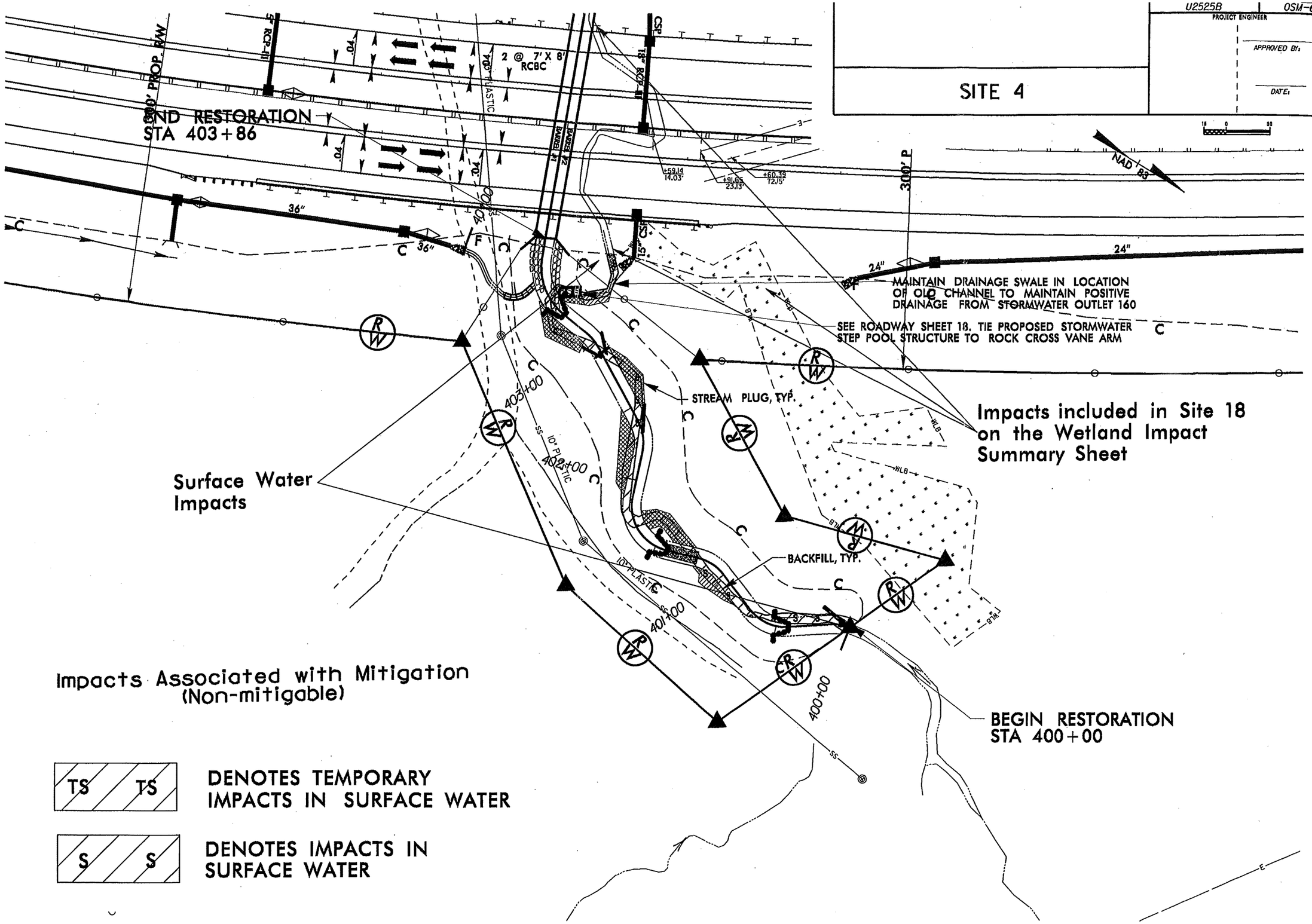
U2525B | OSM-6

PROJECT ENGINEER

APPROVED BY:

DATE:

SITE 4



Impacts Associated with Mitigation (Non-mitigable)

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S — DENOTES IMPACTS IN SURFACE WATER

Impacts Associated with Mitigation (Non-mitigable)

U2525B | OSM-7
PROJECT ENGINEER
APPROVED BY:
DATE:

SITE 5

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S — DENOTES IMPACTS IN SURFACE WATER

NAD 83

TOP OF BANK
PDE
TAIL DITCH
TOP 743.09
CROSS VANE
F
2004
2003
END SBG @ STA. 244+00 -L- (LT.)
15" CSP
2 @ 8'X 8' RCBC
.02
15" RCP-IV
BARREL #2
BARREL #1
2002
2005
2 @ 8'X 8' RCBC
15" RCP-IV
N 61°03'39.9" W
2001
2006
BACKFILL, TYP.
STREAM PLUG, TYP.
BOULDER TOE PROTECTION
TIE IN DRAINAGE SWALE AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE FROM ADJACENET FILL SLOPE
2007
TOP OF BANK
TDE
END RELOCATION STA 503+62
503+00
502+00
501+00
500+00
TS
BEGIN RELOCATION STA 500+00
ALIGN SIDE TRIBUTARY TO TIE INTO PROPOSED RELOCATION AS SHOWN. ADD ROCK CROSS VANE STRUCTURE TO TIE TO EXISTING GRADE. MAXIMUM DROP OVER STRUCTURE SHALL NOT EXCEED 0.5 FOOT.
TOP 753.23

Impacts included in Site 20 on the Wetland Impact Summary Sheet

Surface Water Impacts

MITIGATION IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Mitigation Site No.	Mitigation Station Station (From/To)	Mitigation Description	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)
2 (Permit Site #5)	200+00 to 213+07	Restoration/ Relocation								934		1307
4 (Permit Site #18)	400+00 to 403+86	Restoration								431		386
5 (Permit Site #20)	500+00 to 503+62	Relocation								106	10	362
TOTALS:										1471		2055

For impacts associated with the roadway fill slopes, culverts and pipes please see Wetland Impact Summary Sheet for Site 5, Site 18, and Site 20 on U-2525B

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GUILFORD
COUNTY
WBS - 34821.1.3 (U-2525B)

SHEET 1 OF 1 8/12/2013

ATN Revised 3/31/05

APPENDIX C

REFERENCE REACH DATA

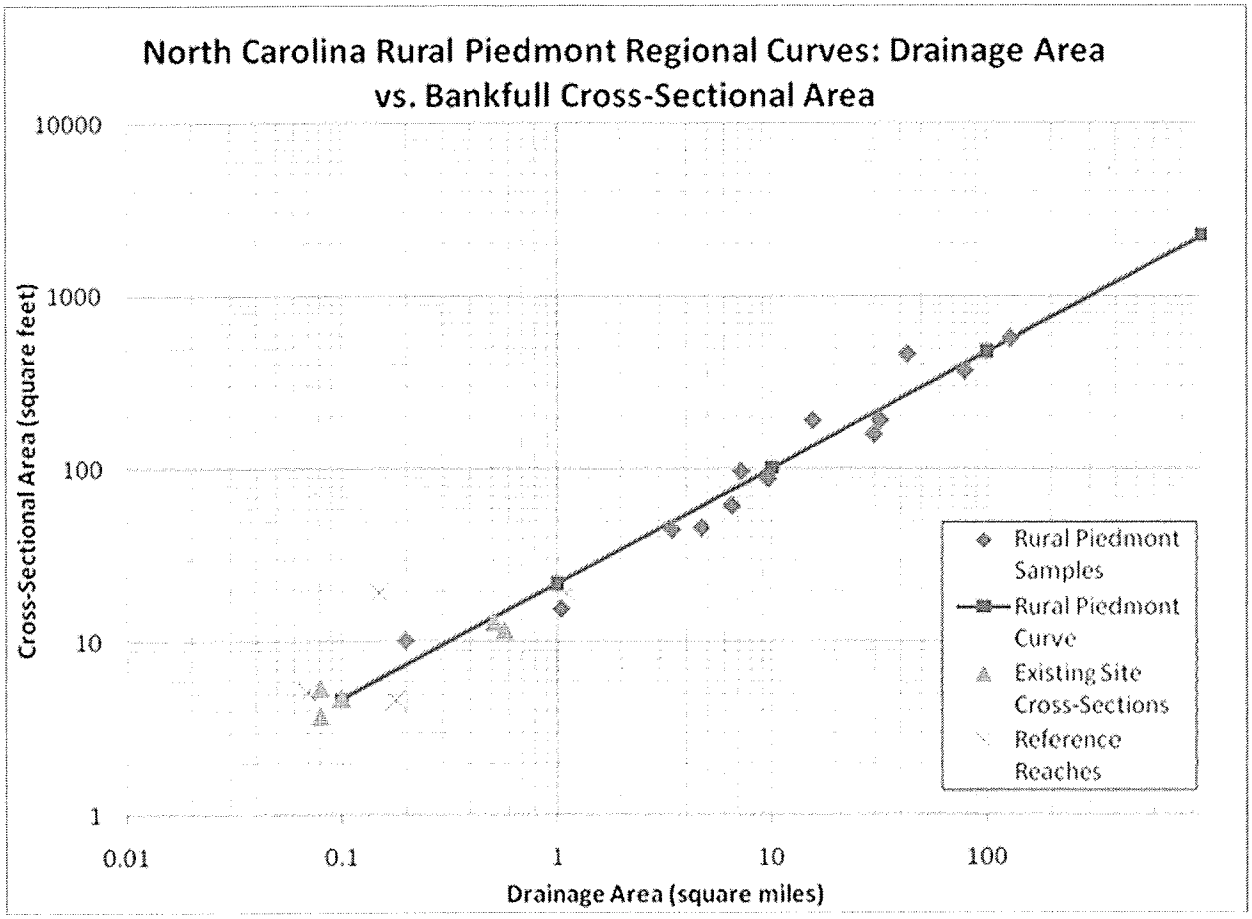


FIGURE 3: COMPARISON OF REGIONAL CURVE INFORMATION FOR PROJECT REACHES

REFERENCE REACH MORPHOLOGICAL MEASUREMENTS TABLE

U-2525 On-Site Mitigation – Tributary to Riddicks Creek (KHA)

	Variables	Reference Reach		
1.	Stream type	C5		
2.	Drainage Area (sq. mi)	0.18		
3.	Bankfull width (ft)	Mean:	7.9	
		Range:	--	--
4.	Bankfull mean depth (ft)	Mean:	0.6	
		Range:	--	--
5.	Width/depth ratio	Mean:	13.5	
		Range:	--	--
6.	Bankfull cross-sectional area (sq. ft)	Mean:	4.6	
		Range:	--	--
7.	Bankfull mean velocity (ft/sec)	Mean:	NA	
		Range:	--	--
8.	Bankfull discharge (cfs)	Mean:	NA	
		Range:	--	--
9.	Bankfull max depth (ft)	Mean:	1.0	
		Range:	--	--
10.	Width of floodprone area (ft)	Mean:	36.0	
		Range:	--	--
11.	Entrenchment ratio	Mean:	4.6	
		Range:	--	--
12.	Meander length (ft)	Mean:	80.5	
		Range:	64.0	97.0
13.	Ratio of meander length to bankfull width	Mean:	10.2	
		Range:	8.1	12.3
14.	Radius of curvature (ft)	Mean:	13.4	
		Range:	8.5	22.0
15.	Ratio of radius of curvature to bankfull width	Mean:	1.7	
		Range:	1.1	2.8
16.	Belt width (ft)	Mean:	34.0	
		Range:	--	--
17.	Meander width ratio	Mean:	4.3	
		Range:	--	--
18.	Sinuosity (stream length/valley length)	Mean:	1.3	
		Range:	--	--
19.	Valley slope (ft/ft)	Mean:	0.0022	
		Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0017	
		Range:	--	--
21.	Pool slope (ft/ft)	Mean:	0.0002	
		Range:	0.0000	0.0007
22.	Ratio of pool slope to average slope	Mean:	0.1	
		Range:	0.0	0.4
23.	Maximum pool depth (ft)	Mean:	2.0	
		Range:	--	--
24.	Ratio of pool depth to average bankfull depth	Mean:	3.4	
		Range:	--	--
25.	Pool width (ft)	Mean:	11.5	
		Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	1.5	
		Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	38.3	
		Range:	18	78
28.	Ratio of pool to pool spacing to bankfull width	Mean:	4.8	
		Range:	2.3	9.9

REFERENCE REACH MORPHOLOGICAL MEASUREMENTS TABLE

U-2525 On-Site Mitigation – Riddicks Creek (KHA)

	Variables	Reference Reach		
1.	Stream type	E5		
2.	Drainage Area (sq. mi)	0.07		
3.	Bankfull width (ft)	Mean:	6.6	
		Range:	5.7	7.5
4.	Bankfull mean depth (ft)	Mean:	0.8	
		Range:	0.7	0.8
5.	Width/depth ratio	Mean:	8.7	
		Range:	8.2	9.2
6.	Bankfull cross-sectional area (sq. ft)	Mean:	5.1	
		Range:	4.0	6.1
7.	Bankfull mean velocity (ft/sec)	Mean:	NA	
		Range:	--	--
8.	Bankfull discharge (cfs)	Mean:	NA	
		Range:	--	--
9.	Bankfull max depth (ft)	Mean:	1.5	
		Range:	1.3	1.6
10.	Width of floodprone area (ft)	Mean:	27.4	
		Range:	20.0	34.0
11.	Entrenchment ratio	Mean:	4.2	
		Range:	3.5	4.6
12.	Meander length (ft)	Mean:	32.0	
		Range:	25.0	45.0
13.	Ratio of meander length to bankfull width	Mean:	4.8	
		Range:	3.8	6.8
14.	Radius of curvature (ft)	Mean:	11.3	
		Range:	5.7	18.8
15.	Ratio of radius of curvature to bankfull width	Mean:	1.7	
		Range:	0.9	2.8
16.	Belt width (ft)	Mean:	15.8	
		Range:	10.5	22.0
17.	Meander width ratio	Mean:	2.4	
		Range:	1.6	3.3
18.	Sinuosity (stream length/valley length)	Mean:	1.4	
		Range:	--	--
19.	Valley slope (ft/ft)	Mean:	0.0130	
		Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0093	
		Range:	--	--
21.	Pool slope (ft/ft)	Mean:	0.0024	
		Range:	0.0000	0.0100
22.	Ratio of pool slope to average slope	Mean:	0.3	
		Range:	0.0	0.6
23.	Maximum pool depth (ft)	Mean:	2.0	
		Range:	--	--
24.	Ratio of pool depth to average bankfull depth	Mean:	2.3	
		Range:	--	--
25.	Pool width (ft)	Mean:	8.1	
		Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	1.2	
		Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	22.9	
		Range:	8	48
28.	Ratio of pool to pool spacing to bankfull width	Mean:	3.5	
		Range:	1.1	7.3

REFERENCE REACH MORPHOLOGICAL MEASUREMENTS TABLE

U-2525 On-Site Mitigation – Tributary to Lake Jeanette (NCDOT)

	Variables	Reference Reach		
1.	Stream type	E5		
2.	Drainage Area (sq. mi)	0.15		
3.	Bankfull width (ft)	Mean:	12.0	
		Range:	--	--
4.	Bankfull mean depth (ft)	Mean:	1.6	
		Range:	1.4	1.7
5.	Width/depth ratio	Mean:	8.4	
		Range:	7.1	9.6
6.	Bankfull cross-sectional area (sq. ft)	Mean:	19.4	
		Range:	18.8	20.0
7.	Bankfull mean velocity (ft/sec)	Mean:	5.6	
		Range:	5.2	6.2
8.	Bankfull discharge (cfs)	Mean:	109.3	
		Range:	100.7	119.6
9.	Bankfull max depth (ft)	Mean:	2.9	
		Range:	--	--
10.	Width of floodprone area (ft)	Mean:	49.0	
		Range:	--	--
11.	Entrenchment ratio	Mean:	4.4	
		Range:	4.1	4.7
12.	Meander length (ft)	Mean:	22.0	
		Range:	--	--
13.	Ratio of meander length to bankfull width	Mean:	1.8	
		Range:	--	--
14.	Radius of curvature (ft)	Mean:	7.3	
		Range:	--	--
15.	Ratio of radius of curvature to bankfull width	Mean:	0.6	
		Range:	--	--
16.	Belt width (ft)	Mean:	45.0	
		Range:	--	--
17.	Meander width ratio	Mean:	3.8	
		Range:	--	--
18.	Sinuosity (stream length/valley length)	Mean:	NA	
		Range:	--	--
19.	Valley slope (ft/ft)	Mean:	NA	
		Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0033	
		Range:	--	--
21.	Pool slope (ft/ft)	Mean:	NA	
		Range:	--	--
22.	Ratio of pool slope to average slope	Mean:	NA	
		Range:	--	--
23.	Maximum pool depth (ft)	Mean:	3.1	
		Range:	--	--
24.	Ratio of pool depth to average bankfull depth	Mean:	2.0	
		Range:	--	--
25.	Pool width (ft)	Mean:	19.6	
		Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	1.6	
		Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	NA	
		Range:	--	--
28.	Ratio of pool to pool spacing to bankfull width	Mean:	NA	
		Range:	--	--

REFERENCE REACH MORPHOLOGICAL MEASUREMENTS TABLE

U-2525 On-Site Mitigation – Tributary to Rich Fork (KHA)

	Variables	Reference Reach		
1.	Stream type	B4		
2.	Drainage Area (sq. mi)	1.12		
3.	Bankfull width (ft)	Mean:	15.2	
		Range:	--	--
4.	Bankfull mean depth (ft)	Mean:	1.2	
		Range:	--	--
5.	Width/depth ratio	Mean:	12.7	
		Range:	--	--
6.	Bankfull cross-sectional area (sq. ft)	Mean:	19.0	
		Range:	--	--
7.	Bankfull mean velocity (ft/sec)	Mean:	5.1	
		Range:	--	--
8.	Bankfull discharge (cfs)	Mean:	96.9	
		Range:	--	--
9.	Bankfull max depth (ft)	Mean:	1.9	
		Range:	--	--
10.	Width of floodprone area (ft)	Mean:	23.3	
		Range:	--	--
11.	Entrenchment ratio	Mean:	1.5	
		Range:	--	--
12.	Meander length (ft)	Mean:	NA	
		Range:	--	--
13.	Ratio of meander length to bankfull width	Mean:	NA	
		Range:	--	--
14.	Radius of curvature (ft)	Mean:	NA	
		Range:	--	--
15.	Ratio of radius of curvature to bankfull width	Mean:	NA	
		Range:	--	--
16.	Belt width (ft)	Mean:	NA	
		Range:	--	--
17.	Meander width ratio	Mean:	NA	
		Range:	--	--
18.	Sinuosity (stream length/valley length)	Mean:	1.07	
		Range:	--	--
19.	Valley slope (ft/ft)	Mean:	0.0168	
		Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0157	
		Range:	--	--
21.	Pool slope (ft/ft)	Mean:	0.0032	
		Range:	0.0009	0.0065
22.	Ratio of pool slope to average slope	Mean:	0.2	
		Range:	0.1	0.4
23.	Maximum pool depth (ft)	Mean:	3.0	
		Range:	2.3	3.9
24.	Ratio of pool depth to average bankfull depth	Mean:	2.5	
		Range:	1.912	3.28
25.	Pool width (ft)	Mean:	16.3	
		Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	1.1	
		Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	33.1	
		Range:	20	52
28.	Ratio of pool to pool spacing to bankfull width	Mean:	2.2	
		Range:	1.3	3.4

APPENDIX D

MORPHOLICICAL CHARACTERISTICS OF PROPOSED STREAMS

MORPHOLOGICAL MEASUREMENTS TABLE

U-2525B On-Site Mitigation – Site 2 Reach 1

	Variables	Existing Channel			Proposed Design		
1.	Stream type	Incised B5			B5		
2.	Drainage area (sq. mi)	0.08			0.08		
3.	Bankfull width (ft)	Mean:	7.8		Mean:	7.2	
		Range:	--	--	Range:	--	--
4.	Bankfull mean depth (ft)	Mean:	0.7		Mean:	0.5	
		Range:	--	--	Range:	--	--
5.	Width/depth ratio	Mean:	11.0		Mean:	13.5	
		Range:	--	--	Range:	--	--
6.	Bankfull cross-sectional area (sq. ft)	Mean:	5.5		Mean:	3.8	
		Range:	--	--	Range:	--	--
7.	Bankfull mean velocity (ft/sec)	Mean:	3.4		Mean:	4.9	
		Range:	3.1	3.8	Range:	--	--
8.	Bankfull discharge (cfs)	Mean:	18.6		Mean:	18.6	
		Range:	--	--	Range:	--	--
9.	Bankfull max depth (ft)	Mean:	0.9		Mean:	0.8	
		Range:	--	--	Range:	--	--
10.	Width of floodprone area (ft)	Mean:	12.0		Mean:	14.0	
		Range:	--	--	Range:	--	--
11.	Entrenchment ratio	Mean:	1.5		Mean:	1.9	
		Range:	--	--	Range:	--	--
12.	Meander length (ft)	Mean:	27.9		Mean:	63.0	
		Range:	13.2	51.1	Range:	50.4	75.6
13.	Ratio of meander length to bankfull width	Mean:	3.6		Mean:	8.8	
		Range:	1.7	6.5	Range:	7.0	10.5
14.	Radius of curvature (ft)	Mean:	10.9		Mean:	17.3	
		Range:	7.1	17.1	Range:	15.8	18.9
15.	Ratio of radius of curvature to bankfull width	Mean:	1.4		Mean:	2.4	
		Range:	0.9	2.2	Range:	2.2	2.6
16.	Belt width (ft)	Mean:	12.2		Mean:	12.9	
		Range:	8.1	25.2	Range:	11.3	14.5
17.	Meander width ratio	Mean:	1.6		Mean:	1.8	
		Range:	1.0	3.2	Range:	1.6	2.0
18.	Sinuosity (stream length/valley length)	Mean:	1.15		Mean:	1.07	
		Range:	--	--	Range:	--	--
19.	Valley slope (ft/ft)	Mean:	0.0174		Mean:	0.0110	
		Range:	--	--	Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0151		Mean:	0.0103	
		Range:	--	--	Range:	--	--
21.	Pool slope (ft/ft)	Mean:	0.0111		Mean:	0.0001	
		Range:	0.0067	0.0165	Range:	0.0001	0.0001
22.	Ratio of pool slope to average slope	Mean:	0.7		Mean:	0.0	
		Range:	0.4	1.1	Range:	0.0	0.0
23.	Maximum pool depth (ft)	Mean:	1.9		Mean:	1.4	
		Range:	1.6	2.1	Range:	--	--
24.	Ratio of pool depth to average bankfull depth	Mean:	2.6		Mean:	2.6	
		Range:	2.2	3.0	Range:	--	--
25.	Pool width (ft)	Mean:	6.7		Mean:	9.8	
		Range:	--	--	Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	0.9		Mean:	1.4	
		Range:	--	--	Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	20.0		Mean:	31.5	
		Range:	12.6	27.7	Range:	25.2	37.8
28.	Ratio of pool to pool spacing to bankfull width	Mean:	2.6		Mean:	4.4	
		Range:	1.6	3.5	Range:	3.5	5.3

MORPHOLOGICAL MEASUREMENTS TABLE

U-2525B On-Site Mitigation – Site 2 Reach 2

	Variables	Existing Channel			Proposed Design		
1.	Stream type	Incised B5			B5		
2.	Drainage area (sq. mi)	0.10			0.10		
3.	Bankfull width (ft)	Mean:	5.0		Mean:	7.6	
		Range:	--	--	Range:	--	--
4.	Bankfull mean depth (ft)	Mean:	1.0		Mean:	0.5	
		Range:	--	--	Range:	--	--
5.	Width/depth ratio	Mean:	5.2		Mean:	13.9	
		Range:	--	--	Range:	--	--
6.	Bankfull cross-sectional area (sq. ft)	Mean:	4.8		Mean:	4.2	
		Range:	--	--	Range:	--	--
7.	Bankfull mean velocity (ft/sec)	Mean:	4.0		Mean:	4.6	
		Range:	3.6	4.5	Range:	--	--
8.	Bankfull discharge (cfs)	Mean:	19.1		Mean:	19.1	
		Range:	--	--	Range:	--	--
9.	Bankfull max depth (ft)	Mean:	1.3		Mean:	0.8	
		Range:	--	--	Range:	--	--
10.	Width of floodprone area (ft)	Mean:	8.1		Mean:	12.0	
		Range:	--	--	Range:	--	--
11.	Entrenchment ratio	Mean:	1.6		Mean:	1.6	
		Range:	--	--	Range:	--	--
12.	Meander length (ft)	Mean:	42.3		Mean:	65.0	
		Range:	14.2	72.8	Range:	52.0	78.0
13.	Ratio of meander length to bankfull width	Mean:	8.5		Mean:	8.6	
		Range:	2.9	14.7	Range:	6.8	10.3
14.	Radius of curvature (ft)	Mean:	9.4		Mean:	17.9	
		Range:	5.0	16.0	Range:	16.3	19.5
15.	Ratio of radius of curvature to bankfull width	Mean:	1.9		Mean:	2.4	
		Range:	1.0	3.2	Range:	2.1	2.6
16.	Belt width (ft)	Mean:	18.5		Mean:	22.8	
		Range:	9.0	40.7	Range:	16.3	29.3
17.	Meander width ratio	Mean:	3.7		Mean:	3.0	
		Range:	1.8	8.2	Range:	2.1	3.9
18.	Sinuosity (stream length/valley length)	Mean:	1.19		Mean:	1.06	
		Range:	--	--	Range:	--	--
19.	Valley slope (ft/ft)	Mean:	0.0171		Mean:	0.0199	
		Range:	--	--	Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0144		Mean:	0.0187	
		Range:	--	--	Range:	--	--
21.	Pool slope (ft/ft)	Mean:	0.0040		Mean:	0.0000	
		Range:	0.0027	0.0056	Range:	0.0000	0.0019
22.	Ratio of pool slope to average slope	Mean:	0.3		Mean:	0.0	
		Range:	0.2	0.4	Range:	0.0	0.1
23.	Maximum pool depth (ft)	Mean:	1.8		Mean:	1.5	
		Range:	1.6	2.2	Range:	--	--
24.	Ratio of pool depth to average bankfull depth	Mean:	1.9		Mean:	2.7	
		Range:	1.6	2.3	Range:	--	--
25.	Pool width (ft)	Mean:	5.4		Mean:	10.2	
		Range:	--	--	Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	1.1		Mean:	1.3	
		Range:	--	--	Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	28.8		Mean:	32.5	
		Range:	24.0	33.7	Range:	29.3	42.3
28.	Ratio of pool to pool spacing to bankfull width	Mean:	5.8		Mean:	4.3	
		Range:	4.8	6.8	Range:	3.9	5.6

MORPHOLOGICAL MEASUREMENTS TABLE

U-2525B On-Site Mitigation – Site 4

	Variables	Existing Channel			Proposed Design		
1.	Stream type	Incised B5			C5		
2.	Drainage area (sq. mi)	0.57			0.57		
3.	Bankfull width (ft)	Mean:	8.9		Mean:	12.7	
		Range:	--	--	Range:	--	--
4.	Bankfull mean depth (ft)	Mean:	1.3		Mean:	0.9	
		Range:	--	--	Range:	--	--
5.	Width/depth ratio	Mean:	6.6		Mean:	13.6	
		Range:	--	--	Range:	--	--
6.	Bankfull cross-sectional area (sq. ft)	Mean:	11.9		Mean:	11.9	
		Range:	--	--	Range:	--	--
7.	Bankfull mean velocity (ft/sec)	Mean:	2.1		Mean:	2.1	
		Range:	1.9	2.3	Range:	--	--
8.	Bankfull discharge (cfs)	Mean:	24.5		Mean:	24.5	
		Range:	--	--	Range:	--	--
9.	Bankfull max depth (ft)	Mean:	2.1		Mean:	1.4	
		Range:	--	--	Range:	--	--
10.	Width of floodprone area (ft)	Mean:	15.1		Mean:	80.0	
		Range:	--	--	Range:	--	--
11.	Entrenchment ratio	Mean:	1.7		Mean:	6.3	
		Range:	--	--	Range:	--	--
12.	Meander length (ft)	Mean:	44.7		Mean:	122.0	
		Range:	25.7	58.3	Range:	97.6	146.4
13.	Ratio of meander length to bankfull width	Mean:	5.0		Mean:	9.6	
		Range:	2.9	6.6	Range:	7.7	11.5
14.	Radius of curvature (ft)	Mean:	33.6		Mean:	33.6	
		Range:	12.0	63.0	Range:	30.5	36.6
15.	Ratio of radius of curvature to bankfull width	Mean:	3.8		Mean:	2.6	
		Range:	1.3	7.1	Range:	2.4	2.9
16.	Belt width (ft)	Mean:	12.3		Mean:	42.7	
		Range:	7.4	17.7	Range:	30.5	54.9
17.	Meander width ratio	Mean:	1.4		Mean:	3.4	
		Range:	0.8	2.0	Range:	2.4	4.3
18.	Sinuosity (stream length/valley length)	Mean:	1.22		Mean:	1.08	
		Range:	--	--	Range:	--	--
19.	Valley slope (ft/ft)	Mean:	0.0029		Mean:	0.0050	
		Range:	--	--	Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0024		Mean:	0.0046	
		Range:	--	--	Range:	--	--
21.	Pool slope (ft/ft)	Mean:	0.0073		Mean:	0.0000	
		Range:	0.0061	0.0080	Range:	0.0000	0.0005
22.	Ratio of pool slope to average slope	Mean:	3.0		Mean:	0.0	
		Range:	2.5	3.3	Range:	0.0	0.1
23.	Maximum pool depth (ft)	Mean:	2.7		Mean:	2.6	
		Range:	2.5	2.8	Range:	--	--
24.	Ratio of pool depth to average bankfull depth	Mean:	2.0		Mean:	2.8	
		Range:	1.9	2.1	Range:	--	--
25.	Pool width (ft)	Mean:	13.3		Mean:	17.0	
		Range:	--	--	Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	1.5		Mean:	1.3	
		Range:	--	--	Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	24.4		Mean:	70.2	
		Range:	23.7	25.2	Range:	54.9	85.4
28.	Ratio of pool to pool spacing to bankfull width	Mean:	2.7		Mean:	5.5	
		Range:	2.7	2.8	Range:	4.3	6.7

MORPHOLOGICAL MEASUREMENTS TABLE

U-2525B On-Site Mitigation – Site 5

	Variables	Existing Channel			Proposed Design		
1.	Stream type	E5			C5		
2.	Drainage area (sq. mi)	0.51			0.51		
3.	Bankfull width (ft)	Mean:	11.8		Mean:	13.7	
		Range:	--	--	Range:	--	--
4.	Bankfull mean depth (ft)	Mean:	1.1		Mean:	1.0	
		Range:	--	--	Range:	--	--
5.	Width/depth ratio	Mean:	10.4		Mean:	14.1	
		Range:	--	--	Range:	--	--
6.	Bankfull cross-sectional area (sq. ft)	Mean:	13.3		Mean:	13.3	
		Range:	--	--	Range:	--	--
7.	Bankfull mean velocity (ft/sec)	Mean:	4.3		Mean:	4.3	
		Range:	3.9	4.8	Range:	--	--
8.	Bankfull discharge (cfs)	Mean:	56.5		Mean:	56.5	
		Range:	--	--	Range:	--	--
9.	Bankfull max depth (ft)	Mean:	1.6		Mean:	1.4	
		Range:	--	--	Range:	--	--
10.	Width of floodprone area (ft)	Mean:	147.0		Mean:	147.0	
		Range:	--	--	Range:	--	--
11.	Entrenchment ratio	Mean:	12.5		Mean:	10.7	
		Range:	--	--	Range:	--	--
12.	Meander length (ft)	Mean:	85.2		Mean:	126.0	
		Range:	27.5	138.0	Range:	100.8	151.2
13.	Ratio of meander length to bankfull width	Mean:	7.2		Mean:	9.2	
		Range:	2.3	11.7	Range:	7.4	11.0
14.	Radius of curvature (ft)	Mean:	29.6		Mean:	34.7	
		Range:	6.0	71.0	Range:	31.5	37.8
15.	Ratio of radius of curvature to bankfull width	Mean:	2.5		Mean:	2.5	
		Range:	0.5	6.0	Range:	2.3	2.8
16.	Belt width (ft)	Mean:	33.5		Mean:	36.4	
		Range:	17.6	53.2	Range:	24.6	48.2
17.	Meander width ratio	Mean:	2.8		Mean:	2.7	
		Range:	1.5	4.5	Range:	1.8	3.5
18.	Sinuosity (stream length/valley length)	Mean:	1.16		Mean:	1.13	
		Range:	--	--	Range:	--	--
19.	Valley slope (ft/ft)	Mean:	0.0131		Mean:	0.0118	
		Range:	--	--	Range:	--	--
20.	Average slope (ft/ft)	Mean:	0.0113		Mean:	0.0105	
		Range:	--	--	Range:		
21.	Pool slope (ft/ft)	Mean:	0.0012		Mean:	0.0000	
		Range:	0.0057	0.0017	Range:	0.0000	0.0010
22.	Ratio of pool slope to average slope	Mean:	0.1		Mean:	0.0	
		Range:	0.5	0.1	Range:	0.0	0.1
23.	Maximum pool depth (ft)	Mean:	2.3		Mean:	2.6	
		Range:	1.9	2.6	Range:	--	--
24.	Ratio of pool depth to average bankfull depth	Mean:	2.1		Mean:	2.7	
		Range:	1.7	2.3	Range:	--	--
25.	Pool width (ft)	Mean:	11.8		Mean:	16.0	
		Range:	--	--	Range:	--	--
26.	Ratio of pool width to bankfull width	Mean:	1.0		Mean:	1.2	
		Range:	--	--	Range:	--	--
27.	Pool to pool spacing (ft)	Mean:	32.7		Mean:	72.5	
		Range:	21.3	50.8	Range:	56.7	88.2
28.	Ratio of pool to pool spacing to bankfull width	Mean:	2.8		Mean:	5.3	
		Range:	1.8	4.3	Range:	4.1	6.4

APPENDIX E

SEDIMENT TRANSPORT CALCULATIONS

SHEAR TRANSPORT CALCULATIONS
U-2525B On-Site Mitigation – Site 2 Reach 1

Shear Stress Analysis Data			
Feature		Existing	Proposed
Bankfull Cross-Sectional Area (A_{bkf})	Sq. ft	5.5	3.8
Bankfull Width, (W_{bkf})	ft	7.8	7.2
Width/Depth Ratio (W/D)	ft	11.0	13.5
Wetted Perimeter (WP) WP = W + 2D	ft	9.3	7.5
Hydraulic Radius (R) R = A_{bkf}/WP	ft	0.6	0.51
Average Channel Slope (Se)	ft/ft	0.0151	0.0103
Boundary Shear Stress, (τ)	lb/sq. ft	0.56	0.33
Median Diameter of Pavement (D_{50})	mm	13.75	
Median Diameter of Sub-Pavement ($\hat{D}_{50}$)	mm	1.7	
Critical Dimensionless Shear Stress (τ_{ci})		0.029	
Largest Particle from Sub-Pavement (D_i)	mm	45	
Largest Particle from Sub-Pavement (D_i)	ft	0.15	
Required Mean Bankfull Depth (D_r)	ft	0.47	
Required Mean Bankfull Slope (S_r)	ft/ft	0.0100	

SHEAR TRANSPORT CALCULATIONS
U-2525B On-Site Mitigation – Site 2 Reach 2

Shear Stress Analysis Data			
Feature		Existing	Proposed
Bankfull Cross-Sectional Area (A_{bkf})	Sq. ft	4.8	4.2
Bankfull Width, (W_{bkf})	ft	5	7.6
Width/Depth Ratio (W/D)	ft	5.2	13.9
Wetted Perimeter (WP) WP = W + 2D	ft	6.1	7.9
Hydraulic Radius (R) R = A_{bkf}/WP	ft	0.8	0.53
Average Channel Slope (Se)	ft/ft	0.0144	0.0187
Boundary Shear Stress, (τ)	lb/sq. ft	0.71	0.62
Median Diameter of Pavement (D_{50})	mm	13.75	
Median Diameter of Sub-Pavement ($\hat{D}_{50}$)	mm	1.7	
Critical Dimensionless Shear Stress (τ_{ci})		0.029	
Largest Particle from Sub-Pavement (D_i)	mm	45	
Largest Particle from Sub-Pavement (D_i)	ft	0.15	
Required Mean Bankfull Depth (D_r)	ft	0.49	
Required Mean Bankfull Slope (S_r)	ft/ft	0.0071	

SHEAR TRANSPORT CALCULATIONS
U-2525B On-Site Mitigation – Site 4

Shear Stress Analysis Data			
Feature		Existing	Proposed
Bankfull Cross-Sectional Area (A_{bkf})	Sq. ft	11.9	11.9
Bankfull Width, (W_{bkf})	ft	8.9	12.7
Width/Depth Ratio (W/D)	ft	6.6	13.6
Wetted Perimeter (WP) WP = W + 2D	ft	10.7	13.2
Hydraulic Radius (R) R = A_{bkf}/WP	ft	1.11	0.90
Average Channel Slope (Se)	ft/ft	0.0024	0.0046
Boundary Shear Stress, (τ)	lb/sq. ft	0.17	0.26
Median Diameter of Pavement (D_{50})	mm	29.41	
Median Diameter of Sub-Pavement ($\hat{D}_{50}$)	mm	8.3	
Critical Dimensionless Shear Stress (τ_{ci})		0.013	
Largest Particle from Sub-Pavement (D_i)	mm	45	
Largest Particle from Sub-Pavement (D_i)	ft	0.15	
Required Mean Bankfull Depth (D_r)	ft	1.31	
Required Mean Bankfull Slope (S_r)	ft/ft	0.0024	

SHEAR TRANSPORT CALCULATIONS
U-2525B On-Site Mitigation – Site 5

Shear Stress Analysis Data			
Feature		Existing	Proposed
Bankfull Cross-Sectional Area (A_{bkf})	Sq. ft	13.3	13.3
Bankfull Width, (W_{bkf})	ft	11.8	13.7
Width/Depth Ratio (W/D)	ft	10.4	14.1
Wetted Perimeter (WP) WP = W + 2D	ft	12.8	14.1
Hydraulic Radius (R) R = A_{bkf}/WP	ft	1.04	0.94
Average Channel Slope (Se)	ft/ft	0.0113	0.0105
Boundary Shear Stress, (τ)	lb/sq. ft	0.73	0.61
Median Diameter of Pavement (D_{50})	mm	50	
Median Diameter of Sub-Pavement ($\hat{D}_{50}$)	mm	15.2	
Critical Dimensionless Shear Stress (τ_{ci})		0.021	
Largest Particle from Sub-Pavement (D_i)	mm	50	
Largest Particle from Sub-Pavement (D_i)	ft	0.16	
Required Mean Bankfull Depth (D_r)	ft	0.51	
Required Mean Bankfull Slope (S_r)	ft/ft	0.0052	

APPENDIX F

RIPARIAN PLANTING SPECIFICATIONS

STREAM REFORESTATION:

Description

Stream Reforestation will be planted in areas designated on the plans and as directed. See the Stream Reforestation Detail Sheets.

The entire *Stream Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

Materials

Live Stakes:

Type I Stream Reforestation shall be live stakes, planted along both streambanks. Live stakes shall be ½"- 2" in diameter. Stakes shall also be 2 ft. - 3 ft. in length.

Live staking plant material shall consist of a random mix made up of the following:

Percent Planted	Common Name	Scientific Name
50%	Buttonbush	*Cephalanthus occidentalis*
50%	Silky Dogwood	*Cornus amomum*

Other species may be substituted upon approval of the Engineer. All plant material shall be harvested locally (within the same physiographic ecoregion and plant hardiness zone) or purchased from a local nursery, with the approval of the Engineer. All live stakes shall be dormant at time of acquisition and planting.

Coir Fiber Matting:

Provide matting that meets the following requirements:

100% coconut fiber (coir) twine woven into high strength matrix	
Thickness -	0.30 in. minimum
Tensile Strength	1348 x 626 lb/ft minimum
Elongation	34% x 38% maximum
Flexibility (mg-cm)	65030 x 29590
Flow Velocity	Observed 11 ft/sec
Weight	20 oz/SY
Size	6.6 x 164 ft (120 SY)
"C" Factor	0.002
Open Area (measured)	50%

Staples, stakes, or reinforcement bars shall be used as anchors and shall meet the following requirements:

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Bare Root Seedlings:

Type II Stream Reforestation shall be bare root seedlings 12"-18" tall. Bare root seedlings shall consist of a random mix made up of the following:

Percent Planted	Common Name	Scientific Name
20%	Tulip Poplar	*Liriodendron tulipifera*
20%	Sycamore	*Platanus occidentalis*
20%	Green Ash	*Fraxinus pennsylvanica*
20%	Willow Oak	*Quercus phellos*
20%	River Birch	*Betula nigra*

Other species may be substituted upon approval of the Engineer.

Construction Methods

Coir fiber matting shall be installed on the streambanks where live staking is to be planted as shown on the Stream Reforestation Detail Sheets and in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat.

Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the matting with the soil. Place the matting immediately upon final grading. Take care to preserve the required line, grade, and cross section of the area covered.

Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Bury the top slope end of each piece of matting in a narrow trench at least 6" deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6" overlap. Construct check trenches at least 12" deep every 50 ft. longitudinally along the edges of the matting, or as directed. Fold over and bury matting to the full depth of the trench, close and tamp firmly. Overlap matting at least 6" where 2 or more widths of matting are installed side be side.

Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the Stream Reforestation Detail Sheets and as directed. Place anchors across the matting at ends, junctions, and check trenches approximately 1 ft. apart. Place anchors along the outer edges and down the center of each strip of matting 3 ft. apart. Place anchors along all lapped edges 1 ft. apart. Refer to the Stream Reforestation Detail Sheets for anchoring pattern. The Engineer may require adjustments in the trenching or anchoring requirements to fit individual site conditions.

During preparation of the live stakes, the basal ends shall be cleanly cut at an angle to facilitate easy insertion into the soil, while the tops shall be cut square or blunt for tamping. All limbs shall be removed from the sides of the live cutting prior to installation.

Live stakes shall be installed within 48 hours of cutting. Outside storage locations should be continually shaded and protected from wind and direct sunlight. Live cut plant material shall remain moist at all times before planting.

Stakes shall be spaced approximately 4 ft. on center. Live stakes shall be installed according to the configuration presented on the Stream Reforestation Detail Sheets.

Tamp live stakes perpendicularly into the finished bank slope with a dead blow hammer, with buds oriented in an upward direction. Stakes should be tamped until approximately ¾ of the stake length is within the ground. The area around each live stake shall be compacted by foot after the live stake has been installed.

1"- 2" shall be cut cleanly off of the top of each live stake with loppers at an angle of approximately 15 degrees following installation. Any stakes that are split or damaged during installation shall be removed and replaced.

The bare root seedlings shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted from top of bank out, along both sides of the stream, as designated on the plans.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: Stream reforestation shall be planted from November 15 through March 15.

Measurement and Payment

Stream Reforestation will be measured and paid for as the actual number of acres of land measured along the surface of the ground, which has been acceptably planted in accordance with this section.

Payment will be made under:

Pay Item	**Pay Unit**
Stream Reforestation	Acre

APPENDIX G

STREAM QUALITY ASSESEMENT WORKSHEETS

Mitigation Site 2 USACE 2:1 Ratio

Stream CS56

USACE AID#_____ DWQ #_____ Site # SAD (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET

Provide the following information for the stream reach under assessment:

1. Applicant's name: NCDOT

2. Evaluator's name: Atkins / O'Loughlin

3. Date of evaluation: June 11 2012

4. Time of evaluation: 1:10P

5. Name of stream: UT to South Buffalo Creek

6. River basin: Cape Fear 16-11-14-1

7. Approximate drainage area: 110 acres

8. Stream order: 2

9. Length of reach evaluated: 50 feet

10. County: Guilford

11. Site coordinates (if known): prefer in decimal degrees.

12. Subdivision name (if any): N/A

Latitude (ex. 34.872312): 36.10309 Longitude (ex. –77.556611): -79.69732

Method location determined (circle): (GPS) Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other_____

13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location): South of Huffine Mill Road and East of Flemingfield Road

14. Proposed channel work (if any): Highway construction

15. Recent weather conditions: Sunny, warm

16. Site conditions at time of visit: Moderate Flow

17. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters X Nutrient Sensitive Waters ___Water Supply Watershed ___(I-IV)

18. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:_____

19. Does channel appear on USGS quad map? (YES) NO

20. Does channel appear on USDA Soil Survey? (YES) NO

21. Estimated watershed land use: 35 % Residential ___% Commercial ___% Industrial 15 % Agricultural 50 % Forested ___% Cleared / Logged ___% Other (_____)

22. Bankfull width: 8 feet

23. Bank height (from bed to top of bank): 2 feet

24. Channel slope down center of stream: ___Flat (0 to 2%) X Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)

25. Channel sinuosity: ___Straight X Occasional bends ___Frequent meander ___Very sinuous ___Braided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 59 **Comments:** Substrate silt, sand, cobble; velocity moderate; clarity turbid

Evaluator's Signature _____ **Date** 06/29/12

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

Stream

SAD

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	3
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	3
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	2
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	3
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	3
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	3
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	2
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	3
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	3
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	3
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	3
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	3
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	3
	15	**Impact by agriculture, livestock, or timber production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	2
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	3
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	4
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	3
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	3
BIOLOGY	20	**Presence of stream invertebrates** (see page 4) (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	1
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	1
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	4
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						59

* These characteristics are not assessed in coastal streams.

Mitigation Site 4 USACE 2:1 Ratio Stream AX01 / CS42

USACE AID#_____ DWQ #_____ Site # SQ (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET

Provide the following information for the stream reach under assessment:

1. Applicant's name: NCDOT
2. Evaluator's name: Atkins / O'Loughlin
3. Date of evaluation: May 9, 2012
4. Time of evaluation: 4:35P
5. Name of stream: UT to North Buffalo Creek
6. River basin: Cape Fear 16-11-14-1
7. Approximate drainage area: 318 acres
8. Stream order: 2
9. Length of reach evaluated: 50 feet
10. County: Guilford
11. Site coordinates (if known): prefer in decimal degrees.
12. Subdivision name (if any): N/A

Latitude (ex. 34.872312): 36.13854 Longitude (ex. -77.556611): -79.71996

Method location determined (circle): (GPS) Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other_____

13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location): North of Briarmeade Road

14. Proposed channel work (if any): Highway construction

15. Recent weather conditions: Sunny, warm

16. Site conditions at time of visit: Slow Flow

17. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters X Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)

18. Is there a pond or lake located upstream of the evaluation point? (YES) NO If yes, estimate the water surface area: 5 ponds 4.8 ac

19. Does channel appear on USGS quad map? (YES) NO

20. Does channel appear on USDA Soil Survey? (YES) NO

21. Estimated watershed land use: 45 % Residential ___% Commercial 15 % Industrial 10 % Agricultural 30 % Forested ___% Cleared / Logged ___% Other (_____)

22. Bankfull width: 7 feet

23. Bank height (from bed to top of bank): 4 feet

24. Channel slope down center of stream: ___Flat (0 to 2%) X Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)

25. Channel sinuosity: ____Straight ___Occasional bends X Frequent meander ___Very sinuous ___Braided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 52 **Comments:** Substrate silt, sand; velocity slow; clarity turbid

Evaluator's Signature_____ _____ **Date** 06/28/12

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	2
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	0
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	2
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	1
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	3
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	2
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	2
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	4
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	3
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	2
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	3
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	2
	15	**Impact by agriculture, livestock, or timber production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	3
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	2
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	2
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (see page 4) (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	3
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	3
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	2
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	1
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						52

* These characteristics are not assessed in coastal streams.

Mitigation Site 5 USACE 2:1 Rd.to Stream AR01 / CS38

USACE AID#_____ DWQ #_____ Site # SL (indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET

Provide the following information for the stream reach under assessment:

1. Applicant's name: NCDOT

2. Evaluator's name: Atkins / O'Loughlin

3. Date of evaluation: May 9, 2012

4. Time of evaluation: 2:45P

5. Name of stream: UT to North Buffalo Creek

6. River basin: Cape Fear 16-11-14-1

7. Approximate drainage area: 319 acres

8. Stream order: 3

9. Length of reach evaluated: 50 feet

10. County: Guilford

11. Site coordinates (if known): prefer in decimal degrees.

12. Subdivision name (if any): N/A

Latitude (ex. 34.872312): 36.14196 Longitude (ex. –77.556611): -79.72825

Method location determined (circle): (GPS) Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other_____

13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location): North of White Rock Road

14. Proposed channel work (if any): Highway construction

15. Recent weather conditions: Sunny, warm

16. Site conditions at time of visit: Moderate Flow

17. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters X Nutrient Sensitive Waters ___Water Supply Watershed ___(I-IV)

18. Is there a pond or lake located upstream of the evaluation point? (YES) NO If yes, estimate the water surface area: 0.6 acre

19. Does channel appear on USGS quad map? (YES) NO

20. Does channel appear on USDA Soil Survey? (YES) NO

21. Estimated watershed land use: 25 % Residential ___% Commercial ___% Industrial ___% Agricultural 55 % Forested 20 % Cleared / Logged ___% Other (_____)

22. Bankfull width: 8 feet

23. Bank height (from bed to top of bank): 4 feet

24. Channel slope down center of stream: X Flat (0 to 2%) ___Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)

25. Channel sinuosity: ___Straight ___Occasional bends X Frequent meander ___Very sinuous ___Braided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 57 **Comments:** Substrate silt, boulder; velocity fast; clarity turbid

Evaluator's Signature _____ **Date** 06/28/12

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	4
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	1
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	3
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	2
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	3
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	1
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	1
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	3
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	3
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	3
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	3
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	4
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	2
	15	**Impact by agriculture, livestock, or timber production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	3
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	3
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	3
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	3
BIOLOGY	20	**Presence of stream invertebrates** (see page 4) (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	3
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	2
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	2
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	1
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						57

* These characteristics are not assessed in coastal streams.

APPENDIX H

PHOTOGRAPHS

Site 2

Site 2

Site 2

Site 2

Site 4

Site 4

Site 4

Site 4

Site 5

Site 5

Site 5

Site 5

TIP PROJECT: U-2525B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

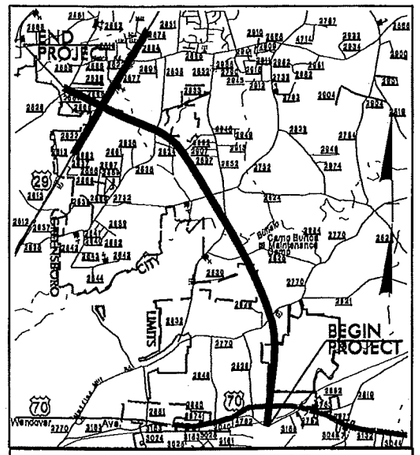
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2525B	OSM-1	30

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34821.1.3		PE
34821.2.3		ROW
34821.3.6		CONST.

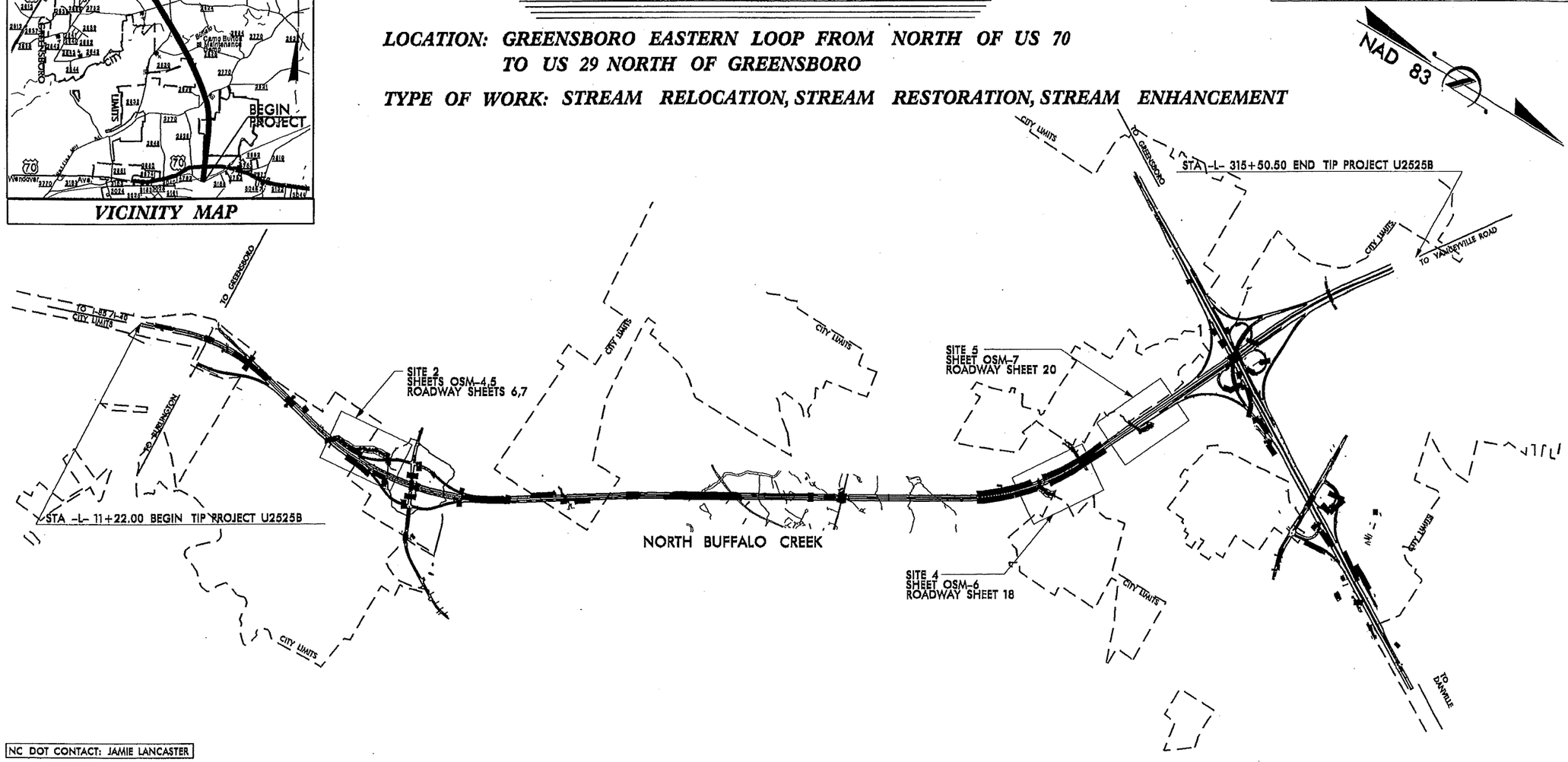
PLAN FOR ON-SITE MITIGATION GUILFORD COUNTY

LOCATION: *GREENSBORO EASTERN LOOP FROM NORTH OF US 70 TO US 29 NORTH OF GREENSBORO*

TYPE OF WORK: *STREAM RELOCATION, STREAM RESTORATION, STREAM ENHANCEMENT*



VICINITY MAP



NC DOT CONTACT: JAMIE LANCASTER

GRAPHIC SCALES

30 15 0 30 60
PLANS

30 15 0 30 60
PROFILE (HORIZONTAL)

6 3 0 6 12
PROFILE (VERTICAL)

DESIGN DATA

PROJECT LENGTH

MITIGATION SITE	MITIGATION TYPE	LENGTH
SITE 2	RESTORATION/RELOCATION	1,307LF
SITE 4	RESTORATION	386LF
SITE 5	RELOCATION	362LF

PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050
NC License F-0102

2012 STANDARD SPECIFICATIONS

DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PAIT

SIGNATURE: *P.E.*

GENERAL NOTES

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING STANDARDS:

A) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 'STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, DATED JANUARY 2012, AND ANY SUPPLEMENTS THERETO ISSUED PRIOR TO THE DATE OF RECEIPT OF BIDS.

B) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 'ROADWAY STANDARD DRAWINGS, ENGLISH' DATED JANUARY 2012, AND ANY SUPPLEMENTS ISSUED THERETO PRIOR TO THE DATE OF RECEIPT OF BIDS.

ALL RIGHT OF WAY CORNER MARKERS OR FENCING SHALL BE PLACED BY OTHERS AS NECESSARY.

THE CONTRACTOR IS RESPONSIBLE FOR AVOIDING ANY DISTURBANCE OR DAMAGE TO EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING ANY DAMAGES AT A COST INCIDENT TO THIS CONTRACT.

ABANDONED SECTIONS OF THE EXISTING CHANNEL SHALL BE FILLED TO THE MAXIMUM EXTENT FEASIBLE WITH MATERIAL EXCAVATED ON-SITE. THIS EXCAVATED MATERIAL SHALL BE STOCKPILED ADJACENT TO THE REACHES OF CHANNEL OR DITCHES TO BE BACKFILLED.

THE CONTRACTOR MAY UTILIZE THE DESIGNATED STAGING AREA AND THE AREA INSIDE THE PROPOSED RIGHT OF WAY FOR STAGING AND STOCKPILING EQUIPMENT AND MATERIALS.

THE STREAM SHALL BE CONSTRUCTED IN ACCORDANCE TO THE TYPICAL SECTIONS.

SUBSURFACE PLANS: NO SUBSURFACE PLANS ARE AVAILABLE ON THE PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

ROADWAY STANDARD DRAWINGS

(REV. JANUARY 2012)

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN 'ROADWAY STANDARD DRAWINGS' - ROADWAY DESIGN UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 AND THE LATEST REVISION THERETO ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

CONSTRUCTION SEQUENCING

THIS STREAM MITIGATION PROJECT CONSISTS OF THREE SITES. ONCE WORK BEGINS ON A STREAM SITE, THE CONTRACTOR MUST COMPLETE THAT SITE BEFORE MOVING WORK CREWS AND EQUIPMENT TO A DIFFERENT SITE, UNLESS APPROVED TO DO SO BY THE ENGINEER.

LAYOUT LOCATION OF THE NEW STREAM CHANNEL, CONSTRUCTION EASEMENT LIMITS, AND GRADE STAKES. THE ENGINEER MUST INSPECT AND APPROVE ALL LAYOUT WORK BEFORE CONSTRUCTION MAY BEGIN.

MOBILIZE EQUIPMENT AND MATERIALS TO THE SITE.

INSTALL CONSTRUCTION ENTRANCE PER EROSION CONTROL PLAN.

ESTABLISH STAGING AREAS AND MARK CONSTRUCTION EQUIPMENT ACCESS LOCATIONS WITH VISIBLE MARKERS. CONSTRUCTION EQUIPMENT SHALL BE CONTAINED WITHIN THE LIMITS OF CONSTRUCTION AS DEPICTED IN THE PLANS OR SPECIFIED BY THE ENGINEER.

INSTALL TEMPORARY EROSION CONTROL MEASURES.

BEGIN FLOODPLAIN GRADING, INCLUDING EXCAVATION OF BANKFULL BENCHES AT LOCATIONS DEPICTED IN THE PLANS AND AS DIRECTED BY THE ENGINEER. STOCKPILE MATERIALS IN AREAS DESIGNATED ON THE PLANS. KEEP TOPSOIL SEPARATE FROM OTHER STOCKPILE MATERIAL. TOPSOIL MATERIAL WILL BE USED LATER ON FLOODPLAIN.

TOPSOIL SHALL BE EXCAVATED AND STOCKPILED SEPARATELY FROM THE WASTE MATERIAL SO THAT IT CAN BE PLACED BACK ON THE FLOODPLAIN ONCE GRADING IS COMPLETE. NO DIRECT PAYMENT WILL BE MADE FOR THIS EXCAVATION. OVER-EXCAVATE FLOODPLAIN AND FLOODPLAIN SLOPES TO A DEPTH OF 6' BELOW FINAL GRADE AND PLACE 6' OF TOPSOIL TO FILL TO FINAL GRADE. OVER-EXCAVATION SHOULD BEGIN 3' FROM TOP OF BANK AND EXTEND TO EXCAVATION LIMITS. SEE TYPICAL SECTIONS FOR DETAIL. INSTALL IMPERVIOUS DIKES AND PUMP AROUND SYSTEM TO PUMP STREAM DISCHARGE AROUND THE IMMEDIATE WORK AREA AS NECESSARY.

CONSTRUCTION SHALL PROCEED IN SUCCESSIVE REACHES WITH THE UPSTREAM REACH BEING COMPLETED PRIOR TO INITIATING CONSTRUCTION OF THE ADJACENT DOWNSTREAM REACH. EACH REACH SHALL BE LIMITED IN LENGTH TO WORK THAT CAN BE COMPLETED BEFORE ALLOWING WATER TO FLOW THROUGH THAT REACH. COMPLETION OF A REACH SHALL CONSIST OF CHANNEL CONSTRUCTION, FLOODPLAIN GRADING, IN-STREAM STRUCTURE INSTALLATION, BED MATERIAL INSTALLATION, AND EROSION CONTROL MEASURES. CONSTRUCTION SHALL BE DONE IN THE DRY, WITH THE CHANNEL FLOW PUMPED AROUND THE REACH UNDER CONSTRUCTION AS NECESSARY.

AT THE END OF EACH DAY'S CONSTRUCTION WORK, THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS AND COVER THE STREAM BANKS AND BANKFULL BENCHES WITH COIR FIBER MATTING. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY EROSION CONTROL MEASURES ON A DAILY BASIS THROUGHOUT THE CONSTRUCTION PROCESS.

ONCE NEW CHANNEL CONSTRUCTION IS COMPLETE, THE CONTRACTOR SHALL INSTALL STREAM PLUGS TO DIRECT STREAM FLOW INTO THE NEW CHANNEL. THE CONTRACTOR SHALL THEN FILL IN THE ABANDONED SECTIONS OF THE EXISTING CHANNEL TO THE EXTENT FEASIBLE AND AS DIRECTED BY THE ENGINEER. CONTRACTOR WILL ENSURE THAT VEGETATION HAS BEEN ESTABLISHED ALONG THE BANKS OF THE NEW STREAM CHANNEL BEFORE DIRECTING FLOW INTO THE NEW STREAM CHANNEL. FOR NEW STREAM CHANNEL REACHES WHERE THIS IS NOT POSSIBLE, THE CONTRACTOR SHOULD GET APPROVAL FROM THE ENGINEER BEFORE DIRECTING FLOW INTO THE NEW STREAM CHANNEL.

AFTER ALL IN-STREAM WORK IS COMPLETED, THE CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL MEASURES AND TEMPORARY STREAM ACCESS AND SCARIFY ANY COMPACTED AREAS AS DIRECTED BY THE ENGINEER. ALL PORTIONS OF THE SITE SHALL BE STABILIZED WITH TEMPORARY EROSION CONTROL MEASURES.

PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
P.O. BOX 33068 - RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050
NC LICENSE F-0102

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-1A

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN N. PAIT

APPROVED BY:

DATE:

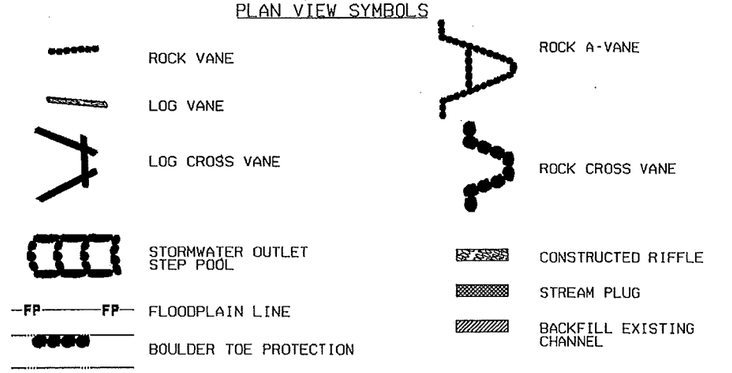
U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY

INDEX OF SHEETS

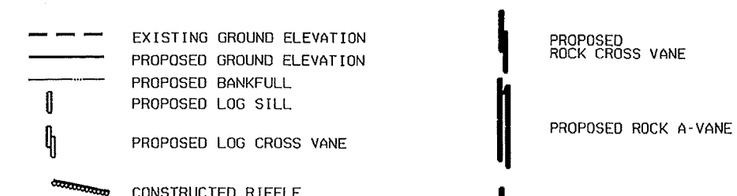
OSM-1	TITLE SHEET
OSM-1A	INDEX OF SHEETS, CONSTRUCTION SEQUENCING, GENERAL NOTES
OSM-1B	CONVENTIONAL PLAN SHEET SYMBOLS
OSM-2	TYPICAL SECTIONS
OSM-2A	DETAILS -COIR FIBER MATTING -ROCK CROSS VANE -LOG CROSS VANE -STORMWATER STEP POOL PROTECTION STRUCTURE
OSM-2B	-ROCK A-VANE -CONSTRUCTED RIFFLE -ROOTWAD -BOULDER TOE PROTECTION
OSM-2C	-ROCK VANE -LOG VANE -STREAM PLUG
OSM-2D	-PUMP AROUND OPERATION
OSM-2E-2F	-MORPHOLOGICAL TABLES
OSM-3	SUMMARY OF QUANTITIES EARTHWORK SUMMARY
OSM-4-7	PLAN SHEETS
OSM-8-11	PROFILE SHEETS
OSM-12-22	CROSS SECTIONS

STREAM SYMBOLS

PLAN VIEW SYMBOLS



PROFILE SYMBOLS



PLANTING SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
U-2525B	OSM-1B

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLDH
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — PH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — PH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole — SS
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?/TL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*) — TH
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050
NC LICENSE F-0102

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-2

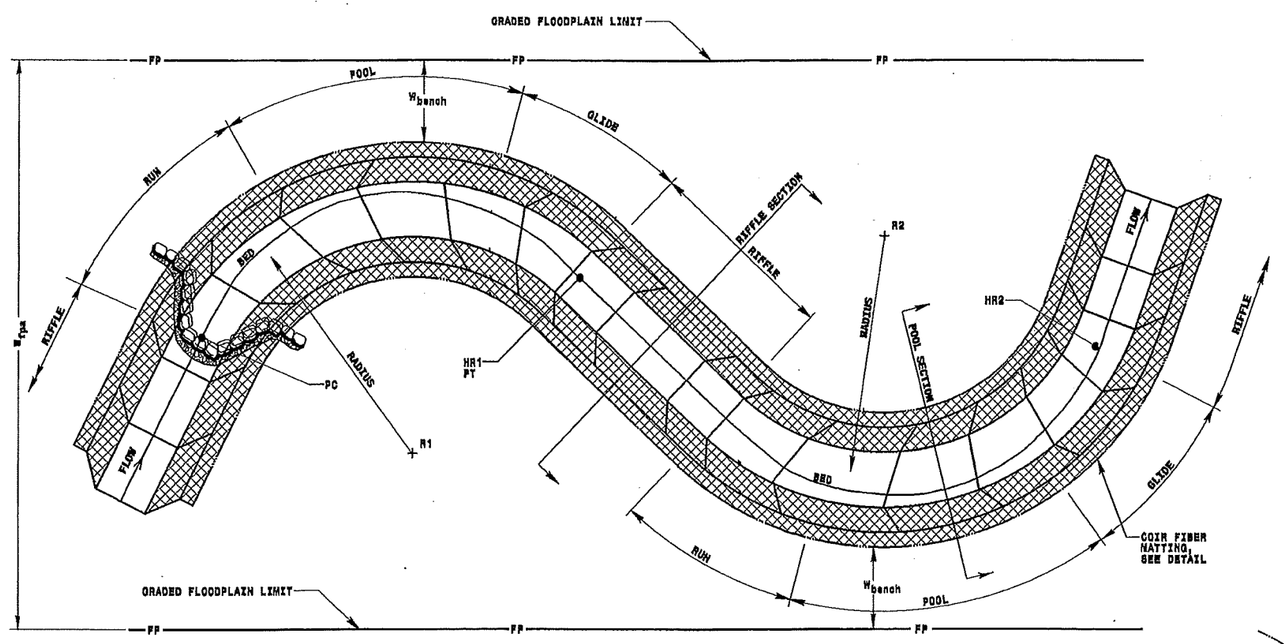
PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DARREN M. PITT

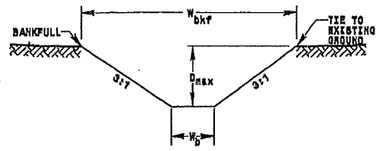
APPROVED BY:

DATE:

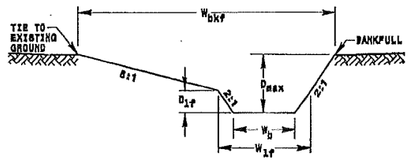
U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY



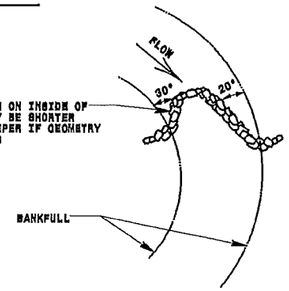
TYPICAL PLAN



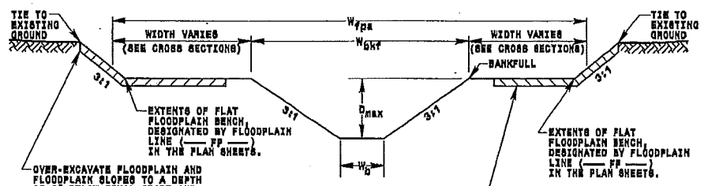
TYPICAL RIFFLE



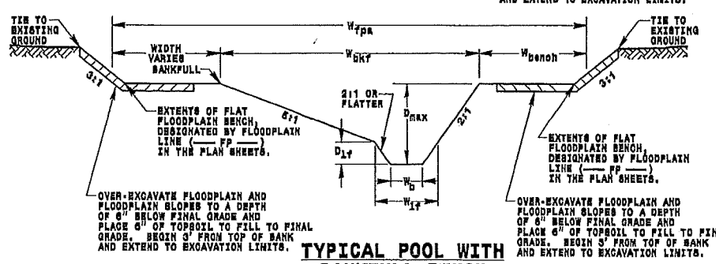
TYPICAL POOL



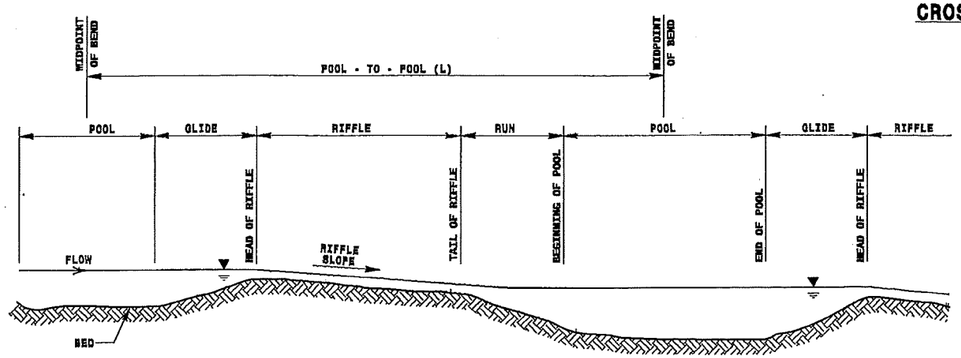
CROSS VANE CONSTRUCTION IN MEANDER-BEND PLAN VIEW



TYPICAL RIFFLE WITH BANKFULL BENCH



TYPICAL POOL WITH BANKFULL BENCH



TYPICAL PROFILE

NOTES:
1. THE COORDINATES FOR EACH CENTER OF RADIUS (EX. "R1","R2") AND EACH HEAD OF RIFFLE (EX. "HR1", "HR2") ARE INDICATED ON THE PLAN SHEETS.

W_{bkf} = BANKFULL WIDTH
D_{max} = MAXIMUM DEPTH
W_b = BOTTOM WIDTH
W_{fpa} = FLOOD PRONE AREA WIDTH
W_{lf} = LOW FLOW WIDTH
D_{lf} = LOW FLOW DEPTH

CHANNEL TYPICAL DETAIL

NOT TO SCALE

CROSS-SECTION DIMENSIONS (IN FEET)

		RIFFLE				POOL						
SITE	REACH	W_{bkf}	D_{max}	W_b	W_{fpa}	W_{bkf}	W_{lf}	D_{lf}	D_{max}	W_b	W_{fpa}	W_{bench}	Width/Depth Ratio
SITE 2	Sta. 200+00 - Sta. 208+00	7.2	0.8	2.4	SEE CROSS SECTIONS	9.8	3.4	0.6	1.4	1.0	SEE CROSS SECTIONS	3.5 MIN.	13.5
SITE 2	Sta. 208+00 - Sta. 213+07	7.3	0.8	2.6	SEE CROSS SECTIONS	10.2	3.8	0.7	1.8	1.0	SEE CROSS SECTIONS	3.5 MIN.	13.9
SITE 4	Sta. 400+00 - Sta. 403+88	12.7	1.4	4.3	SEE CROSS SECTIONS	15.8	4.6	0.9	2.8	1.0	SEE CROSS SECTIONS	6.0 MIN.	13.6
SITE 5	Sta. 500+00 - Sta. 503+22	12.7	1.4	8.3	SEE CROSS SECTIONS	17.0	5.8	1.2	2.8	1.4	SEE CROSS SECTIONS	6.8 MIN.	14.1

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PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-2A

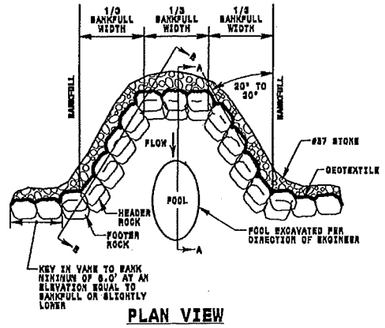
PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DARREN M. PAIT

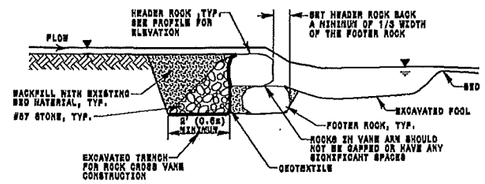
APPROVED BY:

DATE:

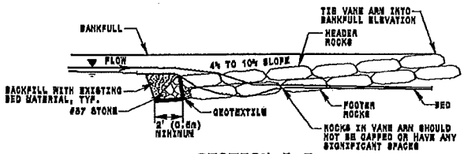
U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY



PLAN VIEW



SECTION A-A



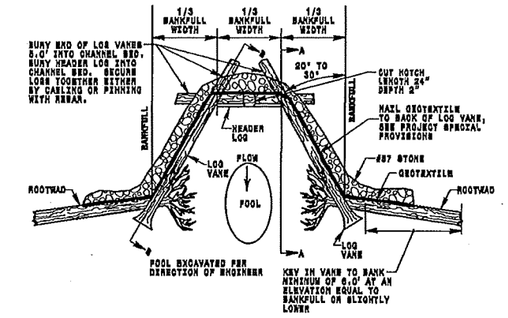
SECTION B-B

BOULDER SIZE DATA CHART			
REACH	BOULDER DIMENSIONS		
	HEIGHT	WIDTH	LENGTH
SITE 2 REACH 1	2'	3'	4'
SITE 2 REACH 2	3'	3'	4'
SITE 4	2'	3'	4'
SITE 5	2'	3'	4'

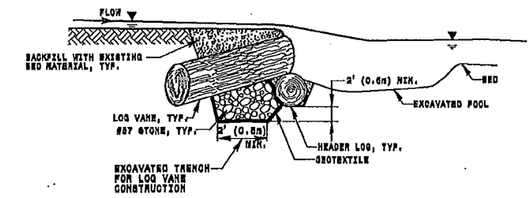
NOTE: THESE DIMENSIONS SPECIFY THE MINIMUM BOULDER SIZE

NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT FORSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

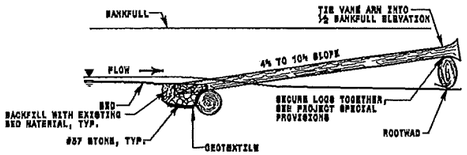
ROCK CROSS VANE DETAIL
NOT TO SCALE



PLAN VIEW



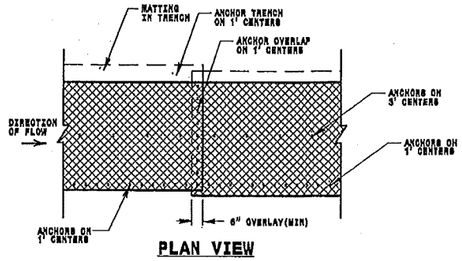
SECTION A-A



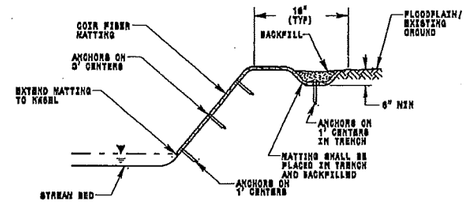
SECTION B-B

NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT FORSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

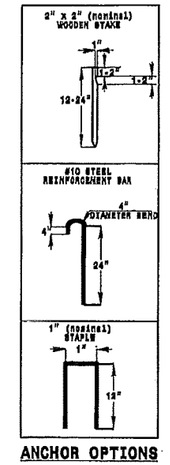
LOG CROSS VANE DETAIL
NOT TO SCALE



PLAN VIEW

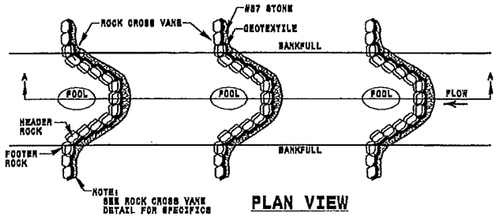


TYPICAL CROSS SECTION



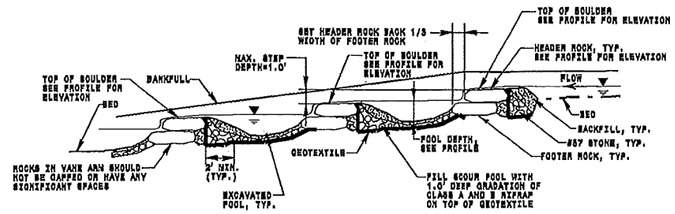
ANCHOR OPTIONS

COIR FIBER MATTING DETAIL
NOT TO SCALE



PLAN VIEW

NOTES:
1. STEPS TO BE SHORT, FREQUENT, AND CLOSELY SPACED.
2. POOL SPACING SHALL BE INVERSELY PROPORTIONAL TO STREAM SLOPE. SEE CHANNEL PROFILE FOR SPACING AND ELEVATIONS
3. ADEQUATE NUMBER OF FOOTER BOULDERS TO BE USED IN ORDER TO HOLD UP THE BOULDERS AT HEAD OF STEPS DURING HIGH ENERGY/HIGH FLOW EVENTS.
4. MINIMUM BOULDER SIZE=30"



SECTION A-A

STORMWATER STEP POOL PROTECTION STRUCTURE
NOT TO SCALE

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P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
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NC LICENSE F-0102

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-2B

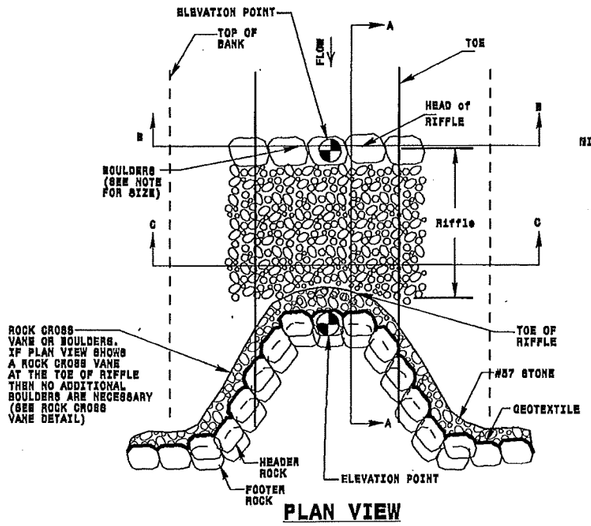
PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PATT

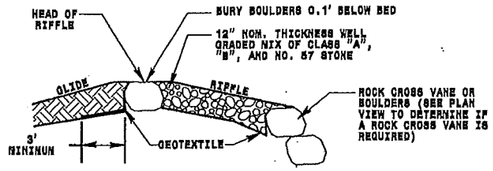
APPROVED BY:

DATE:

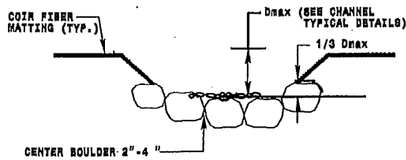
U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY



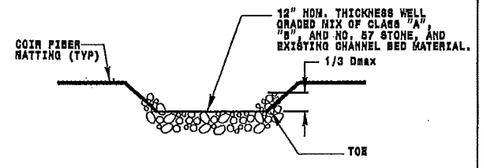
PLAN VIEW



SECTION A-A



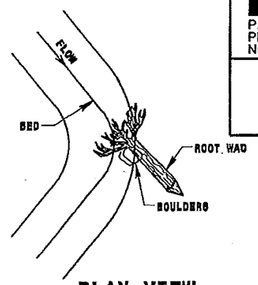
SECTION B-B



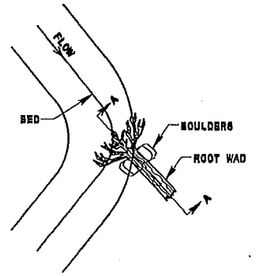
SECTION C-C

NOTE:
1. BOULDERS SHOULD BE NATIVE STONES OR SHOT ROCK, ANGULAR AND OBLONG, WITH AN AXIS APPROXIMATELY 4'LX3'Wx2'D
2. NOT ALL CONSTRUCTED RIFFLES REQUIRE A ROCK CROSS VANE ON THE TOE OF RIFFLE.
3. IF NO ROCK CROSS VANE IS PROPOSED AT THE TOE OF RIFFLE, INSTALL BOULDERS AT THE TOE OF RIFFLE TO SECURE CONSTRUCTED RIFFLE MATERIAL.

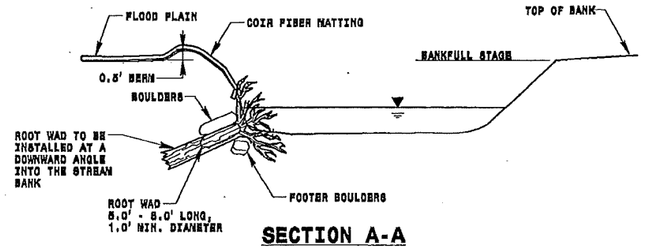
CONSTRUCTED RIFFLE DETAIL
NOT TO SCALE



PLAN VIEW
DRIVE POINT METHOD



PLAN VIEW
TRENCHING METHOD



SECTION A-A

NOTES:

ORIENT ROOT WADS SO THAT THE STREAM FLOW MEETS THE ROOT WAD STRAIGHT ON, DEFLECTING THE WATER AWAY FROM THE BANK.

METHODS OF INSTALLATION:

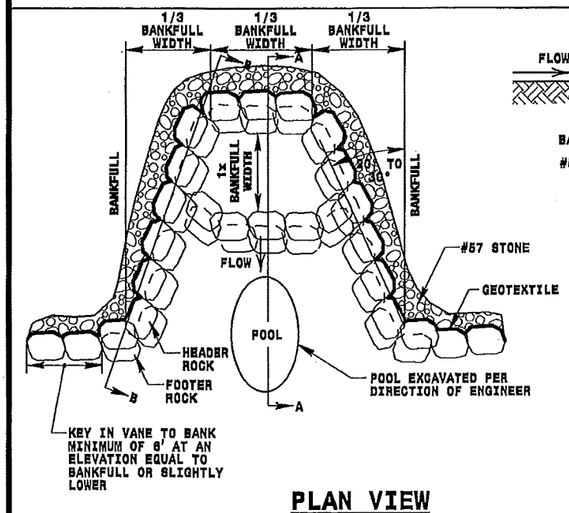
DRIVE POINT METHOD:

SHARPEN THE END OF THE LOG BEFORE "DRIVING" AT A DOWNWARD ANGLE INTO THE BANK. BOULDER SHOULD BE PLACED ON EACH SIDE OF THE ROOT WAD TO PIN IT IN PLACE. THE BOULDERS SHALL BE APPROXIMATELY 2' X 3' X 4'. ONE-THIRD OF THE ROOT WAD SHOULD REMAIN BELOW NORMAL BASE FLOW CONDITIONS.

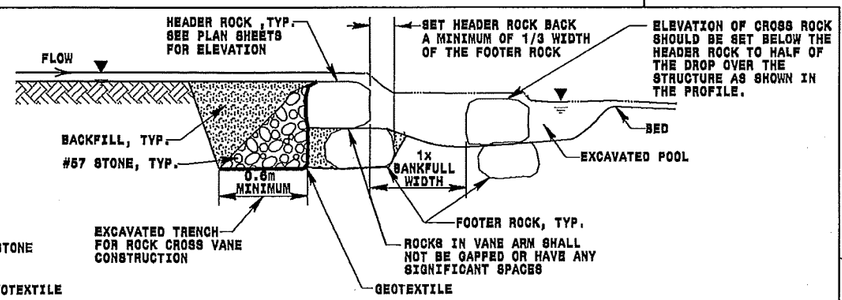
TRENCHING METHOD:

IF THE ROOT WAD CANNOT BE DRIVEN INTO THE BANK OR THE BANK NEEDS TO BE RECONSTRUCTED, THE TRENCHING METHOD SHOULD BE USED. THIS METHOD REQUIRES THAT A TRENCH BE EXCAVATED FOR THE LOG PORTION OF THE ROOT WAD. IN THIS CASE, FOOTER BOULDERS SHOULD BE INSTALLED UNDERNEATH THE ROOT WAD IN A TRENCH EXCAVATED PARALLEL TO THE BANK AND WELL BELOW THE STREAM BED. BOULDERS SHOULD BE PLACED ON EACH SIDE OF THE ROOTWAD TO PIN IT IN PLACE. THE BOULDERS SHOULD BE APPROXIMATELY 2' X 3' X 4'. ONE-THIRD OF THE ROOT WAD SHOULD REMAIN BELOW NORMAL BASE FLOW CONDITIONS.

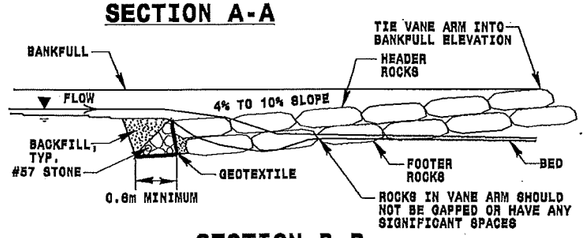
ROOT WAD DETAIL
NOT TO SCALE



PLAN VIEW



SECTION A-A



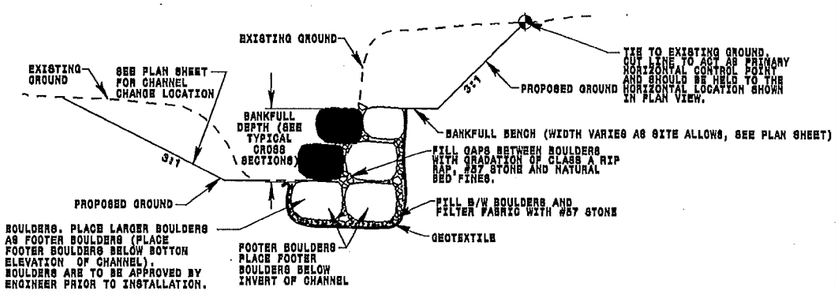
SECTION B-B

BOULDER SIZE DATA CHART			
REACH	BOULDER DIMENSIONS		
	HEIGHT	WIDTH	LENGTH
SITE 2 REACH 1	2'	3'	4'
SITE 2 REACH 2	2'	3'	4'
SITE 4	2'	3'	4'
SITE 5	2'	3'	4'

NOTE: THESE DIMENSIONS SPECIFY THE MINIMUM BOULDER SIZE

NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BANKFULL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

ROCK A VANE DETAIL
NOT TO SCALE



BOULDER TOE PROTECTION
NOT TO SCALE

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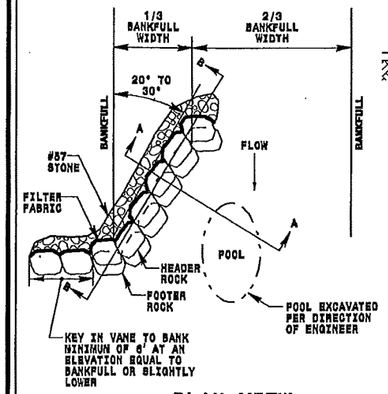
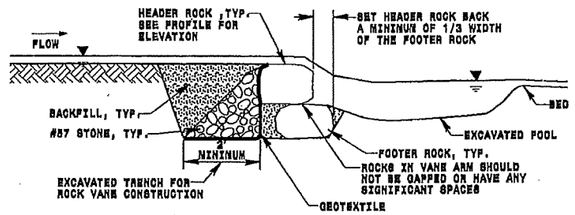
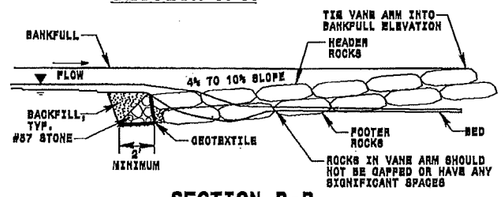
ON-SITE MITIGATION
GUILFORD COUNTY



PLAN VIEW



SECTION A-A



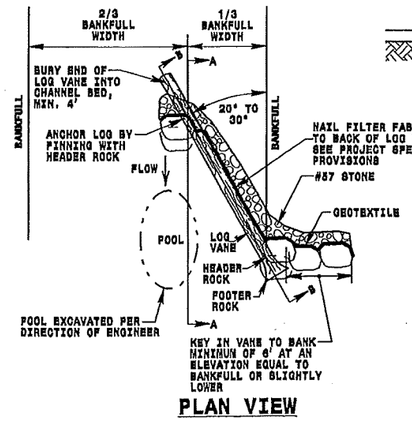
SECTION B-B

BOULDER SIZE DATA CHART			
REACH	BOULDER DIMENSIONS		
	HEIGHT	WIDTH	LENGTH
SITE 2 REACH 1	2'	3'	4'
SITE 2 REACH 2	2'	3'	4'
SITE 4	2'	3'	4'
SITE 5	2'	3'	4'

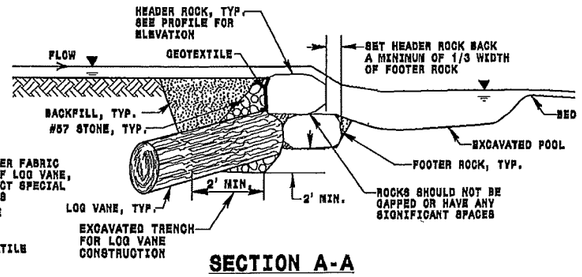
NOTE: THESE DIMENSIONS SPECIFY THE MINIMUM BOULDER SIZE

NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

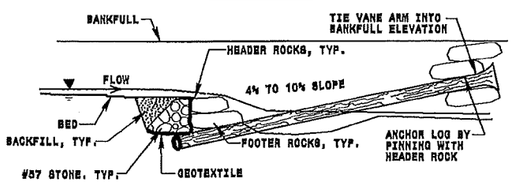
ROCK VANE DETAIL
NOT TO SCALE



PLAN VIEW



SECTION A-A



SECTION B-B

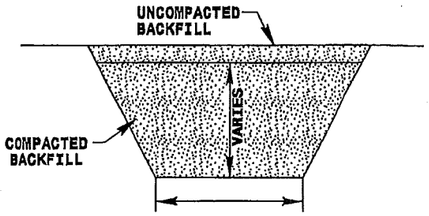
BOULDER SIZE DATA CHART			
REACH	BOULDER DIMENSIONS		
	HEIGHT	WIDTH	LENGTH
SITE 2 REACH 1	2'	3'	4'
SITE 2 REACH 2	2'	3'	4'
SITE 4	2'	3'	4'
SITE 5	2'	3'	4'

NOTE: THESE DIMENSIONS SPECIFY THE MINIMUM BOULDER SIZE

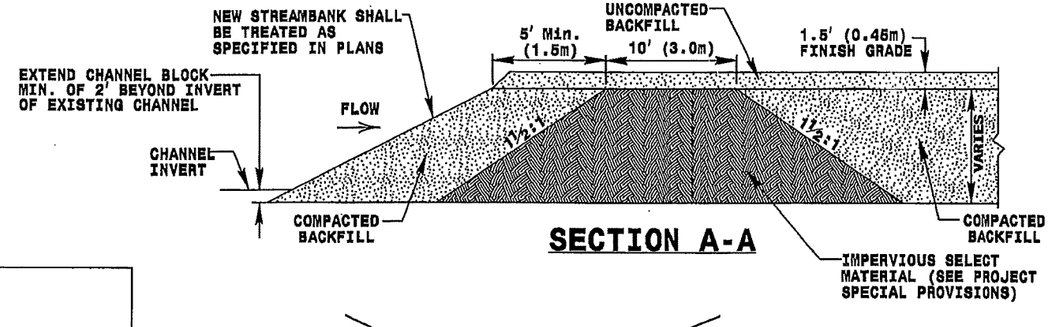
NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

LOG VANE DETAIL
NOT TO SCALE

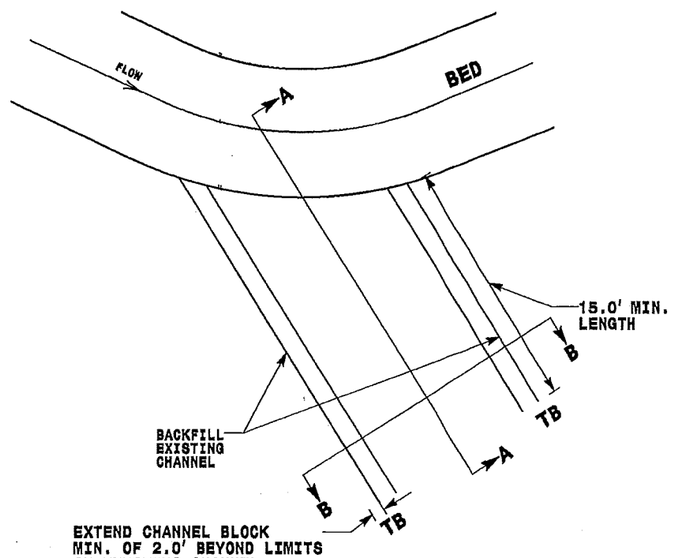
NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 2.0' BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 2.0' BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.



SECTION B-B



SECTION A-A



PLAN VIEW

STREAM PLUG
NOT TO SCALE

PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050
NC LICENSE F-0102

U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-2D

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PITT

APPROVED BY:

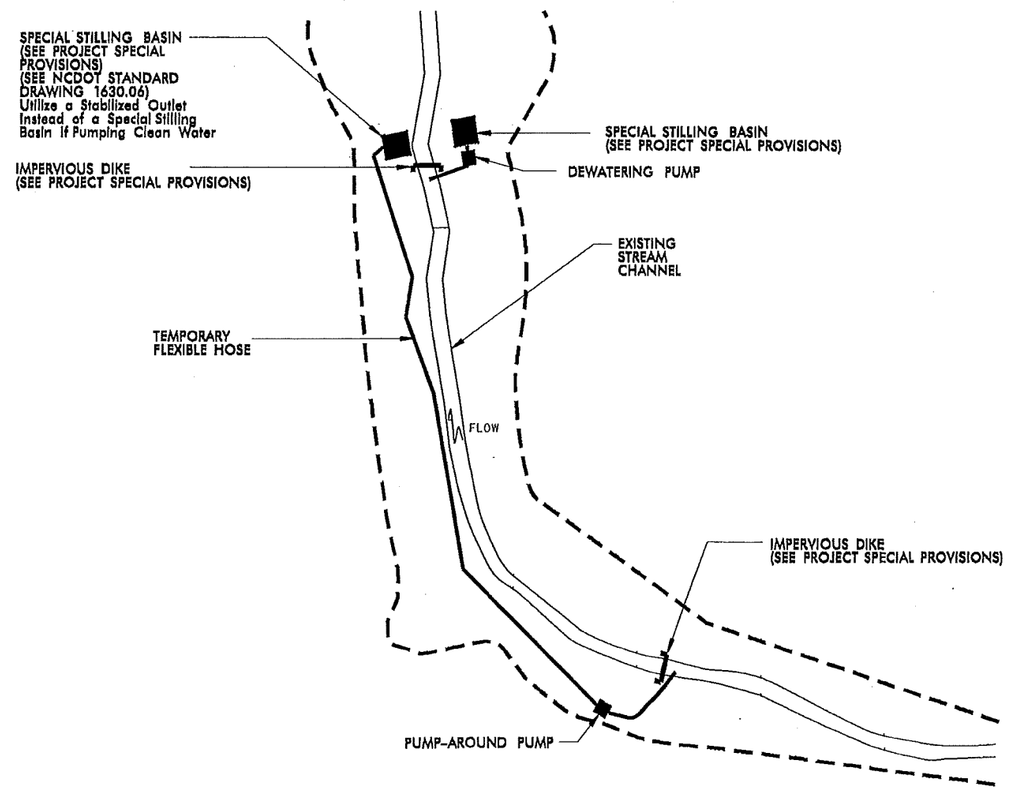
DATE:

NOTES:
1) All excavation shall be performed in only dry or isolated sections of channel.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) All graded areas shall be stabilized within 24 hours.
4) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
5) Pumps and hoses shall be of sufficient size to dewater the work area.

SEQUENCE OF CONSTRUCTION FOR PUMP AROUND OPERATION

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. ALL GRADING AND STABILIZATION MUST BE COMPLETED IN ONE DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

EXAMPLE OF PUMP-AROUND OPERATION



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PHONE: (919) 677-2000 FAX: (919) 677-2050
NC LICENSE F-0102

U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY

PROJECT REFERENCE NO.: U2525B | SHEET NO.: OSM-2E

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PATT

APPROVED BY:

DATE:

VARIABLES	Reference Reach Tributary to Riddicks Creek (KHA)	Reference Reach Riddicks Creek (KHA)	Reference Reach Tributary to Lake Jeanette (NCDOT)	Reference Reach Tributary to Rich Fork (KHA)	Existing Site 2 Reach 1	Regional Curves Piedmont Rural/Rosgen Reference Values	Site 2 Reach 1 Design Reach	Existing Site 2 Reach 2	Regional Curves Piedmont Rural/Rosgen Reference Values	Site 2 Reach 2 Design Reach
STATION	–	–	–	–	–	–	200+00 to 205+00	–	–	205+00 to 213+07
1. Stream Type	C5	E5	E5	B4	Incised B5	C/E	B5	Incised B5	C/E	B5
(Rosgen)										
2. Drainage Area (sq. mile)	0.18	0.07	0.15	1.12	0.08	0.08	0.08	0.10	0.10	0.10
3. Bankfull Width	Mean: 7.9	Mean: 6.6	Mean: 12.0	Mean: 15.2	Mean: 7.3	Mean: 4.1	Mean: 7.2	Mean: 5.0	Mean: 4.3	Mean: 7.5
(Wbkf)	Range:	Range: 6.7 7.5	Range: 12.0 13.5	Range:	Range:	Range:	Range:	Range:	Range:	Range:
4. Bankfull Mean	Mean: 0.6	Mean: 0.8	Mean: 1.6	Mean: 1.2	Mean: 0.7	Mean: 0.7	Mean: 0.5	Mean: 1.0	Mean: 0.7	Mean: 0.5
depth (d_{bkf})	Range: – –	Range: 0.7 0.8	Range: 1.4 1.7	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
5. Width/Depth Ratio	Mean: 13.5	Mean: 8.7	Mean: 8.4	Mean: 12.7	Mean: 11.0	Mean: 5.9	Mean: 13.5	Mean: 5.2	Mean: 5.1	Mean: 13.9
(W_{bkf}/d_{bkf})	Range:	Range: 8.2 9.2	Range: 7.1 9.5	Range:	Range:	Range:	Range: – –	Range:	Range:	Range:
6. Bankfull cross-sectional	Mean: 4.6	Mean: 5.1	Mean: 19.4	Mean: 19.0	Mean: 5.5	Mean: 4.0	Mean: 3.8	Mean: 4.8	Mean: 4.3	Mean: 4.2
Area (Abkf)	Range: – –	Range: 4.0 6.1	Range: 18.8 20.0	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
7. Bankfull Mean Velocity	Mean: Not Reported	Mean: Not Reported	Mean: 5.0	Mean: 5.1	Mean: 3.4	Mean: 3.8	Mean: 4.9	Mean: 4.0	Mean: 3.8	Mean: 4.5
(Vbkf)	Range: – –	Range: – –	Range: 4.9 5.0	Range: – –	Range: 3.1 3.6	Range: – –	Range: – –	Range: 3.6 4.5	Range: – –	Range: – –
8. Bankfull Discharge, cfs	Mean: Not Reported	Mean: Not Reported	Mean: 109.3	Mean: 96.9	Mean: 18.6	Mean: 15.0	Mean: 18.6	Mean: 19.1	Mean: 16.4	Mean: 19.1
(Q_{bkf})	Range: – –	Range: – –	Range: 100.7 119.6	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
9. Bankfull Maximum Depth	Mean: 1.0	Mean: 1.5	Mean: 2.8	Mean: 2.8	Mean: 0.9	Mean:	Mean: 0.8	Mean: 1.3	Mean:	Mean: 1.3
(d_{mbkf})	Range:	Range: 1.3 1.5	Range:	Range:	Range:	Range:	Range:	Range:	Range:	Range:
10. Max d_{bkf}/d_{bkf}	Mean: 1.7	Mean: 2.0	Mean: 2.4	Mean: 1.6	Mean: 1.3	Mean: 1.4	Mean: 1.5	Mean: 1.3	Mean: 1.4	Mean: 1.5
ratio	Range: – –	Range: 1.9 2.0	Range: – –	Range: – –	Range: – –	Range: 1.2 1.5	Range: – –	Range: – –	Range: 1.2 1.5	Range: – –
11. Low Bank Ht/2 to max	Mean: 1.0	Mean: 1.3	Mean: Not Reported	Mean: 1.1	Mean: 2.7	Mean:	Mean: 1.0	Mean: 3.4	Mean:	Mean: 1.0
depth ratio	Range: – –	Range: 1.2 1.5	Range: – –	Range: – –	Range: 2.45 2.90	Range: – –	Range: – –	Range: 3.10 3.60	Range: – –	Range: – –
12. Width of Flood Prone	Mean: 36.0	Mean: 27.4	Mean: 49.0	Mean: 23.3	Mean: 12.0	Mean: –	Mean: 14.0	Mean: 8.1	Mean: –	Mean: 12.0
Area (W_{fpa})	Range: – –	Range: 20.0 34.0	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
13. Entrenchment Ratio	Mean: 4.6	Mean: 4.2	Mean: 4.1	Mean: 1.5	Mean: 1.6	Mean: –	Mean: 1.9	Mean: 1.6	Mean: –	Mean: 1.6
(W_{fpa}/W_{bkf})	Range:	Range: 3.5 4.5	Range: 4.1 4.7	Range:	Range:	Range:	Range:	Range:	Range:	Range:
14. Meander Length	Mean: 80.5	Mean: 32.0	Mean: 22.0	Mean: –	Mean: 27.9	Mean: –	Mean: 63.0	Mean: 42.3	Mean: –	Mean: 65.0
(L_m)	Range: 64.0 97.0	Range: 25.0 45.0	Range: 22.0 69.0	Range: – –	Range: 13.2 51.1	Range: – –	Range: 50.4 75.6	Range: 14.2 72.8	Range: – –	Range: 62.0 78.0
15. Ratio of Meander Length to	Mean: 10.2	Mean: 4.8	Mean: 1.8	Mean: –	Mean: 3.5	Mean: 11.5	Mean: 8.8	Mean: 8.5	Mean: 11.5	Mean: 8.5
Bankfull Width (L_m/W_{bkf})	Range: 8.1 12.3	Range: 3.8 6.8	Range: 1.1 3.0	Range: – –	Range: 1.7 6.5	Range: 9.6 14.0	Range: 7.0 10.5	Range: 2.9 14.7	Range: 9.6 14.0	Range: 5.8 10.9
16. Radius of Curvature	Mean: 13.4	Mean: 11.3	Mean: 7.3	Mean: –	Mean: 10.9	Mean: –	Mean: 17.3	Mean: 9.4	Mean: –	Mean: 17.9
(R_c)	Range: 8.5 22.0	Range: 5.7 18.8	Range: 7.3 17.3	Range: – –	Range: 7.1 17.1	Range: – –	Range: 15.8 18.9	Range: 5.0 16.0	Range: – –	Range: 16.3 19.5
17. Ratio of Radius of Curvature	Mean: 1.7	Mean: 1.7	Mean: 0.5	Mean:	Mean: 1.4	Mean: 2.5	Mean: 2.4	Mean: 1.9	Mean: 2.8	Mean: 2.4
to Bankfull Width (R_c/W_{bkf})	Range: 1.0 2.8	Range: 0.8 2.8	Range: 0.6 1.4	Range:	Range: 0.5 2.2	Range: 2.5 3.0	Range: 2.2 2.6	Range: 1.0 3.2	Range: 2.5 3.0	Range: 2.1 2.6
18. Belt Width	Mean: 34.0	Mean: 15.8	Mean: 45.0	Mean: –	Mean: 12.2	Mean: –	Mean: 12.9	Mean: 18.5	Mean: –	Mean: 22.8
(W_{blt})	Range: – –	Range: 10.5 22.0	Range: – –	Range: – –	Range: 8.1 25.2	Range: – –	Range: 11.3 14.5	Range: 9.0 40.7	Range: – –	Range: 18.3 29.3
19. Meander Width Ratio	Mean: 7.9	Mean: 2.4	Mean: 3.0	Mean: –	Mean: 1.5	Mean: 1.0	Mean: 1.8	Mean: 3.7	Mean: 4.0	Mean: 3.0
(W_{blt}/W_{bkf})	Range: – –	Range: 1.6 3.3	Range: – –	Range: – –	Range: 1.0 2.2	Range: 1.3 5.0	Range: 1.6 2.0	Range: 1.8 8.2	Range: 3.6 5.0	Range: 2.1 4.1
20. Sinuosity (k)	Mean: 1.30	Mean: 1.40	Mean: Not Reported	Mean: 1.07	Mean: 1.15	Mean: –	Mean: 1.07	Mean: 1.10	Mean: –	Mean: 1.06
(Stream Length / Valley Length)	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
21. Valley Slope (S_{vall})	Mean: 0.0022	Mean: 0.0135	Mean: Not Reported	Mean: 0.0183	Mean: 0.0174	Mean: –	Mean: 0.0110	Mean: 0.0171	Mean: –	Mean: 0.0181
(ft/ft)	Range: – –	Range: – –	Range: – –	Range: – –	Range:	Range:	Range: – –	Range: – –	Range: – –	Range: – –
22. Average Stream Slope	Mean: 0.0017	Mean: 0.0093	Mean: 0.0033	Mean: 0.0157	Mean: 0.0151	Mean: –	Mean: 0.0103	Mean: 0.0144	Mean: –	Mean: 0.0187
(S_{avg}) = (S_{vall} /k)	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
23. Riffle Slope	Mean: 0.0042	Mean: 0.0540	Mean: Not Reported	Mean: 0.0522	Mean: 0.0490	Mean:	Mean: 0.0185	Mean: 0.0200	Mean:	Mean: 0.0328
(S_{rif})	Range: 0.0000 0.0257	Range: 0.0180 0.0800	Range:	Range: 0.0077 0.0961	Range: 0.0188 0.0640	Range:	Range: 0.0088 0.0215	Range: 0.0067 0.0303	Range:	Range: 0.0281 0.0374
24. Ratio of Riffle Slope to Avg.	Mean: 2.9	Mean: 5.8	Mean: –	Mean: 3.3	Mean: 2.9	Mean: 1.8	Mean: 1.5	Mean: 1.4	Mean: 1.8	Mean: 1.8
Slope (S_{rif}/S_{avg})	Range: 0.0 15.3	Range: 0.6 4.5	Range: – –	Range: – –	Range: 1.1 4.2	Range: 1.5 2.0	Range: 0.8 2.1	Range: 0.5 2.3	Range: 1.5 2.0	Range: 1.5 2.0
25. Pool Slope	Mean: 0.0002	Mean: 0.0024	Mean: Not Reported	Mean: 0.0012	Mean: 0.0111	Mean:	Mean: 0.0001	Mean: 0.0040	Mean:	Mean: 0.0001
(S_{pool})	Range: 0.0000 0.0007	Range: 0.0000 0.0100	Range: – –	Range: 0.0009 0.0061	Range: 0.0047 0.0185	Range: – –	Range: 0.0001 0.0001	Range: 0.0007 0.0085	Range: – –	Range: 0.0000 0.0018
26. Ratio of Pool Slope to Avg.	Mean: 0.1	Mean: 0.3	Mean: –	Mean: 0.2	Mean: 0.7	Mean: 0.0	Mean: 0.0	Mean: 0.3	Mean: 0.0	Mean: 0.0
Slope (S_{pool}/S_{avg})	Range: 0.0 0.4	Range: 0.0 0.6	Range: – –	Range: 0.1 0.4	Range: 0.4 1.1	Range: 0.0 0.1	Range: 0.0 0.0	Range: 0.2 0.4	Range: 0.0 0.1	Range: 0.0 0.1
27. Maximum Pool	Mean: 2.0	Mean: 2.0	Mean: 3.1	Mean: 3.0	Mean: 1.9	Mean:	Mean: 1.4	Mean: 1.8	Mean:	Mean: 1.5
Depth (d_{pool})	Range:	Range:	Range:	Range: 2.3 3.9	Range: 1.5 2.1	Range:	Range:	Range: 1.6 2.2	Range:	Range:
28. Ratio of Pool Depth to Avg.	Mean: 3.4	Mean: 2.3	Mean: 2.0	Mean: 2.5	Mean: 2.6	Mean: 3.0	Mean: 2.6	Mean: 1.9	Mean: 3.0	Mean: 2.7
Depth (d_{pool}/d_{bkf})	Range: – –	Range: – –	Range: – –	Range: 1.9167 3.2833	Range: 2.2 3.0	Range: 2.5 3.5	Range: – –	Range: 1.6 2.3	Range: 2.5 3.5	Range: – –
29. Pool Width	Mean: 11.5	Mean: 8	Mean: 13.6	Mean: 16.1	Mean: 8.7	Mean:	Mean: 9.8	Mean: 8.4	Mean:	Mean: 10.2
(W_{pool})	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
30. Ratio of Pool Width to	Mean: 1.5	Mean: 1.2	Mean: 1.6	Mean: 1.1	Mean: 0.9	Mean: 1.5	Mean: 1.4	Mean: 1.1	Mean: 1.5	Mean: 1.3
Bankfull Width (W_{pool}/W_{bkf})	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: 1.3 1.7	Range: – –	Range: – –	Range: 1.3 1.7	Range: – –
31. Pool Area	Mean: Not Reported	Mean: Not Reported	Mean: 27.0	Mean: 22.7	Mean: 5.5	Mean:	Mean: 5.5	Mean: 5.8	Mean:	Mean: 7.3
(A_{pool})	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
32. Ratio of Pool Area to	Mean: –	Mean: –	Mean: 1.4	Mean: 1.2	Mean: 1.0	Mean: –	Mean: 1.7	Mean: 1.2	Mean: –	Mean: 1.8
Bankfull Area (A_{pool}/A_{bkf})	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –	Range: – –
33. Pool to Pool Spacing	Mean: 38.0	Mean: 22.9	Mean: Not Reported	Mean: 30.1	Mean: 21.0	Mean:	Mean: 31.5	Mean: 28.5	Mean:	Mean: 42.5
(p - p)	Range: 18 78	Range: 8 48	Range:	Range: 20 52	Range: 12.8 27.7	Range:	Range: 25.2 37.8	Range: 24.0 33.7	Range:	Range: 29.3 42.3
34. Ratio of Pool to Pool Spacing	Mean: 4.8	Mean: 3.5	Mean: –	Mean: 2.2		Mean: 2.6	Mean: 4.5	Mean: 4.4	Mean: 5.8	Mean: 4.5	Mean: 4.3
to Bankfull Width (p-p/Wbkf)	Range: 2.3 9.9	Range: 1.1 7.3	Range: – –	Range: 1.3 3.4	Range: 1.6 3.5	Range: 4.0 5.0	Range: 3.5 5.3	Range: 4.8 6.8	Range: 4.0 5.0	Range: 3.9 5.6

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P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050
NC LICENSE F-0102

PROJECT REFERENCE NO.: U2525B | SHEET NO.: OSM-2F

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DARREN M. PAIT

APPROVED BY:

DATE:

U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY

VARIABLES	Reference Reach Tributary to Riddicks Creek (KHA)	Reference Reach Riddicks Creek (KHA)	Reference Reach Tributary to Lake Jeanette (NCDOT)	Reference Reach Tributary to Rich Fork (KHA)	Existing Site 4	Regional Curves Piedmont Rural/Rosgen Reference Values	Site 4 Design Reach	Existing Site 5	Regional Curves Piedmont Rural/Rosgen Reference Values	Site 5 Design Reach
STATION	--	--	--	--	--	--	400+00 to 403+86	--	--	500+00 to 503+62
1. Stream Type (Rosgen)	C5	E5	E5	B4	Incised B5	C/E	C5	E5	C/E	C5
2. Drainage Area (sq. mile)	0.18	0.07	0.15	1.12	0.57	0.57	0.57	0.51	0.51	0.51
3. Bankfull Width (W_{bkf})	Mean: 7.5; Range:	Mean: 5.0; Range: 5.7 – 7.5	Mean: 12.6; Range: 12.0 – 13.5	Mean: 15.2; Range:	Mean: 8.9; Range:	Mean: 9.3; Range:	Mean: 12.7; Range:	Mean: 11.8; Range:	Mean: 8.0; Range:	Mean: 13.7; Range:
4. Bankfull Mean depth (d_{bkf})	Mean: 0.6; Range: -- – --	Mean: 0.8; Range: 0.7 – 0.8	Mean: 1.6; Range: 1.4 – 1.7	Mean: 1.2; Range: -- – --	Mean: 1.3; Range: -- – --	Mean: 1.3; Range: -- – --	Mean: 0.9; Range: -- – --	Mean: 1.1; Range: -- – --	Mean: 1.2; Range: -- – --	Mean: 1.0; Range: -- – --
5. Width/Depth Ratio (W_{bkf}/d_{bkf})	Mean: 13.5; Range:	Mean: 6.7; Range: 8.2 – 9.2	Mean: 10.4; Range: 7.1 – 9.6	Mean: 12.7; Range:	Mean: 6.5; Range:	Mean: 6.5; Range:	Mean: 13.6; Range:	Mean: 10.4; Range:	Mean: 7.4; Range:	Mean: 13.1; Range:
6. Bankfull cross-sectional Area (A_{bkf})	Mean: 4.6; Range: -- – --	Mean: 5.1; Range: 4.0 – 6.1	Mean: 19.4; Range: 18.8 – 20.0	Mean: 19.0; Range: -- – --	Mean: 11.9; Range: -- – --	Mean: 14.6; Range: -- – --	Mean: 11.9; Range: -- – --	Mean: 13.3; Range: -- – --	Mean: 13.8; Range: -- – --	Mean: 13.3; Range: -- – --
7. Bankfull Mean Velocity (V_{bkf})	Mean: Not Reported; Range:	Mean: Not Reported; Range:	Mean: 5.8; Range: 5.2 – 6.2	Mean: 5.1; Range:	Mean: 2.1; Range: 1.9 – 2.3	Mean: 4.1; Range:	Mean: 2.1; Range:	Mean: 4.3; Range: 3.9 – 4.8	Mean: 4.0; Range:	Mean: 4.1; Range:
8. Bankfull Discharge, cfs (Q_{bkf})	Mean: Not Reported; Range: -- – --	Mean: Not Reported; Range: -- – --	Mean: 109.3; Range: 100.7 – 119.6	Mean: 96.9; Range: -- – --	Mean: 24.5; Range: -- – --	Mean: 59.4; Range: -- – --	Mean: 24.5; Range: -- – --	Mean: 56.5; Range:	Mean: 54.8; Range: -- – --	Mean: 56.5; Range: -- – --
9. Bankfull Maximum Depth (d_{mbkf})	Mean: 1.0; Range: -- – --	Mean: 1.5; Range: 1.3 – 1.8	Mean: 2.9; Range: -- – --	Mean: 1.9; Range: -- – --	Mean: 2.1; Range: -- – --	Mean: --; Range: -- – --	Mean: 1.1; Range: -- – --	Mean: 1.8; Range: -- – --	Mean: --; Range: -- – --	Mean: 1.4; Range: -- – --
10. Max d_{mbkf}/d_{bkf} ratio	Mean: 1.7; Range: -- – --	Mean: 2.0; Range: 1.9 – 2.0	Mean: 2.4; Range: -- – --	Mean: 1.6; Range: -- – --	Mean: 1.5; Range: -- – --	Mean: 1.4; Range: 1.2 – 1.5	Mean: 1.5; Range: -- – --	Mean: 1.4; Range: -- – --	Mean: 1.4; Range: 1.2 – 1.5	Mean: 1.4; Range: -- – --
11. Low Bank Height to Max d_{mbkf} ratio	Mean: 1.0; Range:	Mean: 1.3; Range: 1.20 – 2.50	Mean: Not Reported; Range:	Mean: 1.1; Range:	Mean: 3.1; Range: 2.85 – 3.19	Mean: --; Range:	Mean: 1.0; Range:	Mean: 2.5; Range: 2.42 – 2.62	Mean: --; Range:	Mean: 1.0; Range:
12. Width of Flood Prone Area (W_{fpa})	Mean: 36.0; Range: -- – --	Mean: 27.4; Range: 20.0 – 34.0	Mean: 49.0; Range: -- – --	Mean: 23.3; Range: -- – --	Mean: 15.1; Range: -- – --	Mean: --; Range: -- – --	Mean: 60.0; Range: -- – --	Mean: 147.0; Range: -- – --	Mean: --; Range: -- – --	Mean: 147.0; Range: -- – --
13. Entrenchment Ratio (W_{fpa}/W_{bkf})	Mean: 4.8; Range:	Mean: 4.2; Range: 3.5 – 4.6	Mean: 4.0; Range: 4.3 – 4.7	Mean: 1.5; Range:	Mean: 1.7; Range:	Mean: --; Range:	Mean: 5.3; Range:	Mean: 12.5; Range:	Mean: --; Range:	Mean: 10.7; Range:
14. Meander Length	Mean: 80.5; Range: 64.0 – 97.0	Mean: 32.0; Range: 25.0 – 45.0	Mean: 22.0; Range: 22.0 – 69.0	Mean: --; Range: -- – --	Mean: 44.7; Range: 25.7 – 58.3	Mean: --; Range: -- – --	Mean: 122.0; Range: 97.6 – 146.4	Mean: 85.2; Range: 27.5 – 138.0	Mean: --; Range: -- – --	Mean: 126.0; Range: 100.8 – 151.2
15. Ratio of Meander Length to Bankfull Width (L_m/W_{bkf})	Mean: 10.8; Range: 9.1 – 12.9	Mean: 6.9; Range: 4.6 – 8.0	Mean: 1.8; Range: 1.8 – 5.6	Mean: --; Range: -- – --	Mean: 5.0; Range: 2.9 – 6.4	Mean: 11.5; Range: 9.0 – 14.0	Mean: 9.6; Range: 7.7 – 11.5	Mean: 7.7; Range: 2.4 – 11.7	Mean: 11.5; Range: 9.0 – 14.0	Mean: 9.3; Range: 7.6 – 11.9
16. Radius of Curvature (R_c)	Mean: 13.4; Range: 8.5 – 22.0	Mean: 11.3; Range: 5.7 – 16.8	Mean: 7.3; Range: 7.3 – 17.3	Mean: --; Range: -- – --	Mean: 33.6; Range: 12.0 – 63.0	Mean: --; Range: -- – --	Mean: 33.6; Range: 30.5 – 36.6	Mean: 29.6; Range: 6.0 – 71.0	Mean: --; Range: -- – --	Mean: 34.7; Range: 31.5 – 37.8
17. Ratio of Radius of Curvature to Bankfull Width (R_c/W_{bkf})	Mean: 1.7; Range: 1.1 – 2.8	Mean: 1.7; Range: 0.9 – 2.8	Mean: 0.6; Range: 0.6 – 1.4	Mean: --; Range: -- – --	Mean: 3.8; Range: 1.3 – 7.1	Mean: 2.8; Range: 2.5 – 3.0	Mean: 2.6; Range: 2.4 – 2.8	Mean: 2.5; Range: 0.5 – 6.0	Mean: 2.0; Range: 2.5 – 3.0	Mean: 2.5; Range: 2.3 – 2.8
18. Belt Width (W_{blt})	Mean: 34.0; Range: -- – --	Mean: 15.8; Range: 10.5 – 22.0	Mean: 45.0; Range: -- – --	Mean: --; Range: -- – --	Mean: 12.3; Range: 7.4 – 17.7	Mean: --; Range: -- – --	Mean: 42.7; Range: 30.5 – 54.9	Mean: 33.5; Range: 17.0 – 53.2	Mean: --; Range: -- – --	Mean: 38.4; Range: 24.6 – 48.2
19. Meander Width Ratio (W_{blt}/W_{bkf})	Mean: 4.3; Range:	Mean: 2.4; Range: 1.5 – 3.3	Mean: 3.8; Range:	Mean: --; Range:	Mean: 1.4; Range: 0.8 – 2.0	Mean: 4.0; Range: 3.0 – 5.0	Mean: 3.4; Range: 2.4 – 4.5	Mean: 2.8; Range: 1.5 – 4.6	Mean: 4.0; Range: 3.0 – 5.0	Mean: 2.7; Range: 1.8 – 3.5
20. Sinuosity (k) (Stream Length / Valley Length)	Mean: 1.30; Range: -- – --	Mean: 1.40; Range: -- – --	Mean: Not Reported; Range: -- – --	Mean: 1.07; Range: -- – --	Mean: 1.22; Range: -- – --	Mean: --; Range: -- – --	Mean: 1.08; Range: -- – --	Mean: 1.16; Range: -- – --	Mean: --; Range: -- – --	Mean: 1.13; Range: -- – --
21. Valley Slope (S_{valley}) (ft/ft)	Mean: 0.0022; Range:	Mean: 0.0130; Range:	Mean: Not Reported; Range:	Mean: 0.0108; Range:	Mean: 0.0029; Range:	Mean: --; Range:	Mean: 0.0065; Range:	Mean: 0.0151; Range:	Mean: --; Range:	Mean: 0.0116; Range:
22. Average Stream Slope (S_{avg}) = (S_{valley} /k)	Mean: 0.0017; Range: -- – --	Mean: 0.0093; Range: -- – --	Mean: 0.0033; Range: -- – --	Mean: 0.0157; Range: -- – --	Mean: 0.0024; Range: -- – --	Mean: --; Range: -- – --	Mean: 0.0046; Range: -- – --	Mean: 0.0113; Range: -- – --	Mean: --; Range: -- – --	Mean: 0.0105; Range: -- – --
23. Riffle Slope (S_{riffle})	Mean: 0.0034; Range: 0.0000 – 0.0067	Mean: 0.0542; Range: 0.0000 – 0.0800	Mean: Not Reported; Range: -- – --	Mean: 0.0522; Range: 0.0077 – 0.0981	Mean: 0.0015; Range: 0.0000 – 0.0029	Mean: --; Range: -- – --	Mean: 0.0081; Range: 0.0000 – 0.0162	Mean: 0.0217; Range: 0.0000 – 0.0434	Mean: --; Range: -- – --	Mean: 0.0131; Range: 0.0000 – 0.0310
24. Ratio of Riffle Slope to Avg. Slope (S_{riffle}/S_{avg})	Mean: 2.9; Range: 0.0 – 15.3	Mean: 5.8; Range: 0.0 – 4.5	Mean: --; Range: -- – --	Mean: 3.3; Range: -- – --	Mean: 1.8; Range: 1.5 – 2.0	Mean: --; Range: -- – --	Mean: 1.8; Range: 1.5 – 2.0	Mean: 2.5; Range: 2.1 – 3.5	Mean: 1.8; Range: 1.5 – 2.0	Mean: 1.8; Range: 1.5 – 2.0
25. Pool Slope (S_{pool})	Mean: 0.0002; Range: 0.0000 – 0.0007	Mean: 0.0024; Range: 0.0000 – 0.0100	Mean: Not Reported; Range:	Mean: 0.0032; Range: 0.0000 – 0.0065	Mean: 0.0073; Range: 0.0061 – 0.0080	Mean: --; Range:	Mean: 0.0000; Range: 0.0000 – 0.0005	Mean: 0.0012; Range: 0.0007 – 0.0017	Mean: --; Range:	Mean: 0.0000; Range: 0.0000 – 0.0010
26. Ratio of Pool Slope to Avg. Slope (S_{pool}/S_{avg})	Mean: 0.1; Range: 0.0 – 0.4	Mean: 0.3; Range: 0.0 – 0.8	Mean: --; Range: -- – --	Mean: 0.2; Range: 0.1 – 0.4	Mean: 3.0; Range: 2.5 – 3.3	Mean: --; Range: 0.0 – 0.1	Mean: 0.0; Range: 0.0 – 0.1	Mean: 0.1; Range: 0.0 – 0.1	Mean: --; Range: 0.0 – 0.1	Mean: 0.0; Range: 0.0 – 0.1
27. Maximum Pool Depth (d_{mpool})	Mean: 2.0; Range:	Mean: 2.0; Range:	Mean: 3.1; Range:	Mean: 3.0; Range: 2.3 – 3.9	Mean: 2.7; Range: 2.5 – 2.8	Mean: --; Range:	Mean: 2.6; Range:	Mean: 2.3; Range: 1.9 – 2.6	Mean: --; Range:	Mean: 2.0; Range:
28. Ratio of Pool Depth to Avg. Depth (d_{mpool}/d_{bkf})	Mean: 3.4; Range: -- – --	Mean: 2.3; Range: -- – --	Mean: 2.0; Range: -- – --	Mean: 2.5; Range: 1.9167 – 3.2833	Mean: 2.0; Range: 1.9 – 2.1	Mean: 3.0; Range: 2.5 – 3.5	Mean: 2.8; Range: -- – --	Mean: 2.1; Range: 1.7 – 2.3	Mean: 3.0; Range: 2.5 – 3.5	Mean: 2.7; Range: -- – --
29. Pool Width (W_{pool})	Mean: 11.5; Range: -- – --	Mean: 8.1; Range: -- – --	Mean: 19.8; Range: -- – --	Mean: 16.3; Range: -- – --	Mean: --; Range: -- – --	Mean: --; Range: -- – --	Mean: 17.0; Range: -- – --	Mean: 11.0; Range: -- – --	Mean: --; Range: -- – --	Mean: 11.0; Range: -- – --
30. Ratio of Pool Width to Bankfull Width (W_{pool}/W_{bkf})	Mean: 1.5; Range: -- – --	Mean: 1.2; Range: -- – --	Mean: 1.6; Range: -- – --	Mean: 1.1; Range: -- – --	Mean: 1.5; Range: -- – --	Mean: 1.5; Range: 1.3 – 1.7	Mean: 1.3; Range: -- – --	Mean: 1.0; Range: -- – --	Mean: 1.5; Range: 1.3 – 1.7	Mean: 1.2; Range: -- – --
31. Pool Area (A_{pool})	Mean: Not Reported; Range: -- – --	Mean: Not Reported; Range: -- – --	Mean: 27.5; Range: -- – --	Mean: 27.7; Range: -- – --	Mean: 23.1; Range: -- – --	Mean: --; Range: -- – --	Mean: 20.0; Range: -- – --	Mean: 13.9; Range: -- – --	Mean: --; Range: -- – --	Mean: 20.1; Range: -- – --
32. Ratio of Pool Area to Bankfull Area (A_{pool}/A_{bkf})	Mean: --; Range: -- – --	Mean: --; Range: -- – --	Mean: 1.4; Range: -- – --	Mean: 1.2; Range: -- – --	Mean: 2.4; Range: -- – --	Mean: --; Range: -- – --	Mean: 1.7; Range: -- – --	Mean: 1.0; Range: -- – --	Mean: --; Range: -- – --	Mean: 1.5; Range: -- – --
33. Pool to Pool Spacing (p-p)	Mean: 38.8; Range: 18 – 78	Mean: 22.0; Range: 8 – 48	Mean: Not Reported; Range:	Mean: 33.1; Range: 20 – 52	Mean: 24.4; Range: 23.7 – 25.2	Mean: --; Range:	Mean: 70.2; Range: 54.9 – 85.4	Mean: 32.7; Range: 21.3 – 50.8	Mean: --; Range:	Mean: 72.5; Range: 55.7 – 89.2
34. Ratio of Pool to Pool Spacing to Bankfull Width (p-p/Wbkf)	Mean: 4.8; Range: 2.3 – 9.9	Mean: 3.5; Range: 1.1 – 7.3	Mean: --; Range: -- – --	Mean: 2.2; Range: 1.3 – 3.4	Mean: 2.7; Range: 2.7 – 2.8	Mean: 6.0; Range: 5.0 – 7.0	Mean: 5.5; Range: 4.3 – 6.7	Mean: 2.8; Range: 1.8 – 4.3	Mean: 6.0; Range: 5.0 – 7.0	Mean: 5.3; Range: 4.1 – 6.4

PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050
NC LICENSE F-0102

U-2525B
ON-SITE MITIGATION
GUILFORD COUNTY

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-3

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PAIT

APPROVED BY:

DATE:

SUMMARY OF QUANTITIES

DESCRIPTION	SECTION	QUANTITIY	UNIT	ITEM DESCRIPTION
6133000000-N	SP	1	LS	CONSTRUCTION SURVEYING FOR MITIGATION
6133000000-N	SP	1	LS	GRADING FOR MITIGATION
1077000000-E	SP	600	TON	#57 STONE
3656000000-E	876	1,250	SY	FILTER FABRIC FOR DRAINAGE
3651000000-E	SP	975	TON	BOULDER
3642000000-E	876	60	TON	PLAIN RIP RAP, CLASS A
3649000000-E	876	50	TON	PLAIN RIP RAP, CLASS B
6133000000-N	SP	1	LS	DIVERSION PUMPING FOR MITIGATION
6132000000-N	SP	6	EA	LOGS
6132000000-N	SP	2	EA	ROOTWADS

SUMMARY OF EARTHWORK FOR MITIGATION

LOCATION	MITIGATION UNCLASSIFIED EXCAV. (CU.YD.)	MITIGATION EMBANKMENT	MITIGATION BORROW (CU.YD.)	MITIGATION WASTE (CU.YD.)
SITE 2	7,304	785	0	6,519
SITE 4	1,369	235	0	1,134
SITE 5	1,810	31	0	1,779
SUBTOTAL	10,483	1,051	0	9,432

APPROXIMATE QUANTITIES ONLY, MITIGATION UNCLASSIFIED EXCAVATION, MITIGATION BORROW EXCAVATION, MITIGATION FINE GRADING AND MITIGATION CLEARING AND GRUBBING WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING FOR MITIGATION".

DESC.	STATION	NORTHING	EASTING	ELEV.	RADIUS
HR16	204+56.3	856586.17	1794087.12	733.77	
RCV8	204+78.9	856570.54	1794108.38	733.34	
R16		856559.01	1794092.29		16
HR17	204+90.7	856560.00	1794108.25	733.14	
TR9	205+11.2	856538.54	1794109.53	732.88	
R17		856540.54	1794125.50		16
HR18	205+17.6	856533.46	1794111.15	732.88	
RAV1	205+43.0	856510.62	1794122.41	732.63	
R18		856508.11	1794107.17		17
HR19	205+53.2	856500.79	1794124.01	731.42	
RCV9	205+82.7	856470.99	179411.92	730.91	
R19		856468.84	1794139.23		19.5
HR20	206+05.4	856451.94	1794128.69	730.53	
TR10	206+16.1	856445.73	1794137.44	730.44	
R20		856428.60	1794125.80		21
HR21	206+26.5	856437.87	1794144.14	730.44	
TR11	206+44.2	856422.05	1794151.92	730.05	
R21		856430.68	1794169.42		19.5
HR22	206+56.5	856413.49	1794160.53	730.06	
TR12	206+72.7	856403.94	1794173.54	729.67	
R22		856388.22	1794162.00		19.5
HR23	206+86.7	856392.45	1794181.04	729.67	
RCV10	207+07.3	856372.31	1794185.51	729.24	
R23		856376.54	1794204.54		19.5
HR24	207+16.6	856364.03	1794189.58	729.04	
RCV11	207+35.9	856349.27	1794201.94	728.88	
R24		856336.69	1794187.05		19.5
HR25	207+68.2	856337.99	1794206.44	728.53	
TR13	207+80.4	856325.83	1794207.22	728.40	
R25		856327.28	1794229.97		22.8
HR26	207+78.8	856309.86	1794215.27	728.43	
RAV2	207+95.9	856298.80	1794228.37	728.09	
R26		856283.90	1794218.78		19.5
HR27	208+11.7	856285.15	1794235.24	727.29	
RCV12	208+19.0	856277.82	1794235.71	727.20	
R27		856278.84	1794255.19		19.5
HR28	208+29.5	856268.01	1794233.97	726.70	
RAV3	208+42.3	856257.30	1794246.12	726.46	
R28		856246.86	1794229.65		19.5
HR29	208+59.6	856260.72	1794248.16	725.46	
RAV4	208+74.3	856226.79	1794243.53	725.31	
R29		856220.65	1794261.04		19.5
HR30	208+92.0	856209.82	1794245.83	724.31	
RAV5	209+04.2	856199.71	1794252.57	724.25	
R30		856188.88	1794236.36		19.5
HR31	209+21.9	856182.74	1794254.87	723.25	
RCV13	209+35.6	856169.75	1794250.55	723.14	
R31		856163.57	1794269.06		19.5
HR32	209+53.8	856152.74	1794252.83	722.64	
RCV14	209+64.9	856143.13	1794259.23	722.42	
R32		856132.83	1794243.02		19.5
HR33	209+87.5	856121.80	1794259.43	722.12	
TR14	210+01.7	856109.86	1794251.77	721.92	
R33		856099.33	1794268.18		19.5
HR34	210+17.7	856094.99	1794269.29	721.32	
RCV15	210+35.8	856076.88	1794253.80	721.45	
R34		856072.04	1794236.91		19.5
HR35	210+51.5	856061.51	1794251.32	721.15	
TR15	210+66.7	856049.04	1794243.32	721.03	
R35		856038.51	1794258.74		19.5
HR36	210+82.7	856033.67	1794240.85	721.08	
RCV16	211+01.0	856015.89	1794245.40	720.56	
R36		856011.05	1794226.51		19.5
HR37	211+17.1	856000.52	1794242.92	720.27	
TR16	211+31.5	855988.39	1794235.14	720.15	
R37		855977.86	1794251.56		19.5
HR38	211+47.5	855973.03	1794232.67	720.15	
RCV17	211+65.8	855955.27	1794237.21	719.68	
R38		855950.43	1794218.32		19.5
HR39	211+81.8	855939.91	1794234.74	719.49	
TR17	211+96.5	855927.59	1794226.83	719.26	
R39		855917.06	1794243.25		19.5
HR40	212+12.5	855912.22	1794224.36	719.26	
RCV18	212+30.7	855894.57	1794228.88	718.80	
R40		855889.73	1794209.99		19.5
HR41	212+44.4	855881.20	1794227.52	718.60	
RCV19	212+52.8	855873.67	1794218.86	718.50	
R41		855865.14	1794241.40		19.5
HR42	212+75.7	855852.24	1794226.78	718.10	
TIE IN	213+07.2	855828.61	1794247.62	718.00	

PREPARED IN THE OFFICE OF:

Kimley-Horn and Associates, Inc.

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PHONE: (919) 677-2000 FAX: (919) 677-2050

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-4

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PATY

APPROVED BY:

DATE:

SITE 2

NAD 83

18 0 36

END RESTORATION/RELOCATION
STA 213+07

BACKFILL, TYP.

ROCK CROSS VANE (RCV9)
CENTER OF RADIUS (R19)
CENTER OF RADIUS (R16)
CENTER OF RADIUS (R20)
ROCK CROSS VANE (RCV10)
CENTER OF RADIUS (R22)
CENTER OF RADIUS (R24)
ROCK CROSS VANE (RCV12)
CENTER OF RADIUS (R26)
ROCK A-VANE (RAV4)
CENTER OF RADIUS (R28)
ROCK CROSS VANE (RCV13)
CENTER OF RADIUS (R30)
CENTER OF RADIUS (R32)
ROCK CROSS VANE (RCV14)
CENTER OF RADIUS (R34)
CENTER OF RADIUS (R36)
ROCK CROSS VANE (RCV15)
CENTER OF RADIUS (R38)
CENTER OF RADIUS (R40)

CHORD
CLASS "B" RIP RAP W/FILTER FABRIC EST. 11 TONS EST. 28 SY FABRIC

CLASS "B" RIP RAP W/FILTER FABRIC EST. 3 TONS EST. 10 SY FA...

DO NOT DISTURB WETLAND

STREAM PLUG, TYP.

18" RCP-III

24" RCP-III

36" RCP-III

FS 2GI 0607
FS 2GI 0608
FS 18" 2GI 0609
FS 2GI 0611
FS 2GI 0612
FS 2GI 0613
FS 2GI 0614
FS 2GI 0701
FS 2GI 0702

HW 212+12
212+00
211+00
210+00
209+00
208+00
207+00
205+00
204+54 SEE SHEET OSM-5

MATCHLINE STA 204+54 SEE SHEET OSM-5

PREPARED IN THE OFFICE OF:

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PHONE: (919) 677-2000 FAX: (919) 677-2050

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-5

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PATT

APPROVED BY:

DATE:

SITE 2

Loyd
DB 177

NAD 83

MATCHLINE STA 204+54 SEE SHEET OSM-4

CENTER OF RADIUS (R14)
ROCK CROSS VANE (RCV7)
CENTER OF RADIUS (R12)
ROCK CROSS VANE (RCV6)
CENTER OF RADIUS (R10)
CENTER OF RADIUS (R8)
ROCK CROSS VANE (RCV4)
CENTER OF RADIUS (R6)
ROCK CROSS VANE (RCV3)
CENTER OF RADIUS (R4)
CENTER OF RADIUS (R3)
ROCK CROSS VANE (RCV2)
ROCK CROSS VANE (RCV1)

BEGIN RESTORATION/RELOCATION
STA 200+00

CHORD

TOE PROTECTION
CLASS"B" RIPRAP
SEE DETAIL "G"

DO NOT DISTURB WETLAND

203+00
202+00
201+00
200+00

15" CSP

48" RCP-III

HW

FS

BACKFILL, TYP.

STREAM PLUG, TYP.

18" RCP-III

DESC.	STATION	NORTHING	EASTING	ELEV.	RADIUS
HR1	200+00.0	856994.18	1794016.27	738.30	
RCV1	200+11.9	856986.38	1794007.25	738.22	
R1		856972.02	1794019.68		19
HR2	200+29.5	856970.77	1794000.72	738.30	
R2		856947.45	1794018.29		16
RCV2	200+53.9	856946.40	1794002.32	737.97	
HR3	200+63.9	856937.25	1794005.96	737.97	
TR1	200+86.4	856919.89	1794020.31	737.78	
R3		856909.69	1794017.98		16
HR4	200+96.2	856910.93	1794023.93	737.78	
TR2	201+18.2	856889.06	1794025.63	737.59	
R4		856887.82	1794009.68		16
HR5	201+25.6	856881.80	1794024.50	737.59	
RCV3	201+41.8	856867.20	1794018.57	737.45	
R5		856861.18	1794038.39		16
HR6	201+53.8	856855.09	1794018.60	737.40	
TR3	201+65.3	856844.60	1794022.91	737.31	
R6		856838.51	1794008.12		16
HR7	201+79.4	856830.78	1794022.13	737.31	
RCV4	201+97.0	856815.58	1794013.63	737.12	
R7		856807.65	1794027.64		16
HR8	202+08.7	856804.07	1794012.05	736.92	
TR4	202+32.9	856780.47	1794017.48	736.67	
R8		856776.89	1794001.89		16
HR9	202+40.4	856773.01	1794017.41	736.67	
TR5	202+64.7	856749.46	1794011.52	736.25	
R9		856745.58	1794027.04		16
HR10	202+74.7	856739.69	1794012.17	736.25	
RCV5	202+96.9	856719.00	1794020.36	735.83	
R10		856712.01	1794002.69		19
HR11	203+05.4	856709.64	1794021.54	735.70	
RCV6	203+22.6	856693.66	1794019.54	735.49	
R11		856691.29	1794038.39		19
HR12	203+38.4	856678.95	1794023.95	735.29	
TR6	203+56.9	856665.92	1794035.59	735.04	
R12		856653.63	1794021.91		18
HR13	203+64.2	856658.58	1794039.27	735.04	
RVC7	203+83.2	856640.10	1794044.27	734.69	
R13		856634.33	1794058.71		16
HR14	203+97.0	856629.83	1794052.92	734.49	
RV1	204+14.3	856622.52	1794068.56	734.21	
R14		856608.02	1794061.77		16
TR7	204+17.9	856620.97	1794071.18	734.21	
HR15	204+27.8	856612.58	1794077.11	734.21	
TR8	204+48.1	856593.35	1794088.88	733.77	
R15		856597.70	1794098.22		16

PREPARED IN THE OFFICE OF:

Kimley-Horn and Associates, Inc.

P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050

PROJECT REFERENCE NO.	SHEET NO.
U2525B	OSM-6

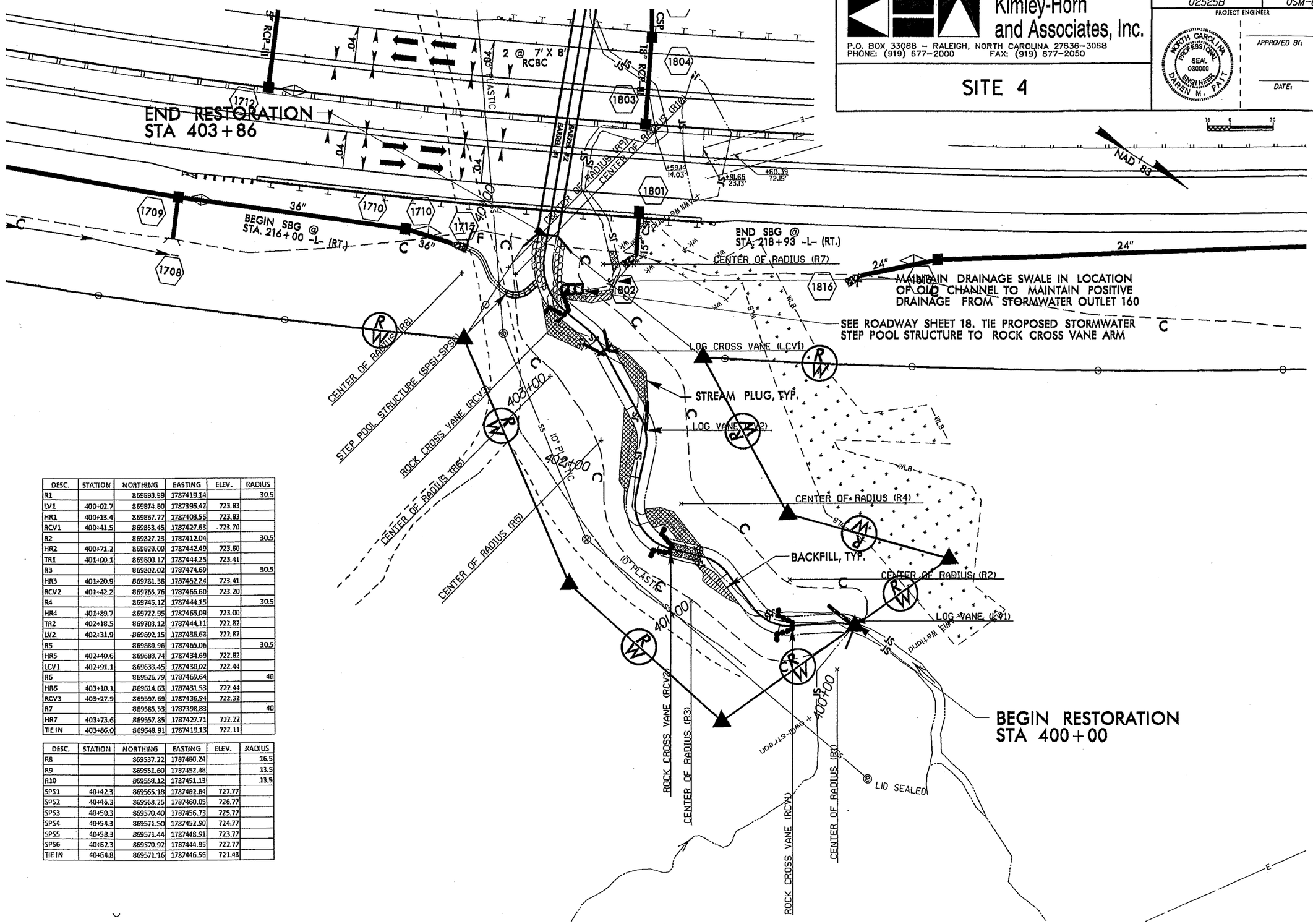
PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DAREN M. PAIT

APPROVED BY:

DATE:

SITE 4



DESC.	STATION	NORTHING	EASTING	ELEV.	RADIUS
R1		869893.99	1787419.14		30.5
LV1	400+02.7	869874.80	1787395.42	723.83	
HR1	400+13.4	869867.77	1787403.55	723.83	
RCV1	400+41.5	869853.45	1787427.63	723.70	
R2		869827.23	1787412.04		30.5
HR2	400+71.2	869829.09	1787442.49	723.60	
TR1	401+00.1	869800.17	1787444.25	723.41	
R3		869802.02	1787474.69		30.5
HR3	401+20.9	869781.38	1787452.24	723.41	
RCV2	401+42.2	869765.76	1787466.60	723.20	
R4		869745.12	1787444.15		30.5
HR4	401+89.7	869722.95	1787465.09	723.00	
TR2	402+18.5	869703.12	1787444.11	722.82	
LV2	402+31.9	869692.15	1787436.68	722.82	
R5		869680.96	1787465.06		30.5
HR5	402+40.6	869683.74	1787434.69	722.82	
LCV1	402+91.1	869633.45	1787430.02	722.44	
R6		869626.79	1787469.64		40
HR6	403+10.1	869614.63	1787431.53	722.44	
RCV3	403+27.9	869597.69	1787436.94	722.32	
R7		869585.53	1787398.83		40
HR7	403+73.6	869557.85	1787427.71	722.22	
TIE IN	403+86.0	869548.91	1787419.13	722.11	

DESC.	STATION	NORTHING	EASTING	ELEV.	RADIUS
R8		869537.22	1787480.24		16.5
R9		869551.60	1787452.48		13.5
R10		869558.12	1787451.13		13.5
SPS1	40+42.3	869565.18	1787482.64	727.77	
SPS2	40+46.3	869568.25	1787480.05	726.77	
SPS3	40+50.3	869570.40	1787476.73	725.77	
SPS4	40+54.3	869571.50	1787472.90	724.77	
SPS5	40+58.3	869571.44	1787468.91	723.77	
SPS6	40+62.3	869570.92	1787464.95	722.77	
TIE IN	40+64.8	869571.16	1787466.56	721.48	

DESC.	STATION	NORTHING	EASTING	ELEV.	RADIUS
HR1	500+00.	870989.41	1785058.05	734.69	
RAV1	500+27.9	870961.72	1785058.07	734.66	
R1		870961.75	1785085.87		37.8
HR2	500+58.7	870984.09	1785070.11	734.44	
RCV1	500+88.6	870913.68	1785092.02	734.04	
R2		870941.84	1785117.79		37.8
HR3	501+18.8	870903.58	1785119.62	733.79	
RCV2	501+42.1	870904.71	1785142.86	733.49	
R3		870866.95	1785144.69		37.8
HR4	501+79.5	870859.21	1785175.24	732.99	
RCV3	502+05.5	870868.20	1785190.56	732.85	
R4		870890.46	1785221.11		37.8
HR5	502+32.7	870858.59	1785212.76	732.95	
RAV2	502+64.7	870826.52	1785214.01	732.24	
R5		870869.65	1785235.66		37.8
HR6	503+01.9	870823.09	1785270.99	731.74	
R6		870791.21	1785242.69		37.8
TIE IN	503+62.	870764.74	1785278.27	731.25	

PREPARED IN THE OFFICE OF:
Kimley-Horn and Associates, Inc.
P.O. BOX 33068 – RALEIGH, NORTH CAROLINA 27636-3068
PHONE: (919) 677-2000 FAX: (919) 677-2050

PROJECT REFERENCE NO. U2525B | SHEET NO. OSM-7

PROJECT ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 030000 ENGINEER DARREN M. PATT

APPROVED BY:

DATE:

SITE 5

18 0 36

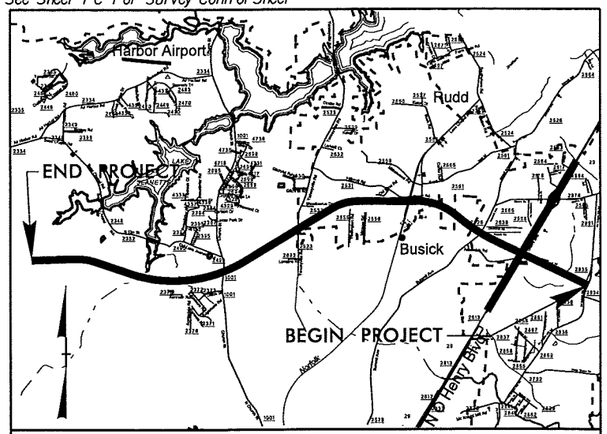
NAD 83

TOP OF BANK
TAIL DITCH
TOP 743.09
CROSS VANE
NCDOT DB 4609 PG 2101
2004
2003
2002
2005
2006
2007
15" CSP
15" RCP-IV
END SBG @ STA. 244+00 -L- (LT.)
2 @ 8' X 8' RCBC
.02
BARREL #2
BARREL #1
SS
N 61°03'20" W
200.27'
15" RCP-IV
CENTER OF RADIUS (R6)
CENTER OF RADIUS (R5)
CENTER OF RADIUS (R4)
CENTER OF RADIUS (R3)
CENTER OF RADIUS (R2)
CENTER OF RADIUS (R1)
ROCK CROSS VANE (RCV3)
ROCK CROSS VANE (RCV1)
ROCK CROSS VANE (RCV2)
ROCK A-VANE (RAV2)
ROCK A-VANE (RAV1)
136.00'
TOP OF BANK
BACKFILL, TYP.
NOTE: SHOTS TAKEN ON ACTUAL STEEL CASING. ALL INVERTS ARE UNATTAINABLE
STREAM PLUG, TYP.
BOULDER TOE PROTECTION
TIE IN DRAINAGE SWALE AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE FROM ADJACENET FILL SLOPE
NCDOT DB 4609 PG 2101
END RELOCATION STA 503+62
NOTE: SHOTS TAKEN ON ACTUAL STEEL CASING. ALL INVERTS ARE UNATTAINABLE
737.49
737.44
2-24" RCP PIPES BURIED IN CREEK
ALIGN SIDE TRIBUTARY TO TIE INTO PROPOSED RELOCATION AS SHOWN. ADD ROCK CROSS VANE STRUCTURE TO TIE TO EXISTING GRADE. MAXIMUM DROP OVER STRUCTURE SHALL NOT EXCEED 0.5 FOOT.
Harold A. Horton DB 3461PG 1283
TOP 753.23
BEGIN RELOCATION STA 500+00
501+00
502+00
503+00
500+00
RW

05/28/99

CONTRACT: TIP PROJECT: U-2525C

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols
See Sheet 1-C For Survey Control Sheet



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

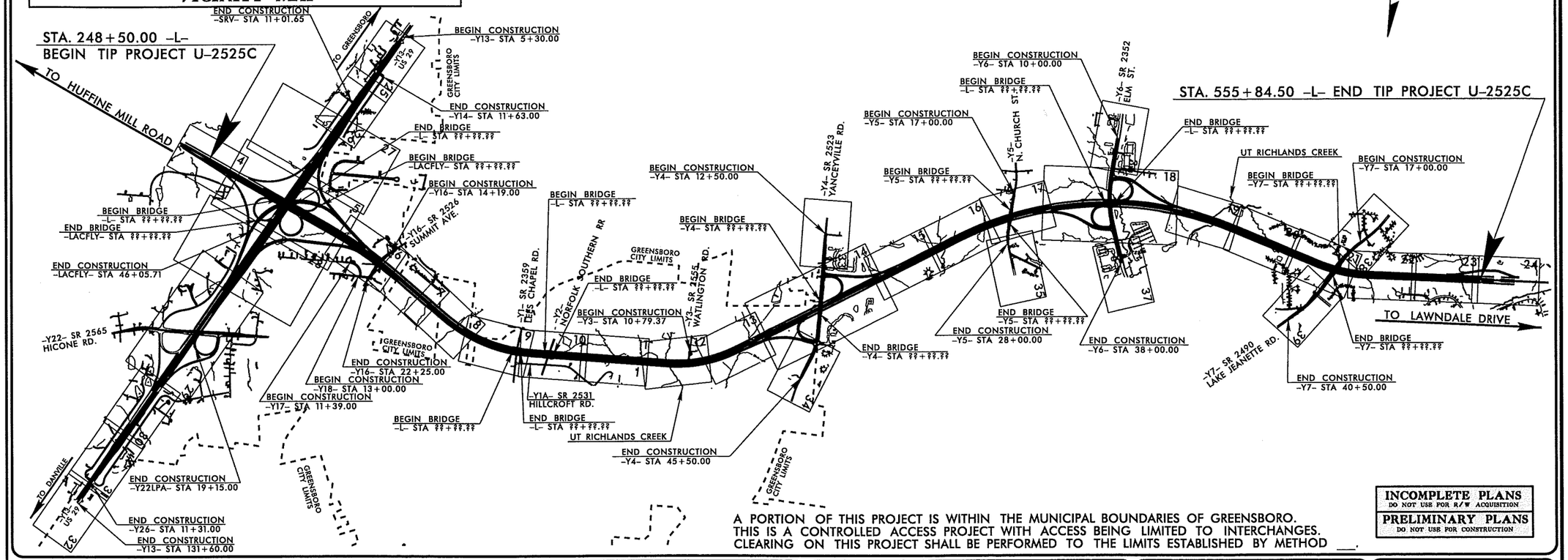
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2525C	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34821.1.4		PE

LOCATION: GREENSBORO EASTERN LOOP FROM US 29 NORTH OF GREENSBORO TO SR 2303 (LAWNDALE DRIVE)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, CULVERTS, AND STRUCTURES

NAD 83/95



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO.
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 ___.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = N/A
ADT 2030 = 72200
DHV = 10 %
D = 60 %
T = 15 % *
V = 70 MPH
* TTST 5% DUAL 10%
FUNC CLASS = INTERSTATE
"STATEWIDE TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2525C = 0.000 MILES
LENGTH STRUCTURE TIP PROJECT U-2525C = 0.000 MILES
TOTAL LENGTH OF TIP PROJECT U-2525C = 4.665 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 17, 2015

LETTING DATE: JULY 17, 2018

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

13-MAY-2013 08:10
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	4
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

-LCD-
PI Sta 15+56.93
Δ = 3° 30' 00.0" (LT)
D = 0° 28' 38.9"
L = 733.04'
T = 366.63'
R = 12,000.00'
SE = NC

NAD 83

CARROLLAND CORPORATION
DB 6516 PG 1914

-L- STA. 248+50.00 BEGIN TIP PROJECT U-2525C

MATCHLINE -L- STA. 242+00.00 SEE PROJECT U-2525B

MATCHLINE -L- STA. 255+00.00 SEE SHEET 5

-LCD- PC Sta. 11+90.30

-LCD- PT Sta. 19+23.34

N 64°33'34.9"W

NOTE: SHOTS TAKEN ON ACTUAL STEEL CASING.

BEGIN CONSTRUCTION NBL
-L- STA. 248+50.00

BL-61 238+49.24 PINC =
-L- Sta. 246+52.23 (40.92' RT.)

BM #8
SEE SHEET 1-D
ELEV. 745.86'

Harold A. Horton
DB 3461 PG 1283

TOMMIE SUZANNE TAYLOR
DB 6431 PG 2034

CATHY BRENNAN
DB 4755 PG 1029
PB 37 PG 17

ROBERT & CATHY BRENNAN
DB 4030 PG 2149
PB 37 PG 17

NCDOT
DB 4609 PG 2101

ARVID A. WHITE
DB 3689 PG 1866

JAMES R. FLINCHUM
DB 3543 PG 1087

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 60 FOR -LCD- PROFILE

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2525C	5
RW SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE –Y13– STA. 43+50.00 SEE SHEET 27

MATCHLINE –Y13PA– STA. 50+00.00 SEE SHEET 27

MATCHLINE –L– STA. 255+00.00 SEE SHEET 4

MATCHLINE –L– STA. 280+00.00 SEE SHEET 6

MATCHLINE –Y13– STA. 57+50.00 SEE SHEET 28

MATCHLINE –LACFLY– STA. 44+00.00 SEE SHEET 28

MATCHLINE –LACFLY– STA. 50+00.00 SEE SHEET 28

A

B

C

D

BEGIN SPECIAL MEDIAN GRADING –L– STA. 261+16.00

BEGIN CONSTRUCTION SSL –L– STA. 262+26.00

END SPECIAL MEDIAN GRADING –L– STA. 274+19.00

REMOVE EXISTING GUARDRAIL

REMOVE PORTABLE CONCRETE BARRIER

REMOVE EXISTING GUARDRAIL

BEGIN CONSTRUCTION –LCD– STA. 41+38.62

ATTENUATOR

GRAU 350

R-GRAU 350

M-350

100' INC. TYP.

100' TYP.

4' PS

(R-2525C) INTERCHANGE ANALYSES
–L– & US 29

(2018) ADT / (2030) ADT	44500 / 54800	US 29	
12100 / 14200	1800 / 5500	0000 / 7100	–L–
	10300 / 10300	0000 / 47200	0000 / 70300
US 29		73000 / 104100	

N

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 863.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 27 FOR BRIDGE SKETCHES
SEE SHEET 41 FOR –L– PROFILE
SEE SHEET 66 FOR –Y13– PROFILE
SEE SHEET 71 FOR –Y13PA– PROFILE
SEE SHEETS 72 & 73 FOR –Y13DPG– PROFILE
SEE SHEET 79 FOR –Y13CD– PROFILE
SEE SHEETS 26, 27, & 28 FOR –LACFLY– PROFILE
SEE SHEETS 81 & 82 FOR –LCD– PROFILE
SEE SHEETS S-1 THRU S-4 FOR STRUCTURE PLANS

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

5/14/99

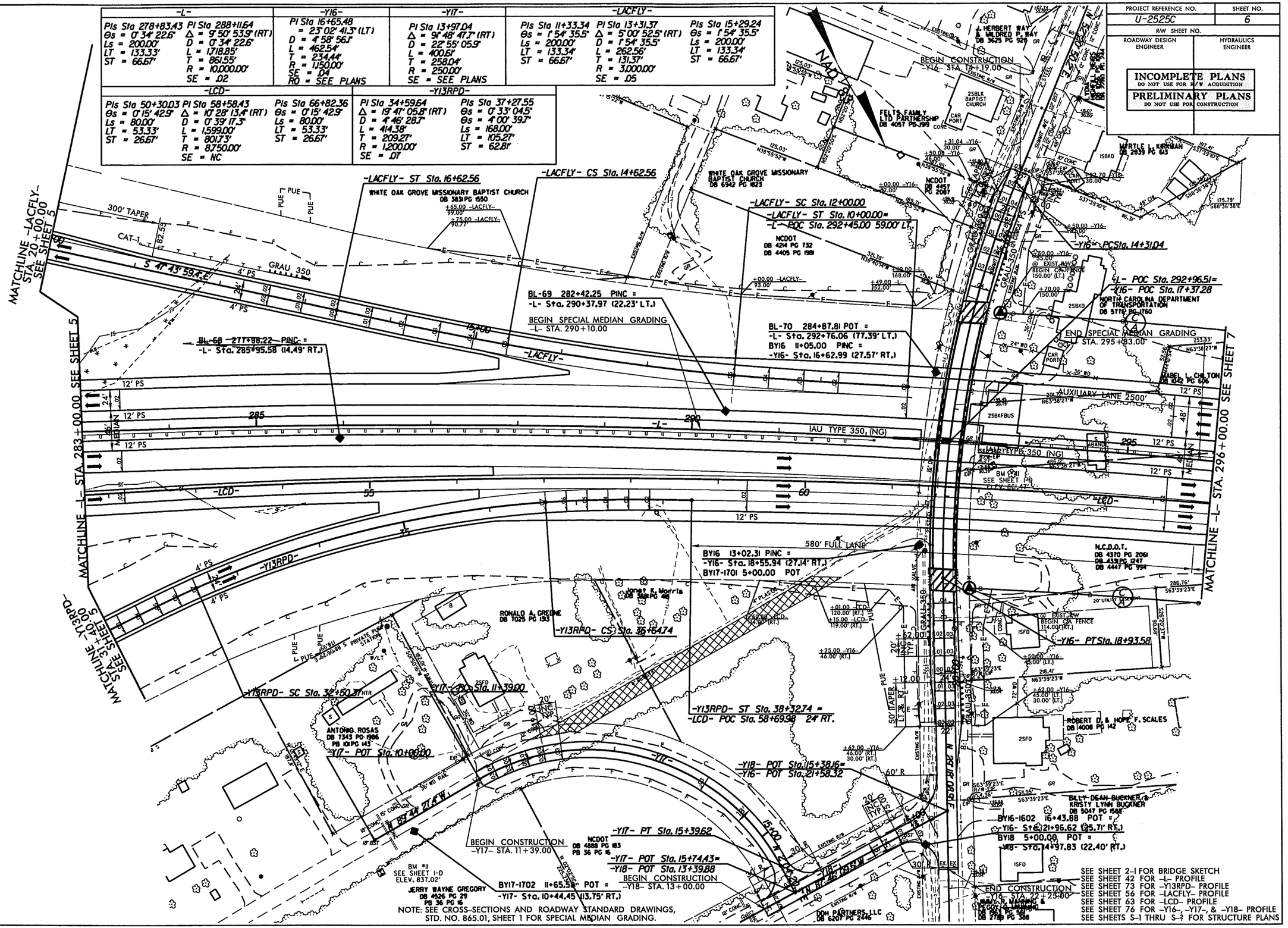
PROJECT REFERENCE NO.	SHEET NO.
U-2525C	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-		-Y16-	-Y17-	-LACFLY-	
PIs Sta 278+83.43	PI Sta 288+11.64	PI Sta 16+65.48	PI Sta 13+97.04	PIs Sta 11+33.34	PI Sta 13+31.37
θs = 0° 34' 22.6"	Δ = 9° 50' 53.9" (RT)	= 23° 02' 41.3" (LT)	Δ = 91° 48' 47.7" (RT)	θs = 1° 54' 35.5"	Δ = 5° 00' 52.5" (RT)
Ls = 200.00'	D = 0° 34' 22.6"	D = 4° 58' 56.1"	D = 22° 55' 05.9"	Ls = 200.00'	D = 1° 54' 35.5"
LT = 133.33'	L = 1718.85'	L = 462.54'	L = 400.61'	LT = 133.34'	L = 262.56'
ST = 66.67'	T = 861.55'	T = 234.44'	T = 258.04'	ST = 66.67'	T = 131.37'
	R = 10,000.00'	R = 1,150.00'	R = 250.00'		R = 3,000.00'
	SE = .02	SE = .04	SE = SEE PLANS		SE = .05

-LACFLY-	-LCD-		-Y13RPD-	
PIs Sta 15+29.24	PIs Sta 50+30.03	PI Sta 58+58.43	PIs Sta 66+82.36	PI Sta 34+59.64	PIs Sta 37+27.55
θs = 1° 54' 35.5"	θs = 0° 15' 42.9"	Δ = 10° 28' 13.4" (RT)	θs = 0° 15' 42.9"	Δ = 19° 41' 05.8" (RT)	θs = 0° 33' 04.5"
Ls = 200.00'	Ls = 80.00'	D = 0° 39' 17.3"	Ls = 80.00'	D = 4° 46' 28.7"	θs = 4° 00' 39.7"
LT = 133.34'	LT = 53.33'	L = 1,599.00'	LT = 53.33'	L = 414.38'	Ls = 168.00'
ST = 66.67'	ST = 26.67'	T = 801.73'	ST = 26.67'	T = 209.27'	LT = 105.27'
		R = 8,750.00'		R = 1,200.00'	ST = 62.81'
		SE = NC		SE = .07	



SEE SHEET 2-I FOR BRIDGE SKETCH
SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 73 FOR -Y13RPD- PROFILE
SEE SHEET 56 FOR -LACFLY- PROFILE
SEE SHEET 63 FOR -LCD- PROFILE
SEE SHEET 76 FOR -Y16-, -Y17-, & -Y18- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

13-MAY-2013 08:41
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	7
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

MATCHLINE -L- STA. 296+00.00 SEE SHEET 6

MATCHLINE -L- STA. 308+00.00 SEE SHEET 8

BLUE ROCK CT. (NON-SYSTEM) 26.2' BST

WOODS

CHORD

BM #1
-BL- STA 10+00.65
202.76' LEFT
ELEV.855.74'

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 6604 PG 586

CHATOYANCY, LLC
DB 6505 PG 3005
PB 129 PG 147
PB 172 PG 130

-L-		-LCD-		
PI Sta 288+11.64	PIs Sta 297+35.61	PIs Sta 50+30.03	PI Sta 58+58.43	PIs Sta 66+82.36
Δ = 9°50'53.9" (RT)	θs = 0°34'22.6"	θs = 0°15'42.9"	Δ = 10°28'13.4" (RT)	θs = 0°15'42.9"
D = 0°34'22.6"	Ls = 200.00'	Ls = 80.00'	D = 0°39'17.3"	Ls = 80.00'
L = 1,718.85'	LT = 1,333.33'	LT = 53.33'	L = 1,599.00'	LT = 53.33'
T = 861.55'	ST = 66.67'	ST = 26.67'	T = 801.73'	ST = 26.67'
R = 10,000.00'			R = 8,750.00'	
SE = .02			SE = NC	

SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 63 FOR -LCD- PROFILE

13-MAY-2013 08:41
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	8
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

-L-	
Pls Sta 312+30.53	Pl Sta 322+54.68
Θs = 3°04' 09.9"	Δ = 30°07' 23.3" (LT)
Ls = 360.00'	D = 1°42' 18.8"
LT = 240.04'	L = 1766.51'
ST = 120.03'	T = 904.18'
	R = 3,360.00'
	SE = .06

NAD 83/95

GUILFORD COUNTY BOARD OF EDUCATION DB 2303 PG 57

ALLEN LYNN ROWE DB 5239 PG 2176

NORMAN SCOTT WHITE DB 4637 PG 285

-L- TS Sta. 309+90.50

-L- SC Sta. 313+50.50

CHORD

CHORD

300' TAPER

300' TAPER

+90.50 -L- 150.00' (LT)

+00.00 -L- 163.00' (LT)

+00.00 -L- @ PROP. R/W

+50.00 -L- 168.00' (LT)

+50.50 -L- 150.00' (LT)

+00.00 -L- 173.00' (LT)

+00.00 -L- 193.00' (LT)

+00.00 -L- 182.00' (LT)

+00.00 -L- 199.00' (LT)

+50.00 -L- 167.00' (LT)

+22.57

14' PS

12' PS

12' PS

12' PS

14' PS

48'

36'

36'

36'

MEDIAN

MEDIAN

-BL-13 PINC 21+76.08

-BL-14 PINC 28+13.87

N 00°56'05" E 286.92'

N 00°56'05" E 286.92'

+70.50

60' INC. TYP.

+90.50 -L- 150.00' (RT.)

@ PL 160.00' (RT)

+50.50 -L- 150.00' (RT)

+50.00 -L- 214.00' (RT)

+50.00 -L- 192.00' (RT)

MATCHLINE -L- STA. 308+00.00 SEE SHEET 7

MATCHLINE -L- STA. 319+00.00 SEE SHEET 9

CHATOYANCY, LLC
DB 6505 PG 3005
PB 123 PG 147
PB 172 PG 130

NORMAN SCOTT WHITE
DB 4637 PG 285

ALLEN LYNN ROWE
DB 5239 PG 2176

BM #2
-BL- STA. 21+32.91
304.03' RIGHT
ELEV. 817.88'

SEE SHEET 43 FOR -L- PROFILE

13-MAY-2013 08:12
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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	9
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

NAD 83/95

SEE SHEET 8

MATCHLINE -L- STA. 319+00.00

SEE SHEET 10

MATCHLINE -L- STA. 332+00.00

GUILFORD COUNTY BOARD OF EDUCATION
DB 2303 PG 57

SHARON KAYE MAHAFFEY
KENNETH WAYNE MAHAFFEY
DB 5053 PG 193

DENNIS L. WHITFIELD
SHEARIN L. WHITFIELD
DB 3688 PG 144

DONALD LEWIS
GRACE LEWIS
DB 3688 PG 149

MARVIN W. SCOTT &
ERNESTINE LUCAS SCOTT
DB 1768 PG 446

NCDOT
DB 5282 PG 1823

NCDOT
NO REFERENCE

ALLEN LYNN ROWE
DB 5239 PG 2176

-Y1- POT Sta. 10+00.00

-Y1- PC Sta. 11+61.22

-BY1-101 POT 5+00.00

-BY1-102 PINC 7+71.38

-L- POC Sta. 329+95.42=
-Y1- POT Sta. 13+13.82

-Y1- PT Sta. 13+78.98

-Y1- PC Sta. 13+95.23

-Y1- PT Sta. 14+95.23

-BY1-103 POT 10+00.72

-BY1A- POT 17+25.89

-Y1- POT Sta. 16+96.43

-L-		-Y1-	
PI Sta 322+54.68	PIs Sta 332+37.04	PI Sta 12+70.13	PI Sta 14+45.24
Δ = 30° 07' 23.3" (LT)	Θs = 3° 04' 09.9"	Δ = 3° 18' 18.2" (LT)	Δ = 2° 19' 10.9" (LT)
D = 1° 42' 18.8"	Ls = 360.00'	D = 1° 31' 04.0"	D = 2° 19' 10.8"
L = 1766.51'	LT = 240.04'	L = 217.76'	L = 100.00'
T = 904.18'	ST = 120.03'	T = 108.91'	T = 50.01'
R = 3,360.00'		R = 3,775.00'	R = 2,470.00'
SE = .06			

SEE SHEET 2-J FOR BRIDGE SKETCH
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 77 FOR -Y1- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

13-MAY-2013 08:12
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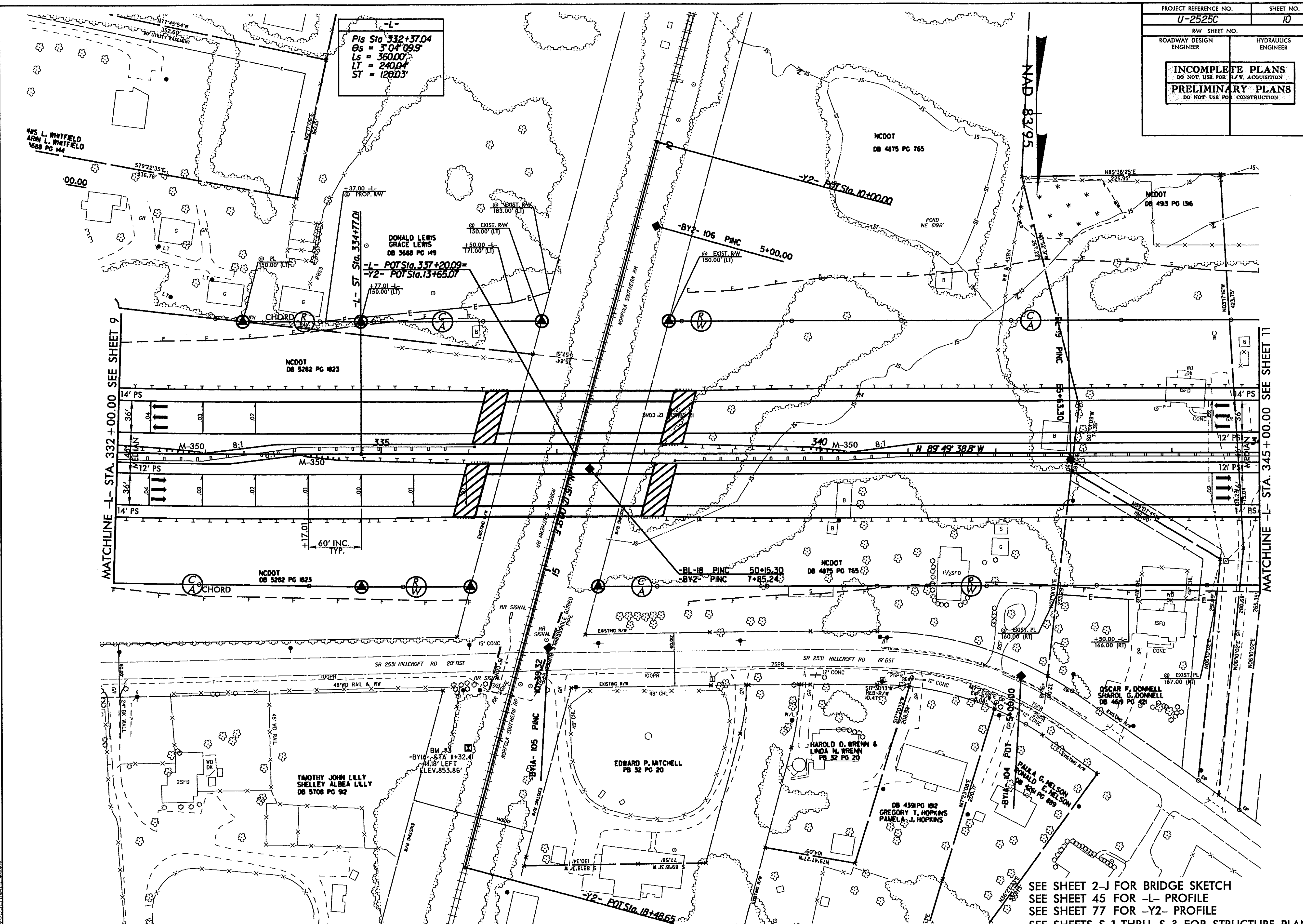
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	10
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 2-J FOR BRIDGE SKETCH
SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 77 FOR -Y2- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

5/14/99

13-MAY-2013 08:12
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	11
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

NAD 83/95

MATCHLINE –L– STA. 345+00.00 SEE SHEET 10

MATCHLINE –L– STA. 359+00.00 SEE SHEET 12

N89°36'25"E 225.94'

NCDOT DB 4765 PG 44

+00.00 –L– 213.00' (LT) @ PL 215.00' (LT)

+00.00 –L– 223.00' (LT)

+00.00 –L– 226.00' (LT)

+00.00 –L– 242.00' (LT)

+50.00 –L– 245.00' (LT)

+00.00 –L– 220.00' (LT)

BM #4 -BL- STA. 63+52.51 268.93' LT ELEV. 810.22'

N84°28'52"W 385.52'

NCDOT DB 4757 PG 268

-BL-20 PNC

-BL-18 PNC

-BL-22 PNC

61+80.41

63+78.42

67+64.46

N 89°49'38"E

350

355

14' PS

12' PS

MEDIAN 45'

36'

S88°15'55"E 345.64'

S88°54'40"E 199.74'

15' UTILITY EASEMENT

N88°50'44"W 199.94'

S00°57'56"W 279.90'

N02°54'42"E 548.33'

N02°04'48"E 264.43'

N02°00'08"E 279.67'

S00°05'05"W 270.00'

NCDOT DB 4765 PG 44

@ EXIST. PL 169.00' (RT)

S59°01'45"E 177.25'

@ EXIST. PL 176.00' (RT)

+50.00 –L– 186.00' (RT)

+50.00 –L– 210.00' (RT)

+50.00 –L– 215.00' (RT)

@ EXIST. PL 214.00' (RT)

N39°17'40"E 1654.26'

N39°14'45"E 356.47'

EXISTING R/W

@ EXIST. PL 168.00' (RT)

ROY L. MEADOWS & CHRISTY L. MEADOWS DB 5993 PG 271

MICHAEL KENT & BRENDA B. SUMMERS DB 2648 PG 720

NCDOT DB 4757 PG 268

@ EXIST. PL 183.00' (RT)

+50.00 –L– 178.00' (RT)

+00.00 –L– 172.00' (RT)

+00.00 –L– 173.00' (RT)

MERLOND C. COX JUNE H. COX DB 3990 PG 1872

ROBERT EUGENE & LINDA LUANN GRUNDMAN DB 3323 PG 344

SEE SHEET 46 FOR –L– PROFILE

IF MAY 2013 08:16
R:\STRUCTURE\U2525C_RDY_PSH11.DGN
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	12
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

NAD 83/96

BEGIN CONSTRUCTION
-Y3- STA. 10+79.37

-Y3- POT Sta. 10+00.00

-BY3-107 POT
-BY3A- POT
R=98.30
S 5°00'29" W
79.37

-BL- 7+51 Sta. 361+99.55

-L- 7+50 Sta. 366+19.65

-BL- 23 PINC

-BL-24 PINC

-BY3- POT 80+84.49

80+85.70

CHORD

PINC 76+86.87

-Y3- POT Sta. 13+20.23

-BL- Sta. 377+86.16
226.27' RIGHT
ELEV. 1179'

MATCHLINE -L- STA. 359+00.00 SEE SHEET 11

MATCHLINE -L- STA. 373+00.00 SEE SHEET 13

HOUSTON H. & VIRGINIA H. COLEMAN
LEONARD G. & FRANCES N. COLEMAN
NOAH MARVIN & HAZEL S. COLEMAN
DB 4348 PG 687

NCDOT
DB 4757, PG 268

ROGER DALE ARNOLD
DB 3763 PG 762

JAMES E. SOHL
DB 4809 PG 901

MARK BRIAN BAILEY
DB 5267 PG 128

DAVID L. ADAMS
DB 4287 PG 673

ARCHIE ADAMS
DB 401 PG 1789

CHARLES G. APPLE
DB 3077 PG 1793

MERLOND C. COX
JUNE H. COX
DB 3998 PG 1872

JEFFREY A. LOFTIS
DB 6581 PG 1486

ARCHIE J. ADAMS &
LOUISE A. ADAMS
DB 401 PG 1789

ARNOLD LANE

6" PRIVATE ROAD

20' UTILITY EASEMENT

60' INC. TYP.

-L-	
Pls Sta 364+79.63	Pl Sta 371+91.62
Θs = 4° 11' 58.9"	Δ = 22° 35' 02.6" (LT)
Ls = 420.00'	D = 1° 59' 59.5"
LT = 280.08'	L = 1129.29'
ST = 140.01'	T = 572.07'
	R = 2,865.00'
	SE = .07

SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 78 FOR -Y3- PROFILE
SEE SHEETS C-1 THRU C-? FOR CULVERT PLANS

13-MAY-2013 08:12
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	13
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

-L-

PI Sta 371+91.62
Δ = 22° 35' 02.6" (LT)
D = 1° 59' 59.5"
L = 1129.29'
T = 572.07'
R = 2,865.00'
SE = .07

PI Sta 378+88.90
Θs = 4° 11' 58.9"
Ls = 420.00'
LT = 280.08'
ST = 140.07'

-Y4RPC-

PI Sta 12+64.30
Θs = 4° 10' 40.1"
Ls = 210.00'
LT = 140.04'
ST = 70.04'

PI Sta 16+83.20
Δ = 27° 14' 33.9" (RT)
D = 3° 58' 43.9"
L = 684.69'
T = 348.94'
R = 1,440.00'
SE = .08

ROGER DALE CARROLL
DB 3763 PG 782

ROBERT A. LANCASTER & MARTHA M. LANCASTER
DB 3057 PG 0851

UZELLIA W. FINLEY
DB 4732 PG 91

JAMES E. SOHL
DB 4809 PG 901

GARY W. & LISA B. ARNOLD
DB 3420 PG 1745

LARRY L. HOWELL
DB 6106 PG 0576

NORTH CAROLINA DEPT. OF TRANSPORTATION
DB 6827 PG 2804

MARK EDWARD MILLAWAY
KAREN M. SMITH
DB 3620 PG 1333

ARCHIE J. ADAMS & LOUISE A. ADAMS
DB 401 PG 1789

DORIS B. STONEMAN
DB 6902 PG 2595

JOSEPH C. SMITH
DB 4751 PG 91

-BY3A- 108 POT 5+00.00

-BY3A- 109 PINC 6+44.80

-L- PC Sta. 377+48.83

-L- ST Sta. 381+68.83

-BL-28 PINC 91+76.95

-BL-27 PINC 84+75.53

-BL-25 PINC 85+95.99

-Y4RPC- POT Sta. 10+00.00
-L- POT Sta. 382+56.07 OFF 59' LT

-Y4RPC- TS Sta. 11+24.26

-Y4RPC- SC Sta. 13+34.26

BM #6
-BL- STA 92+16.68
253.84' RIGHT
ELEV. 765.66'

MATCHLINE -L- STA. 373+00.00 SEE SHEET 12

MATCHLINE -L- STA. 387+00.00 SEE SHEET 14

SEE SHEET 48 FOR -L- PROFILE
SEE SHEET 81 FOR -Y4RPC- PROFILE
SEE SHEETS C-1 THRU C-? FOR CULVERT PLANS

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REVISIONS

-Y4PC-		-Y4LPC-	
PI = 387+00.00 (BK)	PI = 387+00.00 (AHD)	PI = 387+00.00 (BK)	PI = 387+00.00 (AHD)
D = 1°30'00"	D = 1°30'00"	D = 1°30'00"	D = 1°30'00"
R = 3820.00'	R = 3820.00'	R = 3820.00'	R = 3820.00'
T = 50.00'	T = 50.00'	T = 50.00'	T = 50.00'
L = 100.00'	L = 100.00'	L = 100.00'	L = 100.00'
SE = .08	SE = .08	SE = .08	SE = .08

-Y4RPA-		-Y4RPC-	
PI = 387+00.00 (BK)	PI = 387+00.00 (AHD)	PI = 387+00.00 (BK)	PI = 387+00.00 (AHD)
D = 1°30'00"	D = 1°30'00"	D = 1°30'00"	D = 1°30'00"
R = 3820.00'	R = 3820.00'	R = 3820.00'	R = 3820.00'
T = 50.00'	T = 50.00'	T = 50.00'	T = 50.00'
L = 100.00'	L = 100.00'	L = 100.00'	L = 100.00'
SE = .08	SE = .08	SE = .08	SE = .08

PROJECT REFERENCE NO. 17-0306 | SHEET NO. M
RW SHEET NO.
ROADWAY DESIGN ENGINEER | STRUCTURES ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE -L- STA. 387+00.00 SEE SHEET 13

MATCHLINE -L- STA. 415+00.00 SEE SHEET 15

MATCHLINE -Y4- STA. 50.00 SEE SHEET 34

A

C

300' TAPER

GRAU-35D

1420' FULL LANE

BEGIN SPECIAL MEDIAN GRADING -L- STA. 397+69.00

END SPECIAL MEDIAN GRADING -L- STA. 403+77.00

300' BALL LANE

STORAGE

(U-2525C) INTERCHANGE ANALYSIS
-L- & YANCEYVILLE RD.

(2018) ADT (2035) ADT	0000 16600	SR 2523 YANCEYVILLE RD.
0000 70300	0000 3700	0000 3700
	0000 2400	0000 2700
SR 2523 YANCEYVILLE RD.	0000 16100	0000 29700

N

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
SEE SHEET 2-J FOR BRIDGE SKETCH
SEE SHEET 49 FOR -L- PROFILE
SEE SHEETS 78 & 79 FOR -Y4- PROFILE
SEE SHEET 80 FOR -Y4RPA- PROFILE
SEE SHEET 81 FOR -Y4RPC- PROFILE
SEE SHEET 82 FOR -Y4LPA- & -Y4LPC PROFILE
SEE SHEETS S-1 THRU S-5 FOR STRUCTURE PLANS

★ PROPOSED SIGNAL

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

REVISIONS

PROJECT REFERENCE NO. 11-2525C | SHEET NO. 88A
RW SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

N.C. 68 HWY

(U-2525C) INTERCHANGE ANALYSIS
-L- & YANCEYVILLE RD.

EXISTING LEFT	0000 16600	SR 2523 YANCEYVILLE RD.
EXISTING RIGHT		
0000 70300	0000 3700	0000 3700
	0000 2400	0000 2300
SR 2523 YANCEYVILLE RD.	0000 18100	0000 69700

N

-L- | -YADET-

PVI Sta. 10+00.00	PVI Sta. 17+00.00	PVI Sta. 10+00.00	PVI Sta. 17+00.00
Elev. = 719.333	Elev. = 737.672 (VPI)	Elev. = 719.333	Elev. = 737.672 (VPI)
L = 700.00	L = 1400.00	L = 600.00	L = 1400.00
K = 77.78	K = 155.56	K = 66.67	K = 155.56
D = 7.500	R = 1910.00	D = 7.500	R = 1910.00
	SE = .04		SE = .04

VDESIGN = 40 MPH

SEE SHEET 89 FOR -Y4DET- PROFILE

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:
TIP NO.: COUNTY:
DESIGNED BY:
CHECKED BY: DATE:

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	15
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

NAD 83/95

MATCHLINE -L- STA. 415+00.00 SEE SHEET 14

MATCHLINE -Y4RPA- STA. 15+20.00 SEE SHEET 14

MATCHLINE -L- STA. 429+00.00 SEE SHEET 16

-Y4RPA- SC Sta. 13+77.88

-Y4RPA- TS Sta. 11+67.88

-Y4RPA- POT Sta. 10+00.00

-L- POT Sta. 420+06.07 OFF 59'

HRATCHFORD, LLC
DB 6684 PG 1983

CITY OF GREENSBORO
DB 5691 PG 529

GARY S. & VIRGINIA W. CHURCH
DB 3957 PG 929

ELMER A. McADOO JR
SHARON M. CHAPPEL
DB 3654 PG 784

NCDOT
NO REFERENCE

GRAU-350

CAT-1 8:1

300' TAPER

-BL- 35 PINC

-BL- 37 PINC

12' PS

14' PS

36' MEDIAN

420

425

NHC PARTNERSHIP 7, L.P.
DB 4614 PG 190

BM #8
-BL- STA 132+64.11
237.92' RIGHT
ELEV. 792.13'

INEZ R. TURNER
DB 6119 PG 298

KEN CONSTANT
JANET OPOKU
DB 4928 PG 1872

HOWARD L. HUTCHENS &
LYUDMILA P. HUTCHENS
DB 6057 PG 2353

PROJECT HOMESTEAD
DB 4600 PG 1035

-Y4RPA-	
PIs Sta 13+07.91	PI Sta 16+23.22
Θs = 4°10'40.1"	Δ = 19°20'17.9" (RT)
Ls = 210.00'	D = 3°58'43.9"
LT = 140.04'	L = 486.02'
ST = 70.04'	T = 245.35'
	R = 1,440.00'
	SE = .08

SEE SHEET 50 FOR -L- PROFILE
SEE SHEET 80 FOR -Y4RPA- PROFILE

13-MAY-2013 08:12
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PROJECT REFERENCE NO.	SHEET NO.
U-2525C	16
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

5/14/99

NAD 83/95

GARY S. & VIRGINIA W. CHURCH DB 3957 PG 929

GARY S. & VIRGINIA W. CHURCH DB 3957 PG 929

NCDOT DB 4546 PG 43

ELMER A. McADOO JR SHARON McCHAPPEL DB 3654 PG 784

NCDOT NO REFERENCE

PROJECT HOMESTEAD DB 4600 PG 1033

SHARON MCADOO CHAPPEL F/T DB 6966 PG 2770

GARY S. & VIRGINIA W. CHURCH DB 3957 PG 929

GARY S. & VIRGINIA W. CHURCH DB 2959 PG 665

PATTI CHURCH PHILLIPS GARY S. CHURCH DB 6254 PG 032

-L- TS Sta. 433+80.21

-L- SC Sta. 435+80.21

-BL- PINC

-BL- PINC

CHORD

CHORD

MATCHLINE -L- STA. 429+00.00 SEE SHEET 15

MATCHLINE -L- STA. 443+00.00 SEE SHEET 17

BM #9
-BL- STA 144+87.79
221.66' RIGHT
ELEV. 816.23'

-L-	
PIs Sta 435+13.54	PI Sta 469+05.74
Θs = 0° 45' 50.2"	Δ = 41° 49' 31.4" (RT)
Ls = 200.00'	D = 0° 45' 50.2"
LT = 133.33'	L = 6,260.33'
ST = 66.67'	T = 3,325.53'
	R = 7,500.00'
	SE = .03

SEE SHEET 50 FOR -L- PROFILE
SEE SHEETS C-1 THRU C-? FOR CULVERT PLANS

13-MAY-2013 08:13
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$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	17
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-	-Y5-	
PI Sta 469+05.74	PI Sta 19+96.46	PI Sta 27+08.79
Δ = 41° 49' 31.4" (RT)	Δ = 3° 12' 21.5" (LT)	Δ = 18° 50' 52.0" (LT)
D = 0° 45' 50.2"	D = 1° 05' 06.5"	D = 6° 21' 58.3"
L = 6,260.33'	L = 295.44'	L = 296.06'
T = 3,325.53'	T = 147.76'	T = 149.38'
R = 7,500.00'	R = 5,280.00'	R = 900.00'
SE = .03		

-Y6RPC-	
PIs Sta 11+28.71	PI Sta 16+23.95
θs = 0° 48' 28.9"	Δ = 32° 04' 34.9" (RT)
θs = 4° 10' 41.8"	D = 3° 58' 43.9"
Ls = 210.00'	L = 806.17'
LT = 128.71'	T = 413.95'
ST = 81.41'	R = 1,440.00'
	SE = .08

NAD 83/95

BEGIN CONSTRUCTION
-Y5- STA. 17+00.00

-Y5- PCSta. 18+48.70

-Y5- PTSta. 21+44.14

-BL-41 PINC 157+17.72

BEGIN SPECIAL MEDIAN GRADING
-L- STA. 444+84.00

END SPECIAL MEDIAN GRADING
-L- STA. 450+71.00

-BL-43 PINC 157+03.71

-BL-42 PINC 161+29.95

-BY5- PINC 16+62.82

-L- POCSta. 447+77.20=
-Y5- POTSta. 22+29.98

-Y6RPC- ST Sta. 10+00.00
-L- POCSta. 452+82.34 OFF 55

-Y6RPC- SC Sta. 12+10.00

BM #10
-Y5- STA 11+85.05
94.38' LEFT
ELEV. 953.79'

MATCHLINE -L- STA. 443+00.00 SEE SHEET 16

MATCHLINE -L- STA. 457+00.00 SEE SHEET 18

MATCHLINE -Y5- STA. 27+00.00 SEE SHEET 35

DOUGLAS HENDERSON
DB 4925 PG 0245

JAY C. & MARJORIE W. CHAMPION
DB 5004 PG 632

NCDOT
DB 4546 PG 43

GARY S. & VIRGINIA W. CHURCH
DB 3957 PG 929

PATTI CHURCH PHILLIPS
GARY S. CHURCH
DB 6254 PG 032

GWENDOLYN McADOO JONES
DB 1899 PG 289

CANTERBURY SCHOOL
DB 5586 PG 159

TIMOTHY A. McADOO
DB 3805 PG 1007

TIMOTHY A. McADOO
DB 3805 PG 1007

12' PS

4' PS

36' MEDIAN

300' TAPER

340' FULL LANE

48'

IAU TYPE 350 (NG)

GRAU 350

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-J FOR BRIDGE SKETCH
SEE SHEET 51 FOR -L- PROFILE
SEE SHEET 83 FOR -Y5- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

13-MAY-2013 08:13
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	17A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

-L-	-Y5-	
PI Sta 469+05.74	PI Sta 19+96.46	PI Sta 27+08.79
Δ = 41° 49' 31.4" (RT)	Δ = 3° 12' 21.5" (LT)	Δ = 18° 50' 52.0" (LT)
D = 0° 45' 50.2"	D = 1° 05' 06.5"	D = 6° 21' 58.3"
L = 6,260.33'	L = 295.44'	L = 296.06'
T = 3,325.53'	T = 147.76'	T = 149.38'
R = 7,500.00'	R = 5,280.00'	R = 900.00'
SE = .03		

-Y5- PC Sta. 18+48.70

-Y5- POT Sta. 17+50.00=
-Y5DET- PC Sta. 10+00.00
BEGIN CONSTRUCTION

BM #10
-Y5- STA 11+85.05
94.38' LEFT
ELEV. 853.79'

-Y5DET- PRC Sta. 11+71.52

-BL-41 PINC 157+17.72

-Y5- PT Sta. 21+44.14

-Y5DET- PT Sta. 13+22.27

-BL-43 PINC 167+03.71

-L- POC Sta. 448+58.16=
-Y5DET- POT Sta. 14+54.24

-BL-42 PINC 161+29.95

-BY5 PINC 16+62.82

-Y5DET- PC Sta. 15+72.05

-Y5- PC Sta. 25+59.41

-Y5DET- PRC Sta. 17+33.63

-Y5- POC Sta. 26+75.00=
-Y5DET- PT Sta. 19+42.87
END CONSTRUCTION

DOUGLAS HENDERSON
DB 495 PG 345

JAY C. & MARJORIE W. CHAMPION
DB 5004 PG 632

NCDOT
DB 4546 PG 43

TIMOTHY A. McADOO
DB 3805 PG 1007

GARY S. & VIRGINIA B. CHURCH
DB 3957 PG 929

PATTI CHURCH PHILLIPS
GARY S. CHURCH
DB 6254 PG 032

GWENDOLYN McADOO JONES
DB 1899 PG 289

CANTERBURY SCHOOL
DB 5586 PG 159

-Y5DET-			
PI Sta 10+87.32	PI Sta 12+47.95	PI Sta 16+54.15	PI Sta 18+41.11
Δ = 26° 29' 18.2" (LT)	Δ = 23° 16' 56.9" (RT)	Δ = 24° 57' 14.0" (RT)	Δ = 32° 18' 46.2" (LT)
D = 15° 26' 37.0"	D = 15° 26' 37.0"	D = 15° 26' 37.0"	D = 15° 26' 37.0"
L = 171.52'	L = 150.76'	L = 161.58'	L = 209.23'
T = 87.32'	T = 76.43'	T = 82.09'	T = 107.48'
R = 371.00'	R = 371.00'	R = 371.00'	R = 371.00'
SE = .04	SE = .04	SE = .04	SE = .04

DESIGN SPEED = 35 MPH

SEE SHEET 89 FOR -Y5DET- PROFILE

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REVISIONS

PROJECT REFERENCE NO. U-2525C | SHEET NO. 1

STATE PROJECT REFERENCE NO. | SHEET NO.

ROADWAY DESIGN ENGINEER | STRUCTURES ENGINEER

INCOMPLETE PLANS
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW ONLY
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION

MATCHLINE -L- STA. 17+00.00 SEE SHEET 36

MATCHLINE -L- STA. 485+00.00 SEE SHEET 19

MATCHLINE -L- STA. 33+00.00 SEE SHEET 37

MATCHLINE -L- STA. 45+00.00 SEE SHEET 17

NAD 83/99

A

B

C

D

1420' FUL LANE

350' FUL LANE

CAT-2

CAT-1

GRAD-350

GRAD-850

M-350

100' TAPER

3' OFFSET

2-#6 C & G

12' FS

14' FS

17' FS

(U-2525C) INTERCHANGE ANALYSIS

-L- & NORTH ELM ST.

N. ELM

(2018) ADT 27500
(2030) ADT 33000

SR 2270 KENNETH RD.

0000 27500
0000 24100
0000 49700
0000 25000
0000 8700
0000 8700
0000 10300
0000 72200
0000 29700

N

N. ELM

SEE SHEET 2-J FOR BRIDGE SKETCH
SEE SHEET 52 FOR -L- PROFILE
SEE SHEETS 83 & 84 FOR -Y6- PROFILE
SEE SHEETS 84 & 85 FOR -Y6RPA- PROFILE
SEE SHEET 85 FOR -Y6LPA- PROFILE
SEE SHEET 86 FOR -Y6RPC- PROFILE
SEE SHEET 87 FOR -Y6LPC- PROFILE
SEE SHEETS S-1 THRU S-9 FOR STRUCTURE PLANS
SEE SHEETS C-1 THRU C-9 FOR CULVERT PLANS

★ PROPOSED SIGNAL

GRAPHIC SCALE
0
PLANS

LOCATION:

TIP NO.: | COUNTY:

DESIGNED BY:

CHECKED BY: | DATE:

5/14/99

-Y6RPA-		-L-	
Pls Sta 13+18.34	Pl Sta 17+14.59	Pl Sta 469+05.74	Pls Sta 499+07.20
Gs = 2°17' 30.6"	Δ = 15°01' 14.2" (RT)	Δ = 41°49' 31.4" (RT)	Gs = 0°45' 50.2"
Ls = 200.00'	D = 2°17' 30.6"	D = 0°45' 50.2"	Ls = 200.00'
LT = 133.34'	L = 655.40'	L = 6,260.33'	LT = 133.33'
ST = 66.68'	T = 329.59'	T = 3,325.53'	ST = 66.67'
	R = 2,500.00'	R = 7,500.00'	
	SE = .06	SE = .03	

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	19
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

BM #12
-BL- STA 208+62.78
479.02' LEFT
ELEV. 755.56'

NAD 83/97

-Y6RPA- TS Sta. 11+85.00

-Y6RPA- POT Sta. 10+00.00 =
-L- POC Sta. 488+56.07 OFF 59'

-L- CS Sta. 498+40.54

CITY OF GREENSBORO
DB 4556 PG 364
DB 4400 PG 871

NCDOT
DB 4975 PG 249
DB 498 PG 233

OPUS SOUTH CORPORATION
DB 4969 PG 131

CONE DENSO LLC
DB 4969 PG 131

LAKE JEANETTE ASSOCIATION, INC.
DB 5395 PG 0603

MATCHLINE -L- STA. 485+00.00 SEE SHEET 18

MATCHLINE -L- STA. 499+00.00 SEE SHEET 20

SEE SHEET 52 FOR -L- PROFILE
SEE SHEET 84 FOR -Y6RPA- PROFILE
SEE SHEETS C-1 THRU C-? FOR CULVERT PLANS

USER:tmyers
DGN:U2525c_rdy_psh19.dgn
DATE:5/13/2015
FILENAME:ssss

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	20
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

NAD 83/95

CITY OF GREENSBORO
DB 4536 PG 364
DB 4400 PG 871

WHITEHALL AT RICHLAND CREEK HOMEOWNERS ASSOCIATION INC
DB 4759 PG 863

WHITEHALL AT RICHLAND CREEK HOMEOWNERS ASSOCIATION INC
DB 4715 PG 878

WHITEHALL AT RICHLAND CREEK
DB 4701 PG 1014

WHITEHALL AT RICHLAND CREEK
DB 4701 PG 1014

NCDOT
DB 4975 PG 1249
DB 4961 PG 233

YOUTH FOCUS INC.
DB 5311 PG 1583

PRESTBURY ASSOCIATION
DB 5947 PG 1334

LESLIE F MILLIKIN
DB 4642 PG 357

LISA M KEEN
DB 6274 PG 2539

JAMES D KEEN
DB 6274 PG 2539

GRENDOLYN E.
DB 6527 PG 1038

BM #13
-BL- STA 217+57.13
236.31' LEFT
ELEV. 770.04'

DRAINAGE WAY OR OPEN SPACE NOT BUILDABLE

10' EASEMENT

APPROXIMATE LOCATION

CONC

-L- Sta. 500+40.54

-BL-53 PINC

-BL-54 PINC 209+09.05

-BL-55 PINC 223+72.77

-BL- PINC 213+78.

66.67' INC. TYPICAL

+73.87

214+74.93

MATCHLINE -L- STA. 499+00.00 SEE SHEET 19

MATCHLINE -L- STA. 513+00.00 SEE SHEET 21

14' PS
12' PS
36' MEDIAN

500
505
510

N 71° 27' 27.3" W

CAT-1 8:1

GBA 6:1

-L-

PI Sta 469+05.74	PIs Sta 499+07.20
Δ = 41° 49' 31.4" (RT)	Θs = 0° 45' 50.2"
D = 0° 45' 50.2"	Ls = 200.00'
L = 6,260.33'	LT = 133.33'
T = 3,325.53'	ST = 66.67'
R = 7,500.00'	
SE = .03	

SEE SHEET 53 FOR -L- PROFILE

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5/14/99

-L-		-Y7-
Pls Sta 519+60.76	Pl Sta 524+84.04	Pl Sta 20+34.09
θs = 3°08' 56.7"	Δ = 14° 02' 29.1" (LT)	Δ = 14° 29' 31.5" (LT)
Ls = 360.00'	D = 1° 44' 58.2"	D = 3° 00' 56.0"
LT = 240.04'	L = 802.60'	L = 480.58'
ST = 120.03'	T = 403.32'	T = 241.58'
	R = 3,275.00'	R = 1,900.00'
	SE = .06	SE = .03

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95

MATCHLINE -Y7- STA. 21+00.00 SEE SHEET 38

-Y7- Pl Sta. 22+73.09

MATCHLINE -L- STA. 513+00.00 SEE SHEET 20

MATCHLINE -L- STA. 527+00.00 SEE SHEET 22

MATCHLINE -Y7- STA. 30+00.00 SEE SHEET 39

-L- TS Sta. 517+20.72

-L- SC Sta. 520+80.72

BL-56 PINC 231+46.19

BL-56 PINC 228+98.25

BEGIN SPECIAL MEDIAN GRADING
-L- STA. 520+39.00
NCDOT
DB 4975 PG 1249

END SPECIAL MEDIAN GRADING
-L- STA. 526+36.00
NCDOT
DB 4975 PG 1249

-L- POC Sta. 523+37.59=
-Y7- POT Sta. 25+21.80

WHITEHALL AT RICHLAND CREEK
DB 4388 PG 1203

WHITEHALL AT RICHLAND CREEK HOMEOWNERS ASSOCIATION, INC
DB 4331 PG 191

THE MEADOWS AT RICHLAND CREEK HOMEOWNER'S ASSOCIATION, INC
DB 4639 PG 593

NCDOT
DB 4975 PG 1249

PRESTBURY ASSOCIATION
DB 5947 PG 1334

PRESTBURY ASSOCIATION
DB 5947 PG 1334

NCDOT
DB 4975 PG 1249

CITY OF GREENSBORO
DB 557 PG 1479

GRANDE AT LAKE JEANETTE MASTER HOMEOWNERS ASSOCIATION, INC.
DB 4987 PG 0432

PAMELA G FALKNER-BRUNSON
DB 4537 PG 1825

KEVIN DOUGLAS CLARK
DB 5911 PG 2844

ASHLEY SCHROLL
DB 6706 PG 2474

SHERRY B. BARR
DB 6815 PG 1217

PRESTBURY SUBDIVISION CARROLL AND CORPORATION
PB 121 PG 52

12' PS
36' MEDIAN
IAU TYPE 350 (NG)
60' INC. TYPICAL
30' INC. TYP.
2'-6" C&G
SHAU-350
40' R-H

NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.

SEE SHEET 2-J FOR BRIDGE SKETCH
SEE SHEET 53 FOR -L- PROFILE
SEE SHEETS 87 & 88 FOR -Y7- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

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PROJECT REFERENCE NO.	SHEET NO.
U-2525C	22
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

NAD 83/95

-L- STA. 527+00.00 SEE SHEET 21

-L- STA. 541+00.00 SEE SHEET 23

MATCHLINE -L- STA. 527+00.00 SEE SHEET 21

MATCHLINE -L- STA. 541+00.00 SEE SHEET 23

-L- STA. 532+43.32

-BL-60 PINC 253+35.10

-BL-55 PINC

-BL- PINC 245+82.52

247+49.57

THE MEADOWS AT RICHLAND CREEK HOMEOWNER'S ASSOCIATION, INC DB 4631 PG 95

ELLWOOD F KAMPERMAN DB 4791 PG 1275

KEVIN M. HART DB 6897 PG 2255

EBERET P. WILLIAMS & USHA L. WILLIAMS DB 4663 PG 2074

JOHN PATRICK WILLIAMS DB 6153 PG 0617

MICHEAL P. & TONI M. WILLIAMS DB 6481 PG 1521

RALPH P. & SUSAN J. YEREX DB 6052 PG 0464

KINYATA SHARRINE WILLIAMS DB 4826 PG 483

PAUL A. RIFFE DB 4432 PG 218

JOHNNY WAYNE GILES DB 4454 PG 1398

LOCUST AVENUE DB 5699 PG 2084

NCDOT DB 4975 PG 1249

CITY OF GREENSBORO DB 528 PG 1765

GRANDE AT LAKE JEANETTE MASTER HOMEOWNERS ASSOCIATION, INC. DB 4931 PG 0432

GRANDE AT LAKE JEANETTE MASTER HOMEOWNERS ASSOCIATION, INC. DB 524 PG 1053

VIDYARANYA B. & INDUMATHI B. GARCEYA DB 5999 PG 2478

REZA & MARIA C. MARDANI DB 6781 PG 0480

JIM D. SKAGGS DB 5976 PG 2324

JAMES E. LABRANCHE DB 6526 PG 2755

TODD A. & LAURA S. MCDADE DB 5876 PG 2372

SAT N. & MADHU GUPTA DB 6102 PG 0271

APPROXIMATE LOCATION W/ DRAINAGE MAINTENANCE & UTILITY EASEMENT

-L-

PI Sta 524+84.04	PIs Sta 530+03.35
Δ = 14° 02' 29.1" (LT)	Θs = 3° 08' 56.7"
D = 1° 44' 58.2"	Ls = 360.00'
L = 802.60'	LT = 240.04'
T = 403.32'	ST = 120.03'
R = 3275.00'	
SE = .06	

SEE SHEET 54 FOR -L- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
U-2525C	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

NAD 83/95

THE MEADOWS AT RICHLAND CREEK HOMEOWNER'S ASSOCIATION, INC
DB 4631 PG 95

ALLISON MOORE MASSEY
DB 5663 PG 1153

BRENDA K. CURRE
DB 5023 PG 2270

MOORE
DB 5699 PG 2064

BM #15
-BL- STA 265+65.63
252.67' LEFT
ELEV.799.89'

NCDOT
DB 4975 PG 1249

NOISE WALL TO BE BUILT WITH PROJECT U-2524D

NOISE WALL

-BL- STA. 541+00.00 SEE SHEET 22

-L- STA. 555+00.00 SEE SHEET 24

MATCHLINE -L- STA. 548+00.00

-BL-6 PNC 256+68.36

-BL-62 PNC 262+82.52

-BL-53 POT 266+24.20

-BL- PNC 268+00.00

12' PS

36' MEDIAN

8:1 CAT-1

8:1 GRAU-350

S 88°12'02"W

JONATHAN H. & DONNA M. SLAUGHTER
DB 5737 PG 0607

PHILLIP R. PARKER
DB 6661 PG 2233

LORENZO PAYONE & JENNIFER ANN WILLIAMSON
DB 5987 PG 3074

JOBE-BROWN, LLC
DB 4633 PG 1888

KATHERINE H. WALL TATE
DB 5881 PG 571

MICHAEL T. & TAMMY J. JOHNSON
DB 5871 PG 868

YVES OWENS
DB 5852 PG 1705

KAMRY WAYE FELDER
DB 5726 PG 5355

BRUCE L. CROCKETT
DB 5425 PG 943

8" TFR UNKNOWN

15' SANITARY SEWER EASEMENT

5' UTILITY EASEMENT

EXISTING R/W

EXISTING R/W

SEE SHEET 54 FOR -L- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
U-2525C	24
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

NAD 83/95

N86°33'08"W
178.34'

NOISE WALL TO BE BUILT WITH PROJECT U-2524D

NOISE WALL

NOISE WALL

-L- STA. 555+84.50 END TIP PROJECT U-2525C

GRAU-350 8:1

560

N 88°12'10"E

565

N63°45'35"E
399.56'

S65°55'20"W
177.61'

MATCHLINE -L- STA. 555+00.00 SEE SHEET 23

NCDOT
DB 4975 PG 1249

N53°09'27"E
327.12'

N64°08'39"E
122.24'

SF

SEE SHEET 55 FOR -L- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
U-2525C	25
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

-Y14-
PI Sta 11+80.00
Δ = 90°00'00.0" (RT)
D = 95°29'34.7"
L = 94.25'
T = 60.00'
R = 60.00'
SE = .02
RO = SEE PLANS

NAD 83

VERGIE M. COX
PB 26 PG 22

CARL SCHOOLFIELD
PB 26 PG 22
LOT 14

PATRICIA C. ROCKBURN
DB 5338 PG 1018

AH M. WHITAKER
6180 PG 2059

VERNICE H. FULLER
DB 6716 PG 049

Reese B. Leon Jr.
DB 2359 PG 485

Sue L. Council
DB 4632 PG 345

-Y14- PT Sta. 12+14.25
BEGIN CONSTRUCTION
-Y14- STA. 11+63.00

-Y14- PC Sta. 11+20.00

BM #22
SEE SHEET 1-D
ELEV. 786.00'

BY14-1401 5+00.00 POT
-Y14- POT Sta. 10+00.00=
-Y13- POT Sta. 14+80.87

BEGIN CONSTRUCTION
-Y13- STA. 5+30.00

BEGIN GRADE
-Y13- STA. 11+00.00

BY13-1301 5+00.00 POT
-Y13- Sta. 10+00.00 (4.39' LT.)

N 30°54'03.2" E -Y14-

480' MEDIAN TRANSITION

N 30°54'03.2" E -Y13-

-Y13- STA. 18+00.00 SEE SHEET 26

MATCHLINE -Y13- STA. 5+00.00 SEE SHEET 25

SEE SHEET 64 FOR -Y13- PROFILE
SEE SHEET 74 FOR -Y14- PROFILE

JORDAN DONNA R TRUSTEE
DB 6570 PG 858

NAEGELE OUTDOOR ADVERTISING
DB 464-PG-1490

R L IVAN GOFORTH
SUE B. HEDRICK &
DEBORAH GOFORTH-
TAYLOR, TRUSTEES
FOR ETHEL P. GOFORTH
ASSET PRESERVATION
TRUST, UTD
DB 5520 PG 054

Beulah S. Witherspoon
DB 2097 PG 445

ELEANOR L. LANEBERRY
DB 1784 PG 692

Shane Odell
DB 1442 PG 358

Wilford Bishop
DB 184 PG 348

ARCH 06, LLC
DB 6569 PG 1939

EXCHAR LLC
6614 PG 773

SUMMIT HILLS DR 18' BST

SOIL & GR
EXISTING R/W

MONO. ISLAND

MTL GUARDRAIL

REM GR

US 29 SBL BST

US 29 NBL BST

250' TAPER

300' TAPER

ISBKBUS

ISBKD

ISBLKBUS

ISFD

METAL SHED

WOODS

CONC PAD

WOOD DECK

4' WD WALL

STONE WALL

RUINS

GATE

PUMP STATION

GRAU-350

13-MAY-2013 08:14
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	26
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

-Y14-	-Y13CD-	
PI Sta 25+87.56	PI Sta 12+45.06	PI Sta 17+35.04
Δ = 9°02' 43.5" (LT)	Δ = 3° 30' 33.1" (LT)	Δ = 3° 30' 33.1" (RT)
D = 2°17' 30.6"	D = 0°42' 58.3"	D = 0°42' 58.3"
L = 394.68'	L = 489.97'	L = 489.97'
T = 197.75'	T = 245.06'	T = 245.06'
R = 2,500.00'	R = 8,000.00'	R = 8,000.00'
SE = .02	SE = NC	SE = NC
RO = 4I'		

NAD 83/95

N04°53'06"E 150.62'

N88°26'24"E 306.01'

S04°53'22"W 193.22'

-Y14- PC Sta. 23+89.81

S04°53'22"W 374.47'

10' UTILITY EASEMENT

ALAN R. CLARK & JASLIN D. CLARK DB 5972 PG 224

James H. Scales DB 493 PG 1830 DB 428 PG 1365

Reese B. Kent Jr. DB 2369 PG 485

Vincent White & Gwendo White DB 679 PG 229 PB 159 PG 48

Patsy A. Moore DB 3874 PG 2028

-Y13CD- PC Sta. 10+00.00 = -Y13- POT Sta. 21+40.65 59.00' RT.

-Y13CD- PRC Sta. 14+89.97

15+00

N 30°54'03.2" E

20+00 -Y14-

25+00

BY14-1402 12+57.65 PINC = -Y14- Sta. 18+83.28 (98.06' RT.)

BY14-1403 19+76.30 PINC = -Y14- Sta. 25+93.57 (105.45' RT.)

480' MEDIAN TRANSITION

300' TAPER

-Y13CD-

4' PS

12' PS

48' MED

36' MED

20+00 B.1

-Y13-

N 30°54'03.2" E

25+00

230' FULL LANE

300' R

40' R

-SRV- POT Sta. 10+00.00 = -Y13- POT Sta. 23+46.41

BY13-1302 15+14.10 PINC = -Y13- Sta. 20+14.10 (13.83' LT.)

BY13-1303 22+93.13 PINC = -Y13- Sta. 27+93.13 (4.90' LT.)

EXISTING R/W

END GRADE -SRV- STA. 11+00.00

END CONSTRUCTION -SRV- STA. 11+01.65

-SRV-

S 59°05'56" E

60" NW & ISBW

ARCHLOG, LLC DB 6569 PG 1939

2' BST

GLADE PROPERTIES OF THE TRIAD, LLC DB 6417 PG 1276

-SRV- POT Sta. 12+40.08

ISMTL

MATCHLINE -Y13- STA. 18+00.00 SEE SHEET 25

MATCHLINE -Y13- STA. 30+00.00 SEE SHEET 27

SEE SHEET 64 FOR -SRV- PROFILE
SEE SHEET 65 FOR -Y13- PROFILE
SEE SHEET 69 FOR -Y13CD- PROFILE
SEE SHEET 74 FOR -Y14- PROFILE

13-MAY-2013 08:14
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$$$$USERNAME$$$$

REVISIONS

PROJECT REFERENCE NO. | SHEET NO.
0-2424 | 27
AM SHEET NO.

ROADWAY DESIGN ENGINEER | STRUCTURES ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y13PA-

PROPOSED	EXISTING
ALIGNMENT	ALIGNMENT
BEGIN PROJECT	BEGIN PROJECT
END PROJECT	END PROJECT
BEGIN BRIDGE	BEGIN BRIDGE
END BRIDGE	END BRIDGE
BEGIN CONSTRUCTION	BEGIN CONSTRUCTION
END CONSTRUCTION	END CONSTRUCTION
SIDEWALK	SIDEWALK
CURB & GUTTER	CURB & GUTTER
RIGHT OF WAY	RIGHT OF WAY
SLOPE	SLOPE
DITCH	DITCH
CONCRETE	CONCRETE
ASPHALT	ASPHALT
GRAVEL	GRAVEL
RIP RAP	RIP RAP
GUARDRAIL	GUARDRAIL
BRIDGE	BRIDGE
RETAINING WALL	RETAINING WALL
SOUND WALL	SOUND WALL
TREE LINE	TREE LINE
WOODS	WOODS
WETLAND	WETLAND
POND	POND
STREAM	STREAM
BUILDING	BUILDING
FENCE	FENCE
POWER POLE	POWER POLE
LIGHT POLE	LIGHT POLE
TRAFFIC SIGNAL	TRAFFIC SIGNAL
MAILBOX	MAILBOX
SIGN	SIGN
WELL	WELL
SEPTIC	SEPTIC
FLAG POLE	FLAG POLE
HYDRANT	HYDRANT
SPRINKLER	SPRINKLER
GAS VALVE	GAS VALVE
GAS METER	GAS METER
POST	POST
FLOOD LIGHT	FLOOD LIGHT
CLEAN OUT	CLEAN OUT
TRANSFORMER	TRANSFORMER
UNDERGROUND TELEPHONE	UNDERGROUND TELEPHONE
UNDERGROUND TELEVISION	UNDERGROUND TELEVISION
UNDERGROUND ELECTRIC	UNDERGROUND ELECTRIC
UNDERGROUND GAS	UNDERGROUND GAS
UNDERGROUND WATER	UNDERGROUND WATER
SANITARY SEWER	SANITARY SEWER
STORM SEWER	STORM SEWER
UNDERGROUND TANK	UNDERGROUND TANK
OVERHEAD UTILITY	OVERHEAD UTILITY
SURVEY CONTROL	SURVEY CONTROL
MISCELLANEOUS	MISCELLANEOUS

-YM-

PROPOSED	EXISTING
ALIGNMENT	ALIGNMENT
BEGIN PROJECT	BEGIN PROJECT
END PROJECT	END PROJECT
BEGIN BRIDGE	BEGIN BRIDGE
END BRIDGE	END BRIDGE
BEGIN CONSTRUCTION	BEGIN CONSTRUCTION
END CONSTRUCTION	END CONSTRUCTION
SIDEWALK	SIDEWALK
CURB & GUTTER	CURB & GUTTER
RIGHT OF WAY	RIGHT OF WAY
SLOPE	SLOPE
DITCH	DITCH
CONCRETE	CONCRETE
ASPHALT	ASPHALT
GRAVEL	GRAVEL
RIP RAP	RIP RAP
GUARDRAIL	GUARDRAIL
BRIDGE	BRIDGE
RETAINING WALL	RETAINING WALL
SOUND WALL	SOUND WALL
TREE LINE	TREE LINE
WOODS	WOODS
WETLAND	WETLAND
POND	POND
STREAM	STREAM
BUILDING	BUILDING
FENCE	FENCE
POWER POLE	POWER POLE
LIGHT POLE	LIGHT POLE
TRAFFIC SIGNAL	TRAFFIC SIGNAL
MAILBOX	MAILBOX
SIGN	SIGN
WELL	WELL
SEPTIC	SEPTIC
FLAG POLE	FLAG POLE
HYDRANT	HYDRANT
SPRINKLER	SPRINKLER
GAS VALVE	GAS VALVE
GAS METER	GAS METER
POST	POST
FLOOD LIGHT	FLOOD LIGHT
CLEAN OUT	CLEAN OUT
TRANSFORMER	TRANSFORMER
UNDERGROUND TELEPHONE	UNDERGROUND TELEPHONE
UNDERGROUND TELEVISION	UNDERGROUND TELEVISION
UNDERGROUND ELECTRIC	UNDERGROUND ELECTRIC
UNDERGROUND GAS	UNDERGROUND GAS
UNDERGROUND WATER	UNDERGROUND WATER
SANITARY SEWER	SANITARY SEWER
STORM SEWER	STORM SEWER
UNDERGROUND TANK	UNDERGROUND TANK
OVERHEAD UTILITY	OVERHEAD UTILITY
SURVEY CONTROL	SURVEY CONTROL
MISCELLANEOUS	MISCELLANEOUS

-YMD-

PROPOSED	EXISTING
ALIGNMENT	ALIGNMENT
BEGIN PROJECT	BEGIN PROJECT
END PROJECT	END PROJECT
BEGIN BRIDGE	BEGIN BRIDGE
END BRIDGE	END BRIDGE
BEGIN CONSTRUCTION	BEGIN CONSTRUCTION
END CONSTRUCTION	END CONSTRUCTION
SIDEWALK	SIDEWALK
CURB & GUTTER	CURB & GUTTER
RIGHT OF WAY	RIGHT OF WAY
SLOPE	SLOPE
DITCH	DITCH
CONCRETE	CONCRETE
ASPHALT	ASPHALT
GRAVEL	GRAVEL
RIP RAP	RIP RAP
GUARDRAIL	GUARDRAIL
BRIDGE	BRIDGE
RETAINING WALL	RETAINING WALL
SOUND WALL	SOUND WALL
TREE LINE	TREE LINE
WOODS	WOODS
WETLAND	WETLAND
POND	POND
STREAM	STREAM
BUILDING	BUILDING
FENCE	FENCE
POWER POLE	POWER POLE
LIGHT POLE	LIGHT POLE
TRAFFIC SIGNAL	TRAFFIC SIGNAL
MAILBOX	MAILBOX
SIGN	SIGN
WELL	WELL
SEPTIC	SEPTIC
FLAG POLE	FLAG POLE
HYDRANT	HYDRANT
SPRINKLER	SPRINKLER
GAS VALVE	GAS VALVE
GAS METER	GAS METER
POST	POST
FLOOD LIGHT	FLOOD LIGHT
CLEAN OUT	CLEAN OUT
TRANSFORMER	TRANSFORMER
UNDERGROUND TELEPHONE	UNDERGROUND TELEPHONE
UNDERGROUND TELEVISION	UNDERGROUND TELEVISION
UNDERGROUND ELECTRIC	UNDERGROUND ELECTRIC
UNDERGROUND GAS	UNDERGROUND GAS
UNDERGROUND WATER	UNDERGROUND WATER
SANITARY SEWER	SANITARY SEWER
STORM SEWER	STORM SEWER
UNDERGROUND TANK	UNDERGROUND TANK
OVERHEAD UTILITY	OVERHEAD UTILITY
SURVEY CONTROL	SURVEY CONTROL
MISCELLANEOUS	MISCELLANEOUS

NAD 1983

MATCHLINE -Y13- STA. 30+00.00 SEE SHEET 24

MATCHLINE -Y13- STA. 43+50.00 SEE SHEET 5

MATCHLINE -Y13PB- SEE SHEET 3

MATCHLINE -Y13PA- STA. 17+50.00 SEE SHEET 5

SEE SHEET 65 FOR -Y13- PROFILE
SEE SHEETS 71 & 72 FOR -Y13SA- PROFILE
SEE SHEETS 69 & 70 FOR -Y13CD- PROFILE
SEE SHEET 74 FOR -Y14- PROFILE

LOCATION:

TIP NO.: | COUNTY:

DESIGNED BY:

CHECKED BY: | DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

REVISIONS

MATCHLINE -Y13- STA. 57+50.00 SEE SHEET 5

MATCHLINE -LACFLY- STA 44+00.00 SEE SHEET 5

MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 29

NAD 1983

PROJECT REFERENCE NO. 172526C

SHEET NO. 28

SW SHEET NO.

ROADWAY DESIGN ENGINEER

STRUCTURES ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET 66 FOR -Y13- PROFILE
SEE SHEET 72 FOR -Y13STD- PROFILE
SEE SHEETS 58 & 59 FOR -LACFLY- PROFILE
SEE SHEET 70 & 71 FOR -Y13CD- PROFILE

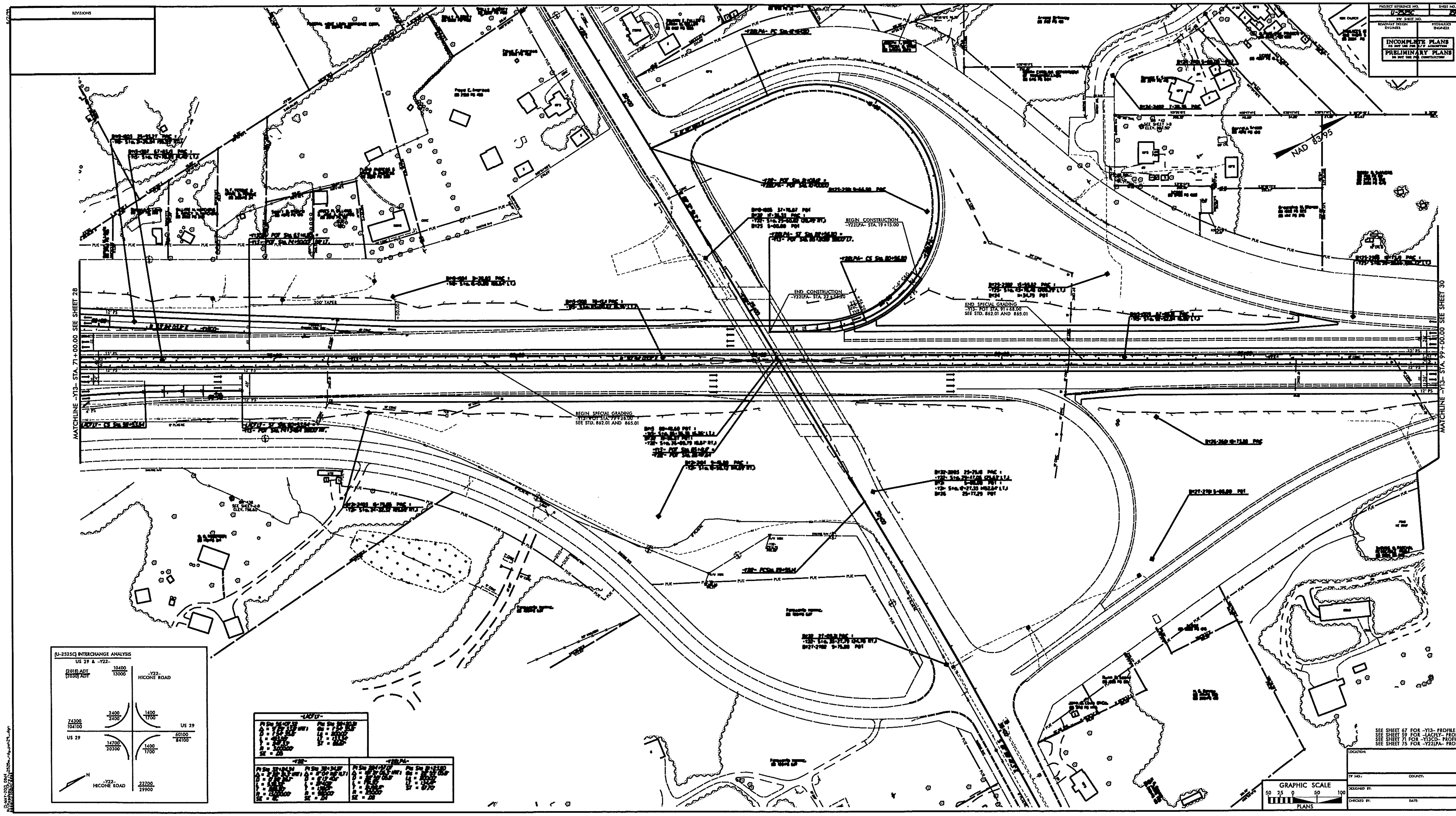
LOCATION:

TIP NO.: COUNTY:

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS


REVISIONS
PROJECT REFERENCE NO.
SHEET NO.
U-2525C
29
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
NAD 83/95
MATCHLINE -Y13- STA. 71+00.00 SEE SHEET 28
MATCHLINE -Y13- STA. 99+00.00 SEE SHEET 30
300' TAPER
BEGIN CONSTRUCTION
-Y22LPA- STA. 19+15.00
END CONSTRUCTION
-Y22LPA- STA. 22+56.20
END SPECIAL GRADING
-Y13- POT STA. 91+68.00
SEE STD. 862.01 AND 865.01
BEGIN SPECIAL GRADING
-Y13- POT STA. 79+28.00
SEE STD. 862.01 AND 865.01
(U-2525C) INTERCHANGE ANALYSIS
US 29 & -Y22-
(2018) ADT
(2030) ADT
10400
13000
-Y22-
HICONE ROAD
2400
3400
1400
1700
74300
104100
US 29
US 29
60100
84100
14700
20300
1400
1700
N
-Y22-
HICONE ROAD
22700
29900
SEE SHEET 67 FOR -Y13- PROFILE
SEE SHEET 59 FOR -LACFLY- PROFILE
SEE SHEET 71 FOR -Y13CD- PROFILE
SEE SHEET 75 FOR -Y22LPA- PROFILE
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
CHECKED BY:
DATE:
GRAPHIC SCALE
50 25 0 50 100
PLANS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	30
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

NAD 83/95

MATCHLINE –Y13– STA. 99+00.00 SEE SHEET 29

MATCHLINE –Y13– STA. 113+00.00 SEE SHEET 31

BOBBY R. SUMMERS
DB 1768 PG 152
DB 2794 PG 859
DB 3609 PG 1679 GR

BOBBY LANE LEVAN & ROBERT WAYNE JONES & LOU ELLA LEVAN & CAROLYN JEAN JONES
DB 3680 PG 1993 DB 3656 PG 1765

ALBERT LANDSPERGER, JR. & PHYLLIS LANDSPERGER
DB 6529 PG 1859

BARRY G. HOLYFIELD
DB 3728 PG 671
DB 4490 PG 1901

JOSE GUADALUPE TOLEDO GARCIA & MARISOL HERNANDEZ PEREZ
DB 6802 PG 2724

BOBBY C. TEAGUE & LINDA C. TEAGUE
DB 6861PG 0370

R.L. & JEANETTE D. SWING
DB 4262 PG 327

JACK WILSON BOYLES, III & SUSAN HILLIARD BOYLES
DB 6751PG 080

GREGG A. ALBERT & EDITH H. ALBERT
DB 6300 PG 0996

ANTHONY B. HURDLE
DB 6196 PG 0539

WILLIAM THEODORE HOLLAND, HEIRS
DB 6068 PG 0084

BM #39
SEE SHEET I-D
ELEV. 772.90'

BY25-2501 5+00.00 POT

BY23-2304 25+38.21 POT=
-Y23- Sta. 32+80.20 (95.55' LT.)
BY25 8+27.73 POT

BY13-1310 98+31.28 PINC =
-Y13- Sta. 103+19.04 (4.72' LT.)

BY26-2603 5+00.00 POT =
-Y26- Sta. 29+44.69 (94.65' RT.)

BY26-2602 13+34.8 PINC =
-Y26- Sta. 37+35.29 (158.16' RT.)

Impacted for L - Not B

THOMAS W. PASCHAL REVOCABLE TRUST
DB 5056 PG 580

ROY B. JONES & MARY LOU JONES
DB 4022 PG 490

JANICE J. MILES
DB 2432 PG 121

R. WAYNE JONES
DB 636 PG 527

N.C.D.O.T.
DB 454 PG 424

SARAH KNIGHT JESSE L/T & JUDY CAROL JESSE
DB 5678 PG 004

SEE SHEET 68 FOR –Y13– PROFILE

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	31
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

NAD 83/95

WILLIAM THEODORE, HOLLAND HEIRS
DB 6068 PG 0084

WILLIAM HOLLAND &
DOROTHY R. HOLLAND
DB 13937 PG 553
DB 2599 PG 45

WORSHAM REALTY L.L.C.
DB 4958 PG 1432

KEELEY REALTY
GREENSBORO, LLC
DB 7412 PG 2324

ISWTLBUS

150' DUKE POWER EASEMENT

EXISTING R/W

PDE

PUE

300' TAPER

BY13-13II 112+09.45 PINC =
-Y13- Sta. 116+97.21 (5.04' LT.)

-Y13- POT Sta. 125+81.64 =
-Y26- POT Sta. 10+00.00

END CONSTRUCTION SBL
-Y13- STA. 123+54.31

2' PLASTIC

12' PS

4' PS

8:1

115+00

120+00

125+00

N 30° 54' 03.2" E -Y13-

530' OFFSET LEFT

480' MEDIAN TRANSITION

+91.48

+105.64

+11.48

30' R

30' TRANS.

+31.00

22'

15+00

-Y26- PC Sta. 11+30.00

-Y26- PT Sta. 15+09.00

-Y26- PRC Sta. 13+42.56

END CONSTRUCTION/MILLING
-Y26- STA. 11+31.00

FRED D. CURL &
SYLVIA C. CURL
DB 1546 PG 0623
DB 52 PG 55

JAMES COURLEY
DB 4797 PG 39

WILLIAM R. CLYMER
DB 2079 PG 199

DUKE POWER COMPANY
DB 2582 PG 561
DB 2582 PG 557

SARAH KNIGHT JESSE L/T &
JUDY CAROL JESSE
DB 5678 PG 0044

POWER SUB - STATION

-Y26-

PI Sta 13+09.62	PI Sta 14+27.99
Δ = 121° 47' 18.2" (RT)	Δ = 31° 47' 18.0" (LT)
D = 57° 17' 44.8"	D = 19° 05' 54.9"
L = 212.56'	L = 166.44'
T = 179.62'	T = 85.42'
R = 100.00'	R = 300.00'
SE = .03	SE = .03

MATCHLINE -Y13- STA. 113+00.00 SEE SHEET 30

MATCHLINE -Y13- STA. 127+00.00 SEE SHEET 32

SEE SHEET 68 FOR -Y13- PROFILE
SEE SHEET 75 FOR -Y26- PROFILE

13-MAY-2013 08:15
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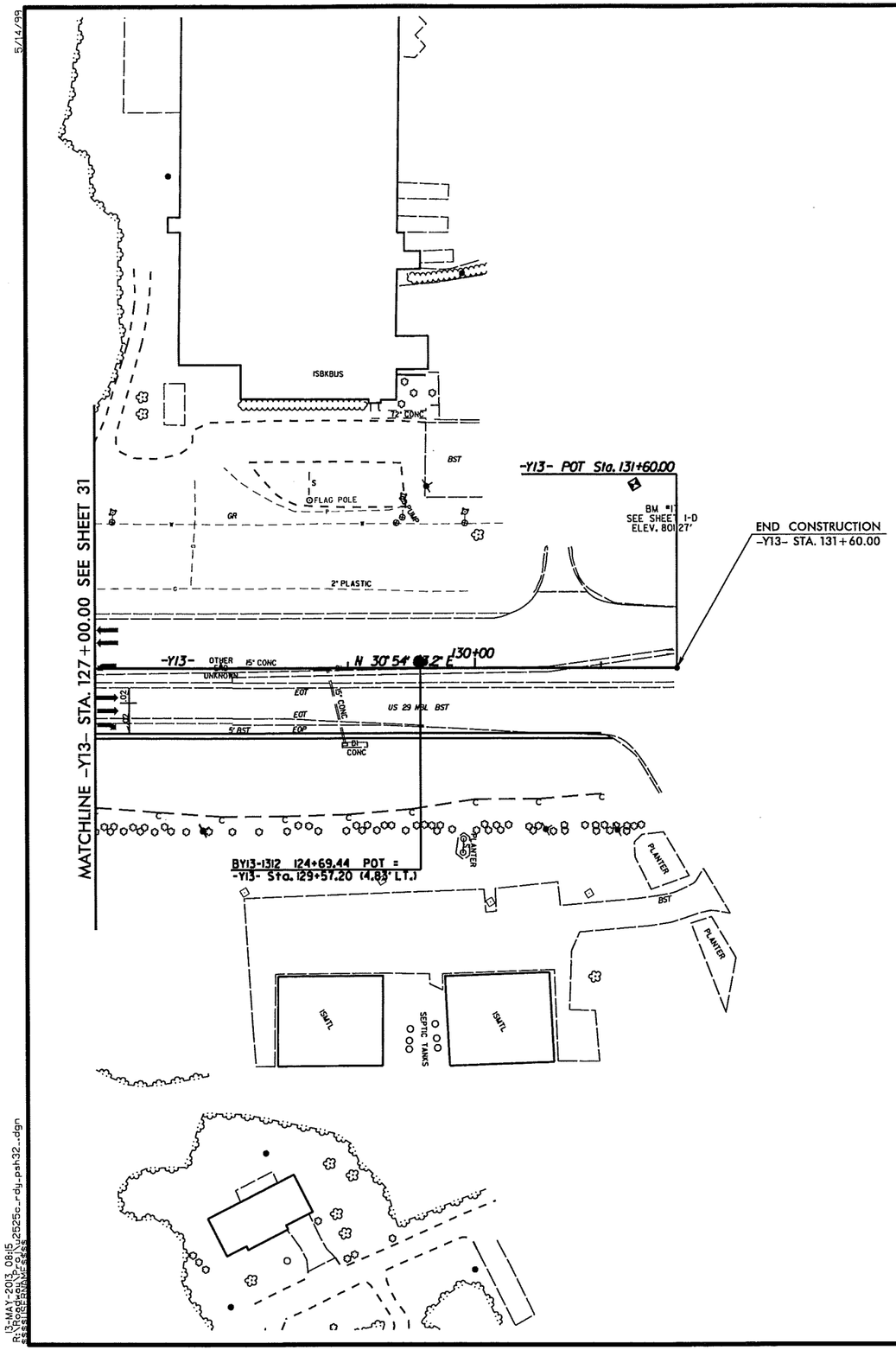
PROJECT REFERENCE NO.	SHEET NO.
U-2525C	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83/95



SEE SHEET 69 FOR -Y13- PROFILE

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	33
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

NAD 83/95

-Y4- PI Sta 10+00.00

-Y4- PI Sta 12+48.43

-Y4- PI Sta 16+02.88

-Y4- PI Sta 19+00.00

-Y4- PI Sta 14+25.66
Δ = 0°52'58.8" (LT)
D = 0°14'56.8"
L = 354.46'
T = 177.23'
R = 23,000.00'
SE = NC

STEPHEN L. SIMMONS & KATHY T. SIMMONS DB 6973 PG 0965

AUBREY HOWARD POWELL & JENIFER M. POWELL DB 4198 PG 585

DALE A. & DEANNA B. AVERY DB 5201 PG 1965

BLACKTHORN APARTMENTS OF GREENSBORO, LLC DB 6774 PG 2728

VIRGINIA WAUGH BROWN L/T DB 6495 PG 2295

GEORGE WAUGH DB 5206 PG 982

WILLOW OAKS PARTNERS DB 5891 PG 2136

SR 2523 YANCEYVILLE RD

N 0°45'57.6" E

S89°22'07"E 216.73'

N00°45'17"E 101.38'

N00°45'17"E 99.50'

S00°34'08"W 158.46'

S00°34'08"W 800'

S89°25'52"E 250.03'

S89°22'07"E 29.80'

S86°26'52"W 481.93'

S 09°48'08" E 200.58'

S 39°28'00" E

BEGIN CONSTRUCTION -Y4- STA. 12+50.00

50' TAPER LT. & RT.

400' MEDIAN TRANSITION

+50.00 -Y4- @ EXIST. R/W 50.00' (RT)

+00.00 -Y4- 58.00' (RT)

+02.88 -Y4- 50.00' (RT) END CA FENCE

+00.00 -Y4- 65.00' (RT)

+45.00 -Y4- 50.00' (LT) BEGIN CA FENCE

+02.88 -Y4- 50.00' (LT)

BM #7
-BY4- STA 13+77.01
319.49' RIGHT
ELEV. 853.04'

MATCHLINE -Y4- STA. 20+00.00 SEE SHEET 14

SEE SHEET 78 FOR -Y4- PROFILE

13-MAY-2013 08:15
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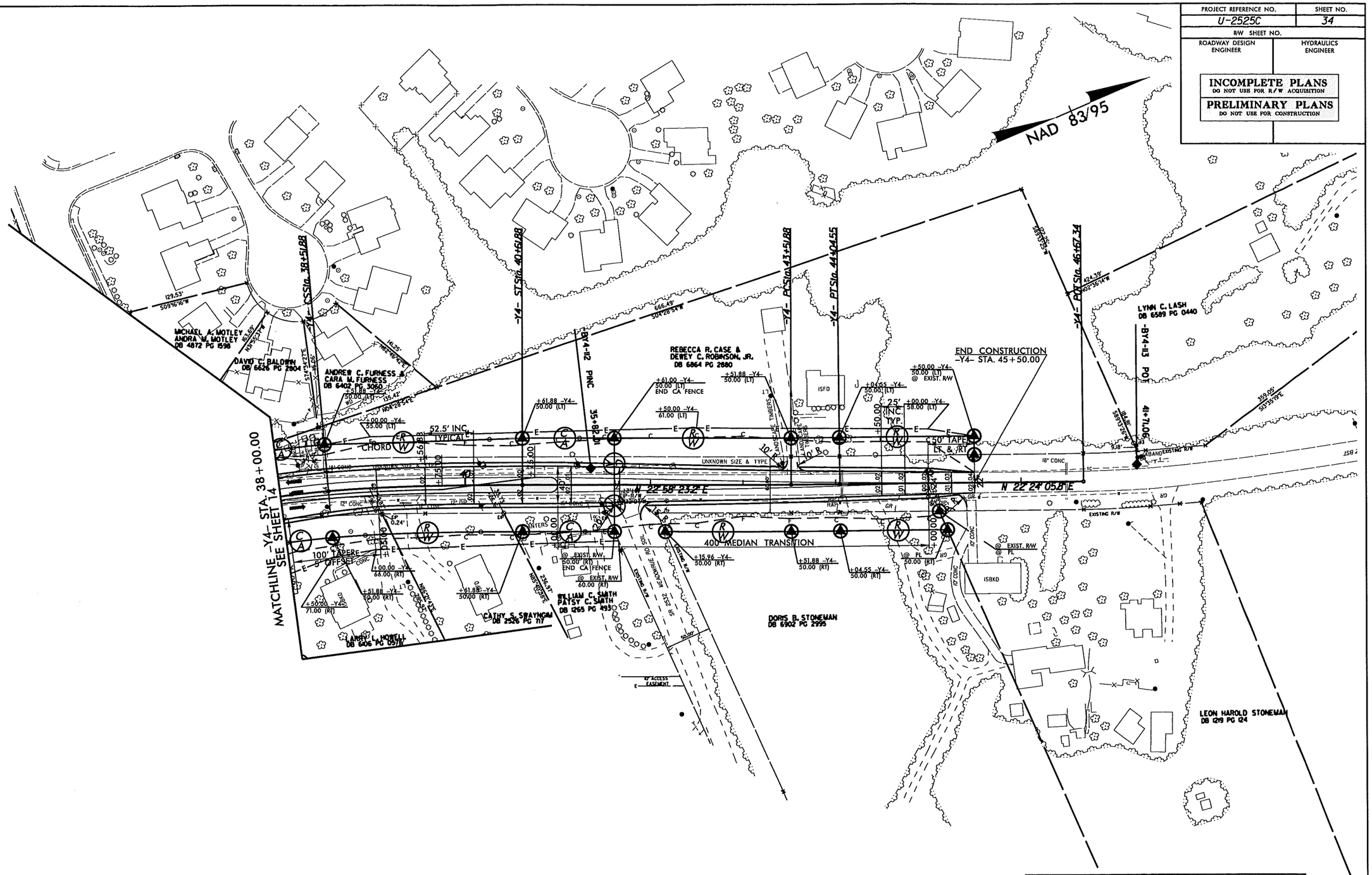
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	34
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



-Y4-		
PI Sta 37+14.67	PIs Sta 39+21.93	PI Sta 43+78.21
Δ = 13° 06' 17.8" (RT)	Gs = 4° 59' 33.3"	Δ = 0° 34' 17.4" (LT)
D = 4° 45' 17.4"	Ls = 210.00'	D = 1° 05' 06.5"
L = 275.61	LT = 140.06'	L = 52.67'
T = 138.41'	ST = 70.05'	T = 26.33'
R = 1,205.00'		R = 5,280.00'
SE = .04		SE = .04

SEE SHEET 79 FOR -Y4- PROFILE

13-MAY-2013 08:15
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	35
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

NAD 83/95

-Y5A-
PI Sta 13+62.21
Δ = 19° 53' 10.6" (LT)
D = 28° 38' 52.4"
L = 69.42'
T = 35.06'
R = 200.00'

-Y5A- PRC Sta. 10+00.00

-Y5A- PCSta. 13+27.15

-Y5A- PTSta. 13+96.56

-Y5A- POT Sta. 14+59.89

-Y5- PCSta. 28+94.49

-Y5- PTSta. 28+55.47

-Y5- POTSta. 30+28.06

-Y5- POTSta. 30+86.75=

-Y5- POTSta. 33+84.43

END CONSTRUCTION -Y5- STA. 28+00.00

MATCHLINE -Y5- STA. 27+00.00 SEE SHEET 17

-Y5-

PI Sta 27+08.79	PI Sta 29+61.28
Δ = 18° 50' 52.0" (LT)	Δ = 1° 26' 57.7" (LT)
D = 6° 21' 58.3"	D = 1° 05' 06.5"
L = 296.06'	L = 133.56'
T = 149.38'	T = 66.79'
R = 900.00'	R = 5,280.00'

ROBERT McADOO
DORIS McADOO
DB 2068 PG 58

CANTERBURY SCHOOL
DB 5586 PG 159

CANTERBURY SCHOOL
DB 448 PG 24

PATTI CHURCH PHILLIPS
GARY S. CHURCH
DB 6254 PG 032

SHARON McADOO CHAPPEL F/T
DB 6966 PG 2770

ELMER A. McADOO, JR.
DB 5502 PG 1084

SARAH E. McADOO ESTRIDGE
DB 924 PG 567

CHARLES W. & INEZ S. McADOO
DB 1961 PG 25

UNDER CONSTRUCTION

N CHURCH ST 38' BST

SEE SHEET 83 FOR -Y5- PROFILE

13-MAY-2013 08:15
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	36
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

NAD 83/95

-Y6A-
PI Sta 11+50.07
Δ = 0° 44' 56.5" (RT)
D = 5° 43' 46.5"
L = 13.07'
T = 6.54'
R = 1,000.00'

-Y6A- POT Sta. 10+00.00

-Y6A- PC Sta. 11+43.53

-Y6A- PT Sta. 11+56.61

-Y6- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y6- STA. 10+00.00

JOHN W. PEDLEY
DB 225 PG 081

TARPACK PROPERTIES, LLC
DB 4587 PG 1987

LJC ACQUISITION COMPANY, LLC
DB 5972 PG 1630

CLARIAGE, LLC
DB 4936 PG 835

LJS ACQUISITION COMPANY, LLC
DB 6034 PG 0038

LAXE JEANETTE BUILDING, LLC
DB 4981 PG 767

NORTH ELM PROPERTY OWNERS ASSOCIATION
DB 493 PG 196

U-2525C PM

SR 2352 ELM ST 55' BST

S02°25'39"W 174.70'

S02°32'43"W 329.60'

S02°32'43"W 199.38'

S02°32'43"W 168.02'

S02°32'43"W 136.00'

S02°32'43"W 88.37'

S04°32'42"W 447.56'

N 6°03'43.5" E

S 87°39'05" E 1010.38'

E 369.5' TRANSITION

-Y6A- POT Sta. 14+34.85=
-Y6- POT Sta. 16+78.41

MATCHLINE -Y6- STA. 17+00.00 SEE SHEET 18

SEE SHEET 83 FOR -Y6- PROFILE

13-MAY-2013 08:15
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	37
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

NAD 83/95

MATCHLINE -Y6- STA. 33+00.00 SEE SHEET 18

5803 NORTH ELM STREET INVESTORS, LLC DB 5405 PG 68

OPUS SOUTH CORPORATION DB 4969 PG 131

AREA DEDICATED TO CITY OF GREENSBORO FOR DRAINAGE WAY

CITY OF GREENSBORO DB 5900 PG 1030

50' TAPER LT & RT

END CONSTRUCTION -Y6- STA. 38+00.00

-BY6-122 PINC 35+75.84

GSC ACQUISITION, LLC DB 6062 PG 1099

LAKE JEANETTE, LLC DB 502 PG 2005

SEE SHEET 84 FOR -Y6- PROFILE

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	38
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

NAD 83

-Y7- PCSta. 10+48.41

-Y7- PTSta. 12+04.83

-Y7- PCSta. 17+92.51

-Y7- PTSta. 20+34.09

-BY7- 126 PINC 15+04.80

BEGIN CONSTRUCTION
-Y7- STA. 17+00.00

MATCHLINE -Y7- STA. 21+00.00 SEE SHEET 21

SEE SHEET 87 FOR -Y7- PROFILE

-Y7-	
PI Sta 12+04.83	PI Sta 20+34.09
Δ = 10° 31' 34.5" (RT)	Δ = 14° 29' 31.5" (LT)
D = 3° 22' 27.5"	D = 3° 00' 56.0"
L = 311.95'	L = 480.58'
T = 156.42'	T = 241.58'
R = 1698.00'	R = 1,900.00'
	SE = .03

DAVID A. & PENNY L. FORBES
DB 6557 PG 054

MEADOWS AT RICHLAND CREEK HOMEOWNER'S ASSOCIATION, INC
DB 4487 PG 844

THE MEADOWS AT RICHLAND CREEK HOMEOWNER'S ASSOCIATION, INC
DB 4631 PG 95

RESERVE AT RICHLAND CREEK HOMEOWNER'S ASSOCIATION, INC
DB 4889 PG 864

REBECCA W. HENLEY
STAFFORD JOHN HENLEY
DB 5595 PG 252

KEITH D. & LOUISE N. BURROUGHS
DB 4943 PG 62

MURTAZA S. & CHINNAIAH HASSAN
DB 6433 PG 236

WHITEHALL AT RICHLAND CREEK HOMEOWNERS ASSOCIATION, INC
DB 4523 PG 502

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2525C	39
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y7-
PI Sta 34+04.65
Δ = 18° 18' 55.3" (RT)
D = 2° 17' 30.6"
L = 799.16'
T = 403.02'
R = 2,500.00'
SE = .03

NAD 83

MATCHLINE -Y7- STA. 30+00.00 SEE SHEET 21

-Y7- PCSta. 30+01.83

-Y7- POCSta. 36+39.36=
-Y7A- POTSta. 10+00.00

-Y7- PCSta. 34+00.29

-Y7- PTSta. 38+35.38

-Y7A- PCSta. 11+41.83

-Y7A- PTSta. 11+83.55

-Y7A- PCSta. 12+44.44

-Y7A- PTSta. 12+71.12

-Y7A- POTSta. 14+31.46

-BY7- 127 PNC

-BY7- 128 PNC

-BY7A- PNC

-BY7A- 130 PNC

END CONSTRUCTION
-Y7- STA. 40+50.00

GRANDE AT LAKE JEANETTE MASTER HOMEOWNERS ASSOCIATION, INC. DB 4897 PG 0432

GRANDE AT LAKE JEANETTE HOMEOWNERS ASSOCIATION, INC. DB 5997 PG 1865

RICHARD D. & SANDRA TAYLOR DB 6954 PG 293

SAMUEL L. & VIRGINIA L. ANDERSON DB 324 PG 642

CITY OF GREENSBORO DB 557 PG 1479

HAROLD H. MCLAURIN DB 4634 PG 2425

HARLEY F. & GARNER DB 4576 PG 0851

BMP/WATERFORD, LLC DB 6458 PG 0743

NOTE: SHOWN PER RECORD TIE LOCATION OF THIS 100' COMPASS NOT BE FOUND OR SET

-Y7A-

PI Sta 11+62.33	PI Sta 12+57.79
Δ = 4° 51' 44.4" (LT)	Δ = 3° 03' 26.5" (RT)
D = 11° 27' 33.0"	D = 11° 27' 33.0"
L = 42.43'	L = 26.68'
T = 21.23'	T = 13.34'
R = 500.00'	R = 500.00'

SEE SHEET 88 FOR -Y7- PROFILE

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