STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

October 2, 2014

U.S. Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Ms. Crystal C. Amschler
NCDOT Coordinator

Subject: **Application for Individual Section 404 Permit and Section 401 Water Quality Certification** for the US-74 Monroe Connector/Bypass in Union and Mecklenburg Counties. STIP R-3329 and STIP R-2559 Division 10, Debit WBS Element 34533.1.TA1 in the amount of $570.

Dear Ms. Amschler:

The North Carolina Department of Transportation (NCDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to construct the Monroe Connector/Bypass, a controlled-access toll facility extending from US-74 near I-485 in Mecklenburg County to US-74 between Wingate and Marshville in Union County, a distance of approximately 20 miles. The proposed project begins and ends on existing US-74 in order to provide continuity for the US-74 corridor. On the western end, the project would begin at I-485, another controlled-access facility. On the eastern end, the proposed project would terminate on US-74 between the towns of Wingate and Marshville.

Please see the enclosed ENG 4345, Ecosystem Enhancement Program (EEP) mitigation acceptance letter, permit drawing review minutes (4B and 4C), 4C Field Review minutes, letter and Effects Form for 4(f) properties, State Historic Preservation Office (HPO) letter for archaeological sites, State Stormwater Management Plan (SMP), permit drawings, and design plans.

Summary of Jurisdictional Impacts:
For design purposes and permitting, the project has been divided into six Sections, 1, 2A, 2B, 2C, 3A, and 3B. The projected impacts for the project will be approximately:

- 6.6 acres of permanent wetland impacts
- 1.41 acres of temporary wetland impacts from fill or hand clearing
- 15,495 linear feet of permanent stream impacts (13,273 linear feet of fill and 2,222 linear feet of bank stabilization)
- 0.14 acre of temporary stream impacts (1,034 linear feet)

Summary of Mitigation:
The project has been designed to avoid and minimize impacts to jurisdictional areas throughout the National Environmental Policy Act (NEPA) and design processes. However, compensatory mitigation

will be required for the unavoidable impacts, which will be provided by the North Carolina Ecosystem Enhancement Program (NCEEP). These mitigable impacts include 14,781 linear feet of permanent stream impact and 6.6 acres of permanent wetland impact. It has been determined that onsite mitigation is not an option for this project.

NEPA DOCUMENT STATUS

A Final Supplemental Final Environmental Impact Statement was completed May 2014, and the Record of Decision (ROD) was approved May 2014. Additional copies are available upon request.

In compliance with the NEPA/404 Merger Process, Concurrence Point 4B was reached for Section 3B on March 14, 2012, for Sections 2A and 3A on April 11, 2012, and for Sections 1, 2A and 2B on May 9, 2012. Concurrence Point 4C was for Section 3B and a portion of 3A on April 11, 2012, for Sections 2C and the remainder of 3A on July 23rd and 24th, 2014, and Sections 1, 2A, and 2B on September 17, 2014.

PROJECT SCHEDULE

Construction is anticipated to begin shortly after the receipt of environmental permits.

INDEPENDENT UTILITY

The subject project is in compliance with 23 CFR Part 771.111(f), which lists the 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 any other reasonable foreseeable transportation improvements.

RESOURCE STATUS

Project R-3329/R-2559 is located within the Piedmont Physiographic Province in the Yadkin-Pee Dee River Basin in Mecklenburg and Union Counties, HUC 03040105. 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. Lake Twitty, located downstream from the project on Stewarts Creek, is designated Critical Area for a Water Supply III (WS-III) watershed. Nine named streams as well as unnamed tributaries to named streams are located within the project area (Table 1).

Wetland delineations within the Monroe Bypass project study area followed the field delineation method outlined in the *1987 Corps of Engineers Wetland Delineation Manual* (USACE 1987). Stream identification and classification followed the *Methodology for the Identification of Intermittent and Perennial Streams and Their Origins* (NC Division of Water Resources 2010 and 2005). The USACE issued a Notification of Jurisdictional Determination for this project on October 1, 2010.

There were three additional wetlands delineated during the design phase, WJR, WHW, and WX811. These wetlands were reviewed during the 4C Field Review Merger Meetings. The verification packet for the wetlands will be provided under a separate cover.

Table 1 – Project Area Streams

Stream Name	Stream Index Number	Best Usage Classification	Description
Subbasin 03-07-12			
North Fork Crooked Creek*	13-17-20-1	C	From source to SR 1514, Union Crooked Creek
South Fork Crooked Creek	13-17-20-2	C	From SR 1515 Union Co Crooked Creek
Subbasin 03-07-14			
East Fork Stewarts Creek	13-17-36-9-2	WS-III	From source to Stewarts Creek
Stewarts Creek	13-17-36-9-(1)	WS-III	From source to a point 0.4 mile downstream of mouth of Stumplick Branch
Richardson Creek	13-17-36-(5)	C	From Monroe Water Supply dam to SR 1006, Union Co.
Ray's Fork (Flag Branch)	13-17-36-8-2	C	From source to Rays Fork
Meadow Branch	13-17-36-11	C	From source to Richardson Creek
Spring Branch	13-17-36-11-1	C	From source to Meadow Branch
Salem Creek	13-17-36-15	C	From source to Richardson Creek

* Stream does not occur within the project area, only unnamed tributaries to stream occur within the project area

303(d) Impaired Waters:
South Fork Crooked Creek, Stewarts Creek, Richardson Creek, and North Fork Crooked Creek are listed on the North Carolina 2012 303(d) list of impaired streams.

IMPACTS TO WATERS OF THE U.S.

Wetlands. There will be a total of 5.72 acres of permanent riparian wetland impacts and 0.88 acre of non-riparian impacts associated with this project.

Streams. Total stream impacts for this project are 15,495 lf (linear feet) of permanent impacts and 1,024 lf of temporary impacts.

Surface Waters. The project will impact and 1.53 acres of open waters (ponds).

The impacts are provided by Section in the following Tables.

Table 2 – Section 1 Wetland Impacts

Site	Wetland Number	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Temp Fill/ Hand Clearing (ac)	Impacts Requiring Mitigation (ac)
2	WX800	1.48	0.14		0.06		0.20
5	WX207	0.74	0.05		0.02		0.07
6	W013	1.25	0.04		0.04		0.08
7**	WJR	0.77	0.24		0.04		0.28**
7**	WHW	0.64	0.64				0.64**
Total Impacts*			**1.12**	**0**	**0.17**	**0**	**1.27**

* Values are based on rounding, due to calculating totals with actual numbers to the thousandths
** Isolated mafic depressions, not regulated by USACE. DWR requires a 1:1 ratio for this impact.

Table 3 – Section 1 Stream and Open Water Impacts

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[1] (linear feet)
1	UT to North Fork Crooked Creek (P/I)	S014/ S015	Perm. Fill	621	--	USACE & DWR
			Bank Stabilization	164	--	DWR
			Temp. Fill	21	<0.01	
2	N/A (wetland only)	--	--	--	--	
3	UT to North Fork Crooked Creek (I)	S016	Perm. Fill	130	--	USACE & DWR
			Bank Stabilization	24	--	DWR
			Temp. Fill	31	<0.01	
4	UT to North Fork Crooked Creek (P/I)	S017/ S019	Perm. Fill	666	--	USACE & DWR
			Bank Stabilization	194	--	DWR
			Temp. Fill	22	<0.01	
5	UT to North Fork Crooked Creek	SX504	Perm. Fill	114	--	USACE
			Bank Stabilization	--	--	
			Temp. Fill	12	<0.01	
6	N/A (wetland only)	--	--	--	--	
7	N/A (wetland only)	--	--	--	--	
Total Temporary Impacts:				**86**	**0.01**[2]	**--**
Total Perm. Impacts (Perm. Fill + Bank Stabilization):				**1,913**	**--**	**--**
Permanent Impacts Requiring DWR Mitigation:				**1,799**	**--**	**--**
Permanent Impacts Requiring USACE Mitigation:				**1,531**	**--**	**--**
Total Impacts Requiring Mitigation:				†	**--**	†

1 – Mitigation for bank stabilization impacts that cumulatively with Perm. Fill exceed 150' is required by DWR – not required by USACE
2 – Values are based on rounding, due to some of the individual impacts being <0.01 acre
† – Final mitigation requirement will be up to the USACE and DWR

Permit Site 1: The construction of the raised and widened Section of US 74 will result in a new 10'x 8' reinforced concrete box culvert (RCBC) that will replace the existing structure under US 74. The new RCBC will also extend upstream and under the new McKee Road and the new entrance drive to the Scott Clark's Toyota dealership. Streams S014 and S015 will be impacted. As the culverts are tying into an existing 120" corrugated metal pipe (CMP) downstream, there will not be baffles added to

the RCBC. There will be 621 lf of permanent stream impacts, 164 lf of bank stabilization, and 21 lf of temporary stream impacts.

Permit Site 2: The construction of the new McKee Road will result in 0.14 acre of permanent wetland fill. The drainage pipe under McKee Road has been moved as far as possible from the wetland given the topography. In order to install the riprap pad on the outlet of the pipes, there is 0.06 acre within the wetland that will likely only be hand cleared, but has been denoted as mechanized clearing on the permit drawings to be conservative as the final decision will be based upon site conditions.

Permit Site 3: The construction of the raised and widened Section of US 74 and widening of Stallings Road will result in impact due to the extensions of existing culverts and bank stabilization of stream S016. Based upon further investigations requested at the 4C Merger Meeting, it was determined from old planning sheets that the pipe did originally outlet on the other side of US 74, so the drainage will be maintained as is and a new 42" RCP installed to replace the existing 36" RCP. There will be 130 lf of permanent stream impacts, 24 lf of bank stabilization, and 31 lf of temporary stream impacts.

Permit Site 4: The construction of new US 74 as it departs onto new location and swings south of existing US 74 will require construction of a 10'x 7' RCBC with baffles to continue to convey S017 and S019 under both roadways. The installation of a new RCBC and bank stabilization will result in 666 lf of permanent stream impacts, 194 lf of bank stabilization, and 23 lf of temporary stream impacts.

Permit Site 5: The construction of a new connector road from Stallings Road to Meadowbrook Drive will impact stream SX504 and wetland WX207. The stream will be placed into a 60" RCP and will outlet into a dissipater pad into the wetland. There will be 0.05 acre of wetland fill, 0.02 acre of mechanized clearing, 114 lf of permanent stream impacts, and 12 lf of temporary stream impacts.

Permit Site 6: The construction of a new multi-use path to run adjacent to existing US 74 will require 0.04 acre of fill and 0.04 acre of mechanized clearing to W013.

Permit Site 7: The construction will result in the total take of mafic depression (0.64 acre) WHW and the partial fill of mafic depression (0.24 acre of permanent fill and 0.04 acre of mechanized clearing) WJR.

Table 4 – Section 2A Wetland Impacts

Site	Wetland Number	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Temp Fill/ Hand Clearing (ac)	Impacts Requiring Mitigation (ac)
8	W19	0.12	<0.01	0.02	0.01		0.04
9	W17	0.21	0.12		<0.01	0.03	0.13
14	W22b/ W24/W25	1.10/0.46/ 0.12	0.12		0.03		0.16
Total Impacts*			**0.24**	**0.02**	**0.05**	**0.03**	**0.31**

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

Table 5 – Section 2A Stream and Open Water Impacts

Site	Stream Name & Intermittent (I) or Perennial (P) [1]	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[2] (linear feet)
8	UT to North Fork Crooked Creek (I)	S31c	Perm. Fill	382	--	USACE & DWR
			Bank Stabilization	--	--	
			Temp. Fill	--	--	
9	UT North Fork Crooked Creek (P)	S28b/c	Perm. Fill	391	--	USACE & DWR
			Bank Stabilization	26	0.01	DWR
			Temp. Fill	60	--	
			Temp Utility Impacts	69	0.01	
10	UT to North Fork Crooked Creek (P)	S34	Perm. Fill	167	--	USACE & DWR
			Bank Stabilization	105	--	DWR
			Temp. Fill	20	<0.01	
11	UT to North Fork Crooked Creek (I)	S36	Perm. Fill	--	--	
			Bank Stabilization	--	<0.01	
			Temp. Fill	10	--	
12	UT to North Fork Crooked Creek (I/I/P)	S37b/c/d	Perm. Fill	532	--	USACE & DWR
			Bank Stabilization	65	<0.01	DWR
			Temp. Fill	24	--	
13	N/A (pond only)	P10	--	--	--	
14	UT to North Fork Crooked Creek (I/P)	S38a/b	Perm. Fill	327	--	USACE & DWR
			Bank Stabilization	42	<0.01	DWR
			Temp. Fill	18	--	
15	N/A (pond only)	P5	--	--	--	
Total Temporary Impacts:				**201**	**0.02**[2]	**--**
Total Perm. Impacts (Perm. Fill + Bank Stabilization):				**2,037**	**--**	**--**
Permanent Impacts Requiring DWR Mitigation:				**2,037**	**--**	**--**
Permanent Impacts Requiring USACE Mitigation:				**1,799**	**--**	**--**
Total Impacts Requiring Mitigation:				**†**	**--**	**†**

1 – Mitigation for bank stabilization impacts that cumulatively with Perm. Fill exceed 150' is required by DWR – not required by USACE

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

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

Permit Site 8: A portion of a wetland W19 will be impacted by the fill slope on the approach to the in half clover interchange with Indian Trail – Fairview Road. Stream S031 will be routed along a lateral base ditch to drain to S028 (Permit Site 9). There will be <0.01 acre of wetland fill, 0.02 acre of wetland excavation, and 0.01 acre of mechanized clearing in wetlands. There will be 382 lf of permanent stream impacts.

Permit Site 9: A double barrel 9'x 7' RCBC with sill and baffles will be constructed to convey S028 under new US 74. Roadway fill (0.12 acre) and associated mechanized clearing (<0.01) will impact 0.12 acre of wetland W17. The existing sanitary sewer line will need to be relocated under US 74, resulting in an additional 0.03 acre of temporary impacts to W17. There will be 391 lf of permanent stream impacts, 26 lf of bank stabilization, and 129 lf of temporary stream impacts.

Permit Site 10: The construction of the new US 74 will require filling 167 lf, 105 lf of bank stabilization, and 20 lf of temporary stream impacts of S034, which will then be conveyed via a 12'x6' RCBC with baffles.

Permit Site 11: The construction of new US 74 will require tying a new 36" RCP to the beginning of S036, resulting in 10' of temporary stream impact.

Permit Site 12: The construction of new roadway will require diverting S037 through a 7'x8' RCBC with baffles resulting in 532 lf of permanent stream impacts, 65 lf of bank stabilization, and 24 lf of temporary stream impact. This site will also require the total take of 0.13 acre of pond P9.

Permit Site 13: Roadway construction requires the total take of 0.08 acre of pond P10.

Permit Site 14: Roadway construction requires the crossing of a stream S038 using a 10'x 6' RCBC with baffles, which will result in 327 lf of permanent stream impacts, 42 lf of bank stabilization, and 18 lf of temporary stream impact. A portion of wetland W22b and W24 will be impacted by the fill slope and RCBC. Wetland W25 will be a total take. Wetland impacts total 0.12 acre of permanent fill and 0.01 acre of mechanized clearing.

Permit Site 15: Extension of Stinson Hartis Road to provide access to otherwise landlocked parcels will require the total take of a 0.13 acre of pond P5.

Table 6 – Section 2B Wetland Impacts

Site	Wetland Number	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Temp Fill/ Hand Clearing (ac)	Impacts Requiring Mitigation (ac)
18	W032	0.50	0.10	<0.01	<0.01		0.11
20	WX822	0.33	0.02		0.01	0.04	0.03
21	WX824	0.06	0.06				0.06
22	WX823	0.06	0.01		0.01		0.02
Total Impacts*			**0.19**	**<0.01**	**0.02**	**0.04**	**0.22**

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

Table 7 – Section 2B Stream and Open Water Impacts

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[1] (linear feet)
16	UT to North Fork Crooked Creek (P)	S039C	Perm. Fill	513	--	USACE & DWR
			Bank Stabilization	62	<0.01	DWR
			Temp. Fill	24		
17	UT to North Fork Crooked Creek (I)	S043	Perm. Fill	429	--	USACE & DWR
			Bank Stabilization	39	<0.01	DWR
			Temp. Fill	27	--	
18	UT to South Fork Crooked Creek (I)	S052a/b S53	Perm. Fill	1,163	--	USACE & DWR
			Bank Stabilization	18	<0.01	DWR
			Temp. Fill	52	--	
19	South Fork Crooked Creek (P)	S047	Perm. Fill	--	--	
			Bank Stabilization	--	<0.01	
			Temp. Fill	26	--	
20	UT to South Fork Crooked Creek (P)	S055	Perm. Fill	214	--	USACE & DWR
			Bank Stabilization	51	<0.01	DWR
			Temp. Fill	20	--	
21	N/A (wetland only)	--	--	--	--	
22	UT to East Fork Stewarts Creek (I)	S64b/c	Perm. Fill	--	--	
			Bank Stabilization	9	<0.01	
			Temp. Fill	17	--	
23	UT to East Fork Stewarts Creek (P)	S068b/c	Perm. Fill	408	--	USACE & DWR
			Bank Stabilization	122	<0.01	DWR
			Temp. Fill	20	--	
24	UT to East Fork Stewarts Creek (I)	S069	Perm. Fill	201	--	USACE & DWR
			Bank Stabilization	32	<0.01	DWR
			Temp. Fill	20	--	
25	UT to East Fork Stewarts Creek (I)	S070b	Perm. Fill	245	--	USACE & DWR
			Bank Stabilization	40	<0.01	DWR
			Temp. Fill	21	--	
26	UT to East Fork Stewarts Creek (I)	S071	Perm. Fill	189	--	USACE & DWR
			Bank Stabilization	45	<0.01	DWR
			Temp. Fill	20	--	
27	N/A (pond only)	P23	--	--	--	
Total Temporary Impacts:				**247**	**0.02**[2]	**--**
Total Perm. Impacts (Perm. Fill + Bank Stabilization):				**3,780**	**--**	**--**
Permanent Impacts Requiring DWR Mitigation:				**3,771**	**--**	**--**
Permanent Impacts Requiring USACE Mitigation:				**3,362**	**--**	**--**
Total Impacts Requiring Mitigation:				†	**--**	†

1 – Mitigation for bank stabilization impacts that cumulatively with Perm. Fill exceed 150' is required by DWR – not required by USACE

Permit Site 16: Roadway construction of new US 74 and an adjacent service road requires crossing stream S039 and installing a triple barrel 12'x 8' RCBCs. The inner culvert will be buried 1' and have baffles and the two outer cells will have sills. The proposed roadside ditches will be adjusted to avoid

the floodplain benches at the culvert. There will be 513 lf of permanent stream impacts, 62 lf of bank stabilization, and 24 lf of temporary stream impacts.

Permit Site 17: Roadway construction of new US 74 requires crossing a stream S043 and installing two 66" pipes, one of which will be buried 1' and the other will be raised above the streambed to keep normal flow in one pipe. There will be 429 lf of permanent stream impacts, 39 lf of bank stabilization, and 27 lf of temporary stream impacts.

Permit Site 18: New US 74 will cross S052 twice, as well as the confluence of S053 with S052. These intermittent streams will be redirected along special cut base ditches adjacent to either side of the roadway, until they are joined together via two 42" RCPs and a 54" RCP (buried 1' below stream bed). There will be 1,163 lf of permanent stream impacts, 18 lf of bank stabilization, and 52 lf of temporary stream impacts. There will also be 0.10 acre of permanent fill, <0.01 acre of excavation, and <0.01 temporary fill to wetland W32.

Permit Site 19: New US 74 will cross South Fork Crooked Creek (S047) via a bridge, resulting in no permanent impacts. In an effort to reduce potential impacts to the Savannah Lilliput, specially designed grassed swales will be constructed to treat roadway runoff. The grassed swale will tie into South Fork Crooked Creek, resulting in 26 lf of temporary channel impacts. Rip rap will be placed on the floodplain under the proposed deck drains to minimize erosion from the deck drainage. Deck drains will not be placed directly over the stream channel.

Permit Site 20: Roadway construction requires crossing stream S055, which converges with South Fork Crooked Creek and has similar concerns regarding the impact of roadway runoff on Savannah Lilliput as Permit Site 19. A double barrel 8'x 8' RCBC will be installed to convey S055 under the roadway, one of which will have a sill and the other buried 1' with baffles. As with Permit Site 19, specially designed grassed swales will be constructed to treat roadway runoff. The swales will be adjusted to avoid the floodplain benches at the culvert. There will be 214 lf of permanent stream impacts, 51 lf of bank stabilization, and 20 lf of temporary stream impacts. Wetland WX822 will be partially impacted; 0.02 acre of permanent fill, 0.04 acre of temporary fill, and 0.01 acre of mechanized clearing, as part of a sewer line relocation.

Permit Site 21: Roadway construction of new US 74 will require the total take of 0.06 acre wetland WX124.

Permit Site 22: Willis Long Road will need to be slightly widened, which will result in extension of an existing 54' RCP, which will require 9 lf of bank stabilization and 17 lf of temporary impacts to stream S064 and 0.01 acre of fill and 0.01 of mechanized clearing of wetland WX823.

Permit Site 23: Construction of new US 74 will require crossing stream S068 with a 12'x 7' RCBC that will be buried 1' and have baffles. There will be 408 lf of permanent stream impacts, 122 lf of bank stabilization, and 20 lf of temporary stream impacts.

Permit Site 24: Construction of new US 74 will require crossing a stream (S069) with a 60" RCP that will be buried 1'. There will be 201 lf of permanent stream impacts, 32 lf of bank stabilization, and 20 lf of temporary stream impacts.

Permit Site 25: Construction of new US 74 will require crossing a stream (S070) with a 72" RCP that will be buried 1'. There will be 245 lf of permanent stream impacts, 40 lf of bank stabilization, and 21 lf of temporary stream impacts.

Permit Site 26: Construction of new US 74 will require crossing a stream (S071) with a 48" RCP that will be buried 1' and two adjacent 36" RCP that will be at ground level. There will be 189 lf of permanent stream impacts, 45 lf of bank stabilization, and 20 lf of temporary stream impacts.

Permit Site 27: Roadway construction will require impacting a portion of pond P23. Rock fill will be placed in the existing pond within the proposed right-of-way, filling 0.07 acre. The remaining pond will be left as is.

Table 8 – Section 2C Wetland Impacts

Site	Wetland Number	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Temp Fill/ Hand Clearing (ac)	Impacts Requiring Mitigation (ac)
31	W81	0.09	0.09				0.09
32	W82	0.02	0.02				0.02
33	W86	5.41	1.61		0.28		1.89
36	W99	0.07	0.07				0.07
37	W101/ W102/ W103	0.12/ 0.09/ 0.15	0.28		0.01		0.29
38	W104	0.57	0.57				0.57
43	W107	0.49	0.01		<0.01		0.02
44	W111/ W112	0.08/0.59	0.13		0.02		0.15
Total Impacts*			**2.78**	**0**	**0.31**	**0**	**3.09**

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

Table 9 – Section 2C Stream and Open Water Impacts

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[1] (linear feet)
28	UT to East Fork Stewarts Creek (I)	S78a	Perm. Fill	72	--	USACE
			Bank Stabilization	62	<0.01	
			Temp. Fill	10	--	
29	East Fork Stewarts Creek (P)	S76	Perm. Fill	241	--	USACE & DWR
			Bank Stabilization	123	0.01	DWR
			Temp. Fill	38	--	
30	UT to Stewarts Creek (I)	S80b/c	Perm. Fill	375	--	USACE & DWR
			Bank Stabilization	206	<0.01	DWR
			Temp. Fill	43	--	
31	N/A (wetland only)	--	--	--	--	
32	UT to Stewarts Creek (P)	S81a	Perm. Fill	59	--	USACE
			Bank Stabilization	24	<0.01	
			Temp. Fill	30	--	
33	N/A (wetland only)	--	--	--	--	
34	UT to Stewarts Creek (I)	S88a	Perm. Fill	13	--	USACE
			Bank Stabilization	--	<0.01	

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[1] (linear feet)
			Temp. Fill	10	--	
35	UT to Stewarts Creek (P)	S86	Perm. Fill	185	--	USACE & DWR
			Bank Stabilization	82	0.01	DWR
			Temp. Fill	74	--	
36	UT to Stewarts Creek (I)	S89a	Perm. Fill	260	--	USACE & DWR
			Bank Stabilization	16	<0.01	DWR
			Temp. Fill	10	--	
37	UT to Stewarts Creek (I)	S92a/b	Perm. Fill	380	-	USACE & DWR
			Bank Stabilization	--	--	
			Temp. Fill	--	--	
38	UT to Stewarts Creek (P/I/I/I/I)	S93b/ S94/ S95a/b/ S96	Perm. Fill	1016	--	USACE & DWR
			Bank Stabilization	95	<0.01	DWR
			Temp. Fill	24	--	
39	N/A (pond)	P48	--	--	--	
40	N/A (pond)	P49	--	--	--	
41	UT to Stewarts Creek (I)	S102b	Perm. Fill	279	--	USACE & DWR
			Bank Stabilization	34	<0.01	DWR
			Temp. Fill	10	--	
42	UT to Richardson Creek (I)	S106	Perm. Fill	276	--	USACE & DWR
			Bank Stabilization	--	<0.01	
			Temp. Fill	13	--	
43	UT to Richardson Creek (P)	S103b	Perm. Fill	299	--	USACE & DWR
			Bank Stabilization	28	<0.01	DWR
			Temp. Fill	21	--	
44	UT to Richardson Creek (P)	S108b	Perm. Fill	179	--	USACE & DWR
			Bank Stabilization	18	<0.01	DWR
			Temp. Fill	10	--	
45	Pond	PX69	Pond Fill	--	--	
Total Temporary Impacts:				**293**	**0.04**[2]	**--**
Total Perm. Impacts (Perm. Fill + Bank Stabilization):				**4,322**	**--**	**--**
Permanent Impacts Requiring DWR Mitigation:				**4,092**	**--**	**--**
Permanent Impacts Requiring USACE Mitigation:				**3,634**	**--**	**--**
Total Impacts Requiring Mitigation:				†	**--**	†

1 – Mitigation for bank stabilization impacts that cumulatively with Perm. Fill exceed 150' is required by DWR – not required by USACE

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

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

Site 28: The start of stream S078 will be impacted by new US 74. Since it's the start of the stream, a 36" RCP will be installed at ground level. There will be 72 lf of permanent stream impacts, 62 lf of bank stabilization, and 10 lf of temporary stream impacts.

Site 29: New US 74 crosses S076 (East Fork Stewarts Creek) at a bend with a triple barrel 9'x 12' RCBC. The result of the 4B, 4C, and 4C Field Review Merger meetings was the agencies requesting that two of the three barrels be blocked with sills. However, the DB Team had further discussions with the NCDOT and were directed to leave only one sill as it was felt this would allow larger velocities to enter two barrels and dissipate before outletting and help retain the integrity of stream S076. There will be 241 lf of permanent stream impacts, 123 lf of bank stabilization, and 38 lf of temporary stream impacts.

Site 30: Construction of new US 74 where it crosses Maple Hill Road will impact stream S080 by the installation of a 7'x 7' RCBC that will be buried 1.0'. Due to the slope and the existing stream width (appr. 4'), baffles will not be used. The outlet channel will continue approximately 50' downstream of Maple Hill Road. This includes the removal of the existing 36" pipe under Maple Hill Road. The outside side slope at the RCBC exit will be lined with riprap for stability. The bottom of the fill slope will be lined with toe protection along the proposed downstream channel. There will be 375 lf of permanent stream impacts, 206 lf of bank stabilization, and 43 lf of temporary stream impacts.

Site 31: Roadway construction requires the total take of 0.09 acre wetland W81.

Site 32: Construction of interchange with US 601 will require crossing stream S081a and filling 0.02 acre wetland W82. As S081a begins here, the 66" RCP that will outlet into the channel will not be buried. There will be 59 lf of permanent stream impacts, 24 lf of bank stabilization, and 30 lf of temporary stream impacts.

Site 33: Roadway construction of new US 74 requires 1.61 acres of permanent impacts, and 0.28 acre of mechanized clearing to wetland W86. It will not be a total take. A ditch will be used between –L-758+50-763+00 LT to allow the wetland to function in its current pattern.

Site 34: Construction of new US 74 requires permanent impacting 13 lf of stream S088 that becomes jurisdictional inside the fill slope and 10 lf of temporary impacts. A spring box will be installed to minimize impacts to the stream.

Site 35: Construction of new US 74 requires crossing stream S086 with a 10'x 7' RCBC that will be buried 1'. There will be 185 lf of permanent stream impacts, 82 lf of bank stabilization, and 74 lf of temporary stream impacts. A hazardous spill basin will also outlet to S086 below the roadway.

Site 36: Headwater wetland W99 and the associated stream, S089, will be crossed by the new US 74 and a 48" RCP, that will not be buried. Wetland W99 will be considered a total take, 0.07 acre. There will be 260 lf of permanent stream impacts, 16 lf of bank stabilization, and 10 lf of temporary stream impacts.

Site 37: Construction of the interchange of US 74 and Morgan Mill Road will impact 380 lf of stream S092 and wetlands W101, W102, and W103. In all, there will be 0.28 acre of permanent wetland impacts, and 0.01 acre of mechanized clearing. These features are all part of the same system, and will be drained to a hazardous spill basin before outletting under Ramp X through a 48" RCP that will not be buried.

Site 38: Construction of the interchange of US 74 and Morgan Mill Road will impact streams S093, S094, S095, and S096 and wetland W104. The wetland, although not completely covered by roadway fill, will be a total take, 0.57 acre. The jurisdictional streams all begin inside the roadway footprint, so

none of the pipes will be buried. There will be 1,016 lf of permanent stream impacts, 95 lf of bank stabilization, and 24 lf of temporary stream impacts. A hazardous spill basin is located at –TRD-21+00 RT.

Site 39: A portion of pond P48, totaling 0.22 acre, will be filled as part of the construction of new US 74.

Site 40: The 0.90 acre pond P49 within the proposed alignment of new US 74 will be drained.

Site 41: Construction of new US 74 and adjacent service road will require that pond PX75 (0.10 acre) be drained and stream S102 be routed to a 42" RCP that will not be buried. There will be 279 lf of permanent stream impacts, 34 lf of bank stabilization, and 10 lf of temporary stream impacts.

Site 42: Impacts to stream S106 are detailed at Site 43. There will be 276 lf of permanent stream impacts and 13 lf of temporary stream impacts.

Site 43: Stream S103 and S106 converge under the new US 74. S103 will be placed in an 84" RCP buried 1'. S106 will be directed to a lateral base ditch to just above the inlet of the RCP. There will also be a partial impact to wetland W107, totaling 0.01 acre of permanent fill and 0.01 acre of mechanized clearing. An 84" RCP buried 1.0' at 2.65% slope will be installed at this site. The slope of this RCP closely mimics the slope of the stream, allowing for continued passage of aquatic organisms. A corrugated aluminum alloy pipe (CAAP) will dissipate the velocity of water as it exits an 18" RCP into the 84" RCP. There will be 299 lf of permanent stream impacts, 28 lf of bank stabilization, and 21 lf of temporary stream impacts.

Site 44: Stream S108 and associated linear wetlands W111 and W112 will be partially impacted by the crossing of new US 74 with a 54" RCP. The RCP will not be buried since it is not jurisdictional upstream of the project. There will be 179 lf of permanent stream impacts, 18 lf of bank stabilization, and 10 lf of temporary stream impacts. There will be 0.13 acre of permanent fill and 0.02 acre of mechanized clearing to wetlands.

Site 45: Improvements to US 601 will require fill in the 0.05 acre of pond PX69 that will be in the ROW.

Table 10 – Section 3A Wetland Impacts

Site	Wetland Number	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Temp Fill/ Hand Clearing (ac)	Impacts Requiring Mitigation (ac)
48	W138	0.44	0.06		0.03	0.01	0.09
50	W139/ W140/ WX812	0.05/0.01/ 0.04	0.10				0.10
54	W167/ W170	4.56/ 0.44	0.01			0.52 / 0.78	0.01
Total Impacts*			**0.17**	**0**	**0.03**	**1.31**	**0.20**

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

Table 11 – Section 3A Stream and Open Water Impacts

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[1] (linear feet)
46	Richardson Creek (P)	S111	Perm. Fill	--	--	
			Bank Stabilization	38	<0.01	
			Temp. Fill	--	--	
47	Flag Branch/Rays Fork Creek (P)	S112	Perm. Fill	--	--	
			Bank Stabilization	43	<0.01	
			Temp. Fill	--	--	
48	UT to Flag Branch/Rays Fork (I)	S114a	Perm. Fill	193	--	USACE & DWR
			Bank Stabilization	--	<0.01	
			Temp. Fill	--	--	
49	UT to Flag Branch/Rays Fork (P)	S140f	Perm. Fill	--	--	
			Bank Stabilization	52[2]	<0.01	DWR
			Temp. Fill	20	--	
50	UT to Flag Branch/Rays Fork (P)	S140f	Perm. Fill	905	--	USACE & DWR
			Bank Stabilization	--	<0.01	
			Temp. Fill	18	--	
51	UT to Flag Branch/Rays Fork (I)	SX145	Perm. Fill	115	--	USACE
			Bank Stabilization	11	<0.01	
			Temp. Fill	20	--	
52	UT to Spring Branch (?)	S157a	Perm. Fill	545	--	USACE & DWR
			Bank Stabilization	--	<0.01	
			Temp. Fill	10	--	
53	Spring Branch (P)	S156b	Perm. Fill	985	--	USACE & DWR
			Bank Stabilization	165	<0.01	DWR
			Temp. Fill	19	--	
			Utility Impacts	41	<0.01	
54	N/A (wetland only)		--	--	--	
Total Temporary Impacts:				**128**	**0.04**[3]	**--**
Total Perm. Impacts (Perm. Fill + Bank Stabilization):				**3,052**	**--**	**--**
Permanent Impacts Requiring DWR Mitigation:				**2,845**	**--**	**--**
Permanent Impacts Requiring USACE Mitigation:				**2,743**	**--**	**--**
Total Impacts Requiring Mitigation:				**†**	**--**	**†**

1 – Mitigation for bank stabilization impacts that cumulatively with Perm. Fill exceed 150' is required by DWR – not required by USACE

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

3 – Second crossing of stream S140f, therefore DWR mitigation required due to cumulative impacts exceeding 150 lf

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

Site 46: This is the bridge crossing of Richardson Creek (S111). A bridge will be constructed to span the creek. The only impacts will be 38 lf of bank stabilization to rip rap at the embankments where the ditches enter the stream on the two western quadrants.

Site 47: This is the bridge crossing of Rays Fork Creek (S112). A bridge will be constructed to span the creek. The only impacts at this site will be 43 lf of bank stabilization to rip rap at the embankments where the ditches enter the stream on each quadrant except the southwest.

Site 48: New US 74 will cross Monroe-Ansonville Road, and in so doing permanently impact 193 lf stream S114 and wetland W138. The stream will be placed in a 60" RCP, which will outlet into the wetland. There will be 0.6 acre of permanent fill, 0.01 of temporary fill, and 0.03 of mechanized clearing in the wetland.

Site 49: The relocation of Bob White Circle requires the relocation of the crossing of stream S140 with a 9'x 7' RCBC. The RCBC will be buried 1' and will not contain baffles, since the stream slope is 0.9%. There will be 52 lf of bank stabilization and 20 lf of temporary stream impacts.

Site 50: Construction of new US 74 will require crossing stream S140 and three small wetlands, W139, W140 and WX812 with a 9'x 7' RCBC buried 1.0' with baffles. A channel change will occur to tie the stream back in at the inlet and outlet. Rip rap will also be installed in order to stabilize the streambanks. There will be 905 lf of permanent stream impacts and 18 lf of temporary stream impacts. There will be 0.10 acre of permanent wetland fill.

Site 51: Stream SX145 will be crossed via a 66" RCP buried 1' by the new US 74. There will be 115 lf of permanent stream impacts, 11 lf of bank stabilization, and 20 lf of temporary stream impacts.

Site 52: Construction of the new US 74 interchange with Austin-Chaney Road require the draining and fill of two ponds, P60a and P60b. These features drain into stream S157, which will also be impacted. There will be 545 lf of permanent stream impacts and 10 lf of temporary stream impacts.

Site 53: Construction of the new US 74 interchange with Austin-Chaney Road will impact stream S156. A double barrel 10'x 6' RCBC buried 1' with a 2' sill in the (downstream facing) right barrel will be installed, which will pass under a ramp (VLC) and under Austin-Chaney Road. One of the culvert barrels will have a low flow channel and the other will have a bench for higher flows. Channel relocation with benching is also included within the quadrant with minimal riprap downstream of each culvert along the channel slopes. Utilities relocation will also be required at this site. There will be 985 lf of permanent stream impacts, 165 lf of bank stabilization, and 60 lf of temporary stream impacts.

Site 54: New US 74 will bridge McIntyre Road, stream S152 (Meadow Branch), and the associated high quality wetlands. The only permanent impacts will be 0.01 acre for the bridge abutments. There will be 0.52 acre of temporary fill and 0.78 acre of hand clearing for the temporary work bridge. The work bridge will be constructed using barge segments supported by timber mats, which if in the event of significant flooding, will allow the barge segments to rise and float, effectively eliminating any potential overtopping of the temporary bridge. It is anticipated that approximately half of the temporary bridge will be in place to construct half the permanent bridge, and then switched to the other side to minimize the amount of time the wetlands and floodplain will be temporarily impacted.

Table 12 – Section 3B Wetland Impacts

Site	Wetland Number	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	Temp Fill/ Hand Clearing (ac)	Impacts Requiring Mitigation (ac)
56	W173/ W172a/b	0.02/0.04/ 0.89	0.03	<0.01	<0.01	<0.01	0.04
57	W173	0.89	0.19	0.02	0.06		0.27
58	W174	0.36	0.02		0.01		0.03
60	W176	2.08	0.64	0.06	0.05		0.75
61	W176	2.08	0.08		<0.01		0.09
62	W199/ W201	0.45/0.09	0.01		<0.01	0.03	0.02
63	W196	0.28	0.04		0.02		0.06
64	WX805/ WX811	0.08/0.73	0.17	0.02	0.08	<0.01	0.27
Total Impacts*			**1.17**	**0.11**	**0.23**	**0.04**	**1.51**

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

Table 13 – Section 3B Stream and Open Water Impacts

Site	Stream Name & Intermittent (I) or Perennial (P)	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[1] (linear feet)
55	UT to Meadow Branch (I)	S158	Perm. Fill	157	--	USACE & DWR
			Bank Stabilization	80	0.01	DWR
			Temp. Fill	39	--	
56	N/A (wetland only)	--	--	--	--	
57	N/A (wetland only)	--	--	--	--	
58	N/A (wetland only)	--	--	--	--	
59	UT to Salem Creek (I)	S161a	Perm. Fill	12	--	USACE
			Bank Stabilization	--	<0.01	
			Temp. Fill	10	--	
60	UT to Salem Creek (I/I)	S161b/ S162	Perm. Fill	3	--	USACE
			Bank Stabilization	--	<0.01	
			Temp. Fill	10	--	
61	N/A (wetland only)	--	--	--	--	
62	Salem Creek (P)	S169a/ S169b	Perm. Fill	37	--	USACE
			Bank Stabilization	102	<0.01	
			Temp. Fill	20	--	
63	N/A (wetland only)	--	--	--	--	
64	N/A (wetland only)	--	--	--	--	
Total Temporary Impacts:				**79**	**0.01**[2]	**--**
Total Perm. Impacts (Perm. Fill + Bank Stabilization):				**391**	--	--
Permanent Impacts Requiring DWR Mitigation:				**237**	--	--
Permanent Impacts Requiring USACE Mitigation:				**209**	--	--
Total Impacts Requiring Mitigation:				†	--	†

1 – Mitigation for bank stabilization impacts that cumulatively with Perm. Fill exceed 150' is required by DWR – not required by USACE

2 – Values are based on rounding, due to some of the individual impacts being <0.01 acre
† – Final mitigation requirement will be up to the USACE and DWR

Site 55: Stream S158 will be crossed by the new US 74 with a 7'x 7' RCBC with baffles. There will be 157 lf of permanent stream impacts, 80 lf of bank stabilization, and 39 lf of temporary stream impacts.

Site 56: Wetland impacts to W172 and W173 are due to improvements to Ansonville Road and installation of an 8" water line. The existing 30" RCP will be replaced by two 48" RCPs, one of which will be buried (0.8' below wetland elevation) and the other installed 1' above wetland elevation. There will be 0.03 acre of permanent fill, <0.01 of temporary fill, <0.01 acre of excavation, and <0.01 acre of mechanized clearing in wetlands.

Site 57: Construction of US 74 will require crossing wetland W173. Two 42" RCPs are proposed for the wetland crossing, which will be placed at the existing wetland elevation (not buried). A new grass channel, which will mimic the existing channel, will be constructed in the wetland on the left side of the road to drain to the pipes. There will be 0.19 acre of permanent fill, 0.02 acre of excavation, and 0.06 acre of mechanized clearing in wetlands.

Site 58: The edge of wetland W174 will be impacted by the new US 74 resulting in 0.02 acre of permanent fill and 0.01 acre of mechanized clearing.

Site 59: The realigning of Forest Hills School Road will require a new 36" RCP that will require 12 lf of bank stabilization and 10 lf of temporary impacts to stream S161.

Site 60: There are two streams, S161 and S162, converging under the area that will be crossed by new US 74. A 72" pipe, which will be used in conjunction with a 10'x 6' RCBC, will outlet through the headwall of the RCBC, which will help to minimize outlet velocities. There will be 3 lf of permanent stream impacts 10 lf of bank stabilization as these stream channels end as they enter wetland W176. There will be 0.64 acre of permanent fill, 0.06 acre of excavation, and 0.05 acre of mechanized clearing to wetland W176.

Site 61: Linear wetland W177 will be crossed by the new US 74. Drainage will be maintained through a 48" RCP. There will be 0.08 acre of permanent fill and <0.01 acre of mechanized wetland clearing.

Site 62: Widening of existing US 74 will require extending the double barrel 7'x 8' RCBC crossing stream S169 on either side of the road. Stream S169 will also be temporarily impacted from a water line crossing. Stream impacts total 37 lf of permanent, 102 lf of bank stabilization, and 20 lf of temporary. There will also be impacts to wetlands W199 and W201 due to the road widening and water line; 0.01 acre of permanent fill, 0.03 acre of temporary fill, and 0.01 acre of mechanized clearing.

Site 63: Construction of the new service road adjacent to US 74 will require 0.04 acre of permanent fill and 0.02 acre of mechanized clearing to wetland W196.

Site 64: Roadway construction will require impacting two wetlands (WX805 and WX811). There is a linear drainage feature within WX811 that will be treated as a stream, as such a 48" RCP will be placed in the drainage feature and buried 0.8' at –Y316- STA. 11+76. A second 48" RCP will be installed 1' above the buried pipe at the new service road crossing. The existing cross pipe will be removed and a new 48" RCP installed at –Y315- ST 16+53 (Forest Hills School Road). The existing cross pipe under US 74 will be replaced with a 18" RCP using jack and bore methodology, which will result in some

excavation in WX811. Wetland impacts will be 0.17 acre of permanent fill, 0.01 acre of temporary fill, 0.02 acre of excavation, and 0.08 acre of mechanized clearing.

MORATORIUM

No moratoria are required for this project.

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 26, 2012, the U.S. Fish and Wildlife Service (USFWS) list four species for Mecklenburg County and three species for Union County (Table 13).

A US Fish and Wildlife Service proposal for listing the Northern Long-eared Bat (*Myotis septentrionalis*) as an Endangered species was published in the Federal Register in October 2013. The listing will become effective on or before April, 2015. NCDOT is working closely with the USFWS to understand how this proposed listing may impact NCDOT projects. NCDOT will continue to coordinate appropriately with USFWS to determine if this project will incur potential effects to the Northern long-eared bat, and how to address these potential effects, if necessary.

A Biological Assessment (BA) dated November 19, 2013, was prepared for this project. The USFWS concurred with the findings of the BA in a correspondence dated December 16, 2013. A summary of the findings of the BA are provided below.

Summary of Species with Habitat:

Carolina heelsplitter: Surveys of streams in the project alignment (2009, 2013) have yielded no evidence of Carolina heelsplitter. Carolina heelsplitter is known to occur in Goose Creek and Sixmile Creek, which were avoided in the selection of the preferred alignment. Construction of the Monroe Bypass/ Connector is not anticipated to have any direct, indirect, or cumulative effect on the Carolina heelsplitter populations in Goose Creek and Sixmile Creek. However, as noted in Section 6.9 of the Technical Report that is cited in the BA, there are limitations to the accuracy and certainty of the results of any analysis that attempts to project future growth or development. As such, given the inherent level of uncertainty in the forecasting models for this project, the proximity of these two watersheds to the project corridor, a "No Effect" determination cannot be concluded. Therefore, it is concluded that the proposed action "**May Affect, Not Likely to Adversely Affect**" the Carolina heelsplitter.

Schweinitz's sunflower: There is suitable habitat for Schweinitz's sunflower in the project alignment; however, there are no known populations within the proposed project alignment or clearing limits. Based on NCNHP (2014) EO data as well as project study area surveys (Atkins 2012), there are two populations of this species (EO# 230 and EO# 77) within approximately 500 feet of the proposed project alignment in the vicinity of the proposed interchange at Indian Trail-Fairview Road. These populations are currently within either the NCDOT ROW (both E0# 230 and #77) or the Union Power ROW (EO# 77 only), which contains aerial utility lines. The interchange has been specifically designed as a compressed diamond to avoid encroachment on these two populations. NCDOT has further committed to preserving and managing these populations during construction as noted in Section PC (Special Project Commitments) of the DS-FEIS (Atkins 2013). Union Power is managing EO #77, in accordance with their agreement with USFWS: Union Power's Schweinitz's Sunflower Restricted

Sites Plan. NCDOT is managing both populations in accordance with the NCDOT Roadside Vegetation Management Guidelines in Marked Areas.

As part of the proposed roadway construction, the power lines above EO #77 will be raised, but kept in the same location, which will not result in impacts to the plants. The project will not require utility coordination near EO #230.

Project-related direct and indirect effects to Schweinitz's sunflower are extremely unlikely to occur (or are discountable). Potential direct and indirect effects are anticipated to be avoided by on-site preservation and management. Cumulative effects independent of the proposed action are expected, though not anticipated to affect the viability of the species. Therefore, it can be concluded that the proposed action "**May Affect, Not Likely To Adversely Affect"** Schweinitz's sunflower.

Due to suitable habitat within, and existing populations adjacent to, the project footprint, combined with two years passing since the last surveys, NCDOT has committed to performing surveys during the flowering period of Fall 2014. The results of these surveys will be provided to the resource agencies by November 15, 2014.

Table 14 – Federally protected species listed for Mecklenburg and Union Counties

Scientific Name	Common Name	County[1]	Federal Status[2]	Habitat Present	Biological Conclusion[3]
Lasmigona decorate	Carolina heelsplitter	M, U	E	Yes	MANLTAA
Rhus michauxii	Michaux's sumac	M, U	E	No	No Effect
Helianthus schweinitzii	Schweinitz's sunflower	M, U	E	Yes	MANLTAA
Echinacea laevigata	Smooth coneflower	M	E	No	No Effect
Myotis septentrionalis	Northern long-eared bat	U	P	Yes	Unresolved

[1]M – Mecklenburg County, U – Union County
[2] E – Endangered, P – Proposed
[3]MANLTAA – May Affect, Not Likely To Adversely Affect

INDIRECT CUMULATIVE IMPACT ANALYSIS

Existing rules for the 401 Water Quality Certification Program (15A NCAC 2H .0506(b)(4)) require that the DWR determine that a project "does not result in cumulative impacts, based on past or reasonably anticipated future impacts, that cause or will cause a violation of downstream water quality standards."

The Indirect and Cumulative Effects Assessment (ICE) for this project was updated in November 2013. The report clarified the previous ICE Report (April, 2010) methods and incorporated additional research, investigation, and analysis on the potential indirect and cumulative effects to land use and water quality in the project area. Updates included: new interviews with local planners; incorporation of 2010 aerial photography and updated existing land use; incorporation and analysis of 2010 census data; and review and incorporation of new local planning documents including new capital improvement projects and other new reasonably foreseeable approved or proposed development.

The additional research found some minor changes in existing land uses and minor updates to potential future development. Overall the updated ICE confirmed the conclusions of the 2010 report that Union

County has a history of strong growth and will likely continue to experience growth rates greater than the regional average regardless of whether or not the proposed project is completed. These conclusions also confirm that the results 2010 Quantitative Indirect and Cumulative Effects Water Quality Analysis are valid. The complete 2013 ICE update and the 2010 ICE Water Quality Analysis are available at: http://www.ncdot.gov/projects/monroeconnector/projectResources.html

Some pertinent conclusions are summarized below:

Indirect Impacts to Land Use and Impervious Surface

Land Use Impacts

All changes in land use within the entire Future Land Use Study Area (FLUSA) from the Baseline to the Build are within two percent (i.e., between negative one percent and one percent) of the change that is predicted for the 2030 No-Build. Additional development (including direct and indirect effects) estimated to occur under the 2030 Build Scenario totals approximately 3,400 acres more, about 2 percent more than the total development expected under the 2030 No-Build. The indirect land use effects are modest, totaling about 2,300 acres of additional development, an increase of less than 2 percent over the No-Build and an increase in development of about 1 percent of the total land area within the study area. Incremental effects to agricultural and forested lands are a reduction of 2,000 and 1,200 acres respectively as a result of the additional developed land. The 2030 No-Build shows a 29 percent reduction in agricultural land compared to the 2010 Baseline, whereas the 2030 Build shows a 33 percent reduction. The 2030 No-Build shows a 27 percent reduction in forested land compared to the 2010 Baseline, whereas the 2030 Build shows a 30 percent reduction. For both forested and agricultural land uses, the decrease equals a change of less than one percent of total land. Overall, while there are sizeable reductions in agricultural and forested lands compared to the Baseline, the indirect impacts are small and the cumulative impacts are minimal as the small additional loss does not create a substantial overall impact.

Impervious Surface Impacts

Findings show the incremental effect of the 2030 Build Scenario will be a one percent increase in impervious surface throughout the study area as compared to the change predicted for the 2030 No-Build Scenario. This results in approximately 2,000 additional acres of impervious surface. With the 2030 Build Scenario, increases in percent impervious surface as compared to the change predicted for the 2030 No- Build are found in six of the 18 watersheds that make up the FLUSA. These increases are between one and three percent. There is no difference in impervious surface resulting from direct or indirect effects in the Goose Creek or Sixmile Creek watersheds between the 2030 No-Build and 2030 Build scenarios.

Cumulative Impacts to Water Quality

As stated above, there are small differences in impervious surfaces associated with six of the 18 watersheds in the FLUSA. It is not anticipated that these, minor changes would alter the results of the previous water quality Quantitative ICE, as they are within the standard error of such analyses. For this reason, additional water quality modeling is not required.

Cumulative Impacts to Endangered Species

No measureable differences in impervious surface were found between the 2030 No-Build and 2030 Build within the Goose Creek or Sixmile Creek watersheds. Therefore, no indirect effects are anticipated on the species associated with the Monroe Connector/Bypass project. As there are no indirect effects anticipated, the project does not contribute an incremental effect that would yield potential cumulative effects. Potential direct effects are not anticipated, and are addressed in the

Biological Assessment (BA) for the species. For the 2030 Build, findings indicate a four percent greater decrease of land exhibiting habitat characteristics that might support the Schweinitz's sunflower as compared to the change predicted for the 2030 No-Build based on results of this study. These reductions are likely an overestimate as the land categories included do not constitute actual habitat for the species and there will remain substantial areas available for species habitat under both No-Build and Build Scenarios. Therefore, no ICEs to the sunflower are expected. The BA provides more detail on direct and potential indirect and cumulative impacts.

Consistency with Local Plans

Overall, the projected induced growth is consistent with local plans as most jurisdictions in the eastern portions of the FLUSA, which are likely to see the greatest induced growth, have recently developed planning documents or economic plans that anticipate the proposed project.

CULTURAL RESOURCES

Section 4(f) and Section 6(f) Resources:

As presented in Section 1.3.3.3 of the Final EIS, there is one Section 4(f) resource within the Design Study Alternative corridors, the Matthews Sportsplex. Section 2.5.3.3 of the Final EIS states that the Preferred Alternative would not impact any Section 4(f) or Section 6(f) resources. For the Final Supplemental Final EIS, the DSA corridors were reviewed using GIS data and aerial imagery to identify any new potential Section 4(f) resources. The list of Land and Water Conservation Fund grants on the National Parks Service Web site was also reviewed to identify any new grants in the DSA corridors. No additional Section 4(f) or Section 6(f) resources were identified in the DSA corridors. Therefore, the finding reported in the Final EIS is still valid. There are no 4(f) resources within the preferred alignment.

There are no 6(f) resources within the project study area.

Archaeological and Historic Architectural Resources:

The proposed Monroe Bypass is a Federally-funded project, and therefore the project must comply with Section 106 of the National Historic Preservation Act (NHPA). NHPA requires the lead Federal agency (the NCDOT on behalf of FHWA) to consult with the North Carolina State Historic Preservation Office (HPO [on behalf of the Advisory Council on Historic Preservation]) regarding the project's potential to impact archaeological resources eligible for or listed on the National Register of Historic Places (NRHP).

The Preferred Alternative would not result in an Adverse Effect to a historic property on or eligible for listing on the NRHP. No property would be acquired from any of the historic resources. The effects determinations are No Adverse Effect for Secrest Farm, Hiram Secrest House, and Perry-McIntyre House. The effects determination for William Bivens House is No Effect. These determinations were reconfirmed with the HPO on September 29, 2009.

An archaeological evaluation and inventory for the Monroe Bypass project found no resources eligible for listing on the NRHP; therefore, the proposed action would have no effects on any archaeological resource on or eligible for listing on the NRHP.

FEMA COMPLIANCE

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

WILD AND SCENIC RIVER SYSTEM

The 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). The Yadkin Pee Dee River is not designated as a Wild and Scenic River.

MITIGATION OPTIONS

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

Avoidance and Minimization:

Avoidance and minimization measures include:

- NCDOT's Design Standards in Sensitive Watersheds will be followed for implementing erosion and sediment control BMPs along the entire project.
- The proposed alignment took into consideration the locations of critical habitat of the federally endangered Carolina heelsplitter and avoided watersheds in which they are located.
- NCDOT contributed financially to the conservation of a population of Carolina heelsplitter in a nearby watershed in South Carolina
- The interchange at Indian Trail – Fairview Road was changed to a compressed diamond which avoided impacts to populations EO #77 and EO #230 of Schweinitz's sunflower. Further, these populations are afforded protection from indirect and cumulative impacts by being entered into Union Power's Schweinitz's Sunflower Restricted Sites Plan and NCDOT's Roadside Vegetation Management Guidelines in Marked Areas.
- In an effort to minimize impacts to the Savannah Lilliput, specially designed grassed swales will be utilized at the bridge crossing of South Fork Crooked Creek (**Site 19**) and the nearby UT to South Fork Crooked Creek (**Site 20**) crossings to reduce water velocity, promote infiltration and provide treatment for discharge before runoff enters streams. NCDOT is also investigating the expenditure to obtain the triangular shaped land bordered to the south by proposed US 74 and South Fork Crooked Creek and the UT to South Fork Crooked Creek to their confluence. If deemed plausible, this area will be allowed to vegetate naturally providing additional wooded buffer for these streams.
- Preformed scour holes (PSH) will be utilized in several locations (see SMPs) to diffuse the concentrated flow from storm drain outlet pipes into non-erosive sheet flow to surrounding water resources.
- Rip rap aprons/pads will be utilized in several locations (see SMPs) to reduce velocity and erosion at pipe outlets.
- Multiple culvert extensions utilize junction boxes to dissipate energy, reduce the slope of the channel and provide a non-erosive outlet velocity to the stream bed and bank.
- Baffles and/or sills will be installed in culverts at **Sites 1, 4, 9, 12, 14, 16, 20, 23, 28, 50, 53, 55, and 55** to mimic low flow conditions and help streams retain their geometry.

- At sites where it was determined appropriate during the 4C Field Review meetings, RCBCs and CMPs have been designed to be buried 1' to allow for natural substrate to fill the bottoms of the structures.
- The DB Team has committed to hand clearing the wetland near the outlet of the cross pipes at **Site 2** when installing the dissipater pad.
- In order to reduce impacts to a wetland (mafic depression - WJR) at **Site 7**, a curb and gutter will be installed along the road eliminating the need for a roadside ditch. Further, this water will be discharged into the depression to help maintain site hydrology.
- At **Site 18**, an 18" CMP under a farm road adjacent to the ROW will be removed, daylighting approximately 28' of stream S052b.
- The ROW was adjusted to eliminate impacts to wetland W75 near **Site 27**.
- **Site 28** was redesigned to avoid impacts to stream S078 and re-aligned to outlet at a better angle into the receiving stream.
- At **Site 31**, a raised pipe will retain runoff from smaller events within the gore, and only larger storm events will enter the stream system.
- An abandoned driveway pipe on stream S81 at **Site 31** will be removed, daylighting approximately 16' of stream.
- Hazardous Spill Basins will be added at **Sites 34, 35, 37, and 38** as they are in the Lake Twitty Watershed.
- Hazardous Spill Basins will be added to either side of the bridge over Stewarts Creek (which is not a permit site).
- Turbidity water quality testing program will be implemented in Stewarts Creek throughout construction.
- In order to eliminate the drainage from the hazardous spill basin and the drainage pipes all outletting into the relatively small S89 stream channel, the 30" RCP that outlets from the hazardous spill basin (-L- 818+00 LT) would be shortened and ditched to the stream channel, so that there are no longer three pipes outletting at the same location.
- A corrugated aluminum pipe will be used to reduce velocity at **Site 43**.
- At **Site 44**, the jurisdictional stream begins in the roadway fill, so there are fewer impacts than if the jurisdictional stream began further upstream.
- The design at **Site 45** was slightly altered to reduce the fill in surface waters.
- The culvert was re-aligned to outlet at a better angle into the receiving stream at **Site 50**.
- As opposed to a single culvert, the interchange at **Site 53** was revised to allow an approximately 250' stretch of open channel to be constructed within the interchange ramp between what is now two culverts.
- **Site 54**, the bridge over Meadow Branch and associated high quality wetlands, will be constructed using barge segments supported by timber mats as a temporary bridge to construct the permanent bridge. An advantage to this method is that if there is significant flooding, the barge segments will rise and float, effectively eliminating any potential overtopping of the temporary bridge. Just prior to installation of the temporary bridge, a meeting will be held on-site to locate the mats in areas that will have the least environmental impacts. The surface elevation will be noted prior to mat placement. It is anticipated that approximately half of the temporary bridge will be in place to construct half the permanent bridge, and then switched to the other side to minimize the amount of time the wetlands and floodplain will be temporarily impacted. Upon removal, if mats have changed the surface elevation by more than three inches, that area will be re-vegetated with a native wetland seed mix to help restore it to pre-construction conditions.
- The profile was adjusted to reduce anticipated wetland impacts at **Site 58**.

- There are several small streams converging at **Site 60**. A 72" pipe, which will be used in conjunction with a 10'x6' RCBC, will outlet through the headwall of the RCBC, which will help to minimize outlet velocities.
- At **Site 62**, Construction will be either timed to avoid nesting and fledgling periods of birds in the culvert, or started prior to these periods and netting installed to deter entry.

Compensation:
The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable, as described above. Tables 2 through 13 summarize the wetland and stream impacts for each section of this project. This project will permanently impact 6.6 acres of wetlands, 15,495 linear feet of streams and temporarily impact 0.14 acre (1,036 linear feet) of streams.

NCDOT proposes mitigation for 14,781 linear feet of these stream impacts (DWR requires 14,781 linear feet of stream mitigation, and USACE requires 13,278 linear feet of stream mitigation see tables 3, 5, 7, 9, 11, and 13).

NCDOT proposes mitigation for 6.6 acres of wetland impacts (0.92 acre of which is only mitigable by DWR at 1:1, see Table 2).

NCDOT proposes an in-lieu payment to the NCEEP to mitigate for these impacts. The NCEEP previously provided confirmation that they would provide the mitigation for this project in a letter dated June 24, 2010. A revised NCEEP mitigation request will be submitted and the revised acceptance letter provided upon receipt.

REGULATORY APPROVALS

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

Section 401: We are hereby requesting a 401 Water Quality Certification from the NC Division of Water Resources. 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 application previously noted in this application (TIP R-3329 & TIP R-2559).

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Michael Turchy at either maturchy@ncdot.gov or (919) 707-6157. A copy of this permit application and its distribution list will also be posted on the NCDOT website at https://connect.ncdot.gov/resources/Environmental/Pages.

Sincerely,

for Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit

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.

Form Approved - OMB No. 0710-0003 Expires: 31-AUGUST-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 - Richard Middle - W. Last - Hancock	First - Middle - Last -
Company - NC Department of Transportation - PDEA	Company -
E-mail Address - rwhancock@ncdot.gov	E-mail Address -
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 1598 Mail Service Center	Address-
City - Raleigh State - NC Zip - 27699 Country - 1598	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business 919-707-6157 c. Fax 919-212-5785	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)

Monroe Bypass STIP R-3329 and STIP R-2559

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Yadkin-Pee Dee River Basin, HUC 03040105	Address
15. LOCATION OF PROJECT Latitude: ◦N 35.023442 Longitude: ◦W -80.541029	City - State- Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Union County Township - Monroe Range -

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

18. Nature of Activity (Description of project, include all features)
The North Carolina Department of Transportation (NCDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to construct the Monroe Connector/Bypass, a controlled-access toll facility extending from US-74 near I-485 in Mecklenburg County to US-74 between Wingate and Marshville in Union County, a distance of approximately 20 miles.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
The purpose of the project is to improve mobility and capacity within the project study area by providing a facility for the US-74 corridor from near I-485 in Mecklenburg County to between the towns of Wingate and Marshville in Union County that allows for high-speed regional travel consistent with the designations of the North Carolina Strategic Highway Corridor (SHC) program and the North Carolina Intrastate System, while maintaining access to properties along existing US-74.

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

20. Reason(s) for Discharge
Impacts will result from construction of new roadway facility and associated connector roads.

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

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
See attached cover letter & permit drawings		

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

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

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 property owners in permit drawing packet

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.

10-2-2014

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

for RICHARD W. HANCOCK

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.

Ecosystem Enhancement Program (EEP)

Mitigation Acceptance Letter

Ecosystem Enhancement PROGRAM

June 24, 2010

Ms. Liz Hair
U. S. Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Avenue, Suite 208
Asheville, North Carolina 28801-5006

Dear Ms. Hair:

Subject: EEP Mitigation Acceptance Letter:

R-2559/R-3329, Monroe Bypass and Connector, Union and Mecklenburg Counties

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the unavoidable impact associated with the above referenced projects. Based on the information supplied by the NCDOT on June 23, 2010, the impacts are located in CU 03040105 of the Yadkin River Basin in the Southern Piedmont (SP) Eco-Region, and the anticipated mitigation credits needed to offset the impacts are as follows:

Yadkin 03040105 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	23,083	8.10	0	0	0	0
Mitigation Units (Credits-up to 2:1)	0	0	46,166	16.20	0	0	0	0

Mitigation associated with this project will be provided in accordance with Section X of Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient compensatory stream and riparian wetland mitigation in the appropriate cataloging unit in the amount listed in the above table to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: R-2559 / R-3329

Ecosystem Enhancement PROGRAM

June 24, 2010

Mr. Steve DeWitt, P.E.
Chief Engineer
North Carolina Turnpike Authority
5400 Glenwood Avenue, Suite 200
Raleigh, North Carolina 27612

Dear Mr. DeWitt:

Subject: EEP Mitigation Acceptance Letter:

R-2559/R-3329, Monroe Bypass and Connector, Union and Mecklenburg Counties

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on June 23, 2010, the impacts are located in CU 03040105 of the Yadkin River Basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Yadkin 03040105 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	23,083	8.10	0	0	0	0
Mitigation Units (Credits-up to 2:1)	0	0	46,166	16.20	0	0	0	0

EEP commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Ms. Liz Hair, USACE – Asheville Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
Ms. Linda Fitzpatrick, NCDOT – PDEA
File: R-2559 / R-3329

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Michael Ellison, Director
Ecosystem Enhancement Program

John E. Skvarla, III
Secretary

November 4, 2014

Mr. Richard W. Hancock, P.E.
Manager, Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Hancock:

Subject: EEP Mitigation Acceptance Letter:

R-2559 / R-3329, Monroe Bypass and Connector, Union County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and wetland mitigation for the subject project. Based on the information supplied by you on October 30, 2014, the impacts are located in CU 03040105 of the Yadkin River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Yadkin 03040105 SP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	14,781.0	5.68	0.92	0	0	0

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details on the mitigation ratio proposal. EEP is proposing to provide riparian wetland mitigation for all wetland impacts associated with this project.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on June 24, 2010 to the North Carolina Turnpike Authority. In accordance with the directive from the February 8, 2011 IRT meeting, non-riparian wetland impacts located in the mountains and piedmont areas of North Carolina will be accepted as requested but mitigated utilizing riparian wetland mitigation credits. EEP commits to implementing sufficient compensatory warm stream mitigation and riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

James B. Stanfill
EEP Asset Management Supervisor

cc: Ms. Crystal Amschler, USACE – Wilmington Regulatory Field Office
Mr. Alan Johnson, Division of Water Resources, Wetlands/401 Unit
File: R-2559 / R-3329

Concurrence Point 4B Meeting Minutes

Design Sections 1, 2A, 2B	May 9, 2012
Design Section 2C, 3A	April 11, 2012
Design Section 3B	March 14, 2012

Section 404/NEPA Merger Project Team
Design Sections 1, 2A, 2B – Concurrence Point 4B Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: May 9, 2012

Time: 9:00 AM

Place: Structure Design Conference Room, Century Center

Present:

Ms. Christy Shumate, HNTB\NCTA
Ms. Jennifer Harris, NCTA
Mr. Tommy Peacock, RK&K
Mr. Jeff Meador, RK&K
Ms. Tina Swiezy, RK&K
Mr. Matthew L. Cook. RK&K
Mr. Chris Militscher, USEPA (call in)
Ms. Marla Chambers, NCWRC
Ms. Polly Lespinasse, DWQ
Mr. David Wainwright, DWQ
Mr. Brian Wrenn, DWQ
Mr. Larry Thompson, NCDOT Division 10
Mr. Tim Boland, NCDOT Division 10
Mr. Scott Koeppel, MBC
Mr. Lindy Hallman, MBC
Mr. Michael Wood, The Catena Group
Ms. Ivy Kimbrough, The Catena Group
Ms. Liz Hair, USACE (call in)
Mr. Rick Baucom, NCTA
Ms. Marella Buncick, USFWS
Ms. Amy Simes, NCDENR
Mr. Michael Turchy, NCDOT - NEU
Mr. Marshall Clawson, NCDOT – Hydraulics
Mr. Bill Zerman, NCDOT – Hydraulics
Mr. Zak Hamidi, NCDOT – NCTA
Mr. Mark Staley, NCDOT – REU
Mr. Lonnie Brooks, NCDOT – SMU

The 30% Hydraulic Review was held to in order to reach agreement on concurrence point 4B for the US 74 Monroe Bypass in Mecklenberg\Union Counties. The 4B review was completed for the portion of the project from Station 95+00 to 648+00. This station range includes design sections 1, 2A, and 2B. The following items were discussed and conclusions reached:

Matthew Cook began the meeting giving a brief status review of the project and the meetings held thus far. He reiterated that the field meetings for the remainder of the project will be held on May 22 and (if needed) May 30.

Jennifer Harris asked that everyone introduce themselves. Following introductions, Ms. Harris gave a synopsis of the recent events affecting the project due the pending lawsuit. NCTA and the Design-Build Team intend to continue to work on the design of the project. However, NCTA will not submit the permit modifications to the agencies at this time due to the appeals court ruling. Marella Buncick asked, due to

the lawsuit, that written authorization be provided by FHWA that talks and meetings between NCTA and the agencies can continue and are appropriate.

Mr. Cook gave an overview of the design section 2A on the project public hearing maps. He then went through the project to discuss impacts to streams and wetlands on each sheet.

Sheets 13-14: No impacts.

Sheet 15-16 (W19, S31c): Orig. Site 9, Prop. Site 101, -L- 262+00; A portion of a wetland will be impacted by the fill slope. S31c will be a total take. The existing drainage pattern will be mimicked by a Lateral Base Ditch. The stream (S31c) ties to S28c on Site 102.

Sheet 16 (W17, S28a): Orig. Site 9, Prop. Site 102, -L- 265+50; 2@9'x7' RCBC. The RCBC has a slope of 0.65% and will be buried 1.0' with a 2' sill in the left (facing downstream) cell. Due to the shallow slope, baffles were not designed. Marla Chambers asked that we look at this site in the field to determine if baffles are needed since Mr. Cook stated that the existing stream width is only (typ.) 4.0'. A portion of a wetland will be impacted by the fill slope. Polly Lespinasse asked that the lateral base ditch along the left (outlet end) tie to the stream instead of across the RCBC bench.

Sheet 17 (S34): Orig. Site 10, Prop. Site 103, -L- 293+50; RCBC. The RCBC at this site is still being designed. Mr. Cook stated that the D-B Team was concerned about impacting structures just upstream of the project and had been waiting for additional survey data that was provided earlier in the week.

Sheet 17 (S36): Orig. Site 11, Prop. Site 104, -L- 298+00; Ditch and 3-36" RCP. Mr. Cook stated that the D-B Team was concerned about impacting structures just upstream of the project and had been waiting for additional survey data that was provided earlier in the week. Two of the 36" RCPs would be used as overflow devices for the ditch. The stream does not become jurisdictional until downstream of the project. The impact is due to removal of an existing pipe downstream of the project. The 3-36" RCPs would not be buried.

Sheet 18 (S37c. S37d, P9): Orig. Sites 12 and 13, Prop. Site 105, -L- 370+50-374+00; RCBC. The RCBC at this site is still being designed. Given the nature of the stream, the Monroe Bypass, Seacrest Shortcut Rd., and a service road in the area, the drainage design in this area has been difficult. The D-B Team felt that the best RCBC design and way to enter the stream downstream of the project was shown and allowed for the downstream channel tie to enter more smoothly than if we had lengthened the RCBC and angled it to go under all 3 alignments. Ms. Buncick asked if the 2-60" RCPs under Seacrest Shortcut Rd. could tie directly to the RCBC. Mr. Cook stated that the opening was needed to allow drainage to enter the RCBC from a lateral base ditch along the –L-; also it would present design, construction and maintenance issues to create a structure that ties two pipes of this size to a RCBC. Liz Hair asked that we visit this site in the field.

Sheet 19 (P10): Orig. Site 13, Prop. Site 106, -L- 376+25; The pond will be a total take. No additional comments.

Sheet 20 (W22b, W25, S38a, S38b): Orig. Site 14, Prop. Site 107, -L- 392+50, -L- 396+00; 10'x6' RCBC. The RCBC has a slope of 0.78% and will be buried 1.0'. Due to the existing width of the stream

(6.0') and shallow slope, baffles were not designed. A portion of wetland W22b will be impacted by the fill slope and RCBC. Wetland W25 will be a total take.

Sheets 21, 82-85: No impacts.

Sheet 86: No Orig. Site #, Prop. Site 108, -SR107- 14+00; The pond will be a total take. No additional comments.

Sheets 87: No impacts.

Mr. Cook gave an overview of the design section 1 on the project public hearing maps. He then went through the project to discuss impacts to streams and wetlands on each sheet.

Sheets 4-6: No impacts.

Sheet 7, 75 (S14b, S14c, S14d, S14e, S15a, S15b): Orig. Sites 1 and 2, Prop. Site 1, -L- 140+00, -Y111- 18+50-24+00; RCBC and overflow pipe. The RCBC and overflow pipe at this site are still being designed. The D-B Team intends to remove the existing 3-66" RCPs under US 74. The RCBC will tie with a special structure to an existing 120" CMP that runs underneath a property downstream. The overflow pipe will continue somewhat parallel to the 120" CMP outside the downstream property parking lot and tie to the stream. This portion of the Monroe Bypass is elevated approximately 20'.

Sheet 8 (S16a): Orig. Site 5, Prop. Site 2, -L- 152+50; The stream enters a 30" RCP. However planimetrics shows the pipe exiting in to the existing US 74 median and no call on the JS. The stream will be impacted by the fill slope. We are performing additional surveys in this area.

Sheet 9 (S17a. S17b, S17c, S19): Orig. Site 7, Prop. Sites 3 and 4, -L- 176+00; RCBCs. The RCBCs at this site are still being designed. The stream will continue to flow to its current location. The existing pipes conveying it under the new alignments will be removed. Mr. Cook pointed out that the D-B Team realigned the alignments and the project is now avoiding wetland W10 north of the project which was an original permit site.

Sheets 10-12: No impacts.

Sheet 75 (WX800): Orig. Site 1, Prop. Site 5, -Y111- 11+50-14+50; RCBC and overflow pipe. A portion of a wetland will be impacted by the fill slope. No additional comments.

Sheets 76-77: No impacts.

Sheet 78 (SX 504, WX207): Orig. Site 6, Prop. Site 6, -SR16- 11+50; A portion of a wetland and stream will be impacted by the fill slope. No additional comments.

Sheet 79: No Orig. Site #, Prop. Site 7, -Y112- 28+00; A portion of a wetland will be impacted by the fill slope. Ms. Hair asked that the reasoning for this new impact be explained since it was not part of the original permit. Mr. Cook stated that the new impact might be due to the multi-use concrete path. Ms. Harris will look in to the reasoning behind this impact.

Sheets 80-81: No impacts.

After a short break, Jeff Meador gave an overview of the design section 2B on the project public hearing maps. He then went through the project to discuss impacts to streams and wetlands on each sheet.

Sheet 22 (S039C): Orig. Site 15, Prop. Site 150, -L- 424+00; A 3@12'x8' RCBC with two 48" floodplain pipes is proposed at this location. The culvert will be buried 1' and the two outer cells will have sills. The proposed ditches at the site will be adjusted to avoid the floodplain benches at the culvert.

Sheet 23 (S043): Orig. Site 16, Prop. Site 151, -L- 433+00; Two 66" pipes are proposed at this location. One pipe will be buried 1' and the other pipe will be raised above the streambed to direct normal flow to one pipe.

Sheet 24: No impacts.

Sheet 25 (S052A, S053, W032): Orig. Site 17, Prop. Site 152, -L- 473+00 to 484+00; The existing stream at 474+50 right will be relocated into a vegetated ditch adjacent to the right side of the roadway. The feature will not cross the proposed roadway. A 72" RCP buried 1' will be provided at 483+00 right. The wetland at 474+00 left will also be impacted by the project. The existing channel from 477+00 to 482+00 left will remain and will not be filled. Liz Hair requested that the team visit the site at the May 22nd field meeting.

Sheet 26: No impacts.

Sheet 27 (S047): Orig. Site 18, Prop. Site 153, -L- 512+00; South Fork of Crooked Creek will be bridged. The bride will not cause any direct impacts to the stream. There will be minor impacts to tie proposed roadway ditch to the stream. Rip rap will be placed on the floodplain under the proposed deck drains to minimize erosion from the deck drainage. Deck drains will not be placed directly over the stream channel.

Sheet 28 (S055, WX822): Orig. Site 19, Prop. Site 154, -L- 515+00; A 2@8'x8' RCBC is proposed at this location. One barrel of the culvert will have a sill at this location and the culvert will be buried 1'. The existing stream is 4' wide. The project team will visit the culvert during the May 22nd field meeting and determine if baffles are needed. The proposed ditches at the site will be adjusted to avoid the floodplain benches at the culvert.

Pond P25 is also located on this sheet. At this time no impacts to the pond are anticipated.

Sheet 29: No impacts.

Sheet 30: No impacts. Jeff Meador noted that the proposed design along Willis Long Road has been revised to eliminate impacts to S064b and WX823 that were shown in the original permit application (Original Site 24A).

Sheet 31: No impacts.

Sheet 32 (S068B, S068C): Orig. Site 24, Prop. Site 155, -L- 586+50; A 12'x7' RCBC is proposed at this location. The culvert will be buried 1'. The existing stream is 4' wide. Baffles are planned for this culvert.

Sheet 32 (S069): Orig. Site 25, Prop. Site 156, -L- 591+00; A 60" RCP is proposed at this location. The pipe will be buried 1'. Marella Buncick raised concern about potential erosion at the NE corner of the crossing. Jeff Meador noted that the proposed ditch will be flattened to the extent possible to minimize erosion.

Sheet 33 (S070B): Orig. Site 26, Prop. Site 157, -L- 605+50; A 72" RCP is proposed at this location. The pipe will be buried 1'.

Sheet 34 (S071): Orig. Site 27, Prop. Site 158, -L- 614+00; A 66" RCP is proposed at this location. The pipe will be buried 1'.

Sheet 35-36: No impacts.

Sheet 88-92: No impacts.

Sheet 93 (P23): Orig. Site 23, Prop. Site 159, -Y204- 13+50 Lt; Rock fill will be placed in the existing pond within the proposed right-of-way. The entire pond will not be drained. Roadway drainage will be discharged to the pond in the proposed condition to match the existing condition.

Sheet 94: No impacts. Jeff Meador noted that the proposed design along Rocky River Road has been revised to eliminate impacts to S047 that were shown in the original permit application (Original Site 21).

Sheet 95: No impacts. Jeff Meador noted that the proposed service road has been revised to eliminate impacts to S058c and W050 that were shown in the original permit application (Original Site 22).

Sheet 96: No impacts.

R-3329/R-2559 - Monroe Bypass
Design Sections 1, 2A, 2B - 4B Meeting Sign in Sheet
9-May-12

Name	Representing	E-mail Address	Phone Number
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Tim ~~Boone~~ Bolane	Division	call-in	
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Section 404/NEPA Merger Project Team
Design Section 2C – Concurrence Point 4B Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: April 11, 2012

Time: 12:30 PM

Place: Structure Design Conference Room, Century Center

Present:

Ms. Christy Shumate, HNTB\NCTA
Ms. Jennifer Harris, NCTA
Mr. Matthew Cook, RK&K
Mr. Jeff Meador, RK&K
Ms. Tina Swiezy, RK&K
Mr. Chris Militscher, USEPA (call in)
Ms. Marla Chambers, NCWRC
Ms. Polly Lespinasse, DWQ
Mr. Larry Thompson, NCDOT Division 10
Mr. R.R. Wilkins, NCDOT - Utilities
Mr. Scott Koeppel, MBC
Mr. Michael Wood, The Catena Group
Ms. Liz Hair, USACE
Mr. Rick Baucom, NCTA
Ms. Marella Buncick, USFWS (call in)
Mr. Malcom Watson, NCDOT – Design Build
Mr. Michael Turchy, NCDOT - NEU
Mr. Marshall Clawson, NCDOT – Hydraulics
Mr. Dan Duffield, NCDOT – Hydraulics
Mr. Bill Zerman, NCDOT – Hydraulics
Mr. Zak Hamidi, NCDOT – NCTA
Mr. Mark Staley, NCDOT – REU
Mr. Kevin Jones, MBC
Ms. Ivy Kimbrough, The Catena Group

The 30% Hydraulic Review was held to in order to reach agreement on concurrence point 4B for the US 74 Monroe Bypass in Mecklenberg\Union Counties. The 4B review was completed for the portion of the project from Station 648+00 to 912+00. This station range includes the design section 2C. The following items were discussed and conclusions reached:

A new set of the 4B plans was distributed to each person in attendance which reflected up to date drainage. Matthew Cook began the meeting with a brief overview of this section of the project.

Sheet 37 (S78a): Orig. Site 28, Prop. Site 201, -L- 656+50 RT; 36" RCP at 3.39% slope. The 36" RCP will not be buried since it is not jurisdictional upstream of the project. It becomes jurisdictional inside the fill slope.

Sheet 38 (S76): Orig. Site 31, Prop. Site 202, -L- 670+00; 3@ 12'x8' RCBC. The RCBC has a slope of 0.39% and a sill in the (downstream facing) left sill. It will be buried 1.0'. Due to the slope and the existing stream width (appr. 20'), baffles will not be used. Tina Swiezy explained that the D-B team used the following criteria in determining the use of baffles: if the existing stream width is at least half the size

of the culvert conveying it, baffles would not be used. If the existing stream is less than half the size of the culvert conveying it, then baffles would be used. Therefore, baffles would not be used at this site. Mr. Cook stated that the current design of the RCBC is on hold. There are 2 gas lines near the invert in of the RCBC. The D-B team is awaiting the boring findings to determine the depth of the gas lines. Marella Buncick stated concerns for the location of the RCBC. She stated that the energy dissipation that occurs in the bend in the stream is lost by the straight nature of the RCBC. Also the tie-ins to the existing stream on both ends are at awkward angles. Marshall Clawson suggested moving the RCBC upstation, keeping the RCBC at the proposed length, and lengthening the tie-ins to the existing stream. This would place the tie-ins at better angles. Mr. Cook stated that moving the RCBC would require a tie-in for S78d. The D-B Team will continue to work with NCDOT Hydraulics to finalize the RCBC placement.

Sheet 39: No impacts.

Sheet 40 (S80c): Orig. Site 32, Prop. Site 203, -L- 702+00; 7'x7' RCBC. The RCBC has a slope of 1.16% and will be buried 1.0'. Due to the slope and the existing stream width (appr. 4'), baffles will not be used. The outlet channel will continue appr. 50' downstream of Maple Hill Rd. This includes the removal of the existing 36" pipe under Maple Hill Rd. The outside side slope at the RCBC exit will be lined with riprap for stability. The bottom of the fill slope will be lined with toe protection along the proposed downstream channel. Liz Hair asked about the angle of the RCBC and if it should be lengthened to line up with the jurisdictional stream. Mr. Cook stated that due to two additional ditches draining towards the RCBC, it was placed at an angle to receive them as well. Marla Chambers stated that it should be looked at in the field for final determination of baffles.

Sheet 41 (S80c): Continuation of Orig. Site 32, Prop. Site 203. See Sheet 40 comments.

Sheet 42 (W81): Orig. Site 33, Prop. Site 204, -L- 718+00; The wetland will be a total take. No additional comments.

Sheet 43 (S81a, W81): Orig. Site 35, Prop. Site 205, -L- 739+00 RT; 66" RCP and 30" RCP outlet. The jurisdictional stream begins at the outlet of the existing 30" RCP. The pipes will not be buried since the stream is not jurisdictional upstream of the pipes. The wetland will be a total take. Polly Lespinasse asked if a structure could be installed close to the end of the 66" RCP to allow a better outlet angle to the stream and also to receive the 30" RCP to limit the number of pipes outletting at the same location. Mr. Cook said he would look at this, however the 66' RCP needs to stay out from under the MSE walls. Mr. Cook pointed out that for the 60" RCP inside the B quadrant and the 24" RCP in the A quadrant, the invert ins will be raised 0.5' and 1.0' respectively to allow for stormwater retention inside the quadrants. The group decided that in the gore area between –RLA- and –RRA-, due to grading the entire area and not showing slope stakes, proposed arrows will show the general direction of the proposed flow after the grading.

Sheets 43-44 (W86): Orig. Site 36, Prop. Site 206, -L- 753+00-769+00 LT; The wetland will be impacted. It will not be a total take. A ditch will be used between –L- 758+50-763+00 LT to allow the wetland to function in its current pattern. No ditching will occur in the wetland.

Sheet 44 (W87, P41): -Y303- 712+00 LT; Mr. Cook pointed this area out, however there are no impacts to these features.

Sheet 45: No impacts.

Sheet 46 (S82): Orig. Site 39, Prop. Site NA, -L- 791+00; The bridge will span Stewarts Creek. There will be no impact. Mr. Cook pointed out the use of hazardous spill basins at –L- 786+00 RT and –L- 793+00 RT. This area of the project is in the Lake Twitty Critical Watershed. Drainage that is directed towards blue lines will move through hazardous spill basins.

Sheet 47 (S86): Orig. Site 40, Prop. Site 207, -L- 806+00; 10'x7' RCBC. The RCBC has a slope of 0.67% and will be buried 1.0'. Due to the slope and the existing stream width (appr. 4'), baffles will be used. Mr. Cook pointed out the use of a hazardous spill basin at –L- 807+00 LT.

Sheet 47 (S88a): Orig. Site 40, Prop. Site 219, -L- 805+00 LT; The stream becomes jurisdictional inside the fill slope on the left. The drainage upstream will be conveyed in the RCBC for S86, RCBC 10'x7'. Ms. Lespinasse suggested adding a spring box at this location.

Sheet 48 (S89a, W99): Orig. Site 41, Prop. Site 208, -L- 818+00; 48" RCP. Given the small size of the wetland (appr. 0.06ac), although the majority of the wetland will not be affected, it was decided that it would be considered a total take. The stream becomes jurisdictional at the fill slope line. For this reason, it was decided that the 48" carrying the stream would not be buried. The slope on the 48" RCP is 2.42%. A 24" RCP approximtely 100' downstation is used to convey offsite drainage to the same outlet as the 48" RCP. Mr. Cook stated that the two pipes were not combined due to the elevations at the invert in of each. A question was also asked if there was a way to combine the two pipes in a junction box prior to the outlet. Ms. Swiezy stated that that would be difficult given the small amount of fill slope over the pipes as well as the guard rail in close proximity. It was decided that the 30" RCP that outlets from the hazardous spill basin (-L- 818+00 LT) would be shortened so that there are no longer three pipes outletting at the same location. The drainage from the hazardous spill basin would leave the 30" RCP and be ditched to the stream.

Sheet 48: At –L- 821+00 RT there is an existing pond that is not being impacted. Mr. Clawson asked to confirm that no part of the pond is inside the right of way. If it is, since it drains towards the project, the pond would have to be drained.

Sheet 48 (P44): Orig. Site 42, Prop. Site 209, -L- 825+00 LT; The pond will be drained. The attendees discussed possibly moving the right of way line closer to the project so that the pond is outside the right of way. Also, the fact was raised that even though the NCDOT owns the land outside the right of way that encompasses the pond, it could be sold in the future since it is no longer needed. Zak Hamidi stated that the area would not be sold and that the right of way line would stay where it is proposed. Therefore, the pond needs to be drained. Ms. Lespinasse expressed concern that this would affect the wetland (W100) and pond (P45) downstream. Mr. Cook stated that the approximate same area of drainage that feeds those features now would continue to feed them in the future.

Sheet 48 (W101, W102, S92b): Orig. Site 43, Prop. Site 210, -L- 834+00-838+00 LT; The wetlands will be total takes. The stream will be a total take. Mr. Cook brought up the fact that the jurisdictional features that were represented in the original permit are not the same size / length that they are in the current jurisdictional features file provided to the D-B Team. The original permit had a stream between wetlands W101 and W102, a longer length for S92b, and a larger footprint for W103 which is located

outside –TRA-. This will be looked at in the field. Mr. Cook pointed out the use of a hazardous spill basin at –TRA- 23+00 LT.

Sheet 48 (W104, WX816, S93a, S94, S95a, S95b, S96): Orig. Site 44, Prop. Site 211, -L- 839+00-843+00; The wetland, although not completely covered by roadway fill, will be a total take. It is expected that due to construction, the entire wetland area will be affected. The jurisdictional streams all begin inside the roadway footprint. S93a, S95a, S95b, S96 will all be total takes. Again, although the streams are not completely covered by roadway fill, due to construction they will be total takes. S94 continues off the project. The pipes that convey the streams will not be buried since they are not jurisdictional upstream of the project: 60" RCP, slope=1.29%; 66" RCP, slope=1.30%;, 66" RCP, slope=1.46%. A note will be on the permit drawings stating that they are not buried. Although generally every jurisdictional stream receives its own site number, due to the high concentration of jurisdictional streams in this area there will only be one site number. On the permit drawing, the stream call numbers will all be listed. Mr. Cook pointed out the use of a hazardous spill basin at –TRD- 21+00 RT.

Sheet 49 (W104): Continuation of Orig. Site 44, Prop. Site 211. See Sheet 48 comments.

Sheet 49: Mr. Cook pointed out the use of a hazardous spill basin at –TRD- 14+50 RT.

Sheet 49 (P48): Orig. Site 44, Prop. Site 212, -L- 849+00 RT; The pond will be drained. It was decided that during the field visit it should be determined if the pond can remain and only be filled within the right of way.
UPDATE: During the 4B meeting, Jane Nelson, NCTA Right of Way Project Manager, informed Rick Baucom via email and copied Tommy Peacock, D-B Team Project Engineer, of the following:
I was able to talk to the DOT right of way agent, Kenny Hill, who negotiated the two parcels with the pond that we discussed earlier today – behind the chicken houses on Olive Branch Road. The current parcel numbers are 622 and 633. According to Kenny, the intent was to drain the pond and rebuild the dam. The negotiations were based on the owners retaining the pond outside of the ROW. A TDE was acquired around the entire pond to enable the work to be completed.

Sheet 49 (P49): Orig. Site 45, Prop. Site 213, -L- 856+00 RT; The pond will be drained. It is also located on sheets 50 and 108. No additional comments.

Sheet 50 (P49): Continuation of Orig. Site 45, Prop. Site 213. See Sheet 49 comments.

Sheet 50 (PX75, S, 102b): Orig. Site 47, Prop. Site 214, -L- 866+50; 42" RCP. The stream becomes jurisdictional approximately 25' before reaching the fill slope of the project. Following what has been decided at all other sites with this same case, the pipe will not be buried. However, at the field visit this will be verified. The 42" RCP has a slope of 2.69%. Ms. Lespinasse asked that the ditch tie in at the outlet of the pipe angle more towards the stream. The pond will be drained. Ms. Chambers asked if the 15" RCP outlet at –L- 866+00 LT be modified to enter the stream at a better angle. Mr. Cook stated that they could possibly push the 2GI out further from the road which would ease the angle of the outlet pipe.

Sheet 51: No impacts.

Sheet 52 (S106): Orig. Site 48, Prop. Site 215, -L- 892+00; The jurisdictional stream will be impacted due to the roadway facility. The approximate 50' of jurisdictional stream upstream of the impact will not be considered a take.

Sheet 52 (S103b, W107): Orig. Site 48, Prop. Site 216, -L- 893+50; 84" RCP buried 1.0' at 2.65% slope. Ms. Chambers was concerned about possible fish passage and the increase in velocity due to the 84" RCP. Ms. Swiezy stated that the slope of the pipe closely mimics the slope of the stream. The wetland will be impacted, however it will be determined in the field if it should be a total take since not all of the wetland will be impacted and it is fed upstream of the project. Ms. Lespinasse asked if anything could be done to slow the velocity of the drainage as it exited the 18" RCP at the outlet of the 84" RCP. Mr. Cook said the slope of the 18" RCP is 6.89%. It was decided that the 18" RCP would be made a CAAP which with corrugations and elbows should dissipate the velocity.

Sheet 53 (S108b, W111, W112): Orig. Site 49, Prop. Site 217, -L- 904+00; 54" RCP at 2.11% slope. The 54" RCP will not be buried since it is not jurisdictional upstream of the project. It becomes jurisdictional at approximately the centerline. W111 and W112 will not be total takes.

Sheets 97-100: No impacts.

Sheet 101 (PX69): Orig. Site 34, Prop. Site 218, -Y302- 152+00 LT; A small portion of the pond is affected by the project. The dam is downstream and outside the right of way. For these reasons, the portion of the pond inside the right of way will be filled with riprap up to the right of way line with a 2:1 slope beyond the right of way to tie down to the existing pond bottom. No portion of the pond will remain in the right of way.

Sheet 102 (P41): Orig. Site 37, Prop. Site NA, -Y- 711+50; The pond will not be affected by our current design. We will review this site in the field to verify that the dam for the pond is not inside the right of way.

Sheet 103 (PX42): Orig. Site 38, Prop. Site NA, -Y303- 723+00; The pond will not be affected by our current design. The border for the pond in the jurisdictional file is outside the right of way.

Sheets 104-105: No impacts.

Sheet 106: Orig. Site NA, Prop. Site NA, -Y304- 52+50; The pond will not be affected by our current design. The border for the pond in the jurisdictional file is outside the right of way.

Sheets 107: No impacts.

Sheet 108 (P49): Continuation of Orig. Site 45, Prop. Site 213. See Sheet 49 comments.

The field review meeting is set for May 3 with additional dates of May 22 and May 30. Mike Wood will coordinate with everyone for time and meeting location.

Section 404/NEPA Merger Project Team
Design Section 3A – Concurrence Point 4B Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: April 11, 2012

Time: 10:30 AM

Place: Structure Design Conference Room, Century Center

Present:

Ms. Christy Shumate, HNTB\NCTA
Ms. Jennifer Harris, NCTA
Mr. Jeff Meador, RK&K
Ms. Tina Swiezy, RK&K
Mr. Kevin Alford, Mulkey
Mr. Chris Militscher, USEPA (call in)
Ms. Marla Chambers, NCWRC
Ms. Polly Lespinasse, DWQ
Ms. Amy Simes, NCDENR
Mr. Larry Thompson, NCDOT Division 10
Mr. Jim Ewart, MBC
Mr. Scott Koeppel, MBC
Mr. Michael Wood, The Catena Group
Ms. Liz Hair, USACE
Mr. Rick Baucom, NCTA
Ms. Marella Buncick, USFWS (call in)
Mr. Malcom Watson, NCDOT – Design Build
Mr. Michael Turchy, NCDOT - NEU
Mr. Marshall Clawson, NCDOT – Hydraulics
Mr. Dan Duffield, NCDOT – Hydraulics
Mr. Zak Hamidi, NCDOT – NCTA
Mr. Tim McFadden, NCDOT – Design Build
Mr. Lonnie Brooks, NCDOT - SMU
Mr. Mark Staley, NCDOT – REU
Mr. Kevin Jones, MBC
Ms. Ivy Kimbrough, The Catena Group

The 30% Hydraulic Review was held to in order to reach agreement on concurrence point 4B for the US 74 Monroe Bypass in Mecklenberg\Union Counties. The 4B review was completed for the portion of the project from Station 912+00 to 1064+00. This station range includes design section 3A. The following items were discussed and conclusions reached:

Kevin Alford began the meeting with a brief overview of this section of the project.

Sheet 54 (W113, W114): Orig. Site 50, -L- 916+25; This site was not impacted in the original permits and will not be impacted in the proposed design.

Sheets 55: No impacts.

Sheet 56 (S111): Orig. Site 51, -L- 943+00; The only impacts at this site will be due to rip rap at the embankments where the ditches enter Richardson Creek, since the bridge should span the stream. This only occurs on two of the quadrants of the bridge. The other two quadrants do not have ditches outleting into the creek.

Sheet 57 (S112): Orig. Site 52, -L- 957+00; The only impacts at this site will be due to rip rap at the embankments where the ditches enter Rays Fork, since the bridge should span the stream. This only occurs on three of the quadrants of the bridge. The other quadrant does not have ditches outleting into the creek.

Sheet 57 (S114a, W138): Orig. Site 53, -L- 965+00; The stream currently is shown jurisdictional to the roadside ditch on –Y306- where it is no longer shown as jurisdictional. The roadside ditch along -Y306- outlets downstream into W138. W138 will be partially filled in by –Y318-. In the meeting it was questioned about what happens to the jurisdictional stream and when it enters the ditch. The stream will be looked at in the field to make sure the length of jurisdictional stream is correct on the plans.

Sheet 58-59 (S140f, W139, W140, WX812): Orig. Site 54, -L- 977+00; The stream runs thru the middle of the –L- alignment. A 9' X7' RCBC will be placed under the –L- alignment. A channel change will occur to tie the stream back in at the inlet and outlet. There is concern at the outlet of the culvert regarding stability of the channel because it is being cut into a hillside. This will be further investigated during the field visit to determine if a different alignment should be used on the culvert. Downstream of the proposed culvert under –L- is a proposed culvert under –Y318- that did not show up on the original permit drawings since it was decided to realign –Y318- after the permits were completed. The proposed culvert under –Y318- will be a 9' X 7' RCBC as well. There will be impacts at the inlet and outlet of the culvert only since the culvert is replacing an existing 48" CMP.

Sheet 60 (S145, SX145, SX145Z, S196, WX806, WX808): Orig. Site 55, -L- 1001+50; There were impacts shown right of –L- due to the work being done on –Y307- in the original permit drawings. –Y307- is no longer crossing –L-, so the road will be closed and there will be no other work done the –Y307-. For this reason, there will be no impacts along –Y307- in the current design. There is still a proposed 66" RCP that will impact S145. Two channels enter the pipe at the inlet, on jurisdictional and one not jurisdictional. It was suggested that the pipe inlet better line up with the jurisdictional stream. It was decided to review this site at the field meeting to decide if the alignment should be changed.

Sheet 61 (W153): Orig. Site 56, -L- 1010+30 RT; The only impact to this will be due to clearing and grubbing 10 foot from the slope stakes.

Sheet 62 (S157A, S157B, P60A, P60B): Orig. Site 57, -VRB- 25+00 RT; The ponds at this site will be drained and filled in by the slope stakes. There will be impacts on S157A due to a crosspipe entering the stream.

Sheet 62 (S156B, W157A): Orig. Site 58, -L- 1041+00; The stream will be impacted by 2 @ 10' X 6' RCBC. One of the culvert barrels will have a low flow channel and the other will have a bench for higher flows. In the original permits, there were impacts to W157A, but there will not be impacts in the current design.

Sheet 62 (S156B): Orig. Site 59, -VRC- 28+50; This culvert is an upstream culvert of the original site 58 from above. The stream will be impacted by 2 @ 10' X 6' RCBC. One of the culvert barrels will have a low flow channel and the other will have a bench for higher flows. This stream will connect to the downstream culvert with a channel change to the proposed stream.

R-3329/R-2559 - Monroe Bypass
Design Section 3 - 4C Meeting Sign in Sheet
11-Apr-12

Name	Representing	E-mail Address	Phone Number
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Marella Buncick	USFWS		
Chris Militscher	USEPA		

phone
phone

Kevin Alford

Mulkey

Section 404/NEPA Merger Project Team
Design Section 3B – Concurrence Point 4B Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: March 14, 2012

Time: 10:30 AM

Place: Structure Design Conference Room, Century Center

Present:

Ms. Christy Shumate, HNTB\NCTA
Mr. Shannon Sweitzer, NCTA
Mr. Tommy Peacock, RK&K
Mr. Jeff Meador, RK&K
Ms. Tina Swiezy, RK&K
Mr. Stephen Roberts, RK&K
Mr. Kevin Alford, Mulkey
Mr. Jim Ewart, MBC
Mr. Lindy Hallman, MBC
Mr. Michael Wood, The Catena Group
Ms. Ivy Kimbrough, The Catena Group
Mr. Jonathan Hartsell, The Catena Group
Mr. Ron Ferrell, Atkins
Ms. Liz Hair, USACE
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS
Mr. Malcom Watson, NCDOT – Design Build
Mr. Timothy McFadden, NCDOT – Design Build
Mr. Marshall Clawson, NCDOT – Hydraulics
Mr. Dan Duffield, NCDOT – Hydraulics
Ms.Elizabeth Lusk, NCDOT – PDEA-NES
Mr. Zak Hamidi, NCDOT – NCTA
Mr. Mark Staley, NCDOT – REU
Ms. Anne White, NCDOT – T&D
Mr. Lonnie Brooks, NCDOT – SMU
Mr. Larry Thompson, NCDOT Division 10

The 30% Hydraulic Review was held to in order to reach agreement on concurrence point 4B for the US 74 Monroe Bypass in Mecklenberg\Union Counties. The 4B review was completed for the portion of the project from Station 954+00 to 1234+00. This station range includes a small portion of design section 3A and all of design section 3B. The following items were discussed and conclusions reached:

Tina Swiezy began the meeting with a brief overview of the project and introductions were made. She also gave a summary of the project limits to be discussed during the meeting.

Kevin Alford (sheet 63) and Jeff Meador (All other sheets) provided a summary of the preliminary drainage design at each jurisdictional feature on the plans. The following comments and decisions were reached.

Sheet 63 (W170, W167, S152): Kevin Alford gave an overview of the proposed drainage on the sheet and noted that all roadway drainage directed to the wetlands will be discharged at a non-erosive velocity (<2fps for 10). At this site the design-build team proposes to utilize steel barges as work mats. The

barges would lay on the ground surface if the ground is not inundated. If the wetland floods the barges would float for the time that the wetlands are submerged. If needed to level the barges, wooden mats will be used to support the ends of the barge. The wooden mats will be 4' wide by 1' high and 16' wide. There was significant discussion regarding the use of the work mats in lieu of the work bridge shown on the previously submitted permit drawings. The following items where discussed:

- The DB team needs to provide pictures of the barge mats in use on other projects and details of how they were used on these projects for the agencies to consider. The DB team agreed to provide additional information about the barges as an attachment to the meeting minutes.
- Shannon Sweitzer asked about the potential for materials to fall through the gaps between barges. The DB team noted that the barges overlap at the connection points and that geotextile would be placed under the barges to eliminate and potential for materials to fall through.
- The DB team noted that the work mats would be needed for a duration of 10-12 months at the site. The environmental agencies requested more specifics on how long the mats would be in use at the site. They asked if the barges could be moved from one end of the bridge site to the other during construction to minimize the duration that they are in one area.
- The environmental agencies notes that they wanted to review the site in the field. The DB team and NCTA will coordinate a date to review the site in the field.
- A new sanitary sewer line will be placed just outside the proposed right-of-way line and tie into the sewer line running along the creek. Temporary impacts for the sewer line construction will be shown on the permit drawings.

Sheet 64 (S158): Jeff Meador noted that a 7'x7' box culvert buried 1' below the stream bed is proposed for the stream crossing on this sheet. The culvert will be constructed using a temporary bypass channel. The roadway drainage from the proposed shoulder berm gutter will be directed to a vegetated channel which discharges to the stream. It was noted that the ditch from 1072+50 to 1073+95 has a 4.6% slope. The DB team agreed to minimize the slope of the ditch as much as possible (at least 1% flatter). Jeff Meador also pointed out that the roadway profile at this crossing has been lowered since the previous design. As a result, the stream impacts have been reduced by approximately 70 linear feet.

Sheet 65\113 (W173, W172A): The wetland impact at –Y309- was described. Mr Meador noted that the existing pipe at the crossing is a 30" RCP. The pipe will be replaced by 2 48" pipes to accommodate future development in the watershed. There is also an 8" water line that will be relocated at the site.

Sheet 66 (W173): The impacts to the wetland at Sta 1096+00 were described. Two 42" pipes are proposed for the wetland crossing. Mr. Meador stated that a new grass channel will be constructed in the wetland on the left side of the road to to the existing channel within the wetland to the lowest point at the crossing. The proposed channel will mimic the natural channel dimensions within the wetland.

Sheet 67: No jurisdictional features.

Sheet 68 (W174): Mr. Meador described the fill impact to the wetland at 1122+50 left. He noted that because of the roadway grade water cannot be brought from right to left across the roadway. However, water from the cut ditch from 1123+50 forward will be directed to the wetland. Mr. Meador also noted that the impacts to the wetland have been reduced from approximately 0.06 acres to 0.02 acres because of the change in the roadway profile from the previous design at this site.

Sheet 69 (S161a): Mr. Meador described the impacts to the stream at –Y310- Sta 23+00 right. He noted that the existing 18" pipe will be replaced with a new 36" pipe to accommodate future development. He also noted that the DB team's design eliminates the proposed interchange at this location. As a result the stream impacts at the site have been reduced from 538 linear feet to 12 linear feet. The removal of the interchange and the reduction in work along Forest Hills School Road also eliminates site 68 from the previously approved permit. The elimination of the site results in an additional reduction of 303 linear feet of permanent stream impacts.

Sheet 70\71 (S162, W176, W177): Mr. Meador described the wetland and stream impacts to the system at 1161+00. The proposed crossing includes a 72" pipe buried 1', a 10'x6' RCBC buried 1' and a 42" floodplain pipe. Marella Buncick noted that she was concerned about the amount of water\velocity at the outlet of the three pipes. She noted that she wanted to make sure the outfall was stable even if slightly greater impacts were needed to ensure stability. Marshall Clawson noted that he would like to see Class II rip rap used at the site. The environmental agencies noted that they wanted to review this site in the field. There is also a wetland crossing at 1157+00 where a 48" pipe is proposed. Mr. Meador noted that the roadway grade at this site has been lowered since the previous design. As a result the stream impacts have been reduced from 186 linear feet to 3 linear feet and the permanent wetland impacts have been reduced from 0.93 acres to 0.78 acres. The proposed culvert construction will require a temporary diversion channel during construction.

Sheet 72 (S169a, S169c, W199, W201): Mr Meador described multiple items on sheet 72. He noted that the interchange ramps had been shifted by the design build team resulting in a decrease in stream and wetland impacts. Impacts at site 74 (W190) in the approved permit have been eliminated. At the culvert extension -L- station 1201+50 the impacts have been reduced from 225 feet of permanent impacts to 139 linear feet. The existing culvert 2@8'x7' will be extended as a 2@8'x8'. The extra 1' of height will be used to bury the new inlet and outlet approximately 1' below the stream bed. There is also a small fill in the wetland at 1201+50 rt due to the roadway embankment and temporary impacts to the wetlands at 1198+00 right and 1201+50 right to relocate a 16" waterline along US 74. The DB team was able to align the waterline underneath the channel improvements at the culvert entrance. There will be no additional stream impacts from the waterline at the stream channel beyond those already proposed to construct the culvert.

Mr. Meador noted that the DB team would like to grade the area from 1185+00 to 1198+00 to provide borrow material to construct the embankment for the approach fills at the rail road bridge. The team proposes a 50' minimum buffer adjacent to the stream\wetland to the north side of this area. The environmental agencies requested, and the DB team agreed, the buffer width be increased to 100'. The environmental agencies also noted that erosion control was critical at this location and that the site should be stabilized as grading progresses rather than all at one time.

Sheet 73, 74, 112: No jurisdictional features.

Sheet 113: See sheet 65 above for a discussion on the impacts at this site.

Sheet 114-117: No jurisdictional features.

Sheet 118 (W196): The existing 24" RCP at –Y314R- Sta 25+85 will be replaced with a new 30" RCP. A new waterline will also be placed between –Y314R- and –Y316-. The waterline will not cause any additional impacts beyond those required for the roadway construction.

Sheet 119 (W197): Mr. Meador described the proposed impacts to the wetlands near the intersection of –Y315- and –Y316-. He noted that the team intended to show impacts to all of the wetlands upstream of the pipe outlet at –Y316-. This area will likely be needed for site access and constructability since –Y315- is an existing roadway. Two 48" pipes are proposed under –Y316- at the crossing.

Tina Swiezy provided an overview sheet of the proposed boring locations on the project. The sheet is included as an attachment to the minutes and is labeled "Monroe Bypass NC One Call Tickets).

Mike Wood noted that when performing field work (surveying and geotechnical borings) for the project the DB team damaged the wetland at 1161+00 +/- (W176). The team has repaired the damaged area.

There was a brief discussion regarding the pond dewatering plan that is required for the project. Jeff Meador noted that the team plans on using the plan for the Western Wake Freeway project as an example. Shannon Sweitzer noted that on the Western Wake project the contractor dewatered many of the ponds to water trucks and then used the water for dust control on the project. There was some discussion regarding fish from the ponds. Marla Chambers stated that care should be taken if fish are transferred from one pond to another. There could be fish species in the ponds to be drained that could harm other ponds without those species in the area.

Mike Wood gave a brief overview of the proposed water quality monitoring plan for the project. Water quality monitoring will begin this month (before construction) on Stewarts Creek. Monitoring will be completed both upstream and downstream of the project. Marella Buncick asked that in addition to documenting the water quality test results the design build team also document major project events that are happening when each sample is taken.

Tina Swiezy gave a brief overview of utility construction for the project. The utility relocations that are expected to result in impacts to streams and wetlands are noted in the individual sheet descriptions above.

There was discussion regarding dates for field reviews for the project. Christy Shumate will coordinate dates for the field meeting with the appropriate parties.

R-3329/R-2559 - Monroe Bypass
Design Section 3 - 4B Meeting Sign in Sheet
14-Mar-12

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R-3329/R-2559 - Monroe Bypass
Design Section 3 - 4B Meeting Sign in Sheet
14-Mar-12

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Additional Barge Information

Below is detail on the Shugart barges we plan to use. Attached are three pictures of us using them. These pictures are all laying on ground. We propose to use wooden mats under each end to create a span. If necessary we can place several mats under each end to give increased clearance under the 40' span . The mats are 4' wide by 1' high by 16 feet wide. With three barges side by side (31'), two mats (32') will extend slightly outside the barges. We can use 2 two or more in height to increase ground clearance. Also, if time duration is a problem, we can place one half. Then pick them up and move access to other end.

Attached are pictures of several applications. In these pictures the mats were laid directly on the ground. As mentioned above we will elevate them by using mats as bents. We plan to connect three barges to give a work bridge width of 31'. The wood mats will be 16 footers. Hence 32' x 4' bearing on the ground at each Barge end. With one on each end this is 256 sf (36,864 sq")on ground. With the weight of the barges, the crane and supplies estimated at 50 tons (100,000#), this gives a ground pressure 2.71 psi.

Also we can work in such a manner as to only have 60% the bridges in place at one time, by working from one end then picking up mats and working from other end. This would lessen time of impact to any area.

While there is the temporary impact of mats bearing on wetlands, there would NOT be the additional vibratory impact of more pile driving and extraction.

We plan to have a barge on mats in a parking area in Monroe which can be viewed during the agency field.

Shugart's REGULAR barge comes in one size (5x10), 10'4" wide, measured from center to center of the connecting pinholes. The actual work surface is 10', in keeping with the accepted construction principle of sizing in multiples of 10. Both sizes are 5' deep. The REGULAR barges are available in lengths equal to two, three, or four times barge width (length must always be a multiple of the width to allow for proper connection and stability).

Technical Specifications

Dimensions Weight (approximate)

10'4" x 5' x 41'4"	27,000 lbs.
10'4" x 5' x 31'0"	22,500 lbs.
10'4" x 5' x 20'8"	15,000 lbs.

*Dimensions are center to center of connections for rake and all sections
*Overall Dimensions are 10'8" wide x 5' high x length
*Payload Per Barge: 37.5 tons with 1 foot of free board (for each 41'4" section)
*No Load Draft: Approximately 12"

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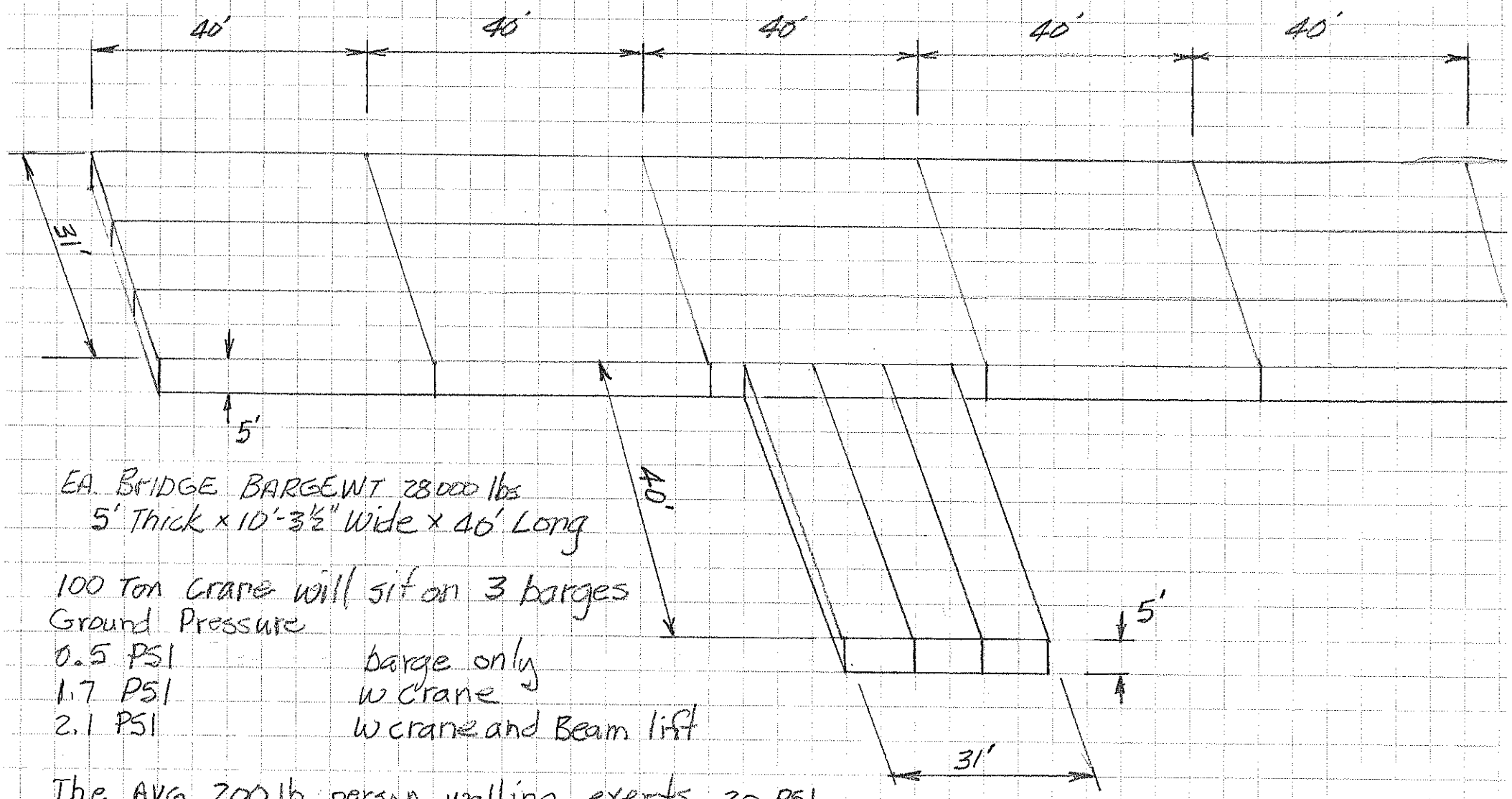
12/11/2006

03/01/2006

Link-Belt

TYPICAL LAYOUT



EA. BRIDGE BARGE WT 28000 lbs
5' Thick x 10'-3½" Wide x 40' Long

100 Ton Crane will sit on 3 barges

Ground Pressure

0.5 PSI	barge only
1.7 PSI	w crane
2.1 PSI	w crane and Beam lift

The AVG 200 lb person walking exerts 20 PSI

Field Meeting
Meeting Minutes

Design Sections 1, 2A, 2B	July 23-24, 2014
Design Section 2C, 3A	May 3, 2012
Design Section 3B	March 28, 2012

AGENCY FIELD REVIEW

Meeting Minutes

Date: July 23-24, 2014

Place\Time: Monroe, NC

Subject: NEPA\404 Merger Team – Agency Field Review
Design Build T.I.P. Project R-3329/R-2559
Monroe Bypass in Mecklenburg & Union Counties
Design Sections 1, 2A, and 2B

Present:

Mr. Rick Baucom - NCTA
Mr. Alan Johnson - NCDWR
Ms. Marla Chambers - NCWRC
Mr. Michael Turchy - NCDOT NES
Mr. Colin Mellor – NCDOT NES
Ms. Liz Hair – USACE
Ms. Crystal Amschler – USACE
Ms. Cynthia Can Der Wiele – USEPA
Mr. Bill Zerman – NCDOT Hydro
Mr. Charles Smith – NCDOT Hydro
Mr. Rick Baucom - NCDOT Division 10
Ms. Marella Buncick - USFWS
Mr. Jim Ewart - MBC
Mr. Lindy Hallman - MBC
Mr. Matthew Cook - RK&K
Mr. Jeff Meador – RK&K
Mr. Michael Wood – The Catena Group
Mr. Nancy Scott – The Catena Group
Ms. Randy Turner – The Catena Group

The Agency Field Review was held to visit the impact sites that had been discussed during the Concurrence Point 4B meeting on May 9, 2012 for Sections 1, 2A, and 2B. The discussion for each site visited is summarized as follows:

Section 1

Sheet 7: The site was reviewed. There is a stormwater retention basin near the site. No determinations required. Alan Johnson asked that if the RCBC is wider than 8' that baffles be considered.

Sheet 9: After reviewing the existing width of the stream, it was determined that baffles would be required for the RCBCs. Baffle widths would be determined once the RCBC size is set.

Sheet 10: The mafic depression wetlands on this sheet were not part of the original wetland jurisdictional calls. The site was reviewed, and USACE was on hand for a determination. Liz Hair said that they needed more time and would come back separate from the group to make their final determination.

Sheet 79: The site is an area where a mulit-purpose path requested by the town of Indian Trails would impact a wetland. The path would be permitted with the NCDOT permit for the Monroe Bypass. There is currently a construction site at this location. Mr. Johnson said he remembered permitting the road for the site, but he did not remember if the multi-purpose path was part of it. The USACE and DWR will investigate and provide additional information.

Follow-up from correspondence with Mr. Johnson: *Wetland at Chestnut Parkway. 401 Certification issued in November 2013. Does not appear to be wetlands delineated at the site in question.*

These were the only sites reviewed in the field for Section 1.

Section 2A

Sheet 16: During the 4B meeting, Marla Chambers asked that we look at this site in the field to determine if baffles are needed since Mr. Cook stated that the existing stream width is only (typ.) 4.0'. It was determined in the field that 5' baffles for the 2@9'x7' RCBC should be used.

Sheet 17: The site was reviewed. No determinations required.

Sheet 18: During the 4B meeting, Liz Hair asked that we visit this site in the field. It was reviewed, and no determinations were required. Mr. Johnson recommended baffles in the RCBC design.

Sheet 20: The site was reviewed. The current proposed design does not incorporate baffles in the 10'x6' RCBC. Mr. Johnson recommended baffles. Following the field review, the general consensus by those in attendance was that baffles would not be necessary at this location.

These were the only sites reviewed in the field for Section 2A.

Sestion 2B

Sheet 22: The site was reviewed. The current proposed design does not incorporate baffles in the 10'x6' RCBC. This was confirmed with the field review.

Sheet 25: During the 4B meeting, Liz Hair asked that we visit this site in the field. It was reviewed, and no changes to the proposed design were requested.

Sheet 28: During the 4B meeting, the project team asked that we visit this site in the field. It was determined in the field that 4' baffles for the 2@8'x8' RCBC should be used. A discussion was also held concerning a species that will likely be listed as endangered in the future that is present in South Fork Crooked Creek (sheet 27 site). Marella Buncick asked that we look in to using Design Standards for Sensitive Watersheds for the features being installed on Sheet 27 (bridge over South Fork Crooked Creek) at the stream crossing to protect the species. No specific measures were discussed. Jeff Meador said that he would work with NCDOT to determine an appropriate best management practice to utilize. Marla Chambers also requested that sensitive watershed standards be utilized for erosion control on the portion of the project that drains to South Fork Crooked Creek (sites on sheet 27 and 28).

AGENCY FIELD REVIEW

Meeting Minutes

Date: May 3, 2012

Place\Time: Union County Agricultural Center, 10:30 A.M.

Subject: NEPA\404 Merger Team – Agency Field Review
Design Build T.I.P. Project R-3329/R-2559
Monroe Bypass in Mecklenburg & Union Counties
Design Section 2C and western part of Section 3A (From Old Williams Road to Maple Hill Road)

Present:

Mr. Rick Baucom - NCTA
Ms. Polly Lespinasse - NCDWQ
Mr. David Wainwright - NCDWQ
Ms. Marla Chambers - NCWRC
Mr. Michael Turchy - NCDOT NES
Mr. Larry Thompson - NCDOT Division 10
Ms. Liz Hair – USACE
Mr. Joel Howard - NCDOT Division 10
Mr. Lindy Hallman - MBC
Mr. Kevin Jones - MBC
Mr. Scott Koeppel - MBC
Mr. Matthew Cook - RK&K
Mr. Kevin Alford - Mulkey
Mr. Michael Wood – The Catena Group
Ms. Ivy Kimbrough – The Catena Group

The Agency Field Review was held to visit the impact sites that had been discussed during the Concurrence Point 4B meeting on April 11, 2012. The discussion for each site visited is summarized as follows:

SITE 257 (Sheet 62): The pond at the northern roundabout will be drained. It will be assumed there is a stream channel within the pond which, once drained, will be impacted by roadway construction. Once the pond is drained, a stream determination will be performed to verify its presence/absence.

SITE 255 (Sheet 60): The inlet of the proposed pipe will be placed in the jurisdicational stream and the non-jurisdictional stream will be ditched to the inlet of the pipe.

SITE 254 (Sheet 58-59): The original design of the culvert would have tied to a relocated channel that would be cut into a steep hillside, and there was concern about the ability to ever stabilize this channel. The RCBC will be lengthened and redesigned to have a bend placed in culvert in order to have a better transition from the inlet to outlet channel further downstream.

SITE 253 (Sheet 57): There was concern about discharging untreated stormwater from the proposed project directly in the wetland. The wetland area is going to be looked at to see if there are other possible alternatives. The agencies requested an explanation as to why and when Bob White Circle was changed from a cul-de-sac to a relocated tie in with Monroe-Ansonville Road.

SITE 216 (Sheet 52): The proposed pipe at –L- 893+00 will be buried 1.0'. The wetland at –L- 894+00 LT will not be a total take.

SITE 214 (Sheet 50): The proposed pipe at –L- 866+50 will not be buried.

SITE 212 (Sheet 49): The agencies determined that it was a decision to be made by NCDOT / NCTA whether draining the pond at –L- 849+00 RT would be necessary. They were fine with leaving it as is or draining it.

SITES 210, 211 (Sheet 48): The area has a high concentration of jurisdictional streams. Given the nature of the streams in quadrant D and the fact that all will be total takes inside the roadway footprint, it was decided that the current pipe layout was sufficient. The streams and wetlands in / around quadrant A as shown in the digital file provided to the Design-Build Team do not match what is currently shown in the permit produced by PBS&J 2010 nor what was seen on a cursory look in the field. It was decided that NCTA would be contacted to provide the digital jurisdictional file of the streams and wetlands to the D-B Team..

SITE 219 (Sheet 47): This site was not visited, however it was determined that a spring box would be placed at the jurisdictional stream at –L- 805+00 LT with a note that final determination would be made in the field during construction as to the necessity of the structure.

Sheet 43: This area was not visited, however it was noted by Michael Wood that the pond just north of quandrant B has been drained and is now a wetland that appears to have what may be considered a jurisdictional stream. Catena will conduct a field assessment on this feature and provide the findings during the 4C meeting.

ITE 203 (Sheet 40-41): The RCBC will not need baffles. It will be skewed at a slightly greater angle to accommodate environmental concerns.

AGENCY FIELD REVIEW

Meeting Minutes

Date: March 28, 2012

Place\Time: Union County Agricultural Center, 10:30 A.M.

Subject: NEPA\404 Merger Team – Agency Field Review
Design Build T.I.P. Project R-3329/R-2559
Monroe Bypass in Mecklenburg & Union Counties
Design Section 3B and eastern part of Section 3A (From end of project to Austin Chaney Road Intersection)

Present:

Mr. Rick Baucom - NCTA
Ms. Marella Buncick - USFWS
Ms. Polly Lespinasse - NCDWQ
Mr. Michael Burkhard - NCDWQ
Ms. Marla Chambers - NCWRC
Mr. Michael Turchy - NCDOT NES
Mr. Bill Barrett - NCDOT NES
Mr. Larry Thompson - NCDOT Division 10
Mr. Joel Howard - NCDOT Division 10
Mr. Jim Ewart - MBC
Mr. Lindy Hallman - MBC
Mr. Jeff Meador - RK&K
Mr. Jim Crocker –(MCB)
Mr. Michael Wood – The Catena Group
Ms. Ivy Kimbrough – The Catena Group

The Agency Field Review was held to visit the impact sites that had been discussed during the Concurrence Point 4B meeting on March 14, 2011. The discussion for each site is summarized as follows:

SITE 311 (Sheet 54 of 56): Although this site is a wetland, the agencies preferred to treat it as a stream. The existing channel is small but the proposed crossing is two 48" pipes to accommodate future growth and development in the upstream watershed. Two pipes will be installed, a 48" pipe buried 0.8' and a second 48" pipe 1.0' above the buried pipe. It was requested that the rip rap pad at the pipe outlet be minimized to the extent practicable.

Additional Wetland (Sheet 54 of 56): There are additional jurisdictional areas that are not noted on the current plan sheets. These additional jurisdictional features will be delineated by Catena. Revised plans will be distributed at the 4C meeting that will reflect these new areas.

SITE 310 (Sheet 51 of 56): This area was confirmed to be a wetland. Pipes will be placed at grade.

SITE 309 (Sheet 44 of 56): An active swallow's nest was found in the box culvert at this site. Ms. Buncick noted that in accordance with the Migratory Bird Treaty Act, no construction activity should occur during the nesting and fledgling period. Jim Ewart noted that construction at this site was in no way time dependent and would be performed outside of the nesting and fledgling period.

Stream (Sheet 72A): NCDWQ confirmed that the drainage feature outletting near station 1197+50 was not jurisdictional by DWQ standards.

Culvert (Sheet 72A). This site is fine as designed.

SITE 307 (Sheet 35 of 56): As discussed at the 4B meeting the proposed 72" pipe has been shifted to outlet through the culvert headwall. No additional changes were requested at this site.

SITE 308 (Sheet 35 of 56): This site is fine as designed.

SITE 301 (Sheet 14 of 56): This is the Meadow Branch crossing. The team proposes to utilize steel barges as work mats. The barges will be placed on timber mats to create less area of compaction and also to allow for wildlife passage. After viewing one of these barges that had been placed off-site, the agencies agreed that utilizing the barges would be fine. It was asked where the drill slurry would be pumped. Jim Ewart assured that the drill slurry would be pumped into a tank that will be located outside of the jurisdictional areas.

There will be a condition in the 401 for an on-site meeting prior to any work in this area with the goal of locating the barges and timber mats in the least sensitive areas of the wetland. Also, it was suggested that there be a condition in the 401 that all work equipment be removed as soon as the work is completed to minimize the length of time the barges will be in place.

SITE 304 (Sheet 26 of 56): This site was not visited. Two 42" pipes are proposed for the wetland crossing. The agencies agreed that placing one pipe 1' higher than the other pipe would help maintain existing conditions. There is shallow channel in the wetland that will be slightly altered to funnel into the pipe. The altered channel will be grass lined to mimic the existing channel.

SITE 302 (Sheet 18 of 56): A 7' wide box culvert is proposed. The agencies requested that baffles be installed to mimic the natural channel width. Baffles with a 3' wide low flow notch will be added to the culvert.

Austin Chaney Road Interchange: It was noted that the existing stream is much narrower than the two 10' wide culvert cells. The team noted that additional details regarding the use of sills would be available at the upcoming 4B meeting.

Concurrence Point 4C Meeting Minutes

Design Sections 1, 2A, 2B	September 17, 2014
Design Section 2C, 3A	July 23, 2012
Design Section 3B	April 11, 2012

Section 404/NEPA Merger Project Team
Design Section 1,2A, 2B – Concurrence Point 4C Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: September 17, 2014

Time: 12:30 PM

Place: NCDOT Structures Conference Room, Raleigh, NC

Present:

Mr. Jeff Meador, RK&K
Ms. Tina Swiezy, RK&K
Mr. Tommy Peacock, RK&K
Mr. Stephen Roberts, RK&K
Ms. Alexis Stys, RK&K
Ms. Marla Chambers, NCWRC
Mr. Alan Johnson, DWR
Mr. Jim Martin, FHWA
Mr. Jim Ewart, MBC
Mr. Lindy Hallman, MBC
Mr. Michael Wood, The Catena Group
Ms. Nancy Scott, The Catena Group
Ms. Liz Hair, USACE
Ms. Crystal Amschler, USACE
Mr. Rick Baucom, NCDOT Div. 10
Ms. Marella Buncick, USFWS
Ms. Natalie Chan, REU
Mr. Tim McFadden, NCDOT – Design Build
Mr. Malcom Watson, NCDOT- Design Build
Mr. Michael Turchy, NCDOT – NCDOT NES
Mr. Terry Clelland, NCDOT SMU
Ms. Jennifer Harris, NCDOT-PDEA
Mr. Bill Zerman, NCDOT – Hydraulics
Mr. Charles Smith, NCDOT – Hydraulics

The 100% Hydraulic Review was held in order to reach agreement on concurrence point 4C for the US 74 Monroe Bypass in Mecklenberg\Union Counties. The 4C review was completed for the portion of the project from Station 110+00 to 648+00. This station range includes the design sections 1,2A,& 2B. The following items were discussed and conclusions reached:

Tina Swiezy began the meeting with a brief overview of this section of the project and the current project schedule. Jeff Meador then proceeded to discuss the permit drawings for the following design sections.

Section 1

Permit drawing 5/7 of 267 (plan sheets 7 & 75, S14a,b,c,d,e,f, S15a,b): Site 1. This site includes two proposed 10'x8' RCBCs, one under Y111 and one under US 74. The culvert under US74 will tie into an existing 120" CMP carrying water away from the project site. The site also includes dual 84" pipes under a driveway (DR1_1). During the field meeting the design team was asked to consider baffles at this location. Upon review, baffles were not included at this location since the proposed culvert will tie directly to the existing 120" CMP. Marla Chambers expressed concerns with stream stability and

sediment loss from the project. She asked if design standards for sensitive watersheds could be used for the project. It was noted that design standards for sensitive watersheds would be used for the entire project limits.

Permit drawing 7 of 267 (plan sheet 75, WX800): Site 2. The site consists of 2@30" RCPs outleting adjacent to a wetland. Mechanized clearing for the rip rap pad will impact the wetland. There are also impacts to the wetland due to roadway fill. No comments or concerns were expressed regarding this site.

Permit drawings 16 of 267 (plan sheet 8, S016a): Site 3. The widening of the road at this intersection requires the extension\replacement of two drainage systems; an outleting 30" RCP and a headwall with a 42" RCP. There is also a toll facility in the southwest quadrant of the intersection. Mr. Roberts added that the location of the toll facility may change but will continue to not impact the surface waters. Agency staff had concerns about the outleting 15" RCP being the only feed to wetland W006. The existing conditions indicated the stream entering an existing 30" RCP with an unknown outlet, possibly into this wetland. Mr. Meador explained that RK&K did a field search in order to find this 30" RCP outlet with no success and decided to tie this system to outlet at the culvert in Site 1. Agency staff were concerned that hydrology will be lost downstream if we do not place a cross-pipe under the road to outlet into this wetland. NCDOT staff is concerned that if we place a cross pipe and outlet the water into the wetland, there could be a legal issue due to increasing the amount of water on downstream properties when there is no proof of original outleting. The design-build team will complete additional field research to attempt to determine the actual location of this 30" RCP and determine if it in fact outlets into the wetland or if it continues to tie into the system at Site 1.

Permit drawing 20 of 267 (plan sheet 9a, S17a,b,c, S19): Site 4. Mr. Meador explained the site, which includes two 10'x7' RCBCs with baffles. Agency staff had concerns with the storm drain systems that tie into the outlet of the culvert, which could cause more erosion right at the wingwall. Recommendations were made to tie the storm drain systems into the sides of the culvert instead of directly at the wingwall.

Permit drawing 28 of 267 (plan sheet 78, SX504, WX207): Site 5. Mr. Meador explained the site and the impacts from the proposed 60" RCP. No comments or concerns were made.

Permit drawings 32 of 267 (plan sheet 79, W013): Site 6. Mr. Meador explained the site and showed a copy of the Chestnut Parkway Extension plan which is being completed by the Town of Indian Trail. The Chestnut Parkway plans indicate a wetland impact from a proposed water line at this location, which is currently under construction. The wetland impact from Chestnut parkway is located within the impact area for the Monroe Bypass. The agencies recommended keeping the impacts currently shown on the Monroe Bypass permit drawings.

Permit drawing 35 and 37 of 267 (plan sheet 10\11): Site 7. Mr. Meador explained the site and impacts. He explained that this was a newly discovered wetland site and was indicated as a mafic depression. Service Road 2 impacts the eastern most wetland and alternate design layouts for the service road were requested to try to avoid and minimize impacts. Mr. Roberts explained that during the beginning stages of the project, multiple service road options were discussed but there was difficulty to service all the homes and businesses at this location. The design-build team will re-evaluate the original alternates and determine if this service road location is still the most feasible for avoiding and reducing wetland impacts.

Section 2A:

Permit drawing 43 and 47 of 267 (plan sheets 15 & 16, W019, W017, S028b, S028c): Sites 8 & 9. Mr. Meador explained the sites and impacts. Agency staff had concerns about the angles of the lateral base ditches tying into the stream. They were particularly concerned with the angle on the upstream side (northeast corner) of the box culvert. Recommendations were made to alter the angle of the ditch to be more parallel with the side of the stream, not perpendicular like they are currently drawn. Agency staff also asked if the 42" pipe outlet at the culvert outlet could be moved further up the ditch to allow for more filtration before reaching the stream. Tina Swiezy commented that the 42" pipe could be tied directly to the box culvert. Mr. Meador agreed to determine where ditch angles should be altered and if the outlet of the 42" RCP can be moved.

Permit drawing 53 of 267 (plan sheet 17, S034, S036): Sites 10 & 11. Mr. Meador explained the sites and impacts. Agency staff asked if the angle of the ditches at the culvert could be revised to direct the water in a more downstream direction. Mr. Meador agreed to determine what the flows in the ditches were and change the angles accordingly. Ms. Swiezy noted that the design team will look at the amount of water that will flow in ditches at the culver outlets and use judgment when deciding what ditch tie ins to change. Ditches with small amounts of water will typically not be changed. No comments or recommendations for site 11.

Permit drawing 57 and 61of 267 (plan sheet 18 and 19, S37b,c,d, P09, P10): Sites 12 and 13. Mr. Meador explained the sites and impacts. Agency staff asked if the culvert under the main line could be extended under Y109. Ms. Swiezy explained that the top elevation of the culvert was too high to fit under Y109 and no further comments were made.

Permit drawing 63 of 267 (plan sheet 20, S38a,b, W22b, W24): Site 14. Mr. Meador explained the site and indicated where additional clearing impacts were needed for the construction sequence of the culvert. No additional comments.

Permit drawing 67 of 267 (plan sheet 86, P05): Site 15. Mr. Meador explained the site and impacts. No additional comments.

Section 2B:

Permit drawing 73 of 267 (plan sheet 22, S39c): Site 16. This site includes a (3) 12'x8' RCBC. Agency staff asked if the angle of the ditches could be adjusted to avoid the floodplain benches. Mr. Meador agreed to look at these ditches and determine if this could be done.

Permit drawing 77 of 267 (plan sheet 23, S43): Site 17. This site includes a (2) 66" RCP, Buried 1.0'. Agency staff asked if the angle of the ditches could be adjusted to be parallel with the stream bed. Mr. Meador agreed to look at these ditches and determine if this could be done.

Permit drawing 81 of 267 (plan sheet 25, W32, S53, S52a): Site 18. Mr. Meador explained the site and impacts. Ms. Swiezy recommended the addition of rip rap to the beginning of the special cut base ditch.

Permit drawing 85 and 90 of 267 (plan sheet 27 & 28, S047, S055, WX822): Sites 19 & 20. These sites include the South Fork Crooked Creek Bridge and a 2@8'x8' RCBC with sills and baffles. Mr.

Meador summarized the impacts at this location. At the 4B field meeting a request was made to utilize design standards for sensitive watersheds at these sites and to work with NCDOT to determine appropriate best management practices to treat stormwater at the site. Design standards for sensitive watersehds will be used for the entire project. Also, Mr. Meador explained how grass swales were added to provide stormwater treatment. Alan Johnson asked if the grass swale could be shortened at 516+00 left to allow the water to flow over the floodplain. Ms. Buncick also asked if the project could replant woody vegetation around the floodplain to the extent practical after construction to provide stream buffers. Mr. Turchy noted that the NCDOT Roadside Environmental Unit should be able to add this vegetation at the end of construction without difficulty. The idea of adding a floodplain pipe at the bridge was recommended by an Ms. Chambers. Ms. Swiezy remarked that the bridge and culvert were designed with the 100 year storm in mind and this floodplain pipe should not be needed. Mr. Meador noted that the opening of the pipe relative to the bridge opening would be small and the floodplain pipe might actually cause erosion because of high velocities at the outlet end.

Permit drawing 94 and 97 of 267 (plan sheet 29 and 30): Site 21. Mr. Meador explained the site and impacts to the wetland at 556+00. No additional comments.

Permit drawing 97 of 267 (plan sheet 30, S64b, WX823,): Sites 22. Mr. Meador explained the need to replace an existing 24" RCP with a 54" that would be buried 1.0'. Agency staff recommended holding the grade and upsizing the pipe but not burying it to reduce the risk of headcutting. Ms. Swiezy recommended utilizing two pipes, one at the existing grade and another 1.0' higher than the existing grade to be utilized in a larger storm.

Permit drawing 101 of 267 (plan sheet 32, S68a,b,c, S69): Sites 23 & 24. There is a 12'x7' RCBC and (2) 36" RCP for overflow at site 23. A request was made to add a bench in plan view of the entrance to the culvert when utilizing a sill & a baffle for a single barrel culvert to keep the stream base width at its existing dimension. Mr. Meador agreed to show this bench on the final plans. No comments were made on the 60" buried RCP at Site 24.

Permit drawing 106 of 267 (plan sheet 33, S70b): Site 25. Mr. Meador explained the site and impacts. Agency staff asked if the angles of the ditch needed to be tied better into the stream. No additional comments.

Permit drawing 109 of 267 (plan sheet 34, S71): Site 26. Mr. Meador explained the site and impacts. No additional comments.

Permit drawing 112 of 267 (plan sheet 93, P23): Site 27. Mr. Meador explained the site and impacts. No additional comments.

This concluded the Monroe Bypass Section 1, 2A, 2B 4C concurrence point meeting.

R-3329/R-2559 - Monroe Bypass
Design Sections 1, 2A, 2B - 4C Meeting Sign in Sheet
17-Sep-14

Name	Representing	E-mail Address	Phone Number
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Marella Buncick	USFWS	marella_buncick@fws.gov	828-258-3939 x237
Michael Tyrchy	NC DOT	matyrchy@ncdot.gov	
Crystal Amschler	USACE	Crystal.C.Amschler@usace.army.mil	828-271-7980 ext 231
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JEFF MEADOR	RK&K	JMEADOR@RKK.COM	919-878-9560

Section 404/NEPA Merger Project Team
Design Section 2C – Concurrence Point 4C Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: July 23, 2014

Time: 11:00 AM

Place: Monroe Bypass Constructors Conference Room, Monroe, NC

Present:

Mr. Matthew Cook, RK&K
Ms. Tina Swiezy, RK&K
Mr. Tommy Peacock, RK&K
Mr. Stephen Roberts, RK&K
Mr. Cynthia Van Der Wiele, USEPA
Ms. Marla Chambers, NCWRC
Mr. Alan Johnson, DWR
Mr. Jim Ewart, MBC
Mr. Lindy Hallman, MBC
Mr. Michael Gantt, MBC
Mr. Michael Wood, The Catena Group
Ms. Nancy Scott, The Catena Group
Mr. Randy Turner, The Catena Group
Ms. Liz Hair, USACE
Ms. Crystal Amschler, USACE
Mr. Rick Baucom, NCDOT Div. 10
Ms. Marella Buncick, USFWS
Mr. Malcom Watson, NCDOT – Design Build (call in)
Mr. Tin McFadden, NCDOT – Design Build (call in)
Mr. Michael Turchy, NCDOT – NCDOT NES
Mr. Colin Mellor, NCDOT NES
Mr. Bill Zerman, NCDOT – Hydraulics
Mr. Charles Smith, NCDOT – Hydraulics

The 100% Hydraulic Review was held in order to reach agreement on concurrence point 4C for the US 74 Monroe Bypass in Mecklenberg\Union Counties. The 4C review was completed for the portion of the project from Station 648+00 to 912+00. This station range includes the design section 2C. The following items were discussed and conclusions reached:

Matthew Cook began the meeting with a brief overview of this section of the project. He then proceeded to go through the permit drawings for Section 2C.

Permit drawing 85 of 196 (plansheet 37, S78a): Site 27. Mr. Cook explained the site and impacts. No additional comments.

Permit drawing 86 of 196 (plansheet 38, S76): Site 28. This is a 3@ 12'x8' RCBC. The RCBC has a slope of 0.39% and a sill in the (downstream facing) left sill. The design is buried 1.0' without baffles. Due to the slope and the existing stream width (appr. 20'), baffles were not used. There are 2 gas lines near the invert in of the RCBC. The D-B Team added bends in the RCBC in response to comments from the 4B meeting. Mr. Cook stated that the current RCBC layout prevents impacts to S78d. Agency

personnel were concerned with the low flow using 2 cells of the RCBC instead of just one. Mr. Cook stated that the existing channel width varied from 11'-20'. The idea of using 2 sills instead of just one was raised. It was determined that the stream needed to be viewed in the field.

Field visit (07/24/2014): The stream is a fairly consistent 18'-20' width. Alan Johnson, Liz Hair, Crystal Amschler, and Marla Chambers requested two sills be used in the RCBC.

This location was discussed further with NCDOT staff to review the Agency concerns and implications of adding an additional sill/ constraining the stream to one barrel.

NCDOT staff reviewed the data and history of this crossing. (The design of the culvert at the 4B stage is included with these minutes for review.) At the 4B meeting, there were agency concerns regarding the poor alignment with the existing stream at the entry and exit point of the culvert, as well as the likely de-stabilization that would potentially occur all the way to the tributary on the outlet side.

The culvert was revised for the 4C meeting to address these concerns. The new design better aligns with the entry and exit points of the stream, allows greater distance between the exit point and the tributary, and the curvature of the culvert will help to dissipate velocities within the culvert. NCDOT believes the current structure is properly designed for this location. The additional silling of a second barrel and therefore the constraining of the stream to one barrel will increase the low flow channel velocity and potentially result in the destabilization downstream that the agencies were initially concerned with at the 4B meeting.

It is therefore recommended that the single silled culvert remain as designed at this site.

Permit drawings 89-90 of 196 (plansheets 40-41, S80c): Site 29. This is a 7'x7' RCBC buried 1.0' without baffles. Mr. Johnson asked about the outlet channel. Mr. Cook said it was a grass lined base swale.

Permit drawing 93 of 196 (plansheet 42, W81): Site 30. Mr. Cook explained the site and impacts. No additional comments.

Permit drawing 97 of 196 (plansheet 43A, S81a, W81): Site 31. The site has been modified to meet 4B meeting requests (a single pipe outlet). Marella Buncick asked if the site was stable given the drainage area. Mr. Cook stated that it was and that a pre vs. post analysis was performed at all locations of the project where drainage leaves the project. Mr. Cook also pointed out that there are stomwater retention areas in quadrants A and B to attenuate flow off site.

Permit drawings 100-101 of 196 (plansheets 43B-44, W86): Site 32. It was noticed that the wetland boundary was missing on permit drawing 101. Mr. Cook said that this would be fixed for the final permit drawing.

Permit drawing 103 of 196 (plansheet 47, S88a, S86): Sites 33 and 34. Mr. Cook explained the sites and impacts. Site 34 has a 10'x7' RCBC that is buried 1.0'and has baffles. This area of the project is in the Lake Twitty Critical Watershed. Drainage that is directed towards blue lines will move through hazardous spill basins.

Permit drawing 107 of 196 (plansheet 48A, S89a, W99, P44): Sites 35 and 36. Mr. Cook explained the sites and impacts. Site 36 will no longer be a permit site. The right of way has been moved so that the pond (P44) is completely outside right of way now. There is no longer a need to drain / impact it.

Permit drawing 109 of 196 (plansheet 48B, W101, W102, W103, W104, S92a, S92b, S93a, S93b, S94, S95a, S95b): Sites 37 and 38. Mr. Cook explained the sites and impacts. No additional comments.

Permit drawing 113 of 196 (plansheet 49, W104, P48, P49): Sites 38, 39 and 40 (W104 is a continuation of Site 38). The note for "Stream to be determined after pond drained" should be removed. There are no jurisdictional streams leading to or away from the ponds.

Permit drawing 118-119 of 196 (plansheets 50 and 108, P49, PX75, S102b): Sites 40 and 41 (P49 is a continuation of Site 40). The note for "Stream to be determined after pond drained" should be removed. There are no jurisdictional streams leading to or away from the pond. Bill Zerman asked that toe protection be added along the fill slope in the area of the drained pond PX75.

Permit drawing 120 of 196 (plansheet 52, S106, S103b, W107): Sites 42 and 43. Mr. Cook explained the sites and impacts. No additional comments.

Permit drawing 124 of 196 (plansheet 53, 108a, W111, W112): Site 44. Mr. Cook explained the sites and impacts. No additional comments.

Permit drawing 126 of 196 (plansheet 101 (PX69): Site 45. A small portion of the pond is affected by the project. The dam is downstream and outside the right of way. For these reasons, the portion of the pond inside the right of way will be filled with riprap up to the right of way line with a 2:1 slope beyond the right of way to tie down to the existing pond bottom inside permanent drainage easement. Mr. Zerman asked if there was a way to remove pond fill from inside an easement. Mr. Cook said that if that was done, there would be no easement available for the Division to maintain the pond fill. Mr. Zerman requested placing a bench on the rock plated slope above the ponds normal pool elevation and to place the right of way on this bench. PDE can be shown outside of the right of way limit for future maintenance needs.

This concluded the Monroe Bypass Section 2C 4C concurrence point meeting.

Section 404/NEPA Merger Project Team
Design Section 3A – Concurrence Point 4C Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: July 23, 2014

Time: 10:00 AM

Place: Monroe Bypass Constructors Conference Room, Monroe, NC

Present:

Mr. Matthew Cook, RK&K
Ms. Tina Swiezy, RK&K
Mr. Tommy Peacock, RK&K
Mr. Stephen Roberts, RK&K
Mr. David Bocker, Mulkey
Mr. Cynthia Van Der Wiele, USEPA
Ms. Marla Chambers, NCWRC
Mr. Alan Johnson, DWR
Mr. Jim Ewart, MBC
Mr. Lindy Hallman, MBC
Mr. Michael Gantt, MBC
Mr. Michael Wood, The Catena Group
Ms. Nancy Scott, The Catena Group
Mr. Randy Turner, The Catena Group
Ms. Liz Hair, USACE
Ms. Crystal Amschler, USACE
Mr. Rick Baucom, NCDOT Div. 10
Ms. Marella Buncick, USFWS
Mr. Malcom Watson, NCDOT – Design Build (call in)
Mr. Tin McFadden, NCDOT – Design Build (call in)
Mr. Michael Turchy, NCDOT – NCDOT NES
Mr. Colin Mellor, NCDOT NES
Mr. Bill Zerman, NCDOT – Hydraulics
Mr. Charles Smith, NCDOT – Hydraulics

The 100% Hydraulic Review was held in order to reach agreement on concurrence point 4C for the US 74 Monroe Bypass in Mecklenburg/Union Counties. The 4C review was completed for the portion of the project from Station 912+00 to 1064+00. This station range includes the design section 3A. The following items were discussed and conclusions reached:

Matthew Cook began the meeting with a welcome and asked for introductions. After a brief overview of the hydraulics / permitting status for the entire Monroe Bypass project, he turned the meeting over to David Bocker to go through the permit drawings for Section 3A.

Permit drawing 129 of 196 (detail sheet 3A-2H): Ditch Details. Charles Smith (NCDOT) requested that a WS elevation symbol be added to Detail AG – "Riprap at Embankment" to ensure that the riprap is keyed-in and below the water surface of the stream. No additional comments.

Permit drawing 130 of 196 (plansheet 56, S111): Site 46. Mr. Bocker explained the site and impacts. Site 46 consists of two areas of bank stabilization where ditches outlet at the stream. Alan Johnson asked

if the ditches could be day-lighted prior to the stream. The D-B Team explained that in order to minimize future maintenance concerns at the bridge and to ensure the flow within the ditches are adequately conveyed to the stream (and not adjacent properties) the ditches should drain directly to the creek as designed. Riprap at the stream embankment is incorporated into the design to stabilize the ditch outlets at the stream. No additional comments.

Permit drawing 132 of 196 (plansheet 57, S112): Site 47. Mr. Bocker explained the site and impacts. Site 47 consists of three areas of bank stabilization were ditches outlet at the stream. No additional comments.

Permit drawing 132 of 196 (plansheet 57, S114a, W138): Site 48. Mr. Bocker explained the site and impacts. Site 48 consists a 60" RCP buried 1.0' crossing US 74 Bypass as well as a 60" RCP buried 1.0' crossing Bob White Circle. Mr. Bocker also explained that there is a proposed waterline relocation adjacent to the 60" RCP under Bob White Circle which has been taken into account with regards to wetland impacts. There was also a recent revision to the roadway design this intersection of Bob White Circle and Monroe-Ansonville Road (not currently shown on the 4C - Permit Drawings) which resulted in the need to extend the 60" pipe several feet thus slightly increasing wetland impacts. It was noted that this change will be reflected in the Final Permit drawing package.

Permit drawing 138 of 196 (plansheet 58, S140f): Site 49. Mr. Bocker explained the site and impacts. Site 49 consists of a 9'x7' RCBC buried 1.0' without baffles since the stream slope is 0.9%. No additional comments.

Permit drawing 138-139 of 196 (plansheets 58-59, S140f, W139, W140, WX812): Site 50. Mr. Bocker explained the site and impacts. Site 50 consists of a 9'x7' RCBC buried 1.0' with baffles since the stream slope is 2.03%. Alan Johnson asked if riprapped slopes at the proposed inlet and outlet channel is necessary. The D-B team explained riprap is necessary to stabilize the slopes. Additionally, the soil type in this area is rocky which minimizes the success of establishing vegetation on the channel side slopes. Marla Chambers asked if alternating baffles could be utilized at this culvert. The D-B team stated that this would be evaluated. Further evaluation of this issue confirmed that the existing stream width is 7'-9'; thus incorporation of alternating baffles would constrict the stream width through the culvert and increase velocities thereby adversely impacting the stream. It is recommended to proceed with current design with 1' baffles to support and establish stream bed material within the culvert.

Permit drawings 146 of 196 (plansheet 60, SX145): Site 51. Mr. Bocker explained the site and impacts. Site 51 has a proposed 66" RCP that is buried 1.0'. No additional comments.

Permit drawing 148 of 196 (plansheet 62A, P60a, P60b, S157a): Site 52. Mr. Bocker explained the site and impacts. A pond is impacted due to the interchange at Austin Chaney Road. No additional comments.

Permit drawing 149 of 196 (plansheet 62B, S156a, S156b): Site 53. Mr. Bocker explained the site and impacts. Site 53 consists of 2 @ 10'x6' RCBC under a ramp (VLC) and 2 @ 10'x6' RCBC under Austin Chaney Road and US 74 Bypass buried 1.0' with a 2' sill in the (downstream facing) right barrel. A channel relocation with benching is also included within the quadrant with minimal riprap downstream of each culvert along the channel slopes. No additional comments.

This concluded the Monroe Bypass Section 3A 4C concurrence point meeting.

Section 404/NEPA Merger Project Team
Design Section 3B – Concurrence Point 4C Meeting

Meeting Minutes

Design Build TIP No. R-3329/R-2559
Monroe Connector/Bypass
From Near I-485 at US 74 to
US 74 Between the Towns of Wingate and Marshville
Mecklenburg and Union Counties, North Carolina

Date: April 11, 2012

Time: 9:00 AM

Place: Structure Design Conference Room, Century Center

Present:

Ms. Christy Shumate, HNTB\NCTA
Ms. Jennifer Harris, NCTA
Mr. Rick Baucom, NCTA
Mr. Jeff Meador, RK&K
Ms. Tina Swiezy, RK&K
Mr. Jim Ewart, MBC
Mr. Kevin Jones, MBC
Mr. Scott Koeppel, MBC
Mr. Michael Wood, The Catena Group
Ms. Ivy Kimbrough, The Catena Group
Ms. Liz Hair, USACE
Ms. Polly Lespinasse, NCDWQ
Ms. Amy Simes, NCDENR
Ms. Marla Chambers, NCWRC
Ms. Marella Buncick, USFWS (call in)
Mr. Chris Militscher, USEPA (call in)
Mr. Malcom Watson, NCDOT – Design Build
Mr. Timothy McFadden, NCDOT – Design Build
Mr. Marshall Clawson, NCDOT – Hydraulics
Mr. Dan Duffield, NCDOT – Hydraulics
Mr. Michael Turchy, NCDOT –NEU
Mr. Zak Hamidi, NCDOT – NCTA
Mr. Mark Staley, NCDOT – REU
Mr. Lonnie Brooks, NCDOT – SMU
Mr. Larry Thompson, NCDOT Division 10

The 100% Hydraulic Review was held to in order to reach agreement on concurrence point 4C for the US 74 Monroe Bypass in Mecklenberg\Union Counties. The 4C review was completed for the portion of the project from Station 954+00 to 1234+00. This station range includes a small portion of design section 3A and all of design section 3B. The following items were discussed and conclusions reached:

Tina Swiezy began the meeting with a brief overview of the project and introductions were made. She also gave a summary of the project limits to be discussed during the meeting.

Jeff Meador provided a summary of the proposed impacts at each jurisdictional feature on the plans. The following comments and decisions were reached.

Permit Drawing 5 of 56: Jeff Meador noted that utility and phasing impacts were broken out in the footnotes on the summary sheet.

Permit Drawing 7 of 56: Parcel 826 has recently been changed from NCDOT to a private owner. The updated parcel owner will be reflected on the property owner sheet.

Permit Drawing 13 of 56 (W170, W167, S152): Jeff Meador gave an overview of the discussion held at the March 28th field meeting for this site. The barge\mats will be used for bridge construction at this site. The following notes were added to the plans and will become conditions of the permits for the site:

- Before placement of the barges\mats the contractor shall hold an on-site review meeting with the USACOE, DWQ, NCWRC and the USFWS to review the barge\mat layout
- The contractor shall stage bridge construction to minimize the time barges\mats will be placed in wetland areas
- The contractor shall restore sols compacted by the barges\mats and re-plant the area with a wetland seed mix

Temporary impacts for a new sanitary sewer are included in the permit drawings.

Permit Drawing 17 of 56 (S158): Jeff Meador noted that baffles have been added to the 7'x7' box culvert as requested at the field meeting. The ditch from 1072+50 to 1073+95 has been flattened to a 3.5% slope as discussed at the project 4B meeting.

Permit Drawing 21\23 of 56 (W173, W172A): The attendees discussed the elevations of the two 48" pipes as well as the rip rap configuration. It was agreed that one of the two pipes will be buried and rip rap will be placed on the banks only. There is also an 8" water line that will be relocated at the site.

Permit Drawing 26 of 56 (W173): There was discussion regarding the elevations of the two 42" pipes as well as the rip rap configuration. It was agreed that both pipes will be at grade (not buried) and rip rap will be placed on the banks only.

Permit Drawing 29 of 56 (W174): Jeff Meador described the wetland impact at this site. There were no additional comments or discussion.

Permit Drawing 32 of 56 (S161a): Jeff Meador described the stream impact at this site. There were no additional comments or discussion.

Permit Drawing 34\36 of 56 (S162, W176, W177): Mr. Meador gave an overview of the site and noted that the proposed 72" pipe has been adjusted to outlet through the box culvert endwall as discussed at the 4B meeting. The proposed box culvert and 72" RCP at this site are proposed to be buried. The 42" pipe will not be buried. A note will be added to the plans stating that the 42" pipe will not be buried.

The 48" pipe at Sta. 1167+25 will not be buried.

Permit Drawing 45 of 56 (S169a, S169c, W199, W201): Mr Meador described the impacts at the site and identified the wetland impacts associated with the proposed waterline construction at this location.

Permit Drawing 50 of 56 (W196): The existing 24" RCP at –Y314R- Sta 25+85 will be replaced with a new 30" RCP. A new waterline will also be placed between –Y314R- and –Y316-. The waterline will not cause any additional impacts beyond those required for the roadway construction.

Permit Drawing 53 of 57 (WX805, WX811): At the March 28th field meeting Mike Wood showed the team that there were additional wetlands at the site that were not included in the original delineation. Mr Wood delineated the additional wetlands after the site visit. Mr. Meador provided revised permit drawing sheets that reflect the additional wetlands and impacts at the site. Ms. Hair requested that the wetland data forms be sent to her with the permit application package.

At -Y316- the team agreed that one pipe will be buried and one pipe will be raised above the wetland elevation. Proposed rip rap will be shown on the banks only.

Mr. Meador gave an overview of the revised impacts at this site. There will be impacts for the pipe receiving pit at –Y314R- Sta 15+50 right. The jack and bore operation will be conducted from the left side of –Y314R- to minimize impacts. However, a receiving pit will still be needed on the right side of the roadway. All impacts associated with the receiving pit and rip rap will be noted on the permit drawings as permanent impacts. Mr. Meador noted that the fill slopes along –Y315- and –Y314R- have been steepened to 2:1 to minimize wetland impacts in the newly delineated areas.

R-3329/R-2559 - Monroe Bypass
Design Section 3 - 4C Meeting Sign in Sheet
11-Apr-12

Name	Representing	E-mail Address	Phone Number
JEFF MEADOR	RK&K	JMEADOR@RKK.COM	919-878-9560
MARSHALL CLAWSON	HYDRAULICS	MCLAWSON@NCDOT.GOV	919-707-6713
Christy Shumate	NCTA-GEC	cmshumate@ncdot.gov	919.707.2729
Jennifer Harris	NCTA	jhharris1@ncdot.gov	919-707-2704
RICK BAUCOM	NCTA	rwbaucom@ncdot.gov	704.289.7905 (M)
Marla Chambers	NCWRC	marla.chambers@ncwildlife.org	704-485-8291
Liz Hair	USACE	sarah.e.hair@usace.army.mil	828-271-7980
Polly Lespinasse	NCDWQ	POLLY.LESPINASSE@ncdenr.gov	704-235-2190
LONNIE L. BROOKS	NCDOT- SMU	lbrooks@ncdot.gov	919-707-6433
MICHAEL WOODS	CATENA GROUP	MWOOD@THECATENAGROUP.COM	919-732-1300
Tim McFadden	NCDOT- DB	tmcfadden@ncdot.gov	919-707-6615
Malcolm Watson	NCDOT- DB	mcwatson@ncdot.gov	919-707-6614
DAN DUFFIELD	NCDOT - HYDRAULICS	dduffield@ncdot.gov	919-707-6716
Larry Thompson	NCDOT- DIV 10 ENV	lthompson@ncdot.gov	704-301-4881
IVY KIMBROUGH	CATENA GROUP	IKIMBROUGH@THECATENAGROUP.com	919-732-1300
K. Zak Hamidi	NCTA - Roadway	Khamidi@ncdot.gov	919-707-2720
Mark Staley	NCDOT-REU	mstaley@ncdot.gov	919-707-2948
AMY SIMES	DENR	amy.simes@ncdenr.gov	919-707-8615
Michael Turchy	NCDOT - NEU	maturchy@ncdot.gov	[redacted]
Kevin Jones	MBC	kevin.jones@vig.net	803-920-0913
Jim Ewart	MBC	jim.ewart@vig.net	803-960-9163
Scott Koeppel	MBC	scott.koeppel@vig.net	404-431-7751
TINA SWIERZY	RK&K HAMPTON	tswierzy@rkk.com	919 878 9560
Marella Buncick	USFWS		
Chris Militscher	USEPA		

phone
phone

Kevin Alford

Mulkey

Letter and Effects Form for 4(f) Properties

And

SHPO Letter for Archeological Sites

A-001

NCDENR

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

MEMORANDUM

TO: Crystal Best
State Clearinghouse

FROM: Lyn Hardison
Division of Environmental Assistance and Customer Service
Permit Assistance & Project Review Coordinator

RE: 14-0211
Final Environmental Impact Statement-Draft Supplemental FEIS
Improvements in the Monroe Connector/Bypass from I-485 to US 74 in the vicinity of Marshville – TIP R-3329 & R-2559
Mecklenburg and Union Counties

Date: December 19, 2013

The Department of Environment and Natural Resources has reviewed the proposal for the referenced project. The comments are attached for the applicant's consideration.

The Department appreciates the cooperative efforts and open communication the applicant has with our agencies and we encourage these efforts to continue as they move forward with the project.

Thank you for the opportunity to respond.

Attachment

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A-001

Department of Environment and Natural Resources
Project Review Form

Project Number: 14-0211 **County: Mecklenburg and Union** **Date Received: 11/21/2013**

Due Date: 12/16/2013

Project Description: **Final Environmental Impact Statement - Draft Supplemental FEIS - Improvements in the Monroe Connector/Bypass from I-485 to US 74 in the vicinity of the Town of Marshville in Union Co. TIP R-3329 & R-2559**

Please refer to 02-0309, 04-0309, 04-0332, 07-0235, 09-0292

This Project is being reviewed as indicated below:

Regional Office	Regional Office Area	In-House Review	
___ Asheville	✓ Air (SEL R-15 12/15/13)	___ Air Quality	___ Coastal Management
___ Fayetteville	✓ DWR-Surface Water (SAMP 12.12.13)	✓ Parks & Recreation	___ DCM-Marine Fisheries
✓ Mooresville	___ DWR-Aquifer	___ Waste Mgmt	___ Military Affairs
___ Raleigh	✓ DEMLR (LQ & SW) 12/15/13	___ Water Resources Mgmt	___ DMF-Shellfish Sanitation
___ Washington	✓ UST 12/4/13	___ DWR-Public Water	___ Wildlife
___ Wilmington	✓ DWR-Public Water 12/4/13 BCS	___ DWR-Water Quality Program	✓ Wildlife – DOT Marla Chambers
___ Winston-Salem		___ DWR-Transportation Unit	

Manager Sign-Off/Region:	Date:	In-House Reviewer/Agency:
Angela W Edwards	12/16/13	

Response (check all applicable)

___ No objection to project as proposed. ___ No Comment

___ Insufficient information to complete review ___ Other (specify or attach comments)

RECEIVED
NOV 2 . 2013
NC DEPT OF ENVIRONMENT AND NATURAL RESOURCES
MOORESVILLE REGIONAL OFFICE

If you have any questions, please contact:
Lyn Hardison at lyn.hardison@ncdenr.gov or (252) 948-3842
943 Washington Square Mall Washington NC 27889
Courier No. 16-04-01

State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: Mooresville Regional Office

A-001

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 14-0211 Due Date: 12/16/2013

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filing may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit	55 days (90 days)
☐	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☐	Permit to construct & operate Transportation Facility as per 15 A NCAC (2D.0800, 2Q.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
☑	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 2D.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☑	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of $65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☑	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
☐	Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "If more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage of the total project cost will be required upon completion.	30 days (60 days)

Intergovernmental form September 2013

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A-001

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days N/A
☐	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
☐	State Lakes Construction Permit	Application fee is charged based on structure size. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days N/A
☐	401 Water Quality Certification	N/A	60 days (130 days)
☐	CAMA Permit for MAJOR development	$250.00 fee must accompany application	55 days (150 days)
☐	CAMA Permit for MINOR development	$50.00 fee must accompany application	22 days (25 days)
☐	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611		
☐	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☐	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☐	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
☐	Tar Pamlico or Neuse Riparian Buffer Rules required.		
☐	Plans and specifications for the construction, expansion, or alteration of a public water system must be approved by the Division of Water Resources/Public Water Supply Section prior to the award of a contract or the initiation of construction as per 15A NCAC 18C .0300 et. seq. Plans and specifications should be submitted to 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. All public water supply systems must comply with state and federal drinking water monitoring requirements. For more information, contact the Public Water Supply Section, (919) 707-9100.		30 days
☑	If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Water Resources/Public Water Supply Section at 1634 Mail Service Center, Raleigh, North Carolina 27699-1634. For more information, contact the Public Water Supply Section, (919) 707-9100 (Union Co. water lines). For City of Monroe water line relocations, contact W/Monroe. The City of Monroe has delegated Approval authority.		30 days

4

* Other comments (attach additional pages as necessary, being certain to cite comment authority)

UST. see attached comments DH 12/4/13

5 DAQ: no additional comments, plan has detailed review. L Hook 12-13-2013

6 DEMLR: E&S Control Prior to Storm Water Permit needed 12/15/13

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500

☐ **Fayetteville Regional Office**
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

☒ **Mooresville Regional Office**
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

☐ **Raleigh Regional Office**
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

☐ **Washington Regional Office**
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481

☐ **Wilmington Regional Office**
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

☐ **Winston-Salem Regional Office**
585 Waughtown Street
Winston-Salem, NC 27107
(336) 771-5000

Intergovernmental form September 2013

A-001

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Waste Management

Pat McCrory
Governor

Dexter R. Matthews
Director

John E. Skvarla, III
Secretary

TO: Lyn Hardison, Environmental Coordinator

FROM: Ron Taraban, Regional UST Supervisor

DATE: December 4, 2013

RE: Project Review Form: 14-0211

I have read the impact statement and documentation for the proposed improvements in the Monroe Connector/Bypass in the vicinity of Marshville in Union County. The proposed improvements are along a proposed route approximately 20 miles long. Due to the distance involved, it is possible for unknown USTs to be in or near the proposed pathway. The following comments are pertinent to my review:

7 1. The Mooresville Regional Office (MRO) UST Section recommends removal of any abandoned or out-of-use petroleum USTs or petroleum above ground storage tanks (ASTs) within the project area. The UST Section should be contacted regarding use of any proposed or on-site petroleum USTs or ASTs. We may be reached at 704-663-1699.

8 2. Any petroleum spills must be contained and the area of impact must be properly restored. Petroleum spills of significant quantity must be reported to the North Carolina Department of Environment & Natural Resources – Division of Waste Management Underground Storage Tank Section in the Mooresville Regional Office at 704-663-1699.

9 3. Any soils excavated during demolition or construction that show evidence of petroleum contamination, such as stained soil, odors, or free product must be reported immediately to the local Fire Marshall to determine whether explosion or inhalation hazards exist. Also, notify the UST Section of the Mooresville Regional Office at 704-663-1699. Petroleum contaminated soils must be handled in accordance with all applicable regulations.

If you have any questions or need additional information, please contact me at Ron.Taraban@ncdenr.gov or by phone at 704-235-2167.

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A1-3

A-002

NORTH CAROLINA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
INTERGOVERNMENTAL REVIEW

COUNTY: UNION
MECKLENBURG

FOS: RAILROADS

STATE NUMBER: 14-E-4220-0211
DATE RECEIVED: 11/19/2013
AGENCY RESPONSE: 12/16/2013
REVIEW CLOSED: 12/19/2013

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NOV 21 2013
HISTORIC PRESERVATION OFFICE

MS RENEE GLEDHILL-EARLEY
CLEARINGHOUSE COORDINATOR
DEPT OF CULTURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
MSC 4617 - ARCHIVES BUILDING
RALEIGH NC

E-02-9791

REVIEW DISTRIBUTION

Due 12/3/13

A- 1m/c comment document address OR concerns 11/22/13

CC&PS - DIV OF EMERGENCY MANAGEMENT
CENTRALINA COG
DENR LEGISLATIVE AFFAIRS
DEPT OF AGRICULTURE
DEPT OF CULTURAL RESOURCES
DEPT OF TRANSPORTATION

PROJECT INFORMATION

APPLICANT: N. C. Department of Transportation
TYPE: National Environmental Policy Act
Final Environmental Impact Statement

Due 12/10/13 S

DESC: Draft Supplemental FEIS - Improvements in the Monroe Connector/Bypass from I-485 to US 74 in the vicinity of the Town of Marshville in Union Co. TIP R-3329 & R-2559

CROSS-REFERENCE NUMBER: 02-E-4220-0309 04-E-4220-0332 07-E-4220-0235 09-E-4220-0292

The attached project has been submitted to the N. C. State Clearinghouse for intergovernmental review. Please review and submit your response by the above indicated date to 1301 Mail Service Center, Raleigh NC 27699-1301.

If additional review time is needed, please contact this office at (919)807-2425.

1 AS A RESULT OF THIS REVIEW THE FOLLOWING IS SUBMITTED: ☒ NO COMMENT ☐ COMMENTS ATTACHED

SIGNED BY: Renee Gledhill-Earley DATE: 12-12-13

DEC 2013
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Secretary's Office
DOA

NOV 22 2013

Stormwater Management Plan

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct1 - 110+00 to 227- **County(ies):** Union

General Project Information

Project No.:	R3329\R2559 - Sct1 - 110+00 to 227+00		**Project Type:**	New Location		**Date:**	10/1/2014
NCDOT Contact:	William Zerman, Jr, PE		**Contractor / Designer:**	Monroe Bypass Constructors - Matt Cook, PE			
	Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590		**Address:**	900 Ridgefield Drive Suite 350 Raleigh, NC 27609		
	Phone:	919-707-6755		**Phone:**	919-847-0166		
	Email:	bzerman@ncdot.gov		**Email:**	mcook@rkk.com		
City/Town:	Monroe		**County(ies):**	Union			
River Basin(s):	Yadkin-Pee Dee		**CAMA County?**	No			
Primary Receiving Water:	See Environmental Summary		**NCDWQ Stream Index No.:**	See Environmental Summary			
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**		See Environmental Summary				
	Supplemental:						
Other Stream Classification:							
303(d) Impairments:	See Environmental Summary						
Buffer Rules in Effect	N/A						

Project Description

Project Length (lin. Miles or feet):	19.70 Mi.	**Surrounding Land Use:**	Rural with some urbanization	
	Proposed Project		**Existing Site**	
Project Built-Upon Area (ac.)	62.47	ac.	34.48	ac.
Typical Cross Section Description:	4 lane divided roadway with 46' grass median			
Average Daily Traffic (veh/hr/day):	Design/Future:	95,600 (2035)	Existing:	N\A - New Location
General Project Narrative:	The project is being constructed as a four lane divided highway from the Town of Stallings (bypassing Monroe) to just east of Wingate. The project includes major iterchanges and improvements to existing US74 at both ends.			

References

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
7/75	135+61 137+29	Stream	Perennial	UT to North Fork Crooked Creek	S014B	13-17-20-1	C	biological impairment	Culvert	N/A	None
7	137+35 137+88	Stream	Perennial	UT to North Fork Crooked Creek	S014C	13-17-20-1	C	biological impairment	Culvert	N/A	None
7	138+01 140+12	Stream	Perennial	UT to North Fork Crooked Creek	S014D	13-17-20-1	C	biological impairment	Culvert	N/A	None
7	139+95 140+07	Stream	Intermittent	UT to North Fork Crooked Creek	S015B	13-17-20-1	C	biological impairment	Fill	N/A	None
7	141+14 141+35	Stream	Intermittent	UT to North Fork Crooked Creek	S015A	13-17-20-1	C	biological impairment	Fill	N/A	None
7	140+14 140+18	Stream	Perennial	UT to North Fork Crooked Creek	S014E	13-17-20-1	C	biological impairment	Culvert	N/A	None
7	141+02 141+44	Stream	Perennial	UT to North Fork Crooked Creek	SX014F	13-17-20-1	C	biological impairment	Culvert	N/A	None
8	152+36 154+77	Stream	Intermittent	UT to North Fork Crooked Creek	S016A	13-17-20-1	C	biological impairment	Culvert	N/A	None
9	175+13 176+81	Stream	Perennial	UT to North Fork Crooked Creek	S017A	13-17-20-1	C	biological impairment	Culvert	N/A	None
9	176+04 176+69	Stream	Intermittent	UT to North Fork Crooked Creek	S019	13-17-20-1	C	biological impairment	Fill	N/A	None
9	177+29 177+52	Stream	Perennial	UT to North Fork Crooked Creek	S017B	13-17-20-1	C	biological impairment	Culvert	N/A	None
9	177+63 178+08	Stream	Perennial	UT to North Fork Crooked Creek	S017C	13-17-20-1	C	biological impairment	Culvert	N/A	None
10/11	196+70 199+54	Wetland	Unknown	UT to North Fork Crooked Creek	N\A	N\A	N\A	N\A	Fill	N/A	None
10/11	SR2 14+05-17+61	Wetland	Unknown	UT to North Fork Crooked Creek	N\A	N\A	N\a	N\A	Fill	N/A	None
75	Y111 11+42 - 14+52	Wetland	Unknown	UT to North Fork Crooked Creek	WX800	N\A	N\A	N\A	Fill	N/A	None
75	Y111 18+47 - 19+46	Stream	Perennial	UT to North Fork Crooked Creek	SX014A	13-17-20-1	C	biological impairment	Culvert	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

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
78	SR16 10+95-11+94	Wetland	Unknown	UT to North Fork Crooked Creek	WX207	N\A	N\A	N\A	Fill	N/A	None
78	SR16 11+40-12+42	Stream	Intermittent	UT to North Fork Crooked Creek	SX504	13-17-20-1	C	biological impairment	Fill	N/A	None
79	Y112 27+57 - 29+11	Wetland	Unknown	UT to North Fork Crooked Creek	W013	N\A	N\A	N\A	Fill	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct1 - 11 **County(ies):** Union

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)
75	-Y111- 14+75	Riprap Apron / Pad	Class 'B'	15.20	Pipe	2 @ 30"	28.8	1.9
75	-Y111- 21+41	Riprap Apron / Pad	Class I	480.00	Culvert	10'x8' RCBC	950.0	13.5
78	-SR16- 11+50	Riprap Apron / Pad	Class I	55.50	Pipe	60"	103.7	2.9
79	-Y112- 27+50	Riprap Apron / Pad	Class I	22.82	Pipe	2@36"	42.0	2.0
9	-R174- 29+69	Riprap Apron / Pad	Class I	128.00	Culvert	10'x7' RCBC	270.0	5.1
9	-L- 175+72	Riprap Apron / Pad	Class I	160.00	Culvert	10'x7' RCBC	310.0	8.1
75	-DR1_1- 11+50	Riprap Apron / Pad	Class I	345.79	Pipe	2@84"	750.0	9.7
75	-DR1_1- 11+00	PFSH	N/A	0.74	Pipe	15	3.8	1.6
75	-Y111- 20+80	Riprap Apron / Pad	Class 'B'	0.55	Pipe	15	2.9	1.4
8	-Y113- 22+70	Riprap Apron / Pad	Class I	7.94	Pipe	30	30.7	2.5

☑ YES ☐ NO 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.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct2A - 227+00 to 41 **County(ies):** Union

General Project Information

Project No.:	R3329\R2559 - Sct2A - 227+00 to 416+00	**Project Type:**	New Location	**Date:**	10/1/2014
NCDOT Contact:	William Zerman, Jr, PE	**Contractor / Designer:**	Monroe Bypass Constructors - Matt Cook, PE		
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590	**Address:**	900 Ridgefield Drive Suite 350 Raleigh, NC 27609		
Phone:	919-707-6755	**Phone:**	919-847-0166		
Email:	bzerman@ncdot.gov	**Email:**	mcook@rkk.com		
City/Town:	Monroe	**County(ies):**	Union		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:	See Environmental Summary	**NCDWQ Stream Index No.:**	See Environmental Summary		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	See Environmental Summary			
	Supplemental:				
Other Stream Classification:					
303(d) Impairments:	See Environmental Summary				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	19.70 Mi.	**Surrounding Land Use:**	Rural with some urbanization

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	37.74 ac.	9.76 ac.
Typical Cross Section Description:	4 lane divided roadway with 46' grass median	
Average Daily Traffic (veh/hr/day):	Design/Future: 95,600 (2035)	Existing: N\A - New Location

General Project Narrative:

The project is being constructed as a four lane divided highway from the Town of Stallings (bypassing Monroe) to just east of Wingate. The project includes major iterchanges and improvements to existing US74 at both ends.

References

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
15/16	261+36 262+03	Wetland	Unknown	UT to North Fork Crooked Creek	W019	N\A	N\A	N\A	Fill	N/A	None
15/16	261+98 265+05	Stream	Intermittent	UT to North Fork Crooked Creek	S031C	13-17-20-1	C	biological impairment	Fill	N/A	None
16	264+94 265+81	Stream	Perennial	UT to North Fork Crooked Creek	S028C	13-17-20-1	C	biological impairment	Culvert	N/A	None
16	264+84 265+38	Wetland	Unknown	UT to North Fork Crooked Creek	W017	N\A	N\A	N\A	Fill	N/A	None
17	293+22 293+85	Stream	Perennial	UT to North Fork Crooked Creek	S034	13-17-20-1	C	biological impairment	Culvert	N/A	None
17	297+63 297+73	Stream	Intermittent	UT to North Fork Crooked Creek	S036	13-17-20-1	C	biological impairment	Stabilization	N/A	None
18	370+66 371+71	Stream	Intermittent	UT to North Fork Crooked Creek	S037C	13-17-20-1	C	biological impairment	Culvert	N/A	None
18	372+00 374+08	Stream	Intermittent	UT to North Fork Crooked Creek	S037D	13-17-20-1	C	biological impairment	Culvert	N/A	None
18	372+95 373+53	Open Water	Pond	UT to North Fork Crooked Creek	P09	13-17-20-1	C	biological impairment	Fill	N/A	None
18/19	375+89 376+57	Open Water	Pond	UT to North Fork Crooked Creek	P10	13-17-20-1	C	biological impairment	Fill	N/A	None
20	395+63 395+74	Wetland	Unknown	UT to North Fork Crooked Creek	W22B	N\A	N\A	N\A	Fill	N/A	None
20	395+74 397+08	Stream	Perennial	UT to North Fork Crooked Creek	S038B	13-17-20-1	C	biological impairment	Culvert	N/A	None
20	396+23 397+01	Wetland	Unknown	UT to North Fork Crooked Creek	W025	N\A	N\A	N\A	Fill	N/A	None
86	-SR107- 13+18 -14+43	Open Water	Pond	UT to North Fork Crooked Creek	P05	13-17-20-1	C	biological impairment	Fill	N/A	None
18	-SR4- 12+25	Stream	Intermittent	UT to North Fork Crooked Creek	S037B	13-17-20-1	C	biological impairment	Excavation	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct2A - 2 **County(ies):** Union

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)
16	265+80 Lt	Riprap Apron / Pad	Class I	256.00	Culvert	2@9'x7'	370.0	4.5
17	293+82 Lt	Riprap Apron / Pad	Class I	117.00	Culvert	1@12'x6', 1@42" RCP	210.0	5.7
17	294+25 Lt	PFSH	N/A	0.93	Pipe	15	5.1	1.1
17	298+05 Lt	Riprap Apron / Pad	Class I	35.30	Pipe	3@36"	63.6	3.0
18	373+99 Lt	Riprap Apron / Pad	Class I	110.00	Culvert	7'x8'	210.0	9.9
20	396+88 Lt	Riprap Apron / Pad	Class I	75.00	Culvert	1@10'x6'	150.0	6.6

☑ YES ☐ NO 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.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct2B - 416+00 to 64 **County(ies):** Union

General Project Information

Project No.:	R3329\R2559 - Sct2B - 416+00 to 648+00		**Project Type:**	New Location	**Date:** 10/1/2014
NCDOT Contact:	William Zerman, Jr, PE		**Contractor / Designer:**	Monroe Bypass Constructors - Jeff Meador, PE	
	Address: NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590			**Address:** 900 Ridgefield Drive Suite 350 Raleigh, NC 27609	
	Phone: 919-707-6755			**Phone:** 919-847-0166	
	Email: bzerman@ncdot.gov			**Email:** jmeador@rkk.com	
City/Town:	Monroe		**County(ies):**	Union	
River Basin(s):	Yadkin-Pee Dee		**CAMA County?**	No	
Primary Receiving Water:	See Environmental Summary		**NCDWQ Stream Index No.:**	See Environmental Summary	
NCDWQ Surface Water Classification for Primary Receiving Water		**Primary:**	See Environmental Summary		
		Supplemental:			
Other Stream Classification:					
303(d) Impairments:	See Environmental Summary				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	19.70 Mi.	**Surrounding Land Use:**	Rural with some urbanization	
	Proposed Project		**Existing Site**	
Project Built-Upon Area (ac.)	77.29	ac.	11.89	ac.
Typical Cross Section Description:	4 lane divided roadway with 46' grass median			
Average Daily Traffic (veh/hr/day):	Design/Future: 95,600 (2035)		Existing: N\A - New Location	
General Project Narrative:	The project is being constructed as a four lane divided highway from the Town of Stallings (bypassing Monroe) to just east of Wingate. The project includes major iterchanges and improvements to existing US74 at both ends.			

References

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
22	423+44 425+32	Stream	Perennial	UT to North Fork Crooked Creek	S039C	13-17-20-1	C	biological impairment	Culvert	N/A	None
23	431+01 433+79	Stream	Intermittent	UT to North Fork Crooked Creek	S043	13-17-20-1	C	biological impairment	Culvert	N/A	None
25	474+25 484+24	Stream	Intermittent	UT to South Fork Crooked Creek	S052A	13-17-20-2	C	biological impairment	Fill	N/A	None
27	511+71 	Stream	Perennial	South Fork Crooked Creek	S047	13-17-20-2	C	biological impairment	Stabilization	N/A	None
28	514+79 516+22	Stream	Perennial	UT to South Fork Crooked Creek	S055	13-17-20-2	C	biological impairment	Culvert	N/A	None
28	516+16 516+70	Wetland	Unknown	UT to South Fork Crooked Creek	WX822	N\A	N\A	N\A	Fill	N/A	None
29/30	555+44 556+11	Wetland	Unknown	UT to East Fork Stewarts Creek	N\A	N\A	N\A	N\A	Fill	N/A	None
30	-Y208- 20+67	Wetland	Unknown	UT to East Fork Stewarts Creek	WX823	N\A	N\A	N\A	Culvert	N/A	None
32	584+77 588+02	Stream	Perennial	UT to East Fork Stewarts Creek	S068B\ S068C	13-17-36-9-2	WSIII	None	Culvert	N/A	None
32	590+96 591+40	Stream	Intermittent	UT to East Fork Stewarts Creek	S069	13-17-36-9-2	WSIII	None	Culvert	N/A	None
33	604+84 606+07	Stream	Intermittent	UT to East Fork Stewarts Creek	S070B	13-17-36-9-2	WSIII	None	Culvert	N/A	None
34	613+21 614+15	Stream	Intermittent	UT to East Fork Stewarts Creek	S071	13-17-36-9-2	WSIII	None	Culvert	N/A	None
93	-Y204- 12+70-14+00	Open Water	Pond	UT to South Fork Crooked Creek	P23	N\A	C	biological impairment	Fill	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct2B - 41 **County(ies):** Union

Swales

Sheet No.	Station (From / To)	Stream Crossing Station	Base Width (ft)	Front Slope (H:V)	Back Slope (H:V)	Drainage Area (ac)	Recommended Treatment Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used
26	-L- 49950 50316 LT	-L- 511+61 LT	6.0	3:1	3:1	5.45	545	366	0.50%	15.4	1.8	19.7	1.8	No
27	-L- 50400 50700 LT	-L- 511+61 LT	6.0	3:1	3:1	7.60	760	300	0.40%	21.5	1.8	27.5	1.9	No
27	-L-50850 51168 LT	-L- 511+61 LT	6.0	3:1	3:1	9.82	982	318	0.30%	27.8	1.8	35.5	2.0	No
28	-L- 51600 51700 LT	-L- 514+89 LT	6.0	3:1	3:1	2.62	262	100	1.30%	8.6	1.8	11.0	1.9	No
28	-L- 52450 52600 LT	-L- 516+33 RT	6.0	3:1	3:1	1.74	174	150	1.60%	5.7	1.9	7.3	2.0	No
28	-Y204- 3200 3350 LT	-L- 516+33 RT	6.0	3:1	3:1	1.26	126	150	0.91%	4.2	1.4	5.3	1.5	No
28	-L- 52000 52450 CL	-L- 516+33 RT	0.0	6:1	6:1	0.69	69	450	0.80%	2.3	1.4	2.9	1.4	No
28	-L- 52450 52942 CL	-L- 516+33 RT	0.0	6:1	6:1	0.52	52	492	0.80%	1.2	1.1	1.6	1.1	No
28	-L- 52000 52400 LT	-L- 516+33 RT	0.0	6:1	6:1	1.16	116	400	0.80%	3.5	1.5	4.5	1.6	No
28	-L- 52550 52900 RT	-L- 516+33 RT	0.0	6:1	6:1	0.62	62	350	0.80%	2.0	1.3	2.6	1.4	No
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☑ YES ☐ NO Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), been met and verified? If No, provide further explanantion of why design criteria was not met.

Additional Comments

SWALE AT -L- 511+61 LT BROKEN INTO 3 SECTIONS TO SHOW SEPARATE SLOPES AND VELOCITIES. TOTAL DA TO SWALE IS 9.82 ACRES AND 984 LF OF TREATMENT LENGTH IS PROVIEDED BETWEEN THE THREE SECTIONS

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct2B - 4 **County(ies):** Union

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)
22	425+25 Lt	Riprap Apron / Pad	Class I	501.00	Culvert	3@12'x8'	600.0	3.4
22	426+00 Lt	PFSH	N/A	2.85	Pipe	18	11.2	1.4
23	431+32 Lt	Riprap Apron / Pad	Class I	55.30	Pipe	2@66"	96.0	3.0
25	483+99 Rt	Riprap Apron / Pad	Class I	62.70	Pipe	1@54", 2@42"	108.0	3.7
25	484+95 Rt	PFSH	N/A	0.22	Pipe	15	1.2	0.7
28	514+88 Lt	Riprap Apron / Pad	Class I	165.00	Culvert	2@8'x8'	260.0	2.3
30	-Y208-20+67 Lt	Riprap Apron / Pad	Class I	61.50	Pipe	54"	88.1	2.9
32	587+88 Lt	Riprap Apron / Pad	Class I	207.00	Culvert	1@12'x7', 2@36"	350.0	5.6
32	591+18 Lt	Riprap Apron / Pad	Class I	23.60	Pipe	60"	43.2	3.4
33	605+82 Lt	Riprap Apron / Pad	Class I	47.30	Pipe	72"	84.0	4.3
34	614+04 Lt	Riprap Apron / Pad	Class I	31.00	Pipe	72"	70.0	3.8

☑ YES ☐ NO 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.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sec2C - 648+00 to 91 **County(ies):** Union

General Project Information

Project No.:	R3329\R2559 - Sec2C - 648+00 to 912+00	**Project Type:**	New Location	**Date:**	10/1/2014
NCDOT Contact:	Marshall Clawson, PE	**Contractor / Designer:**	Monroe Bypass Constructors - Matthew L. Cook, PE		
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590	**Address:**	900 Ridgefield Drive Suite 350 Raleigh, NC 27609		
Phone:	919-707-6713	**Phone:**	919-878-9560		
Email:	mclawson@ncdot.gov	**Email:**	mcook@rkk.com		
City/Town:	Monroe	**County(ies):**	Union		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:	See Environmental Summary	**NCDWQ Stream Index No.:**	See Environmental Summary		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	See Environmental Summary			
	Supplemental:				
Other Stream Classification:					
303(d) Impairments:	See Environmental Summary				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	Total 19.7	**Surrounding Land Use:**	Rural with some urbanization

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	129.20 ac.	16.11 ac.
Typical Cross Section Description:	4 lane divided roadway with 46' grass median	
Average Daily Traffic (veh/hr/day):	Design/Future: 95,600 (2035)	Existing: N\A - New Location

General Project Narrative:

The project is being constructed as a four lane divided highway from the Town of Stallings (bypassing Monroe) to just east of Wingate. The project includes major iterchanges and improvements to existing US74 at both ends.

References

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
37	656+17 657+71	Stream	Intermittent	East Fork Stewarts Creek	S78b	13-17-36-9-2	WSIII		Culvert	N/A	None
38	 669+50	Stream	Perennial	East Fork Stewarts Creek	S76	13-17-36-9-2	WSIII		Culvert	N/A	None
40-41	700+11 705+91	Stream	Perennial	East Fork Stewarts Creek	S80a, S80b, S80c	13-17-36-9-(1)	WSIII		Culvert	N/A	None
42	 718+00	Wetland	Riverine	N/A, Isolated	W81				Fill	N/A	None
43	 738+80	Stream	Perennial	Stewarts Creek	S81a	13-17-36-9-(1)	WSIII		Culvert	N/A	None
43	 738+80	Wetland	Riverine	Stewarts Creek	W82	13-17-36-9-(1)	WSIII		Culvert	N/A	None
43-44	752+51 769+15	Wetland	Riverine	Stewarts Creek	W86				Fill	N/A	None
47	 805+06	Stream	Intermittent	Stewarts Creek	S88a	13-17-36-9-(1)	WSIII		Fill	N/A	None
47	 805+89	Stream	Perennial	Stewarts Creek	S86	13-17-36-9-(1)	WSIII		Culvert	N/A	None
48	 817+63	Stream	Intermittent	Stewarts Creek	S89a	13-17-36-9-(1)	WSIII		Culvert	N/A	None
48	 817+63	Wetland	Riverine	Stewarts Creek	W99				Fill	N/A	None
48	823+48 827+50	Open Water	Pond	Stewarts Creek	P44				Fill	N/A	None
48	13+07 15+68	Stream	Intermittent	Stewarts Creek	S92a, S92b	13-17-36-9-(1)	WSIII		Fill	N/A	Mod. Ret. Basin
48	13+07 15+68	Wetland	Riverine	Stewarts Creek	W101, W102, W103				Fill	N/A	Mod. Ret. Basin
48	 841+00	Stream	Intermittent	Stewarts Creek	S93a, S94	13-17-36-9-(1)	WSIII		Culvert	N/A	None
48	 841+00	Stream	Intermittent	Stewarts Creek	S95a, S95b, S96	13-17-36-9-(1)	WSIII		Culvert	N/A	None
48	 841+00	Stream	Perennial	Stewarts Creek	S96b	13-17-36-9-(1)	WSIII		Culvert	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

Project/TIP No.: R3329\R2559 - Sec2C - 648+00 **County(ies):** Union

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
48-49	841+00	Wetland	Riverine	Stewarts Creek	W104				Culvert	N/A	None
49	849+00	Open Water	Pond	N/A, Isolated	P48				Fill	N/A	None
49, 50, 108	856+00	Open Water	Pond	Richardson Creek	P49				Fill	N/A	None
50	866+50	Stream	Intermittent	Richardson Creek	S102b	13-17-36-5	C		Culvert	N/A	None
50	866+50	Open Water	Pond	Richardson Creek	PX75				Culvert	N/A	None
52	890+87 893+14	Stream	Intermittent	Richardson Creek	S106	13-17-36-5	C		Fill	N/A	None
52	893+00	Stream	Perennial	Richardson Creek	S103b	13-17-36-5	C		Culvert	N/A	None
52	893+00	Wetland	Riverine	Richardson Creek	W107				Fill	N/A	None
53	903+70	Wetland	Riverine	Richardson Creek	W112				Fill	N/A	None
53	903+70	Stream	Intermittent	Richardson Creek	S108a	13-17-36-5	C		Culvert	N/A	None
53	903+70	Stream	Perennial	Richardson Creek	S108b	13-17-36-5	C		Culvert	N/A	None
101	152+00	Open Water	Pond	Stumplick Branch	PX69				Fill	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sec2C - **County(ies):** Union

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)
37	L 656+88 RT	Riprap Apron / Pad	Class I	11.55	Pipe	36" RCP	32.0	2.4
38	L 669+12 RT	Riprap Apron / Pad	Class I	2360.00	Culvert	3@9'x12' RCBC	1600.0	6.4
40	L 702+97 RT	Riprap Apron / Pad	Class I	103.00	Culvert	7'X7' RCBC	190.0	4.5
43	L 738+81 RT	Riprap Apron / Pad	Class I	97.66	Culvert	72" RCP	186.7	2.6
44	L 767+48 LT	Riprap Apron / Pad	Class 'B'	5.70	Culvert	30" RCP	20.6	1.5
47	L 805+89 LT	Riprap Apron / Pad	Class I	173.00	Culvert	10'X7' RCBC	310.0	9.5
48	L 816+70 LT	Riprap Apron / Pad	Class I	40.03	Pipe	24" RCP, 48" RCP, DITCH	81.2	4.2
48	TRA 21+61 RT	Riprap Apron / Pad	Class I	23.90	Pipe	48" RCP	40.8	1.5
48	TRA 19+05 RT	Riprap Apron / Pad	Class I	70.10	Pipe	66" RCP	120.0	2.3
50	L 867+16 RT	Riprap Apron / Pad	Class I	29.06	Pipe	42" RCP, DITCH	76.3	3.5
52	L 893+68 RT	Riprap Apron / Pad	Class I	83.30	Pipe	18" RCP, 84" RCP	132.0	5.4
53	L 903+89	Riprap Apron / Pad	Class I	42.50	Pipe	54" RCP	76.0	5.2

☐ YES ☐ NO 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.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct3A - 912+00 to 10 **County(ies):** Union

General Project Information

Project No.:	R3329\R2559 - Sct3A - 912+00 to 1064+00	**Project Type:**	New Location	**Date:**	10/1/2014
NCDOT Contact:	Marshall Clawson, PE	**Contractor / Designer:**	Monroe Bypass Constructors - Kevin Alford, PE		
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590	**Address:**	6750 Tryon Road Cary, NC 27518		
Phone:	919-707-6713	**Phone:**	919-858-1878		
Email:	mclawson@ncdot.gov	**Email:**	kalford@mulkeyinc.com		
City/Town:	Monroe	**County(ies):**	Union		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:	See Environmental Summary	**NCDWQ Stream Index No.:**	See Environmental Summary		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	See Environmental Summary			
	Supplemental:				
Other Stream Classification:					
303(d) Impairments:	See Environmental Summary				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	19.70	**Surrounding Land Use:**	Rural with some urbanization

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	49.37 ac.	9.79 ac.
Typical Cross Section Description:	4 lane divided roadway with 46' grass median	
Average Daily Traffic (veh/hr/day):	Design/Future: 95,600 (2035)	Existing: N\A - New Location

General Project Narrative:

The project is being constructed as a four lane divided highway from the Town of Stallings (bypassing Monroe) to just east of Wingate. The project includes major iterchanges and improvements to existing US74 at both ends.

References

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
56	942+33 -L- 944+18 -L-	Stream	Perennial	Richardson Creek	S111	13-17-36-(5)	C	biological impairment	Stabilization	N/A	None
57	956+83 -L- 957+44 -L-	Stream	Perennial	Ray's Fork	S112	13-17-36-8	C	None	Stabilization	N/A	None
57	964+10 -L- LT 965+73 -L- LT	Stream	Intermittent	Ray's Fork	S114A	13-17-36-8	C	None	Culvert	N/A	None
57	24+04 -Y318- 24+98 -Y318-	Wetland	Unknown	Ray's Fork	W138	N\A	N\A	N\A	Culvert	N/A	None
58	15+65 -Y318- 16+03 -Y318-	Stream	Perennial	Ray's Fork	S140F	13-17-36-8	C	None	Culvert	N/A	None
58	973+15 -L- 980+33 -L-	Stream	Perennial	Ray's Fork	S140F	13-17-36-8	C	None	Culvert	N/A	None
58/59	977+09 -L- 986+24 -L-	Wetland	Unknown	Ray's Fork	W139/W140/ WX812	N\A	N\A	N\A	Fill	N/A	None
60	1001+08 -L- 1003+00 -L-	Stream	Intermittent	Ray's Fork	SX145	13-17-36-8	C	None	Culvert	N/A	None
62	1032+66 -L- 1038+05 -L-	Open Water	Pond	Halfway Branch	P60A/P60B	13-17-36-11-1	C	None	Fill	N/A	None
62	 32+08 -Y308-RT	Stream	Intermittent	Halfway Branch	S157A	13-17-36-11-1	C	None	Culvert	N/A	None
62	28+06 RT -VRC- 1041+43 LT -L-	Stream	Perennial	Halfway Branch	S156A/ S156B	13-17-36-11-1	C	None	Culvert	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct3A - S **County(ies):** Union

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)
54	916+43 -L- RT	Riprap Apron / Pad	Class I	16.50	Pipe	48	37.8	2.0
54	924+49 -L- RT	Riprap Apron / Pad	Class I	14.10	Pipe	42	35.0	2.0
55	930+57 -L- RT	Riprap Apron / Pad	Class I	12.10	Pipe	42	28.0	1.9
55	932+00 -L- RT	Riprap Apron / Pad	Class 'B'	1.51	Pipe	18	5.1	1.9
56	945+65 -L- LT	PFSH	N/A	0.39	Pipe	15	2.1	1.2
56	946+32 -L- LT	Riprap Apron / Pad	Class I	7.40	Pipe	36	26.7	1.9
57	24+66 -Y318- LT	Riprap Apron / Pad	Class I	31.50	Pipe	60	49.0	1.8
58	15+80 -Y318- LT	Riprap Apron / Pad	Class II	128.00	Culvert	2-9x7 RCBC	250.0	4.4
58	973+25 -L- RT	Riprap Apron / Pad	Class II	102.40	Culvert	2-9x7 RCBC	210.0	4.2
58	981+50 -L- LT	Riprap Apron / Pad	Class 'B'	11.58	Ditch	N/A	40.3	3.1
60	993+50 -L- RT	Riprap Apron / Pad	Class I	11.60	Pipe	42	28.0	1.9
62	1041+00 -L- LT	PFSH	N/A	0.86	Pipe	15	4.3	1.6
62	1041+40 -L- LT	Riprap Apron / Pad	Class II	243.20	Culvert	2-10x6 RCBC	400.0	4.8
62	20+73 -VLC- LT	Riprap Apron / Pad	Class II	224.00	Culvert	2-10x6 RCBC	380.0	4.7
62	30+00 -Y308- RT	Riprap Apron / Pad	Class I	21.23	Pipe	42	62.3	3.4
62	32+11 -Y308- RT	Riprap Apron / Pad	Class I	24.20	Pipe	54	56.0	2.0

☑ YES ☐ NO 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.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct3B - 1064+00 to 1 **County(ies):** Union

General Project Information

Project No.:	R3329\R2559 - Sct3B - 1064+00 to 1233+50	**Project Type:**	New Location	**Date:**	10/1/2014
NCDOT Contact:	Marshall Clawson, PE	**Contractor / Designer:**	Monroe Bypass Constructors - Jeff Meador, PE		
Address:	NCDOT Hydraulics Unit 1590 Mail Service Center Raleigh, NC 27699-1590	**Address:**	900 Ridgefield Drive Suite 350 Raleigh, NC 27609		
Phone:	919-707-6713	**Phone:**	919-847-0166		
Email:	mclawson@ncdot.gov	**Email:**	jmeador@rkk.com		
City/Town:	Monroe	**County(ies):**	Union		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:	See Environmental Summary	**NCDWQ Stream Index No.:**	See Environmental Summary		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	See Environmental Summary			
	Supplemental:				
Other Stream Classification:					
303(d) Impairments:	See Environmental Summary				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	19.70	**Surrounding Land Use:**	Rural with some urbanization

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	49.37 ac.	9.79 ac.
Typical Cross Section Description:	4 lane divided roadway with 46' grass median	
Average Daily Traffic (veh/hr/day):	Design/Future: 95,600 (2035)	Existing: N\A - New Location

General Project Narrative:

The project is being constructed as a four lane divided highway from the Town of Stallings (bypassing Monroe) to just east of Wingate. The project includes major iterchanges and improvements to existing US74 at both ends.

References

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
64	1073+84 1074+67	Stream	Perennial	Meadow Branch	S158	13-17-36-11	C	None	Culvert	N/A	None
66	1094+50 1094+50	Wetland	Unknown	Meadow Branch	W173	N\A	N\A	N\A	Fill	N/A	None
68	1122+38 1122+67	Wetland	Unknown	Austin Branch	W174	N\A	N\A	N\A	Fill	N/A	None
69	 22+83 RT	Stream	Perennial	Negro Head Creek	S161A	13-17-36-15	C	None	Culvert	N/A	None
70	 1159+60 RT	Stream	Perennial	Negro Head Creek	S161B	13-17-36-15	C	None	Culvert	N/A	None
70\71	1159+60 1163+49	Wetland	Unknown	Negro Head Creek	W176	N\A	N\A	N\A	Culvert	N/A	None
71	1166+79 1167+65	Wetland	Unknown	Negro Head Creek	W176	N\A	N\A	N\A	Culvert	N/A	None
72	1201+40 1201+90	Stream	Perennial	Negro Head Creek	S169A\S169B	13-17-36-15	C	None	Culvert	N/A	None
113	18+83 2076	Wetland	Unknown	Meadow Branch	W173	N\A	N\A	N\A	Culvert	N/A	None
118	25+53 25+97	Wetland	Unknown	Negro Head Creek	W196	N\A	N\A	N\A	Culvert	N/A	None
119	15+73 16+73	Wetland	Unknown	Negro Head Creek	W197	N\A	N\A	N\A	Culvert	N/A	None
119	11+50 12+04	Wetland	Unknown	Negro Head Creek	W197	N\A	N\A	N\A	Culvert	N/A	None

* 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.

Description of Minimization of Impacts or Mitigation

References

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R3329\R2559 - Sct3B - 1 **County(ies):** Union

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)
113	19+00 Lt	Riprap Apron / Pad	Class I	44.30	Pipe	2@48"	80.0	1.7
66	1095+00 Rt	Riprap Apron / Pad	Class I	25.97	Pipe	2@42"	49.0	1.5
66	1094+75 Rt	PFSH	N/A	1.48	Pipe	15	7.3	1.3
71	1166+00 Lt	Riprap Apron / Pad	Class I	123.00	Culvert	1@10'x6', 72", 42"	270.0	1.9
71	1166+75 Lt	Riprap Apron / Pad	Class I	23.13	Pipe	48	44.4	1.4
118	16+85 Rt	Riprap Apron / Pad	Class 'B'	9.18	Pipe	30	19.7	1.0
119	12+25 Rt	Riprap Apron / Pad	Class I	41.43	Pipe	2@48"	72.0	1.6

☐ YES ☐ NO 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

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R-3329/R-2559

US 74 Monroe Bypass

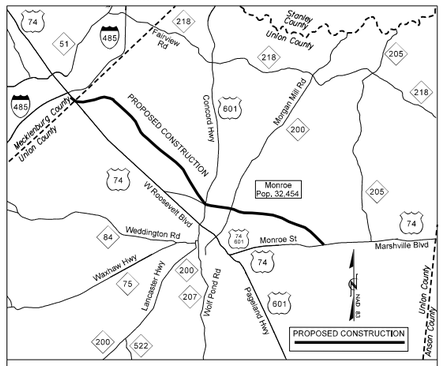
Permit Impact Drawings

09/08/99

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

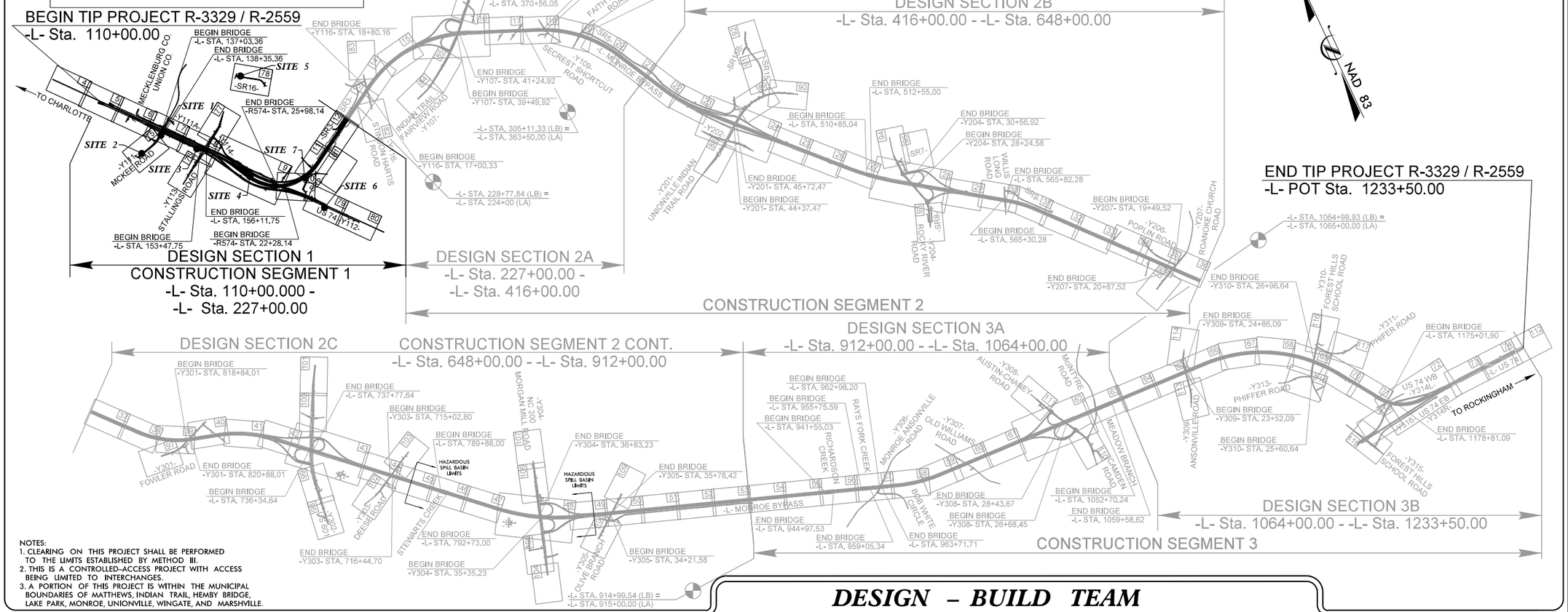
LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD WETLAND AND STREAM IMPACTS

PERMIT DRAWING SHEET 1 OF 267

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

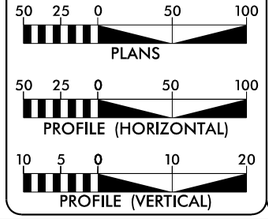
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

DESIGN - BUILD TEAM

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE 74 BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

9/29/2014
R:\Hydraulics\PERMITS_Environmental\Drawings\Section\R3329_R2559_HYD_PRM_WET_secl_tsh.dgn
Fkeys:

8/17/99

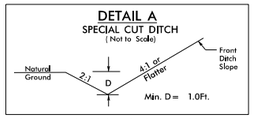
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2N
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

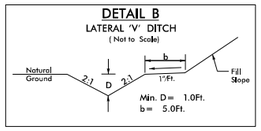
PERMIT DRAWING
SHEET 2 OF 267

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



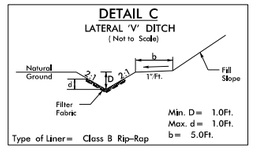
–R674– STA. 16+36.67 TO STA. 17+23.00 RT
–Y111– STA. 14+75 TO STA. 17+00 RT
–L– STA. 212+50 TO STA. 216+50 RT
–Y113– STA. 40+50 TO STA. 41+25 LT
–Y113– STA. 40+50 TO STA. 41+25 RT

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



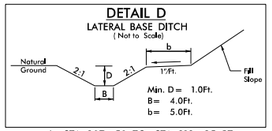
–Y114– STA. 38+15.73 TO STA. 40+52.00 LT
–SR2– STA. 18+53 TO STA. 22+50 RT

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



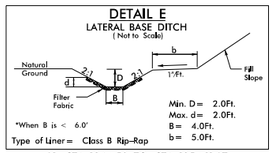
–R174– STA. 27+86.04 TO STA. 29+65 RT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



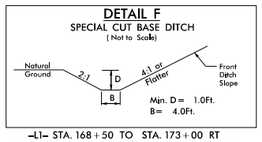
–L– STA. 207+50 TO STA. 212+25 RT
–Y113– STA. 13+00 TO STA. 17+00 RT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



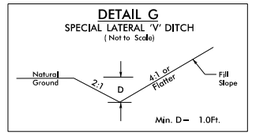
–L1– STA. 124+50 TO STA. 125+11 LT
–R174– STA. 29+65.00 TO STA. 33+19.10 RT
–R174– STA. 37+55.51 TO STA. 44+20.00 RT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



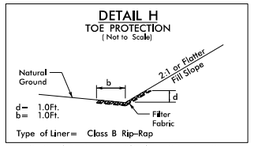
–L1– STA. 168+50 TO STA. 173+00 RT
–Y111– STA. 11+00 TO STA. 14+75 RT (D=1.5')

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



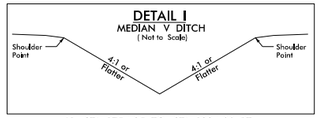
DETAIL G IS NOT USED IN SECTION 1

DETAIL H
TOE PROTECTION
(Not to Scale)



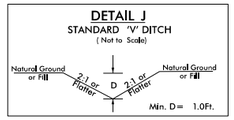
–Y113– STA. 21+00 TO STA. 23+00 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



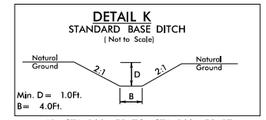
–L1– STA. 175+25 TO STA. 183+00 RT
–L1– STA. 189+50 TO STA. 191+50 CL

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



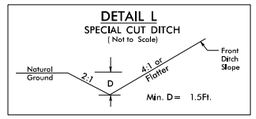
–L1– STA. 165+00 TO STA. 166+50 RT
–R174– STA. 27+36 RT; L=75', S=5.73%
BEG EL=694.86, END EL=690.56
–R674– STA. 10+94.87 TO STA. 15+00.75 RT

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



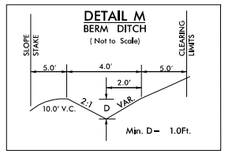
–L1– STA. 166+50 TO STA. 168+50 RT
–L1– STA. 173+00 TO STA. 175+25 RT
–L– STA. 213+85 LT, L=281', S=0.30%,
BEG EL=667.5, END EL=666.7

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



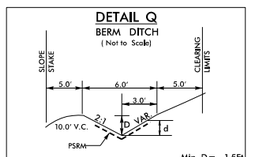
–R174– STA. 19+07.99 TO STA. 20+98.01 RT
–Y114– STA. 11+00 TO STA. 13+50 RT
–Y114– STA. 17+00.00 TO STA. 18+63.34 RT

DETAIL M
BERM DITCH
(Not to Scale)



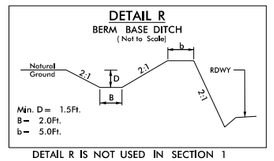
–L– STA. 213+50 TO STA. 227+00 RT

DETAIL Q
BERM DITCH
(Not to Scale)



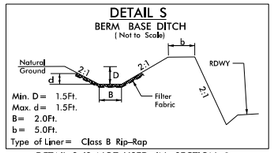
DETAIL Q IS NOT USED IN SECTION 1

DETAIL R
BERM BASE DITCH
(Not to Scale)



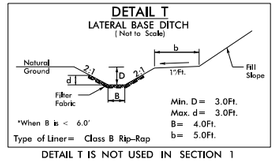
DETAIL R IS NOT USED IN SECTION 1

DETAIL S
BERM BASE DITCH
(Not to Scale)



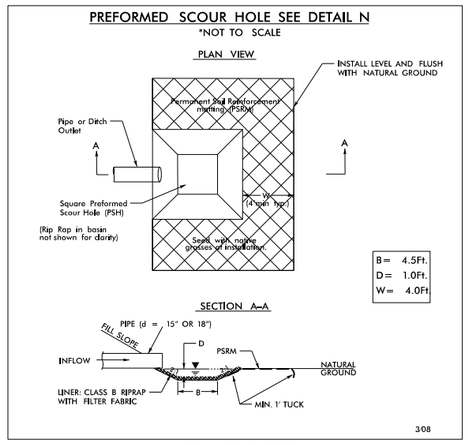
DETAIL S IS NOT USED IN SECTION 1

DETAIL T
LATERAL BASE DITCH
(Not to Scale)

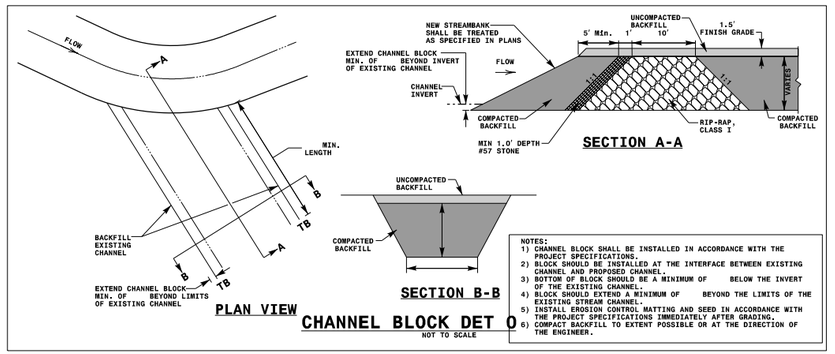


DETAIL T IS NOT USED IN SECTION 1

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE



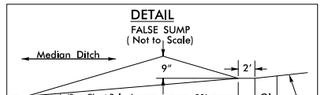
–DR1_1– STA. 10+92 RT



CHANNEL BLOCK DET O
NOT TO SCALE

DETAIL O IS NOT USED IN SECTION 1

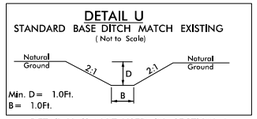
DETAIL
FALSE SUMP
(Not to Scale)



S = Ditch Slope

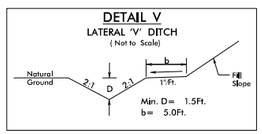
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



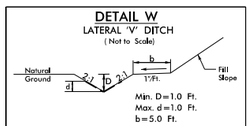
DETAIL U IS NOT USED IN SECTION 1

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



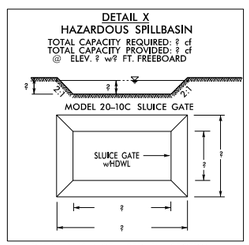
–R174– STA. 44+20.00 TO STA. 47+67.13 RT
–Y112– STA. 13+50.00 TO STA. 27+54.00 RT

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



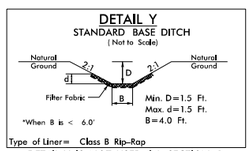
–R174– STA. 16+67.96 TO STA. 19+07.99 RT

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



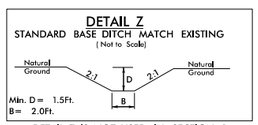
DETAIL X IS NOT USED IN SECTION 1

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



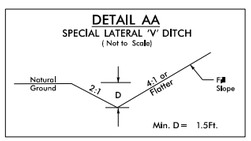
DETAIL Y IS NOT USED IN SECTION 1

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



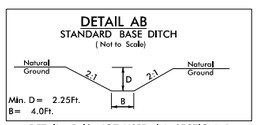
DETAIL Z IS NOT USED IN SECTION 1

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



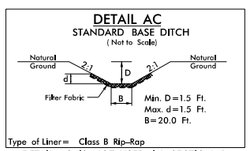
DETAIL AA IS NOT USED IN SECTION 1

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



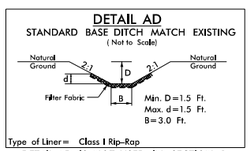
DETAIL AB IS NOT USED IN SECTION 1

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



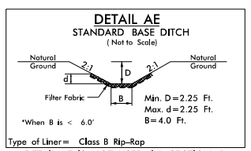
DETAIL AC IS NOT USED IN SECTION 1

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



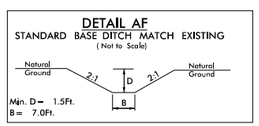
DETAIL AD IS NOT USED IN SECTION 1

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



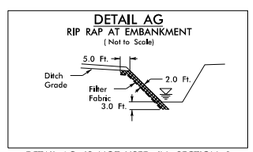
DETAIL AE IS NOT USED IN SECTION 1

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



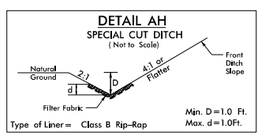
DETAIL AF IS NOT USED IN SECTION 1

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



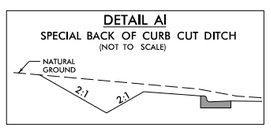
DETAIL AG IS NOT USED IN SECTION 1

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



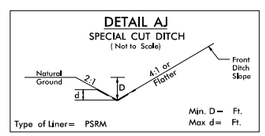
DETAIL AH IS NOT USED IN SECTION 1

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



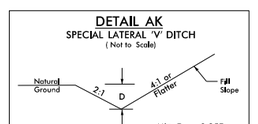
–R174– STA. 14+22.07 TO STA. 16+19.47 LT

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



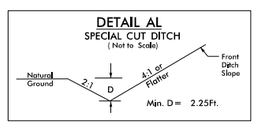
DETAIL AJ IS NOT USED IN SECTION 1

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



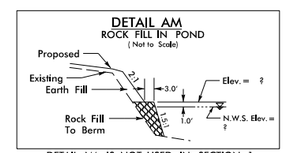
DETAIL AK IS NOT USED IN SECTION 1

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



DETAIL AL IS NOT USED IN SECTION 1

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



DETAIL AM IS NOT USED IN SECTION 1

8/29/2014
8:31:26 AM
Paulus
Ekaus

8/29/2014 8:31:26 AM C:\Projects\PERMITS_Environmental\Drawings\Section1\R3329_R2559_HYD_PRM_DitchDet_Sec01.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

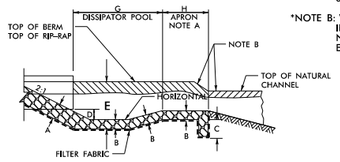
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 3 OF 267

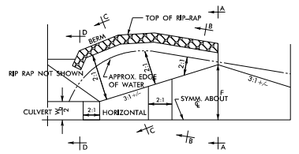
DETAIL AN

RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

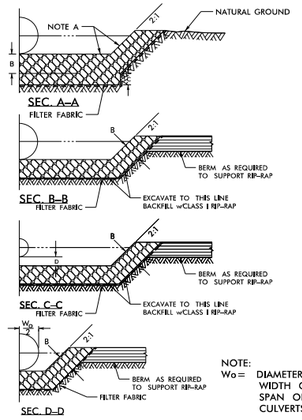


HALF PLAN



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A = SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

*ALL DIMENSIONS APPROXIMATE IN FEET

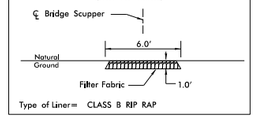
BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

5/05

DETAIL AO

SCOUR PROTECTION

(NOT TO SCALE)



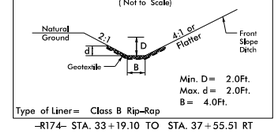
Type of Liner = CLASS B RIP RAP

DETAIL AO NOT USED IN SECTION 1

DETAIL AP

SPECIAL CUT BASE DITCH

(Not to Scale)



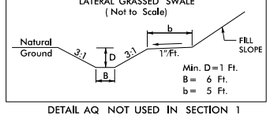
Type of Liner = Class B Rip–Rap

–R174– STA. 33+19.10 TO STA. 37+55.51 RT

DETAIL AQ

LATERAL GRASSED SWALE

(Not to Scale)

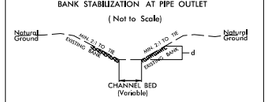


DETAIL AQ NOT USED IN SECTION 1

DETAIL AR

BANK STABILIZATION AT PIPE OUTLET

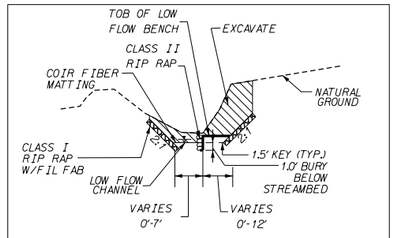
(Not to Scale)



Class I Rip Rap

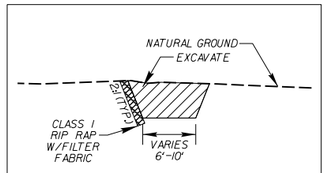
–Y111– STA. 30+21 RT, L=24', d=2.0'
–Y113– STA. 22+70 LT, L=10', d=1.4'

NORTH FORK
CROOKED CREEK TRIB. 5
–DR_1– STA. 11+55



CULVERT INLET DETAIL (NTS)
LENGTH = 25'

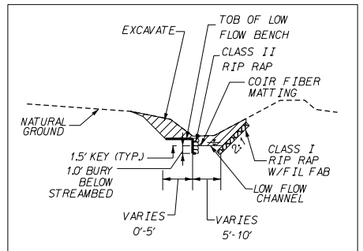
NORTH FORK
CROOKED CREEK TRIB. 5
–Y111– STA. 21+41



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

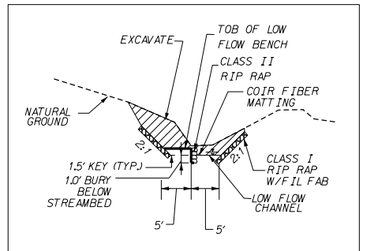
CULVERT INLET DETAIL (NTS)
LENGTH = 57'

NORTH FORK
CROOKED CREEK TRIB. 4
–R174– STA. 29+69



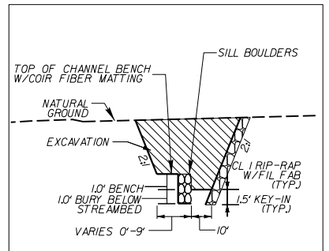
CULVERT INLET DETAIL (NTS)
LENGTH = 44'

NORTH FORK
CROOKED CREEK TRIB. 4
–L– STA. 175+72

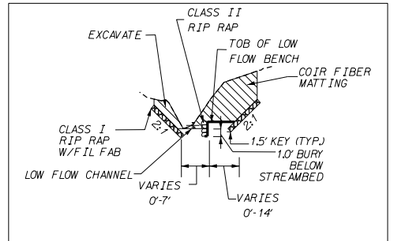


CULVERT INLET DETAIL (NTS)
LENGTH = 54'

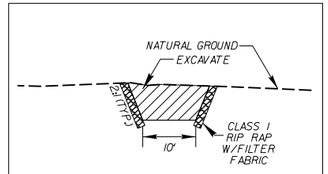
NORTH FORK
CROOKED CREEK TRIB. 5
–L– STA. 140+01



CULVERT INLET DETAIL (NTS)
LENGTH = 61'

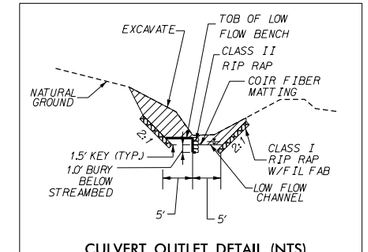


CULVERT OUTLET DETAIL (NTS)
LENGTH = 38'

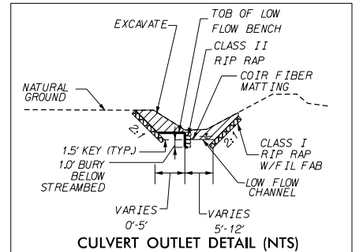


ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH = 41'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 54'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 40'

9/30/2014
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Frank

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 4 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

SX014f (PERENNIAL)

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SITE 1

S014e (PERENNIAL)

S014c (PERENNIAL)

S014d (PERENNIAL)

S014b (PERENNIAL)

S015a (INTERMITTENT)

S015b (INTERMITTENT)

SITE 1

MATCHLINE –L– STA. 136+00 SEE SHEET 6

MATCHLINE –L– STA. 150+00 SEE SHEET 8

MATCHLINE –Y111– STA. 21+00 SEE SHEET 75

INTERCHANGE X, LLC.

TOWN OF STALLINGS

HENDRICK AUTOMOTIVE GROUP

MCGEE CORPORATION

INTOWN SUITES INDEPENDENCE BLVD. INC.

GUY C. VULLO AND WIFE BUNNY S. VULLO

MARVIN O. WILSON, JR.

JCLAWS INVESTMENTS, LLC.

CARL E. VON SCHUMMER AND WIFE JANICE M. VON SCHUMMER

TRIPAP, LLC.

MICHAEL E. TODD AND WIFE JULIA TODD

GERALD R. THOMAS

HARSH INVESTORS, LLC

INTERCHANGE X LLC.

SLK ACQUISITION, LLC

MAX CORPORATION OF MONROE

MARY HELEN REECE

CAROLINA NATIONAL INVESTMENT, LLC

LYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON

PLANS PREPARED BY :

RK&K

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/30/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 5 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

SX014f (PERENNIAL)

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SITE 1

S014e (PERENNIAL)

S014c (PERENNIAL)

S014d (PERENNIAL)

S014b (PERENNIAL)

S015a (INTERMITTENT)

S015b (INTERMITTENT)

SITE 1

SEE CULVERT OUTLET DETAIL –L– STA. 140+01

SEE CULVERT INLET DETAIL –L– STA. 140+01

SEE CULVERT OUTLET DETAIL –Y111– STA. 21+41

TOE PROTECTION SEE DETAIL H

INTOWN SUITES INDEPENDENCE BLVD. INC.

HENDRICK AUTOMOTIVE GROUP

TOWER OF STALKINGS

MCGEE CORPORATION

GUY C. VULLO AND WIFE BUNNY S. VULLO

SLK ACQUISITION, LLC

INTERCHANGE X, LLC.

MARVIN O. WILSON, JR.

JCLAWS INVESTMENTS, LLC.

CARL E. VON SCHUMMER AND WIFE JANICE M. VON SCHUMMER

TRIPAP, LLC.

MICHAEL E. TODD AND WIFE JULIA TODD

GERALD R. THOMAS

HARSH INVESTORS, LLC

MAX CORPORATION OF MONROE

MARY HELEN REECE

CAROLINA NATIONAL INVESTMENT, LLC

VYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON

MATCHLINE –L– STA. 136+00 SEE SHEET 6

MATCHLINE –L– STA. 150+00 SEE SHEET 8

MATCHLINE –Y111– STA. 21+00 SEE SHEET 75

Δ= 92° 57' 58"

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	75
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 DRAWING
SHEET 6 OF 267

SITE 1

SITE 2

NAD 83

SX014a
(PERENNIAL)

WX800

S014b
(PERENNIAL)

-Y111- STA. 21+00

MATCHLINE SEE SHEET 7

-DR1-

SEE CULVERT INLET DETAIL -Y111- STA. 21+41

SEE CULVERT INLET\OUTLET DETAIL -DR_1- STA. 11+55

NOTE: INSTALL 1 84" RCP AT -DR_1- STA. 11+56 BURIED 1.0' BELOW STREAM BED. INSTALL SECOND 84" RCP 1.0' ABOVE STREAM BED.

Q10=28.8 CFS
V10=1.9 FT\S

10+00

15+00

20+00

SP. CUT BASE DITCH
SEE DETAIL F

SPECIAL CUT DITCH
SEE DETAIL A

T & C OF NC, LLC.

HENDRICK AUTOMOTIVE GROUP
DB 3828 PG 143

HENDRICK AUTOMOTIVE GROUP

HENDRICK AUTOMOTIVE GROUP

GATE

POWER BOX

BENCH

BRICK PIERS

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

FOR -Y111- PROFILE SEE SHT. 161
FOR -DR1- PROFILE SEE SHT. 162

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	75
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 DRAWING
SHEET 7 OF 267

SITE 1

SITE 2

NAD 83

SX014a
(PERENNIAL)

WX800

S014b
(PERENNIAL)

Q10=28.8 CFS
V10=1.9 FT\S

NOTE: INSTALL 1 84" RCP AT -DR 1- STA. 11+56 BURIED 1.0' BELOW STREAM BED. INSTALL SECOND 84" RCP 1.0' ABOVE STREAM BED.

SEE CULVERT INLET\OUTLET DETAIL -DR 1- STA. 11+55

SEE CULVERT INLET DETAIL -Y111- STA. 21+41

-Y111- STA. 21+00 SEE SHEET 7

MATCHLINE

SP. CUT BASE DITCH
SEE DETAIL F

SPECIAL CUT DITCH
SEE DETAIL A

10+00

15+00

20+00

T & C OF NC, LLC.

HENDRICK AUTOMOTIVE GROUP
DB 3828 PG 143

HENDRICK AUTOMOTIVE GROUP

HENDRICK AUTOMOTIVE GROUP

HENDRICK AUTOMOTIVE GROUP

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

FOR -Y111- PROFILE SEE SHT. 161
FOR -DR1- PROFILE SEE SHT. 162

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	121
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 8 OF 267

ENGLISH -L-

CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 1600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= X	FT
BASE DISCHARGE	= 1700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= X	FT
OVERTOPPING DISCHARGE	= X	CFS
OVERTOPPING FREQUENCY	= 10	YRS
OVERTOPPING ELEVATION	= X	FT

PI = 137+50.00
EL = 723.80'
VC = 590'
K = 151
DS = 60mph

-L- STA. 137+44.91
-Y111- STA. 241+69.16
ELEV. = 720.88'
MCKEE RD.

-L- STA. 138+67.88 =
-SRLT2- STA. 10+00.00, 47.25' LT
ELEV. = 721.51'

PROPOSED GRADE

PI = 144+50.00
EL = 716.35'
VC = 690'
K = 136
DS = 60mph

(+)12.8357%

(-)11.0643%

(-)11.0643%

(+)4.0000%

SITE 1

10'X8' RCBC

EXISTING GROUND

760 750 740 730 720 710 700 690 680 670

135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00

770 760 750 740 730 720 710 700 690 680

PI = 155+40.00
EL = 759.95'
VC = 1,210'
K = 151
DS = 60mph

(+)4.0000%

(-)4.0000%

℄ TOLL ZONES 1.1 & 1.2
-L- STA. 151+75.00

PROPOSED GRADE

-L- STA. 155+41.78 =
-Y113- STA. 26+07.57
ELEV. = 747.85'
STALLINGS RD.

-L- STA. 156+52.41 =
-R47.4- STA. 10+00.00, 35.25' RT
ELEV. = 747.43'

EXISTING GROUND

149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00

PLANS PREPARED BY :

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FOR
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-Y111- McKEE RD.

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	161A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

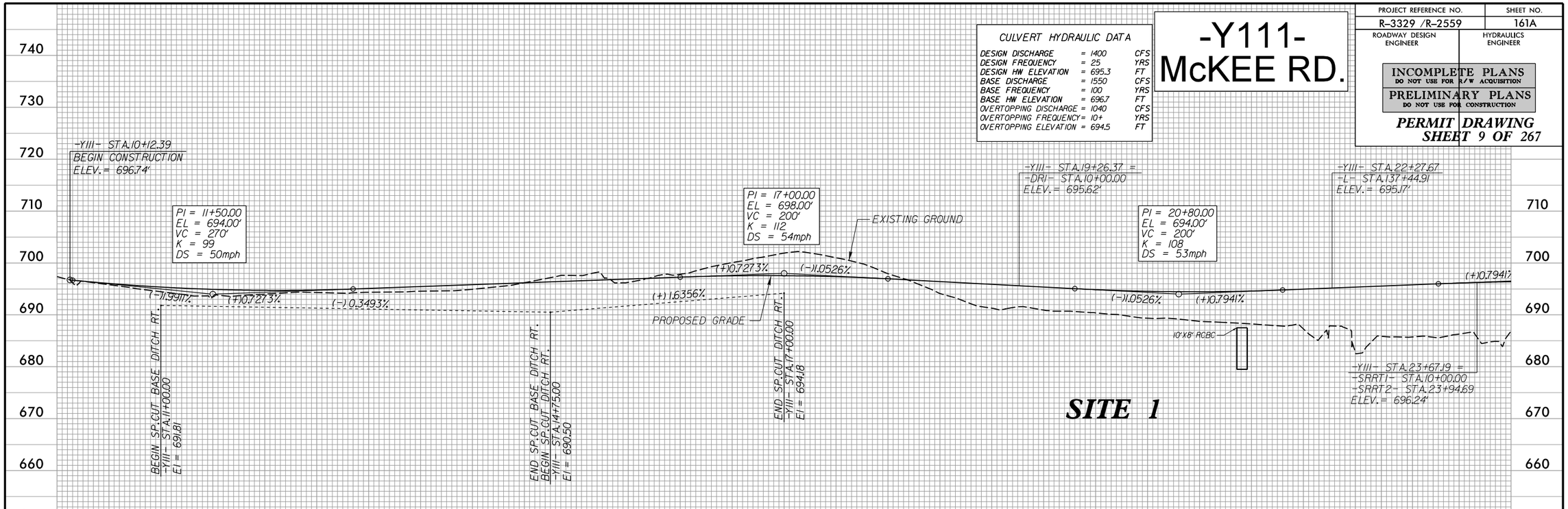
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 9 OF 267

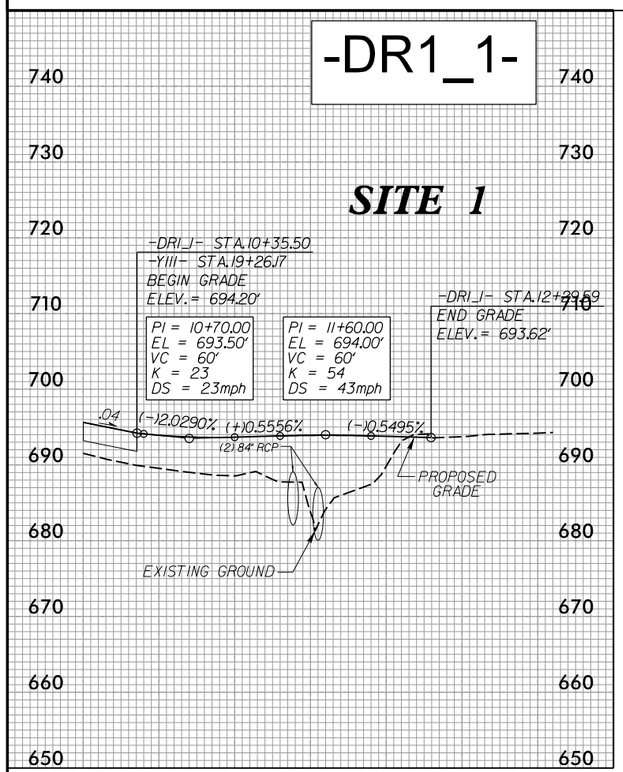
CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 695.3	FT
BASE DISCHARGE	= 1550	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 696.7	FT
OVERTOPPING DISCHARGE	= 1040	CFS
OVERTOPPING FREQUENCY	= 10+	YRS
OVERTOPPING ELEVATION	= 694.5	FT



-DR1_1-

SITE 1



ENGLISH

9/29/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

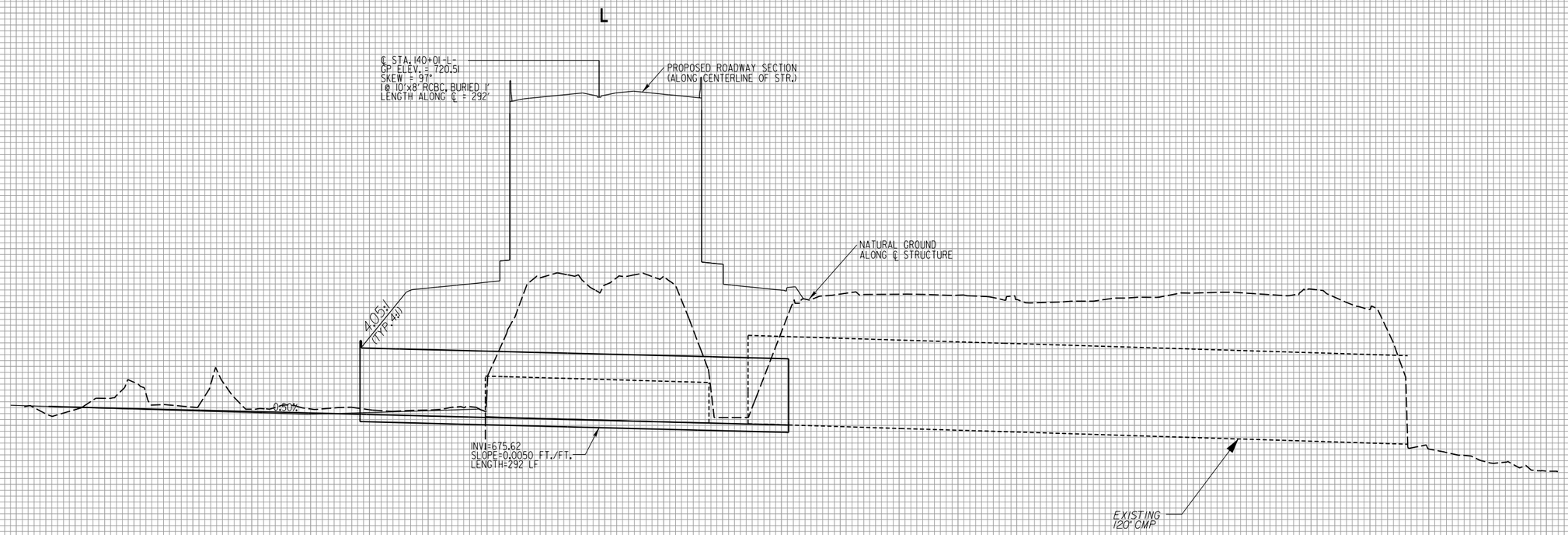
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 10 OF 267

ENGLISH

SITE 1
-L- 140+00



PROPOSED 10'X8' RCBC

8/28/2014
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Ekang

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 11 OF 267

ENGLISH

SITE 1
-Y111- 21+50

℄

℄ STA. 21+41-Y111-
GP ELEV.= 694.55
SKEW = 56°
1@ 10'x8' RCBC, BURIED 1'
LENGTH ALONG ℄ = 162'

PROPOSED ROADWAY SECTION
(ALONG CENTERLINE OF STR.)

FUTURE WIDENING BY OTHERS
(ALONG CENTERLINE OF STR.)

NATURAL GROUND
ALONG ℄ STRUCTURE

EL. 38.2 (TYP.)

EL. 43.2 (TYP.)

700

690

680

670

RIGHT TB

LEFT TB

REMOVE

1' HIGH CONC. SILL

EX. 90" CMP

REMOVE

1' HIGH CONC. SILL

EX. 2 @ 48" CMP

0.50%

0.50%

INV.=678.42
SLOPE=0.0050 FT./FT.
LENGTH=162 LF

RIGHT TB

LEFT TB

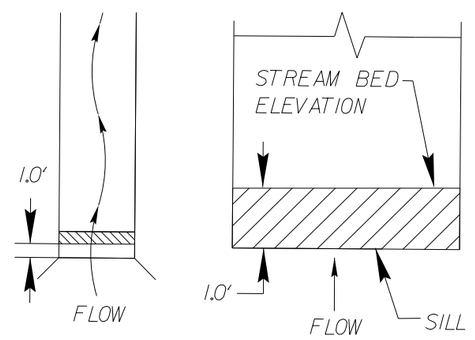
EXISTING STREAM BED

PROPOSED 10'X8' RCBC

SILL DETAIL

PLAN VIEW

CROSS SECTION



PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

8/30/2014
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Kelly

5/14/99

120 100 80 60 40 20 0 20 40 60 80 100 120 140

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 12 OF 267

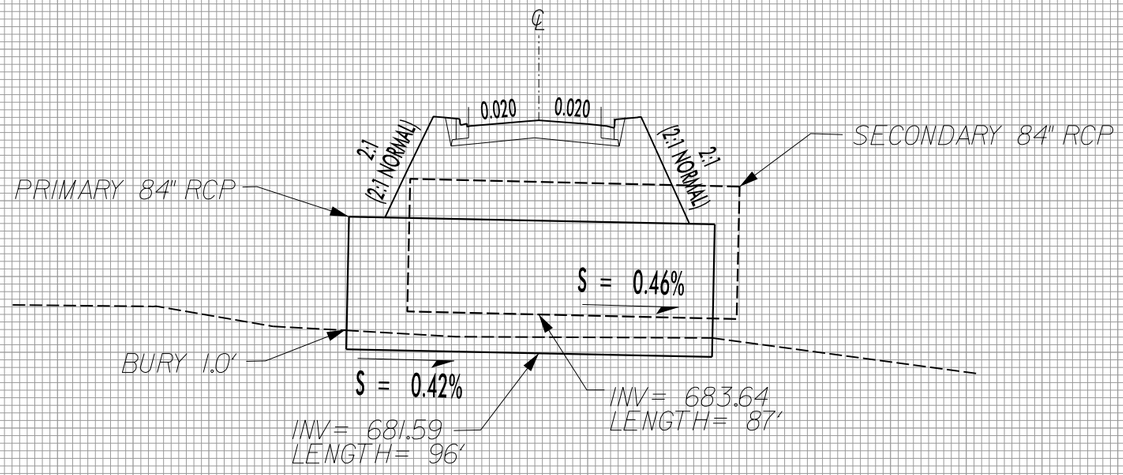
SITE 1
–DR1– 11+55

700

690

680

670



NOTE: BURY PRIMARY 84" RCP 1.0' BELOW STREAM BED.
INSTALL SECONDARY 84" RCP 1.0' ABOVE STREAM BED CHANNEL.

PROPOSED (2) 84" RCP

9/29/2014
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Elkins

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	1-X47

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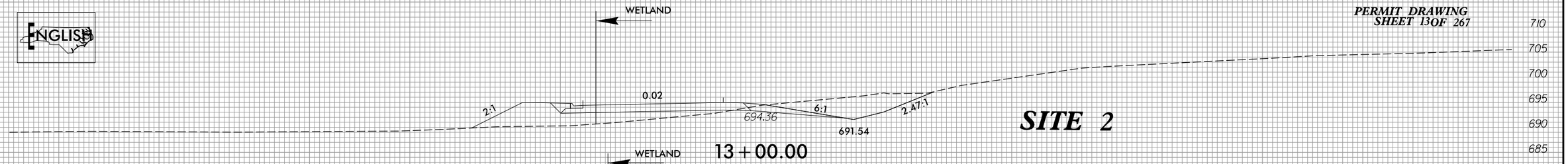
ENGLISH

PERMIT DRAWING
SHEET 13OF 267

SITE 2



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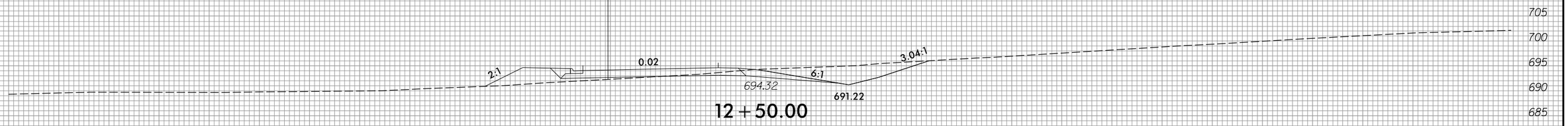

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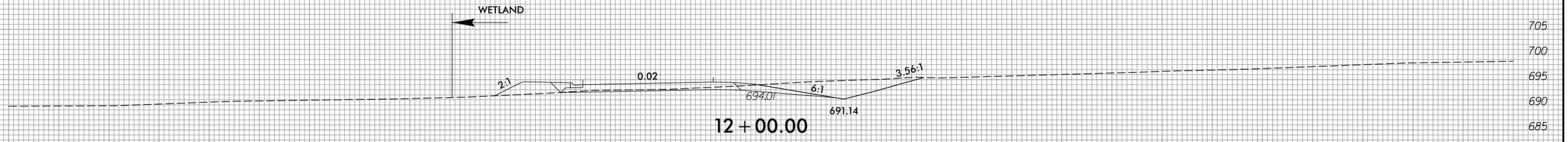

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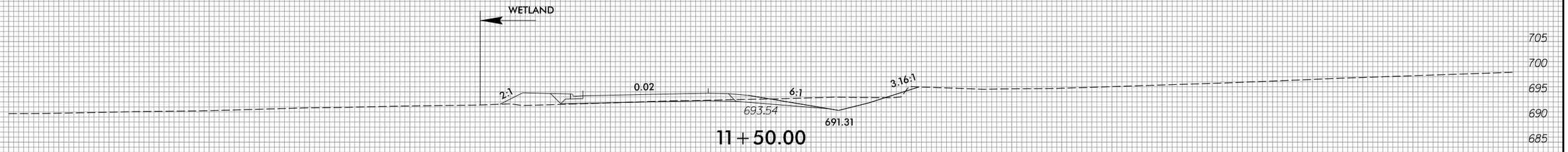
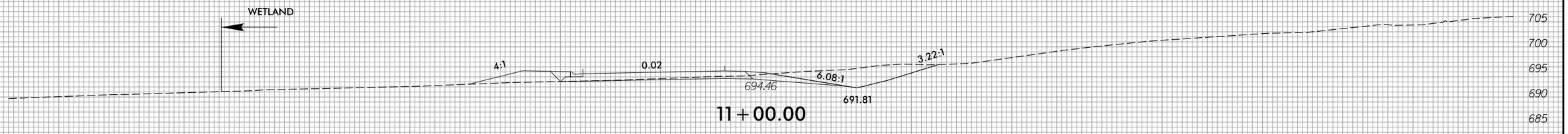


11 + 50.00



11 + 00.00

10 + 50.00

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	R-3329 / R-2559	1-X48

ENGLISH

PERMIT DRAWING
SHEET 14 OF 267

SITE 2

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8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING SHEET 15 OF 267

MATCHLINE –Y113– STA. 30+00 SEE SHEET 77

MATCHLINE –Y114– STA. 14+50 SEE SHEET 77

MATCHLINE –Y114– STA. 18+50 SEE SHEET 9

MATCHLINE –L– STA. 150+00 SEE SHEET 7

MATCHLINE –L– STA. 163+00 SEE SHEET 9

MATCHLINE –R674– STA. 30+00 SEE SHEET 9

MATCHLINE –R474– STA. 16+50 SEE SHEET 9

MATCHLINE –R474– STA. 17+50 SEE SHEET 9

MATCHLINE –Y113– STA. 21+50 SEE SHEET 76

S016b (INTERMITTENT)

S016a (INTERMITTENT)

W006

SITE 3

NAD 83

42 NEWCARR II, LLC. IS BK/BLK BUS

41 NEWCARR II, LLC. WOODS

40 BOLLARD HARSH INVESTORS, LLC BLOCK WALL CONC WALL IS BK BUS

47 RICHARD G. KELLER AND WIFE, VERENA E. KELLER (GARAGE) I S F BUS

57 RICHARD G. KELLER AND WIFE, VERENA E. KELLER I S F MTL BUS

56 JAMES HOKE SMITH AND WIFE, MARY G. SMITH

59 WILLIAM KEMP MAUNEY, III,

61 SARAH M. FAUNCE

63 MARY M. BROADWELL

38 LYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON WOOD STEPS IS BK BUS

39 LYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON

49 LYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON

48 CIRCLE S STORES, INC. ISBK BUS

HALLMARK PROPERTIES VI, LLC, ET ALS

OVERHEAD SIGN

ORT GANTRY

ATTENUATOR

REMOVE

REMOVE SYSTEM

REMOVE DI

PLUG

FILL W/ FLOWABLE FILL

42" RCP-III

42" RCP-IV

24" RCP-III

24" RCP-IV

18" RCP-IV

15" RCP-III

30" RCP-IV

36" RCP-III

15" CSP

2GI

CB

FS

PSRM

SPECIAL CUT DITCH SEE DETAIL L

SPECIAL BACK OF CURB DITCH SEE DETAIL AI

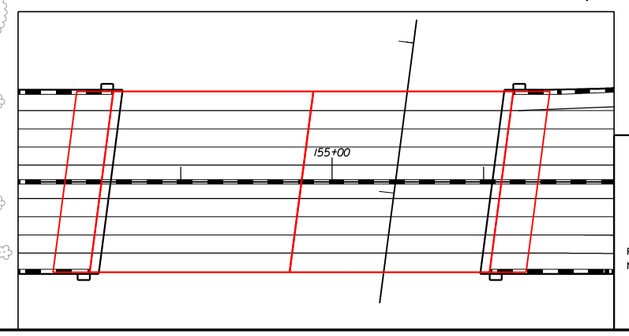
BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL W

US 74 WBL BST

US 74 EBL BST



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8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING SHEET 16 OF 267

MATCHLINE –Y113– STA. 30+00 SEE SHEET 77

MATCHLINE –Y114– STA. 14+50 SEE SHEET 77

MATCHLINE –Y114– STA. 18+50 SEE SHEET 9

MATCHLINE –L– STA. 150+00 SEE SHEET 7

MATCHLINE –L– STA. 163+00 SEE SHEET 9

MATCHLINE –R674– STA. 30+00 SEE SHEET 9

MATCHLINE –R474– STA. 16+50 SEE SHEET 9

MATCHLINE –R174– STA. 17+50 SEE SHEET 9

MATCHLINE –Y113– STA. 21+50 SEE SHEET 76

S016b (INTERMITTENT)

W006

S016a (INTERMITTENT)

SITE 3

JAMES HOKE SMITH AND WIFE, MARY G. SMITH

WILLIAM KEMP MAUNEY, III.

SARAH M. FAUNCE

MARY M. BROADWELL

RICHARD G. KELLER AND WIFE, VERENA E. KELLER

BOLLARD HARSH INVESTORS, LLC

NEWCARR II, LLC.

CIRCLE S STORES INC

LYNDELL D. THOMPSON AND WIFE, LOIS Y. THOMPSON

HALLMARK PROPERTIES VI, LLC, ET ALS

ORT GANTRY

OVERHEAD SIGN

ATTENUATOR

REMOVE

REMOVE SYSTEM

REMOVE DI

PLUG

FILL W/ FLOWABLE FILL

42" RCP-III

42" RCP-IV

42" RCP-V

24" RCP-III

24" RCP-IV

18" RCP-IV

15" RCP-III

30" RCP-IV

36" RCP-III

15" CSP

2GI

CB

FS

PSRM

SPECIAL CUT DITCH SEE DETAIL L

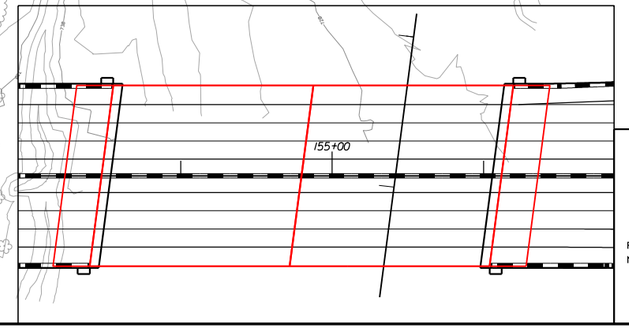
SPECIAL BACK OF CURB DITCH SEE DETAIL AI

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL W

NAD 83



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9/30/2004
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 17 OF 267

NAD 83

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

SHEET 9A

SITE 4

SITE 4

SITE 4

S017d (PERENNIAL)

S017c (PERENNIAL)

S017b (PERENNIAL)

S017a (PERENNIAL)

S021b (PERENNIAL)

S019 (INTERMITTENT)

W010

MATCHLINE -L- STA. 163+00 SEE SHEET 8

MATCHLINE -L- STA. 18+50 SEE SHEET 8

MATCHLINE -R174- STA. 17+50 SEE SHEET 8

MATCHLINE -R274- STA. 22+00 SEE SHEET 10

MATCHLINE -L- STA. 19+00 SEE SHEET 10

MATCHLINE -R574- STA. 21+00 SEE SHEET 10

MATCHLINE -R174- STA. 46+50 SEE SHEET 10

S 33° 21' 01" E

N 38° 13' 52" W

S 27° 45' 45" E

S 40° 15' 09" E

N 44° 19' 54.3" W

△= 155° 00' 00"

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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

LOCATION:

TIP NO.: R-3329 / R-2559 COUNTY: UNION

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

9/30/2024
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 18 OF 267

NAD 83

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

SITE 4

SHEET 9A

S017a (PERENNIAL)

S017b (PERENNIAL)

S017c (PERENNIAL)

S017d (PERENNIAL)

S021b (PERENNIAL)

S019 (INTERMITTENT)

W010

MATCHLINE -L- STA. 163+00 SEE SHEET 8

MATCHLINE -L- STA. 18+50 SEE SHEET 8

MATCHLINE -R174- STA. 17+50 SEE SHEET 8

MATCHLINE -R274- STA. 22+00 SEE SHEET 10

MATCHLINE -L- STA. 19+00 SEE SHEET 10

MATCHLINE -R574- STA. 21+00 SEE SHEET 10

MATCHLINE -R174- STA. 46+50 SEE SHEET 10

RETAINING WALL

Δ= 155° 00' 00"

N 44° 19' 54.3" W

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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

LOCATION:

TIP NO.: R-3329 / R-2559 COUNTY: UNION

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

9/30/2024
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	9A
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 DRAWING
SHEET 19 OF 267

SITE 4

S017c (PERENNIAL)

S017b (PERENNIAL)

S019 (INTERMITTENT)

S017a (PERENNIAL)

SEE CULVERT OUTLET DETAIL –L– STA. 175+72

SEE CULVERT OUTLET DETAIL –R174– STA. 26+69
SEE CULVERT INLET DETAIL –L– STA. 175+72

SEE CULVERT INLET DETAIL –R174– STA. 26+69

SPECIAL CUT DITCH SEE DETAIL A

STANDARD V DITCH SEE DETAIL J

STANDARD BASE DITCH SEE DETAIL K

LATERAL V DITCH SEE DETAIL C

LATERAL BASE DITCH SEE DETAIL E

MEDIAN V DITCH SEE DETAIL I

LATERAL V DITCH SEE DETAIL B

SP. CUT BASE DITCH SEE DETAIL AP

SP. CUT BASE DITCH SEE DETAIL F

RETAINING WALL

REMOVE ALL EXIST. DRAINAGE

REMOVE SYSTEM

RETAIN SYSTEM

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

FOR –L– PROFILE SEE SHTS. 125 & 126
FOR –KRC– PROFILE SEE SHT. 183

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Features

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	9A
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 DRAWING
SHEET 20 OF 267

SITE 4

S017c (PERENNIAL)

S017b (PERENNIAL)

S019 (INTERMITTENT)

S017a (PERENNIAL)

SITE 4

SITE 4

NAD 83

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

FOR –L– PROFILE SEE SHTS. 125 & 126
FOR –KRC– PROFILE SEE SHT. 183

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Features

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	122
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 21 OF 267

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 550	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 487.8	FT
BASE DISCHARGE	= 600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 488.3	FT
OVERTOPPING DISCHARGE	= 890	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 495.0	FT

SITE 4

BACK	AHEAD
PI = 170+70.00	PI = 170+70.00
EL = 698.750'	EL = 698.755'
VC = 480'	VC = 480'
K = 138	K = 138
DS = 60mph	DS = 60mph

-L- STA.166+50.63 =
-R574- STA.45+37.07, 41.05' LT
ELEV. = 715.53'

-L- STA.171+00.00
ELEV. = 700.198 LB
ELEV. = 700.203 LA

PROPOSED GRADE

EXISTING GROUND

(-) 13.1600%

(-) 3.1000%

(-) 0.4900%

(-) 0.5000%

(-) 3.0280%

(-) 4.0000%

(-) 0.5124%

(-) 0.6667%

(-) 0.6320%

(-) 4.8889%

(-) 1.4600%

BEGIN STD.V DITCH RT.
-L- STA.165+00.00
EI = 712.78

PI = 165+50.00
EI = 705.90

END STD.V DITCH RT.
BEGIN STD.BASE DITCH RT.
-L- STA.166+50.00
EI = 702.80

END STD.BASE DITCH RT.
BEGIN SP.CUT BASE DITCH RT.
-L- STA.168+50.00
EI = 701.82

PI = 169+00.00
EI = 701.57

PI = 171+50.00
EI = 694.00

END SP.CUT BASE DITCH RT.
BEGIN STD.BASE DITCH RT.
-L- STA.173+00.00
EI = 693.00

BEGIN MEDIAN V.DITCH CL
-L- STA.174+00.00
EI = 691.08

10'X2' RCBC

PI = 176+50.00
EI = 689.50

PI = 177+00.00

END STD.BASE DITCH RT.
BEGIN MEDIAN V.DITCH CL
-L- STA.175+25.00
EI = 682.00

163+00 164+00 165+00 166+00 167+00 168+00 169+00 170+00 171+00 172+00 173+00 174+00 175+00 176+00 177+00

750 740 730 720 710 700 690 680 670 660

EI = 688.770

END MEDIAN V.DITCH CL
-L- STA.177+50.00
EI = 688.92

PROPOSED GRADE

(+) 0.3000%

(+) 1.0667%

(+) 1.5875%

EXISTING GROUND

(-)10.5124%

(+)10.5000%

(-) 0.3000%

PI = 179+00.00
EI = 686.00

PI = 183+20.00
EL = 692.35'
VC = 307'
K = 303
DS = > 80mph

END MEDIAN V.DITCH CL
-L- STA.183+00.00
EI = 692.35

-L- STA.188+35.86 =
-R574- STA.24+06.47
ELEV. = 694.93'

BEGIN MEDIAN V.DITCH CL
-L- STA.189+50.00
EI = 694.46

730 720 710 700 690 680 670 660 650 640

177+00 178+00 179+00 180+00 181+00 182+00 183+00 184+00 185+00 186+00 187+00 188+00 189+00 190+00 191+00

FOR -L- PLAN SEE SHT.9

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FOR
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Ekelly

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	167
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

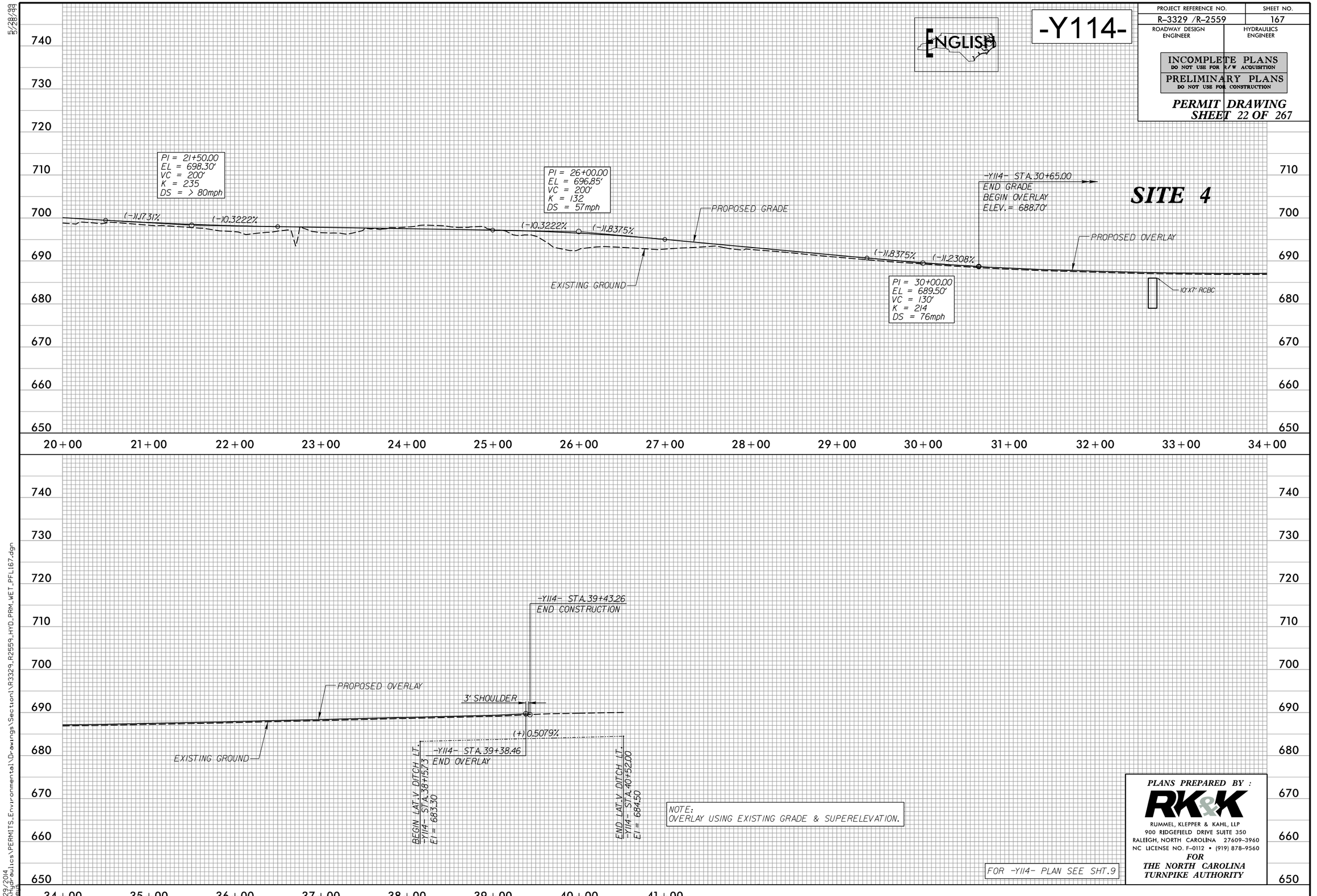
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 22 OF 267

ENGLISH

-Y114-

SITE 4



NOTE:
OVERLAY USING EXISTING GRADE & SUPERELEVATION.

FOR -Y114- PLAN SEE SHT.9

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9/29/2014
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ekeen

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	168
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 23 OF 267

ENGLISH

-R174-

-R174- STA.10+50.14 =
-Y113- STA.25+21.74
BEGIN GRADE
ELEV. = 722.39'

PI = 15+35.00
EL = 727.05'
VC = 550'
K = 166
DS = 61mph

(+)0.9621%
(-)12.3469%
(-)0.5715%
(-)4.5819%
(-)4.0614%
(-)0.5866%
(-)0.5947%

PROPOSED GRADE
EXISTING GROUND

BEGIN SP.BACK OF CURB DITCH LT.
-RI74- STA.14+22.07
E1 = 724.50

PI = 15+70.80
E1 = 723.65

END SP.BACK OF CURB DITCH LT.
-RI74- STA.16+19.47
E1 = 721.42

BEGIN LAT.V. DITCH RT.
-RI74- STA.16+67.96
E1 = 719.81

PI = 18+60.26
E1 = 712.00

END LAT.V. DITCH RT.
BEGIN SP.CUT DITCH RT.
-RI74- STA.19+07.99
E1 = 711.72

END SP.CUT DITCH RT.
-RI74- STA.20+98.01
E1 = 710.59

760 750 740 730 720 710 700 690 680 670

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

SITE 4

-RI74- STA.25+89.95 =
-R474- STA.24+86.71, 12.0' LT
ELEV. = 702.30'

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 460	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 487.8	FT
BASE DISCHARGE	= 500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 488.3	FT
OVERTOPPING DISCHARGE	= 890	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 495.0	FT

PI = 30+40.00
EL = 691.73'
VC = 600'
K = 181
DS = 70mph

(-)12.3469%
(+)0.9700%
(-)6.5378%
(+)0.6392%
(+)0.6392%

PROPOSED GRADE
EXISTING GROUND

10'X7' RCBC

BEGIN LAT.V. DITCH RT.
-RI74- STA.27+86.04
E1 = 694.40

END LAT.V. DITCH RT.
BEGIN LAT.BASE DITCH RT.
-RI74 STA.29+65.00
E1 = 682.70

END LAT.BASE DITCH RT.
BEGIN SP.CUT BASE DITCH RT.
-RI74- STA.33+19.10

-RI74- STA.34+00.00 =
-R374- STA.10+00.00, 24.0' LT
ELEV. = 695.23'

END SP.CUT BASE DITCH RT.
BEGIN LAT.BASE DITCH RT.
-RI74- STA.37+55.51

FOR -RI74- PLAN SEE SHTS.8 & 9

740 730 720 710 700 690 680 670 660 650

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	173
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 24 OF 267

ENGLISH

-R574-

SITE 4

-R574- STA. 22+85.58 =
-R274- STA. 20+81.88
ELEV. = 724.22'

PI = 33+65.00
EL = 686.80'
VC = 850'
K = 138
DS = 60mph

(-)4.5643%

(+)11.6144%

10'X7' RCBC

PI = 41+30.00
EL = 699.15'
VC = 400'
K = 137
DS = 60mph

PROPOSED GRADE

(+)11.6144%

(+)4.5357%

PI = 44+10.00
EL = 711.85'
VC = 160'
K = 228
DS = 68mph

(+)3.8327%

EXISTING GROUND

-R574- STA. 45+37.07 =
-L- STA. 166+50.63
END GRADE
ELEV. = 716.72'

FOR -R574- PLAN SEE SHT. 9

750 740 730 720 710 700 690 680 670 660

32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00

-R674-

SITE 4

-R674- STA. 10+00.00 =
-R574- STA. 28+92.78
BEGIN GRADE
ELEV. = 707.87'

PI = 12+85.00
EL = 694.69'
VC = 455'
K = 136
DS = 60mph

(-)4.6246%

(-)1.2837%

-R674- STA. 12+50.00 =
-R274- STA. 31+46.63, 20.0' RT
ELEV. = 697.67'

BEGIN STDY. DITCH RT.
-R674- STA. 10+94.87
EI = 685.10

(-) 0.3006%

PI = 14+10.86
EI = 684.15

(+) 0.4450%

END STDY. DITCH RT.
-R674- STA. 15+00.75
EI = 684.55

10'X7' RCBC

BEGIN SP.CUT DITCH RT.
-R674- STA. 16+36.67
EI = 685.68

PROPOSED GRADE

PI = 17+75.00
EL = 688.40'
VC = 460'
K = 146
DS = 60mph

(-)1.2837%

(-)0.3012%

END SP.CUT DITCH RT.
-R674- STA. 17+23.00
EI = 685.42

EXISTING GROUND

(+)1.8762%

PI = 23+00.00
EL = 698.25'
VC = 200'
K = 380
DS = 79mph

(+)1.3500%

FOR -R674- PLAN SEE SHT. 9

740 730 720 710 700 690 680 670 660 650

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 25 OF 267

ENGLISH

SITE 4
-L- 175+72

℄

GP AT ℄ STA. 175+72 -L-
ELEV. = 693.42
SKEW = 63°
1@10'X7' RCBC W/
BEVELED HEADWALL

-R574- STA. 35+42

-R674- STA. 16+15

-Y114- STA. 32+66

700

690

680

670

660

PROP. ROADWAY SECTION
(ALONG C.L. OF STRUCTURE)

2+24%
2%
(ALONG SKEW)
(TYPICAL)

RIGHT TOP OF BANK

LEFT TOP OF BANK

EXISTING STREAM BED

2+61%
2%
(ALONG SKEW)
(TYPICAL)

1.34%

1' HIGH CONC. SILL

1' HIGH CONC. BAFFLES
25' SPACING O.C.

℄ BED EL. = 679.14'
SLOPE=0.0086 FT./FT.

EX. 48" CMP
TO BE REMOVED

EX. 42" CMP
TO BE REMOVED

EX. 2@66" RCP
TO BE REMOVED

PROPOSED STREAM BED

1' HIGH CONC. SILL

PROPOSED 10'X7' RCBC WITH BAFFLES

BAFFLE DETAILS

PLAN VIEW

27' +/-

1.0'

FLOW

CROSS SECTION

5.0'

5.0'

STREAM BED ELEVATION

1.0'

0.5'

BAFFLE

FLOW

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERTCONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

9/30/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

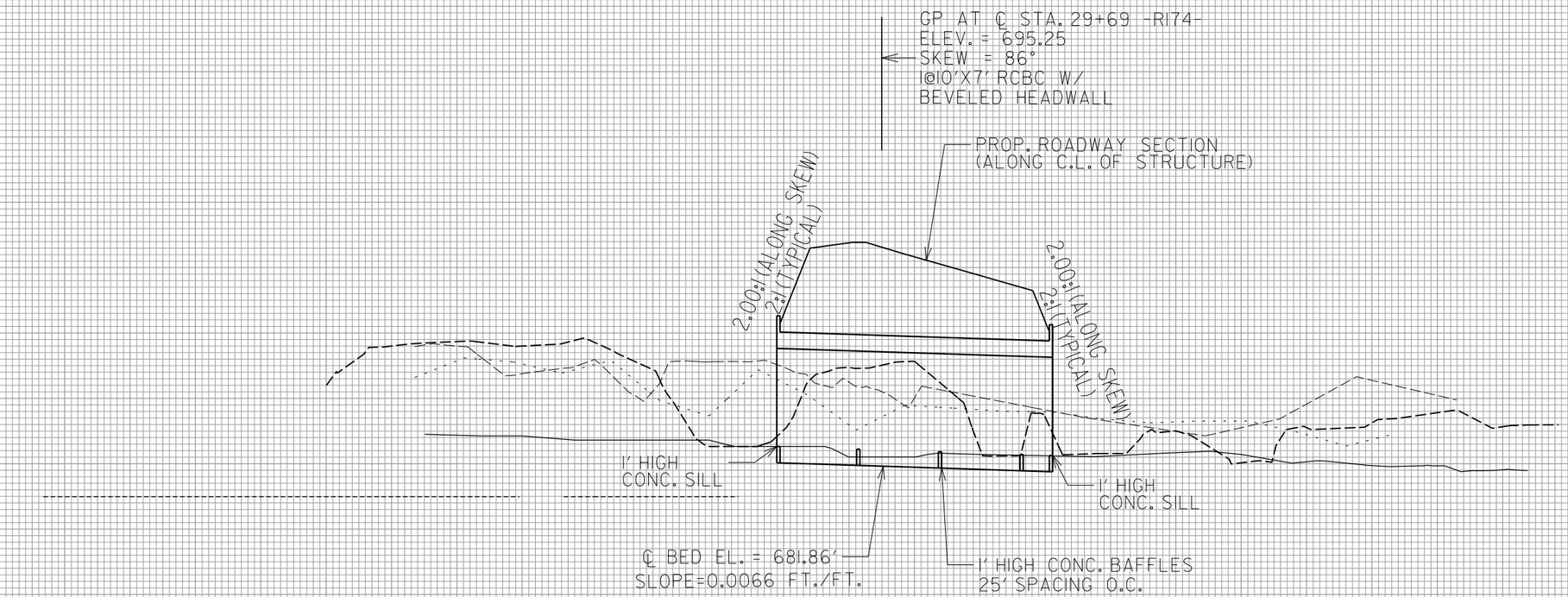
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

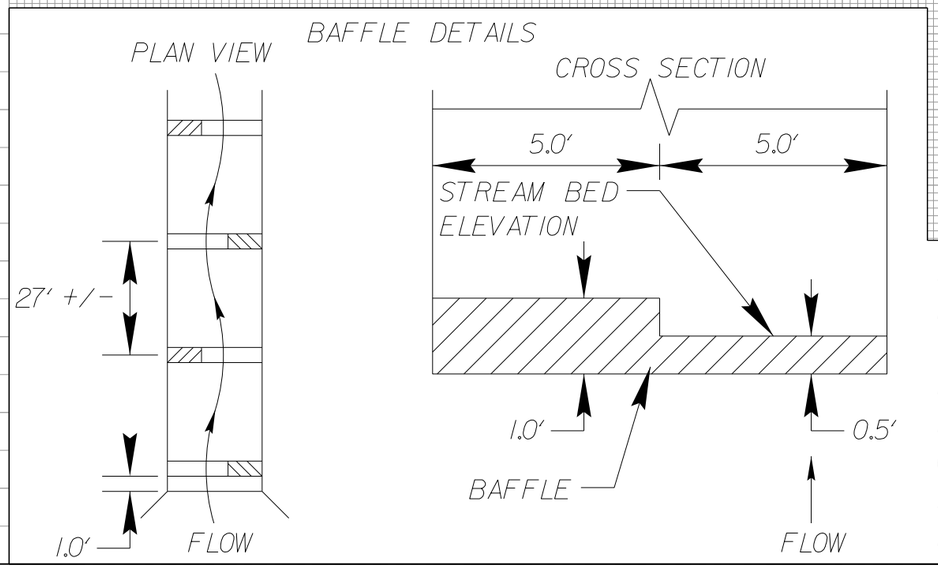
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 26 OF 267

ENGLISH

SITE 4
–R174– STA. 29+69





PROPOSED 10'X7' RCBC WITH BAFFLES

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERTCONSTRUCTION.NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	78
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 DRAWING
SHEET 27 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83

SITE 5

WX207

Q10=103.7 CFS
V10=2.9 FT\S

PX68

SX504

STALLINGS CROSSING LLC
DB3746 PG 367

ROGER W. SHERIN AND WIFE JOYCE P. SHERIN
DB 3746 PG 001

CHRISTINA I GUTIERREZ
DB 5603 PG 383

ROBERT K & SHARON B DAVIS
DB 0380 PG 343

JANNICK BRIOSO
DB 5368 PG 004

RONALD HARVEY & DONNA RENEE BURKS
DB 4905 PG 402

ROGER W SHERIN
DB 3255 PG 174

10+00 15+00 20+00 -SR16-

CAT-1 GRAU 350

15" RCP-III CB 15" RCP-III CB 15" RCP-III CB

10' RCP-III BURIED OUTLET SP. DESIGN

PROPOSED 60' STREET

END NOT FOUND

ISBKD

FOR –SR16– PROFILE SEE SHT. 175

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	78
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 DRAWING
SHEET 28 OF 267

ENGLISH

NAD 83

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SITE 5

Q10=103.7 CFS
V10=2.9 FT\S

WX207

SX504

PX68

-SR16-

10+00

15+00

20+00

STALLINGS CROSSING LLC
DB3746 PG 367

ROGER W. SHERIN AND WIFE JOYCE P. SHERIN
DB3255 PG 001

CHRISTINA I GUTIERREZ
DB 5603 PG 383

ROBERT K & SHARON B DAVIS
DB 0380 PG 343

JANNICK BRIOSO
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DB 4905 PG 402

ROGER W SHERIN
DB 3255 PG 174

FOR –SR16– PROFILE SEE SHT. 175

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ENGLISH

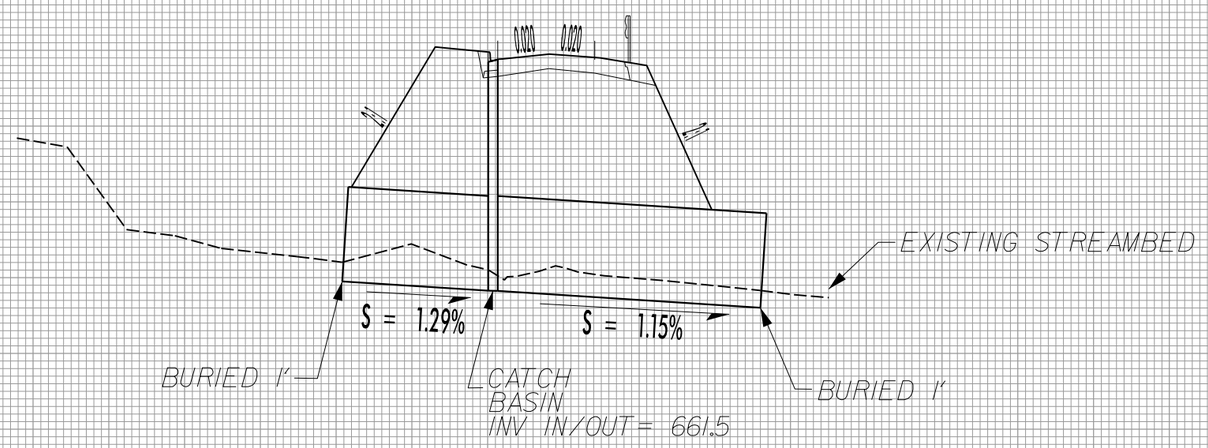
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 29 OF 267

SITE 5
–SR16– 12+00



PROPOSED 60" RCP

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8/23/99

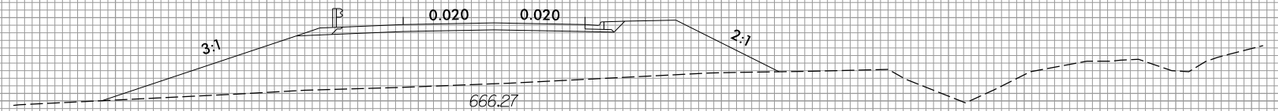
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	1-X80

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

PERMIT DRAWING
SHEET 30 OF 267

ENGLISH

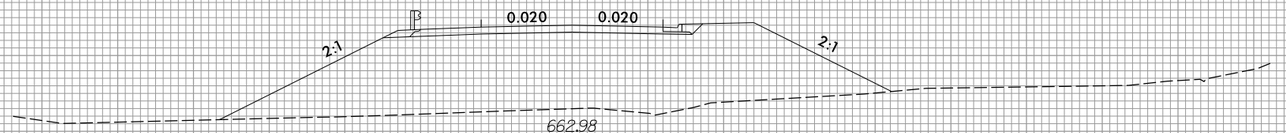
685 680 675 670 665 660



12 + 50.00

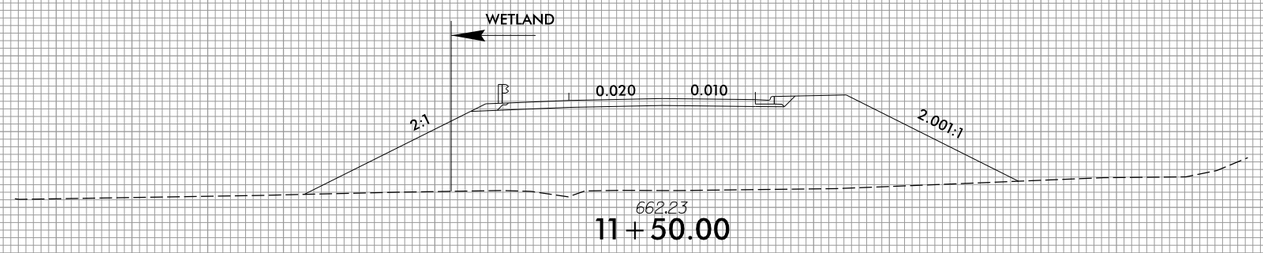
SITE 5

685 680 675 670 665 660 655



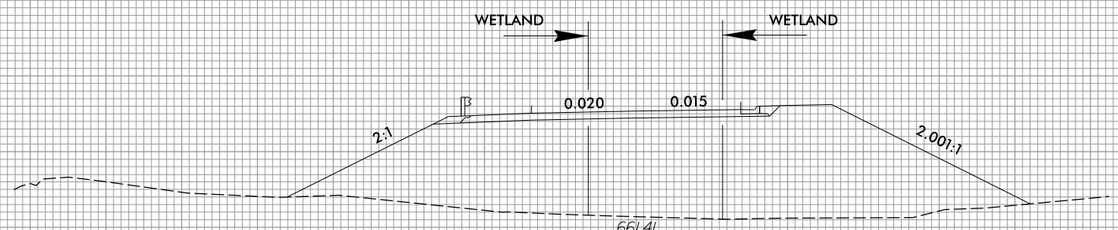
12 + 00.00

685 680 675 670 665 660 655



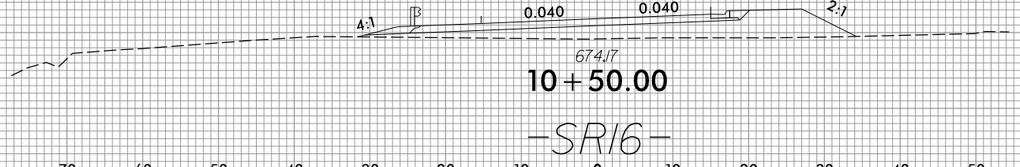
11 + 50.00

685 680 675 670 665 660 655



11 + 00.00

690 685 680 675 670 665



10 + 50.00

–SR16–

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

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	79
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 SHEET 31 | DRAWING OF 267

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83

MATCHLINE –Y112– STA. 21+50 SEE SHEET 10

MATCHLINE –Y112– STA. 35+00 SEE SHEET 80

SITE 6

W013

W014

W012

FOR –Y112– PROFILE SEE SHT. 174
FOR –R174– PROFILE SEE SHT. 169
FOR –R574– PROFILE SEE SHT. 172

–R174–
PI s Sta 11+40.00
Θ s = 1° 26' 11.4"
Ls = 210.00'
LT = 140.00'
ST = 70.00'

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	79
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 SHEET 32 DRAWING OF 267

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83

MATCHLINE –Y112– STA. 21+50 SEE SHEET 10

MATCHLINE –Y112– STA. 35+00 SEE SHEET 80

SITE 6

W013

W014

W012

Q10=42.0 CFS
V10=2.0 FT\S

30 TONS CL I RIPRAP
W/60 SY FIL FAB

3 TONS CL B RIPRAP
W/11 SY FIL FAB

1 TON CL B RIPRAP
W/5 SY FIL FAB

LATERAL V DITCH
SEE DETAIL V

REMOVE 30' 12" RCP

REMOVE SYSTEM

ADJUST DI

GRADE TO DRAIN

RETAIN

COLLAR

18" RCP-III
2GI

24" RCP-III

PUE

FERAS I. SHAKHTUR AND EYAD I. SHAKHTUR
DB 1374 PG 851

CYCLONE ROOFING, LLC
DB 3831 PG 248

BRUCE H. GRIFFIN, JR. FAMILY LIMITED PARTNERSHIP
DB 3454 PG 668

DENNIS J. ROGERS AND WIFE, PHYLLIS P. ROGERS
DB 444 PG 857

COOK OUT INDIAN TRAIL, INC, ET AL
DB 4387 PG 599
DB 4831 PG 446

JOSEPH E. SMITH
DB 733 PG 574

J. D. ARMSTRONG AND LARRY A. MCKINNEY
DB 665 PG 586
PB B PG 322B

JANN L. SNYDER REVOCABLE LIVING TRUST, ET AL
DB 5524 PG 592

REA NELSON LEMMOND, HEIRS
DB 877 PG 179

EDWARDS & NEWMAN COMPANY, LLC,
DB 4914 PG 84
PB B PG 322B

UNION COUNTY

INDIAN TRAIL TOWN LIMITS

ST. LANDRY TOWN LIMITS

20' PERMANENT SANITARY SEWER EASEMENT

FOR –Y112– PROFILE SEE SHT. 174
FOR –R174– PROFILE SEE SHT. 169
FOR –R574– PROFILE SEE SHT. 172

–R174–
Pls Sta 11+40.00
Θ s = 1° 26' 11.4"
Ls = 210.00'
LT = 140.00'
ST = 70.00'

PLANS PREPARED BY :
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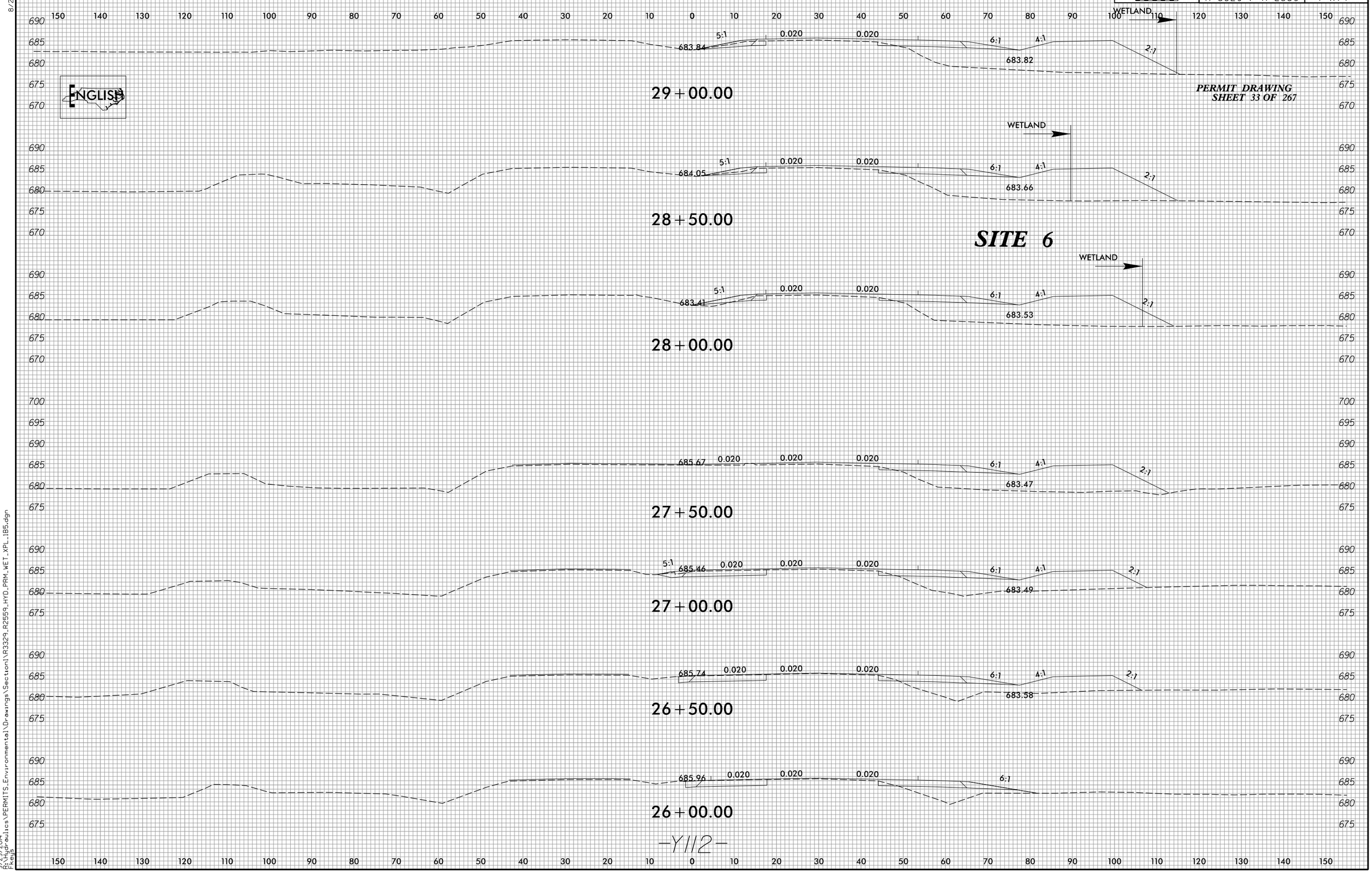
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	1-X74



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Fkeys

8/17/99

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 34 OF 267

NAD 83

MATCHLINE -L- STA. 199+00 SEE SHEET 11

MATCHLINE -SR2- STA. 17+50 SEE SHEET 11

MATCHLINE -R274- STA. 22+00 SEE SHEET 9

MATCHLINE -L- STA. 191+00 SEE SHEET 10

MATCHLINE -R174- STA. 46+50 -R574- STA. 21+00 SEE SHEET 9

MATCHLINE -Y112- STA. 21+50 SEE SHEET 79

SITE 7

ARCH MAX MCLEOD AND WIFE, RUBY HARGETT MCLEOD DB 390 PG 385

JLD PROPERTIES, LLC DB 3248 PG 177

GENE A. OXENDINE AND WIFE, KATHERINE C. DB 270 PG 720

CASCADES, LLC DB 1273 PG 241

ABOLFAZL TAYEBI AND WIFE MAHNAZ H. TAYEBI DB 845 PG 171

JUDY R. MOORE LITTLE 094E PG 228

JOSEPH E. SMITH DB 733 PG 574

C. STEVE CLARDY DB 339 PG 514

THE HELEN T GRIFFIN LIVING TRUST DB 3651 PG 692

UNION COUNTY
STALLINGS TOWN LIMITS

PUE

REMOVE MEDIAN V DITCH SEE DETAIL I

LATERAL V DITCH SEE DETAIL V

REMOVE SYSTEM

REMOVE

PSRM

TYPE B-77

18" RCP-III

15" RCP-III

15" RCP-IV

2GI

2GI-D

3 TONS CL B RIPRAP W/11 SY FIL FAB

24" RCP-III

36" RCP-III

48" RCP-III

CB

R-4 ENCROACHMENT

9/29/2014
R:\Projects\PERMITS_Environmental\Drawings\Section\R3329_R2559_HYD_PRM_WET_PSH010.dgn
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PLANS PREPARED BY :
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ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 35 OF 267

NAD 83

MATCHLINE -L- STA. 199+00 SEE SHEET 11

MATCHLINE -SR2- STA. 17+50 SEE SHEET 11

MATCHLINE -R274- STA. 22+00 SEE SHEET 9

MATCHLINE -L- STA. 191+00 SEE SHEET 10

MATCHLINE -R174- STA. 46+50 -R574- STA. 21+00 SEE SHEET 9

MATCHLINE -R174- STA. 46+50 SEE SHEET 10

MATCHLINE -Y112- STA. 21+50 SEE SHEET 79

SITE 7

ARCH MAX MCLEOD AND WIFE, RUBY HARGETT MCLEOD DB 330 PG 385

JLD PROPERTIES, LLC DB 3248 PG 177

GENE A. OXENDINE AND WIFE, KATHERINE C. DB 270 PG 720

CASCADES, LLC DB 1273 PG 241

ABOLFAZL TAYEBI AND WIFE MAHNAZ H. TAYEBI DB 845 PG 171

JUDY R. MOORE LITTLE 094E PG 228

JOSEPH E. SMITH DB 733 PG 574

C. STEVE CLARDY DB 339 PG 514

THE HELEN T GRIFFIN LIVING TRUST DB 3651 PG 692

UNION COUNTY

STALLINGS TOWN LIMITS

PUE

RW

CA

MA

2GI

2GI-D

15" RCP-IV

18" RCP-III

15" RCP-III

24" RCP-III

REMOVE

MEDIAN V DITCH SEE DETAIL I

LATERAL V DITCH SEE DETAIL V

REMOVE SYSTEM

TYPE B-77

R-4 ENCROACHMENT

40' INGRESS EGRESS EASEMENT

3 TONS CL B RIPRAP W/11 SY FIL FAB

15+00

20+00

50+00

56+00

195+00

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/29/2014
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Fkeus

8/17/99

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 36 OF 267

SITE 7

W011

NAD 83

-L- STA. 199+00 SEE SHEET 10

MATCHLINE -SR2- STA. 17+50 SEE SHEET 10

MATCHLINE -L- STA. 213+00 SEE SHEET 12

MATCHLINE SEE SHEET 81

120 IB PROPERTY HOLDINGS, INC. DB 5364 PG 855

121 BEADLES PROPERTIES LLC DB 3570 PG 780 PC 1PG 315

122 SCANNELL PROPERTIES #68, LLC DB 4664 PG 810 PB K PG 74

123 LANDMARK/OVERTERRA-II LIMITED PARTNERSHIP DB 468 PG 587 PB G PG 172

124 K5 INVESTMENTS, LLC DB 5232 PG 578 PB G PG 172

125 SMITH PROPERTIES II, LLC DB 1819 PG 588 PB G PG 884

127 MICHAEL SCOTT WILLIAMS AND SHERRI W. MULLINS PEGGY C WILLIAMS (LIFE ESTATE) DB 973 PG 744

356 LANDMARK/OVERTERRA LTD PARTNERSHIP PC G FILE 172

357 HARRY S. GRETZ AND WIFE, STEPHANIE S. GRETZ DB 1445 PG 204 PC G FILE 172

RETAIN SYSTEM

REMOVE

Conv. CB To JB w/MH

REMOVE 24" RCP

REMOVE CHAIN LINK FENCE

REMOVE DI

REMOVE 30" RCP

REMOVE 30" RCP-III

REMOVE 24" RCP-III

REMOVE 18" RCP-III

REMOVE 24" RCP

REMOVE CHAIN LINK FENCE

REMOVE RIP RAP

REMOVE 15" CMP

REMOVE 18" RCP

REMOVE 24" RCP

REMOVE 30" RCP

REMOVE 36" RCP

REMOVE 2" PVC

REMOVE 4" PVC

REMOVE 6" PVC

REMOVE 8" PVC

REMOVE 10" PVC

REMOVE 12" PVC

REMOVE 18" PVC

REMOVE 24" PVC

REMOVE 30" PVC

REMOVE 36" PVC

REMOVE 42" PVC

REMOVE 48" PVC

REMOVE 54" PVC

REMOVE 60" PVC

REMOVE 72" PVC

REMOVE 84" PVC

REMOVE 96" PVC

REMOVE 108" PVC

REMOVE 120" PVC

REMOVE 132" PVC

REMOVE 144" PVC

REMOVE 156" PVC

REMOVE 168" PVC

REMOVE 180" PVC

REMOVE 192" PVC

REMOVE 204" PVC

REMOVE

8/17/99

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 37 OF 267

SITE 7

NAD 83

W011

-L- STA. 199+00 MATCHLINE SEE SHEET 10

-SR2- STA. 17+50 MATCHLINE SEE SHEET 10

-L- STA. 213+00 SEE SHEET 12

MATCHLINE SEE SHEET 81

200+00 205+00 210+00 20+00 10+00

IB PROPERTY HOLDINGS, INC. DB 5364 PG 855

BEADLES PROPERTIES LLC DB 3570 PG 780 PC I PG 315

SCANNELL PROPERTIES #88, LLC DB 4664 PG 810 PB K PG 74

K5 INVESTMENTS, LLC DB 5232 PG 578 PB G PG 172

LANDMARK/OVERTERRA II LIMITED PARTNERSHIP DB 468 PG 587 PB G PG 172

MICHAEL SCOTT WILLIAMS AND SHERRI W. MULLINS PEGGY C WILLIAMS (LIFE ESTATE) DB 973 PG 744

LANDMARK/OVERTERRA LTD PARTNERSHIP PC G FILE 172

HARRY S. GRETZ AND WIFE, STEPHANIE S. GRETZ DB 1445 PG 204 PC G FILE 172

SMITH PROPERTIES II, LLC DB 1819 PG 588 PB G PG 884

RETAIN SYSTEM

REMOVE

Conv. CB To JB w/MH

REMOVE 24" RCP

30" RCP

30" RCP-III

24" RCP-III

18" RCP-III

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

OVERHEAD SIGN

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	1-X86

PERMIT DRAWING
SHEET 38 OF 267

ENGLISH

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

695 690 685

689.74

18+00.00

695 690 685

689.65

17+50.00

705 700 695 690 685

WETLAND

4:1 0.023 0.023 2:1

689.68

17+00.00

WETLAND WETLAND

700 695 690 685

4:1 0.003 0.020 2:1

689.72

16+50.00

WETLAND WETLAND

700 695 690 685

0.031 FT./FT. 0.017 0.020 2:1

689.44

16+00.00

WETLAND WETLAND

700 695 690 685

0.018 FT./FT. 0.020 0.020 2:1

689.53

15+50.00

WETLAND WETLAND

700 695 690 685

0.032 FT./FT. 0.020 0.020 4:1

689.71

15+00.00

WETLAND

700 695 690 685

0.023 FT./FT. 0.020 0.020 4:1

689.88

14+50.00

SITE 7

-SR2-

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

9/29/2004
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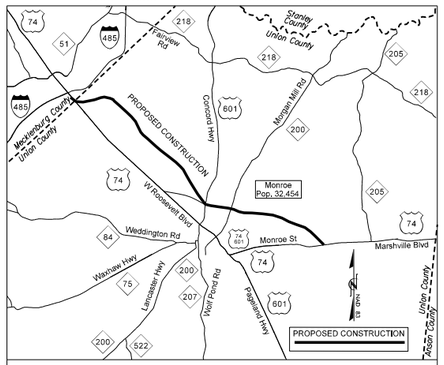
Fkeys

09/08/99

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

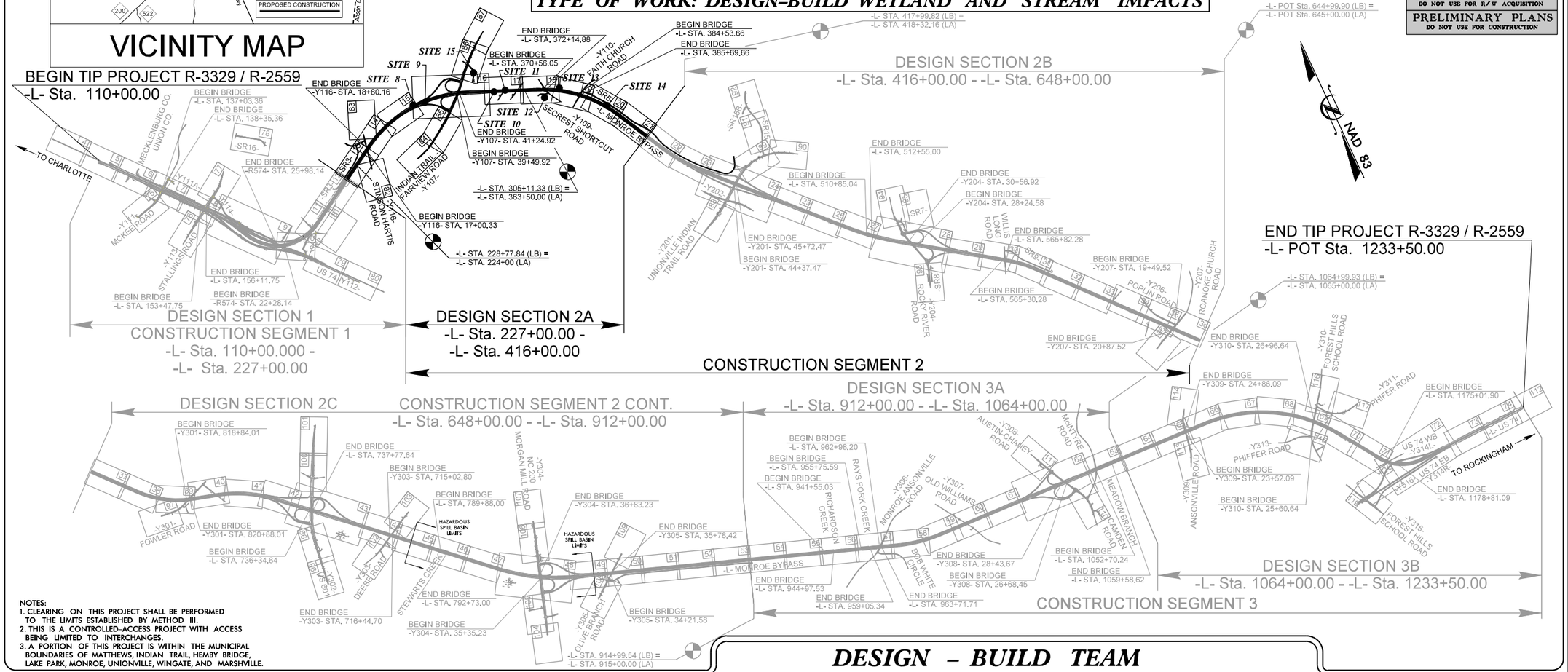
PERMIT DRAWING SHEET 39 OF 267

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD WETLAND AND STREAM IMPACTS



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

DESIGN - BUILD TEAM

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

9/29/2014
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Fkeys:

8/17/99

ENGLISH

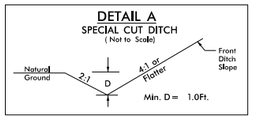
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

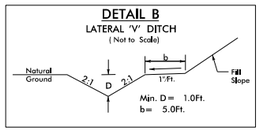
PERMIT DRAWING
SHEET 40 OF 267

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



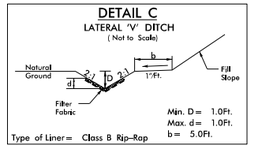
–L2A– STA. 226+50 TO STA. 229+00 LT
–L2A– STA. 281+00 TO STA. 282+50 RT
–L2A– STA. 285+00 TO STA. 287+00 LT
–L2A– STA. 289+00 TO STA. 289+50 RT
–L2A– STA. 295+00 TO STA. 297+00 RT
–L2A– STA. 413+00 TO STA. 414+00 RT
–KRC– STA. 18+70 TO STA. 20+50 RT
–SR3– STA. 29+00 TO STA. 29+81 RT
–SR3– STA. 29+00 TO STA. 29+85 RT
–Y115– STA. 13+50 TO STA. 16+00 RT
–SR4– STA. 12+50 TO STA. 14+00 RT
–Y107– STA. 15+90 TO STA. 16+50 LT & RT
–Y107– STA. 51+00 TO STA. 52+00 LT
–Y107– STA. 53+00 TO STA. 56+65 LT
–Y107– STA. 62+50 TO STA. 63+00 LT & RT
–Y109– STA. 18+00 TO STA. 21+00 LT
–Y116– STA. 22+50 TO STA. 23+50 LT & RT

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



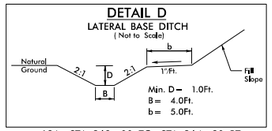
–Y107– STA. 17+35 TO STA. 18+70 LT
–Y107– STA. 56+65 TO STA. 58+00 LT

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



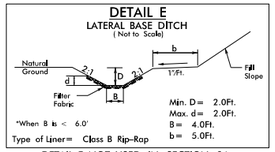
–X– STA. XX+XX TO STA. XX+XX XT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



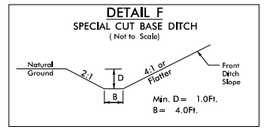
–L2A– STA. 263+00 TO STA. 264+90 RT
–L2A– STA. 289+50 TO STA. 295+00 RT
–L2A– STA. 291+50 TO STA. 293+70 LT
–L2A– STA. 364+00 TO STA. 370+55 LT
–L2A– STA. 371+20 TO STA. 373+55 LT
–L2A– STA. 373+50 TO STA. 375+24 RT
–L2A– STA. 375+50 TO STA. 379+50 RT
–L2A– STA. 397+00 TO STA. 409+50 RT
–KRC– STA. 16+25 TO STA. 18+70 RT
–SR107– STA. 11+50 TO STA. 17+50 LT
–SR5– STA. 34+35.74 TO STA. 38+92.70 RT
–Y107– STA. 18+00 TO STA. 21+91 LT
–Y107– STA. 21+91 TO STA. 24+50 RT
–Y109– STA. 15+50 TO STA. 15+93 LT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



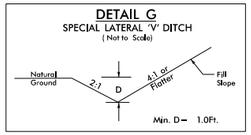
DETAIL E NOT USED IN SECTION 2A

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



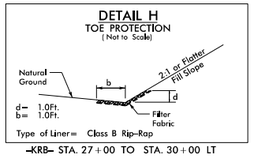
–SR4– STA. 10+50 TO STA. 14+22 LT
–Y107– STA. 17+50 TO STA. 21+91 RT

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



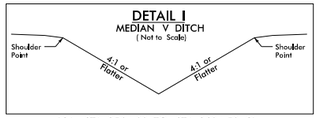
–Y107– STA. 55+00 TO STA. 59+50 RT

DETAIL H
TOE PROTECTION
(Not to Scale)



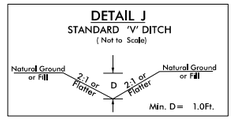
–KRB– STA. 27+00 TO STA. 30+00 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



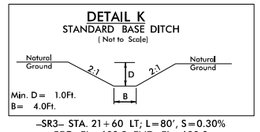
–L2A– STA. 256+00 TO STA. 260+50 CL
–L2A– STA. 408+00 TO STA. 411+00 CL
–L2A– STA. 372+50 TO STA. 375+50 CL

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



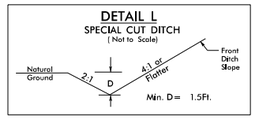
–L2A– STA. 386+50 TO STA. 393+50 LT
–L2A– STA. 396+00 TO STA. 401+00 LT
–L2A– STA. 401+50 TO STA. 409+50 LT

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



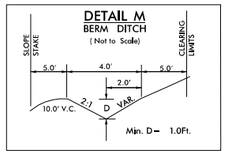
–SR3– STA. 21+60 LT; L=80', S=0.30%
BEG EL=680.2, END EL=680.0

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



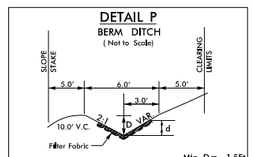
–L2A– STA. 259+00 TO STA. 263+00 RT

DETAIL M
BERM DITCH
(Not to Scale)



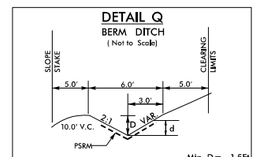
–L2A– STA. 227+00 TO STA. 225+50 RT (STA. EQUAL.; L=328')
–L2A– STA. 227+25 TO STA. 231+00 RT
–L2A– STA. 238+00 TO STA. 244+00 LT
–L2A– STA. 246+50 TO STA. 250+75 RT
–L2A– STA. 244+00 TO STA. 246+50 LT
–L2A– STA. 255+00 TO STA. 257+00 RT

DETAIL P
BERM DITCH
(Not to Scale)



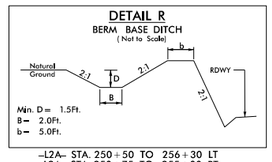
DETAIL P NOT USED IN SECTION 2A

DETAIL Q
BERM DITCH
(Not to Scale)



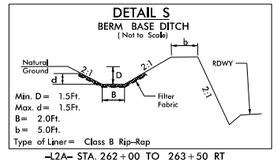
–L2A– STA. 225+50 TO STA. 227+25 RT
–L2A– STA. 245+50 TO STA. 246+50 RT
–L2A– STA. 246+50 TO STA. 250+50 LT

DETAIL R
BERM BASE DITCH
(Not to Scale)



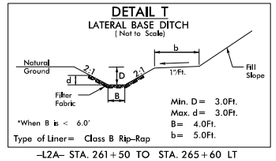
–L2A– STA. 250+50 TO 256+30 LT
–L2A– STA. 250+75 TO 255+00 RT
–L2A– STA. 257+00 TO 262+00 RT

DETAIL S
BERM BASE DITCH
(Not to Scale)



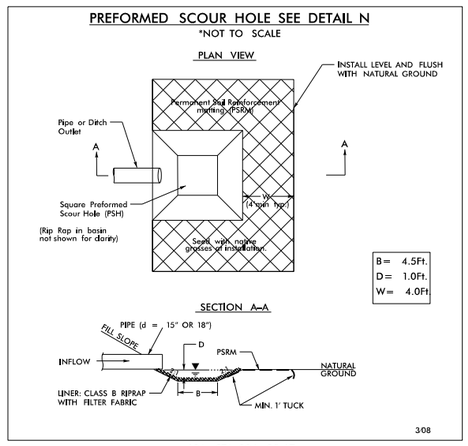
–L2A– STA. 262+00 TO 263+50 RT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)

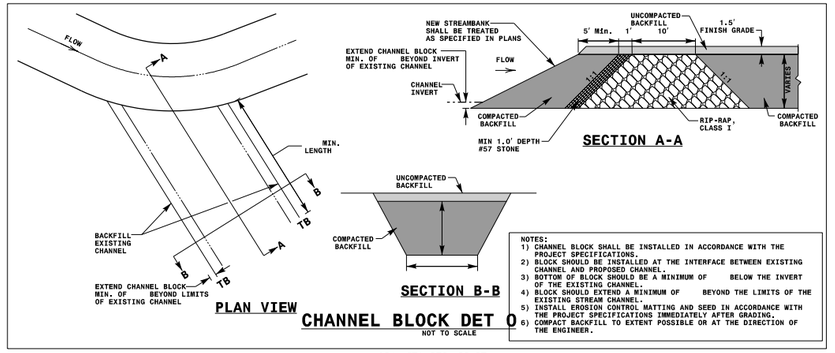


–L2A– STA. 261+50 TO STA. 265+60 LT

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE

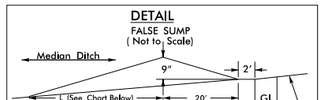


–L2A– STA. 294+25 LT



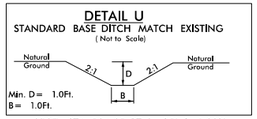
–L2A– STA. 370+98 RT
–SR4– STA. 12+20 RT

DETAIL
FALSE SUMP
(Not to Scale)



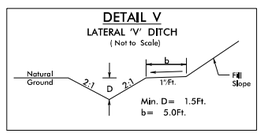
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



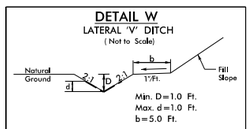
–Y107– STA. 56+65 RT; L=35', S=1.00%
BEG EL=640.0, END EL=639.7

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



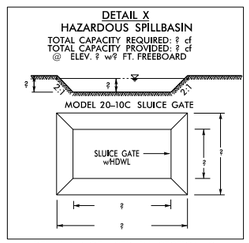
–L2A– STA. 298+84 TO STA. 300+50 RT

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



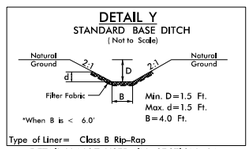
–L2A– STA. 298+05 TO STA. 300+50 LT

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



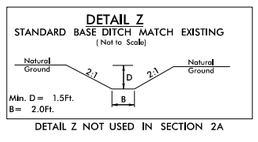
DETAIL X NOT USED IN SECTION 2A

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



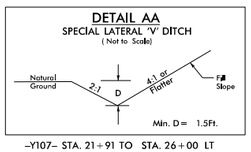
DETAIL Y NOT USED IN SECTION 2A

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



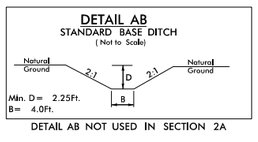
DETAIL Z NOT USED IN SECTION 2A

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



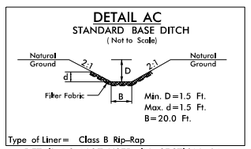
–Y107– STA. 21+91 TO STA. 26+00 LT

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



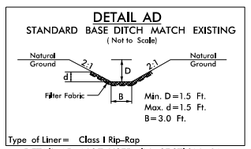
DETAIL AB NOT USED IN SECTION 2A

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



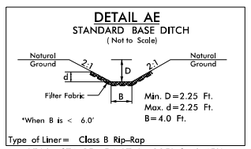
DETAIL AC NOT USED IN SECTION 2A

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



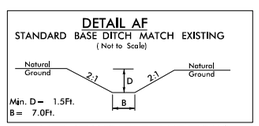
DETAIL AD NOT USED IN SECTION 2A

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



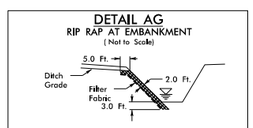
–Y109– STA. 15+54 LT; L=235', S=2.45%
BEG EL=631.75, END EL=626.0
INSTALL CLASS B RIP-RAP ON BANKS ONLY

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



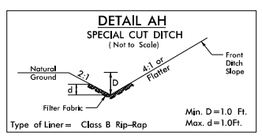
–L2A– STA. 298+15 LT; L=75', S=0.53%
BEG EL=636.0, END EL=635.6

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



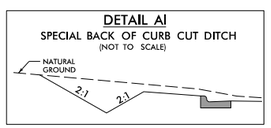
DETAIL AG NOT USED IN SECTION 2A

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



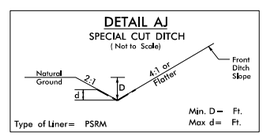
DETAIL AH NOT USED IN SECTION 2A

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



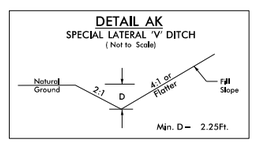
DETAIL AI NOT USED IN SECTION 2A

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



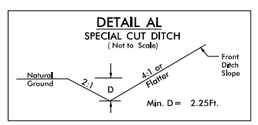
DETAIL AJ NOT USED IN SECTION 2A

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



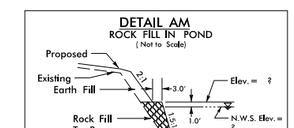
–KRB– STA. 14+00 TO STA. 17+55 LT

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



–KRB– STA. 16+60.72 TO STA. 17+55.00 RT
–KRB– STA. 17+55 TO STA. 20+00 LT

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



DETAIL AM NOT USED IN SECTION 2A

8/29/2014
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Ekaus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

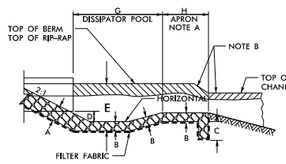
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 41 OF 267

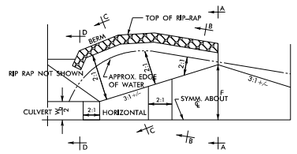
DETAIL AN

RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

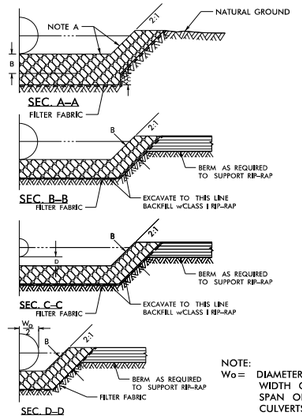


HALF PLAN



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A) = SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

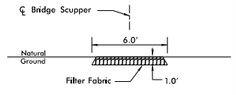
*ALL DIMENSIONS APPROXIMATE IN FEET

BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

5/05

DETAIL AN NOT USED IN SECTION 2A

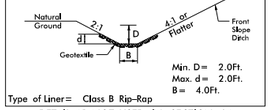
DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)



Type of Liner= CLASS B RIP RAP

DETAIL AO NOT USED IN SECTION 2A

DETAIL AP
SPECIAL CUT BASE DITCH
(Not to Scale)

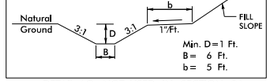


Min. D= 2.0Ft.
Max. d= 2.0Ft.
B= 4.0Ft.

Type of Liner= Class B Rip–Rap

DETAIL AP NOT USED IN SECTION 2A

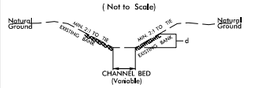
DETAIL AQ
LATERAL GRASSED SWALE
(Not to Scale)



Min. D=1 Ft.
B= 6 Ft.
b= 5 Ft.

DETAIL AQ NOT USED IN SECTION 2A

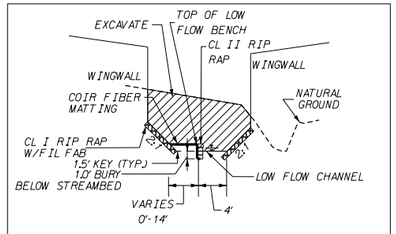
DETAIL AR
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)



Class I Rip Rap

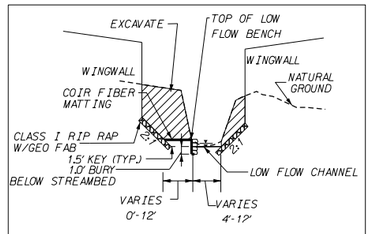
DETAIL AR NOT USED IN SECTION 2A

UT TO NORTH FORK CROOKED CREEK –L– STA. 265+40



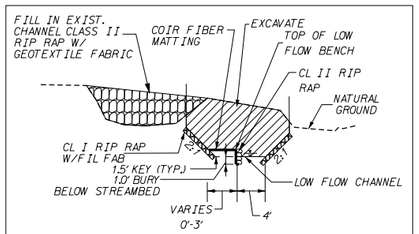
CULVERT INLET DETAIL (NTS)
LENGTH = 26'

UT TO NORTH FORK CROOKED CREEK –L– STA. 293+48



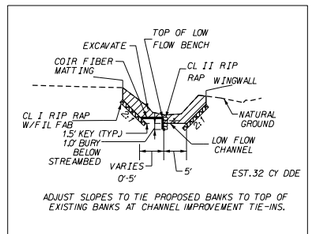
CULVERT INLET DETAIL (NTS)
LENGTH = 48'

UT TO NORTH FORK CROOKED CREEK –L– STA. 373+54

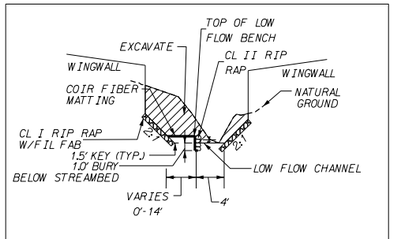


CULVERT OUTLET DETAIL (NTS)
LENGTH = 63'

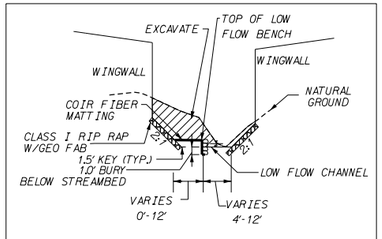
UT TO NORTH FORK CROOKED CREEK –L– STA. 396+14



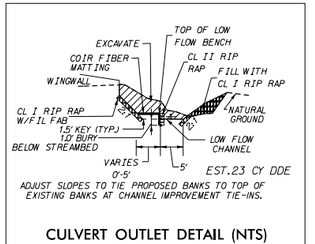
CULVERT INLET DETAIL (NTS)
LENGTH = 19'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 43'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 56'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 41'

9/30/2004
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Ekaus

8/17/99

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 42 OF 267

NAD 83

SITE 8

W 20

S 032
(INTERMITTENT)

S 031b
(INTERMITTENT)

S 031a
(INTERMITTENT)

W 019

156 LR & FR, LLC

161 LR & FR, LLC

160 LR & FR, LLC

152 NJV INVESTMENT, LLC

153 NJV INVESTMENT, LLC

WOODS

MATCHLINE –L– STA. 248+00 SEE SHEET 14

MATCHLINE –L– STA. 262+00 SEE SHEET 16

250+00

255+00

260+00

10+00

BERM DITCH SEE DETAIL Q

BDO

15" CAAP 2 ELBOWS ROD & LUG

2GI

FS

15" RCP-III

36" RCP-III

42" RCP-III

2GI-A

BERM DITCH SEE DETAIL R

MEDIAN V DITCH SEE DETAIL I

LATERAL BASE DITCH SEE DETAIL T

24" RCP-III

2GI-D

BERM DITCH SEE DETAIL M

BERM BASE DITCH SEE DETAIL R

SPECIAL CUT DITCH SEE DETAIL L

OVERHEAD SIGN

SOIL

FOR –L– PROFILE SEE SHTS. 125 & 126
FOR –KRC– PROFILE SEE SHT. 183

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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FLeiva

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 43 OF 267

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 8

W 20

S 032 (INTERMITTENT)

S 031b (INTERMITTENT)

S 031a (INTERMITTENT)

W 019

156 LR & FR, LLC

161 LR & FR, LLC

160 LR & FR, LLC

152 NJV INVESTMENT, LLC

153 NJV INVESTMENT, LLC

WOODS

MATCHLINE –L– STA. 248+00 SEE SHEET 14

MATCHLINE –L– STA. 262+00 SEE SHEET 16

250+00

255+00

260+00

10+00

BERM DITCH SEE DETAIL Q

BDO

15" CAAP 2 ELBOWS ROD & LUG

2GI

FS

15" RCP-III

36" RCP-III

42" RCP-III

2GI-A

BERM DITCH SEE DETAIL R

MEDIAN V DITCH SEE DETAIL I

LATERAL BASE DITCH SEE DETAIL T

24" RCP-III

2GI-D

15" CAAP 2 ELBOWS ROD & LUG

SPECIAL CUT DITCH SEE DETAIL L

BERM DITCH SEE DETAIL M

BERM BASE DITCH SEE DETAIL R

OVERHEAD SIGN

FOR –L– PROFILE SEE SHTS. 125 & 126
FOR –KRC– PROFILE SEE SHT. 183

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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FLEIG

REVISIONS

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

PERMIT DRAWING
SHEET 44 OF 267

SHEET 16A

NAD 83

B

C

SITE 9

SITE 8

SITE 9

W018

W019

W 17

S 28c (PERENNIAL)

S 31c (INTERMITTENT)

S 28b (PERENNIAL)

MATCHLINE -L- STA. 262+00 SEE SHEET 15

MATCHLINE -Y107- STA. 47+00 SEE SHEET 86

MATCHLINE -SR107- STA. 12+00 SEE SHEET 86

MATCHLINE -Y107- STA. 31+00 SEE SHEET 85

MATCHLINE -L- STA. 290+00 SEE SHEET 17

40+00

△= 63° 47' 32"

TOE PROTECTION SEE DETAIL H

GRADE TO SMOOTH

95 TONS CLB RIPRAP IN DITCHES

SPECIAL CUT DITCH SEE DETAIL AL

SP. LAT. V. DITCH SEE DETAIL AK

"S" CAAP 2 ELBOWS RCP & U/G

SPECIAL CUT DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL D

BERM DITCH SEE DETAIL S TIE TO LAT BASE DITCH

SEE CULVERT PAY ITEMS DETAIL -L- STA. 265+40

OVERHEAD SIGN

LATERAL BASE DITCH SEE DETAIL S

LATERAL BASE DITCH SEE DETAIL T

WET CLEANOUT DITCH SEE DETAIL AM

(74) RUSSELL C. HOSAFLOOK AND WIFE, DONNA R. HOSAFLOOK

(75) NCDOT-T4

(76) HAL D. HOBARD LINDA H. PARISH STEVEN E. HOWARD

(77) MILDRED H. SPENCER

(73) RUBY S. WILLIAMS

(19) BILLY M. STEGALL

(60) LR & FR, LLC

(70) JODIE P. STEGALL AND WIFE, NANCY G. STEGALL

(69) BILLY A. THOMPSON AND WIFE, BARBARA A. THOMPSON

(68) JOHN R. BALDOM AND WIFE, CATHERINE BL BALDOM

(71) BARBARA BROOKS TAYLOR

(72) RUBY STEGALL WILLIAMS

(94) WILLIAM RALPH DODSON ERMIE ANDERSON LANE

FOR -L- PROFILE SEE SHTS. 126 & 127
FOR -Y107- PROFILE SEE SHTS. 179 & 180
FOR -KLB- PROFILE SEE SHT. 181
FOR -KLB- PROFILE SEE SHT. 182
FOR -KJC- PROFILE SEE SHT. 183
FOR -KLC- PROFILE SEE SHT. 183

PLANS PREPARED BY :
RKK
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-2960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

LOCATION:

TIP NO. R-3329 /R-2559 COUNTY: UNION

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

8/20/2014
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REVISIONS

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 45 OF 267

NAD 83

SHEET 16A

B

C

SITE 9

SITE 8

SITE 9

W018

W019

W 17

S 28c (PERENNIAL)

S 31c (INTERMITTENT)

S 28b (PERENNIAL)

MATCHLINE -L- STA. 262+00 SEE SHEET 15

MATCHLINE -Y107- STA. 47+00 SEE SHEET 86

MATCHLINE -SR107- STA. 12+00 SEE SHEET 86

MATCHLINE -Y107- STA. 31+00 SEE SHEET 85

MATCHLINE -L- STA. 290+00 SEE SHEET 17

△= 63° 47' 32"

FOR -L- PROFILE SEE SHTS. 126 & 127
FOR -Y107- PROFILE SEE SHTS. 179 & 180
FOR -KLB- PROFILE SEE SHT. 181
FOR -KLB- PROFILE SEE SHT. 182
FOR -KLC- PROFILE SEE SHT. 183
FOR -KLC- PROFILE SEE SHT. 183

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

LOCATION:

TIP NO. R-3329 /R-2559 | COUNTY: UNION

DESIGNED BY:

CHECKED BY: | DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

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8/17/99

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	16A
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 DRAWING
SHEET 46 OF 267

NAD 83

W018

S 28c
(PERENNIAL)

SITE 9

S 31c
(INTERMITTENT)
LATERAL BASE DITCH
SEE DETAIL T

SITE 8

W 019

W 17

SITE 9

S 28b
(PERENNIAL)

MATCHLINE -L- STA. 262+00
SEE SHEET 15

(161) LR & FR, LLC

(174) RUSSELL C. HOSAFLOOK AND WIFE, DONNA R. HOSAFLOOK

(160) LR & FR, LLC

B

C

-L-

-KRB-

-KLB-

-KLC-

-KRC-

20+00

15+00

270+00

275+00

10+00

30" RCP-III

SPECIAL CUT DITCH
SEE DETAIL AL

SP. LAT. V DITCH
SEE DETAIL AK

SEE CULVERT OUTLET
DETAIL -L-
STA. 265+40

2GI

15" CAAP
2 ELBOWS
ROD & LUG

SPECIAL CUT DITCH
SEE DETAIL AL

42" RCP-III

FES

2GI-A

24" RCP-III

36" RCP-III

15" RCP-III

CB

LATERAL BASE DITCH
SEE DETAIL D

SPECIAL CUT DITCH
SEE DETAIL L

BERM DITCH
SEE DETAIL S
TIE TO LAT BASE DITCH

SEE CULVERT INLET
DETAIL -L-
STA. 265+40

SPECIAL CUT
DITCH SEE
DETAIL A

WOODS

U/G GAS MARKER

FOR -L- PROFILE SEE SHTS. 125 & 126
FOR -KRC- PROFILE SEE SHT. 188

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9/30/2014
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8/17/99

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	16A
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 DRAWING
SHEET 47 OF 267

NAD 83

W018

S 28c
(PERENNIAL)

S 31c
(INTERMITTENT)
LATERAL BASE DITCH
SEE DETAIL T

W 019

W 17

SITE 8

SITE 9

SITE 9

MATCHLINE –L– STA. 262+00
SEE SHEET 15

SEE CULVERT OUTLET
DETAIL –L–
STA. 265+40

SEE CULVERT INLET
DETAIL –L–
STA. 265+40

SPECIAL CUT DITCH
SEE DETAIL AL

SP. LAT. V DITCH
SEE DETAIL AK

15" CAAP
2 ELBOWS
ROD & LUG

LATERAL BASE DITCH
SEE DETAIL D

SPECIAL CUT DITCH
SEE DETAIL L

BERM DITCH
SEE DETAIL S
TIE TO LAT BASE DITCH

SPECIAL CUT
DITCH SEE
DETAIL A

30" RCP-III

42" RCP-III

36" RCP-III

24" RCP-III

15" RCP-III

2GI

2GI-A

FS

CB

20+00

15+00

10+00

275+00

270+00

265+00

161
LR & FR, LLC

160
LR & FR, LLC

174
RUSSELL C. HOSAFLOOK
AND WIFE,
DONNA R. HOSAFLOOK

WOODS

U/G
GAS MARKER

B

C

FOR –L– PROFILE SEE SHTS. 125 & 126
FOR –RPC– PROFILE SEE SHT. 188

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TURNPIKE AUTHORITY

9/30/2014
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2A-X22

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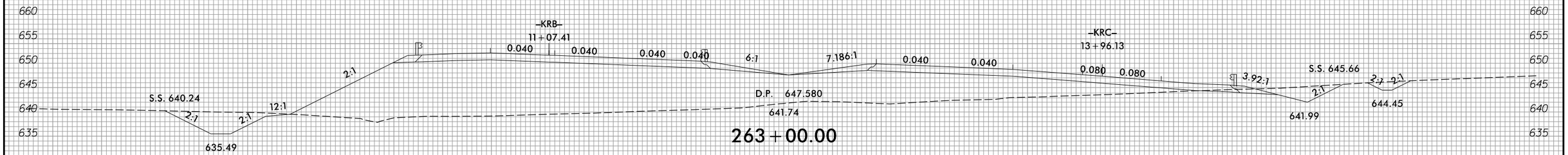
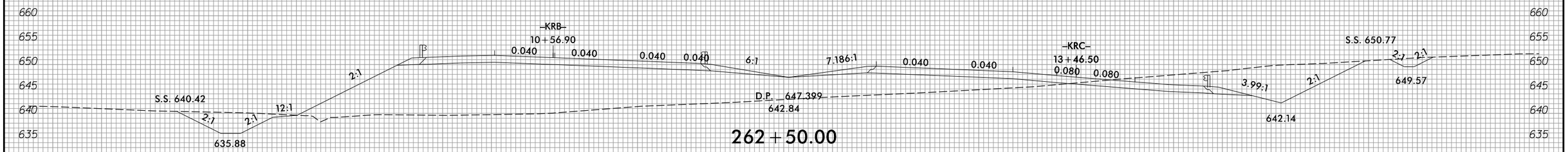
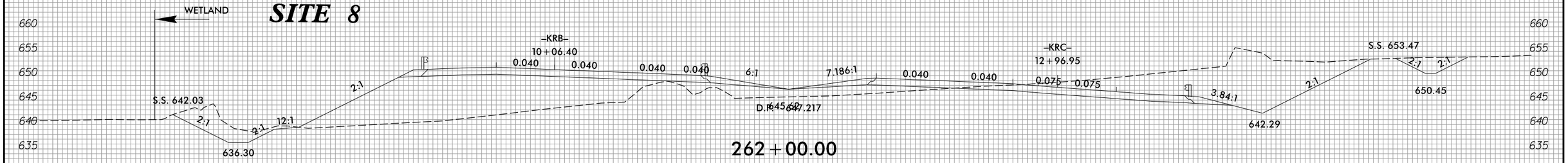
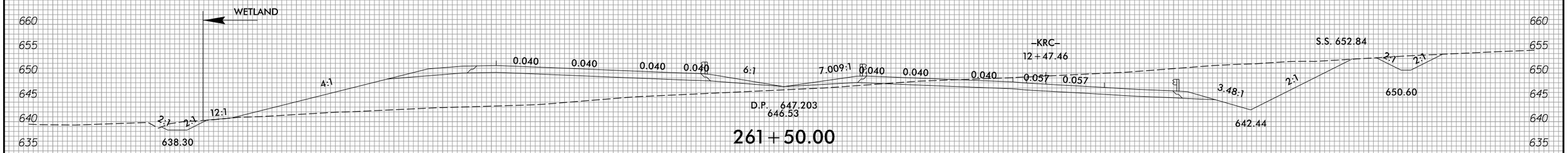
ENGLISH

PERMIT DRAWING
SHEET 48 OF 267









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

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	126
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 49 OF 267

ENGLISH

-L-

700 690 680 670 660 650 640 630 620 610

250+00 251+00 252+00 253+00 254+00 255+00 256+00 257+00 258+00 259+00 260+00 261+00 262+00 263+00 264+00

PI = 258+40.00
EL = 648.50'
VC = 250'
K = 290
DS = > 80mph

-L- STA.259+00.00 =
-KRC- STA.10+00.00,47' RT.
ELEV.= 648.79'

-L- STA.261+93.65 =
-KRB- STA.10+00.00,47' LT.
ELEV.= 649.78'

EXISTING GROUND

PROPOSED GRADE

(-)0.5000%
(-) 0.2993%
(+)0.3622%
(+) 1.8480%
(-) 0.3000%
(-) 4.0000%
(-) 0.8056%

BEGIN MED.V. DITCH
-L- STA.256+00.00
EI = 647.03

BEGIN SP.CUT DITCH RT.
-L- STA.259+00.00
EI = 643.19

PI = 260+00.00
EI = 645.830

END MED.V. DITCH
-L- STA.260+50.00
EI = 646.75

BEGIN LAT.BASE DITCH LT.
-L- STA.261+50.00
EI = 638.30

PI = 262+00.00
EI = 636.30

END SP.CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA.263+00.00
EI = 641.99

SITE 9

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 643.7	FT
OVERTOPPING DISCHARGE	= 1000	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 647.5	FT

END LAT.BASE DITCH RT.
-L- STA.264+90.00
EI = 636.70

(-) 2.7842%

269'X7' RCBC

(-)0.8056%

END LAT.BASE DITCH LT.
-L- STA.265+60.00
EI = 633.40

EXISTING GROUND

-L- STA.274+96.33 =
-KLC- STA.10+00.00,47' RT.
ELEV.= 654.50'

PI = 278+00.00
EL = 655.60'
VC = 250'
K = 296
DS = 73mph

(+)0.3622%

PROPOSED GRADE

690 680 670 660 650 640 630 620 610 600

264+00 265+00 266+00 267+00 268+00 269+00 270+00 271+00 272+00 273+00 274+00 275+00 276+00 277+00 278+00

FOR -L- PLAN SEE SHTS.15 & 16

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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FOR
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

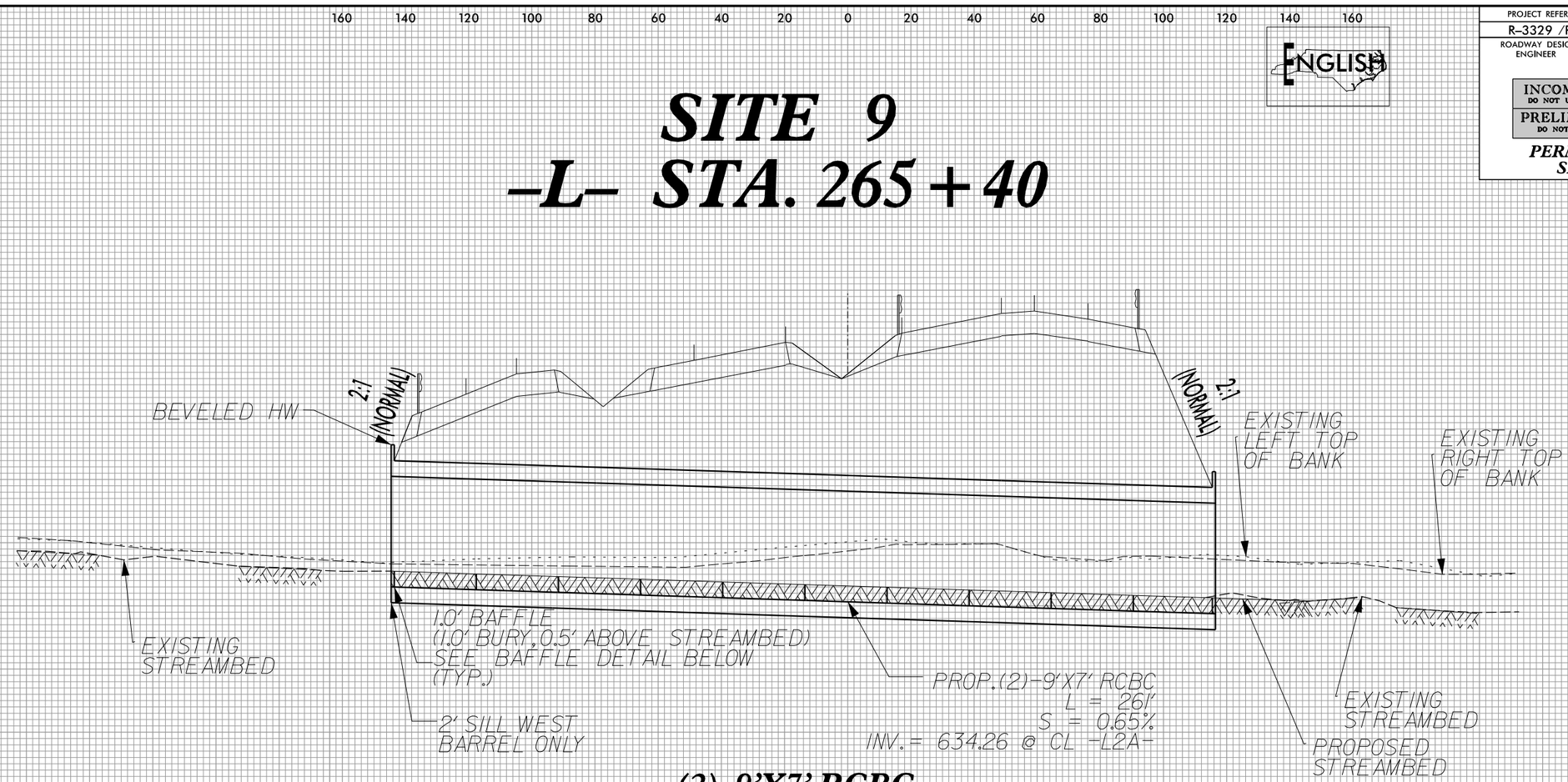
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 50 OF 267

ENGLISH

SITE 9
–L– STA. 265+40

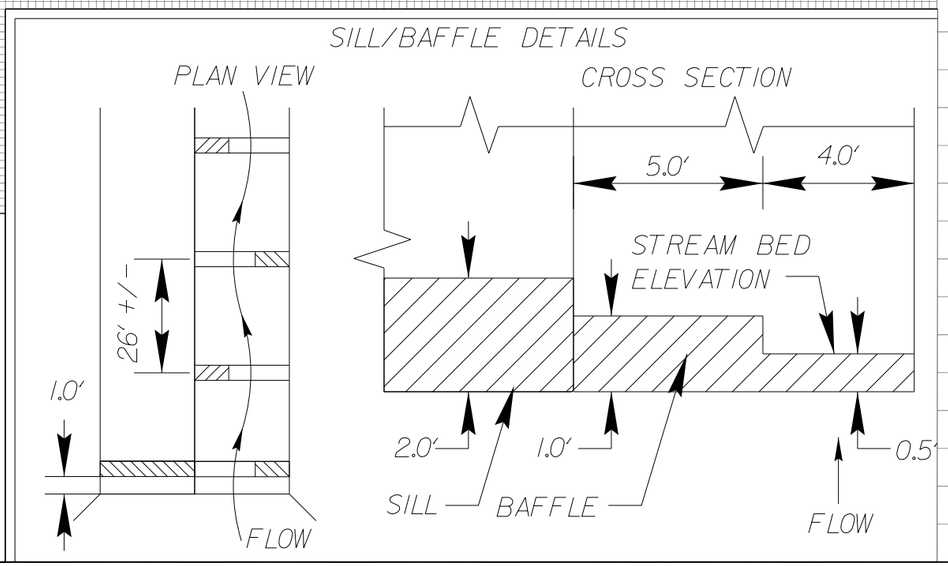


(2)–9'X7' RCBC
WITH SILL & BAFFLES

PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), MATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.



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ksmith
Plans

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2A-X23

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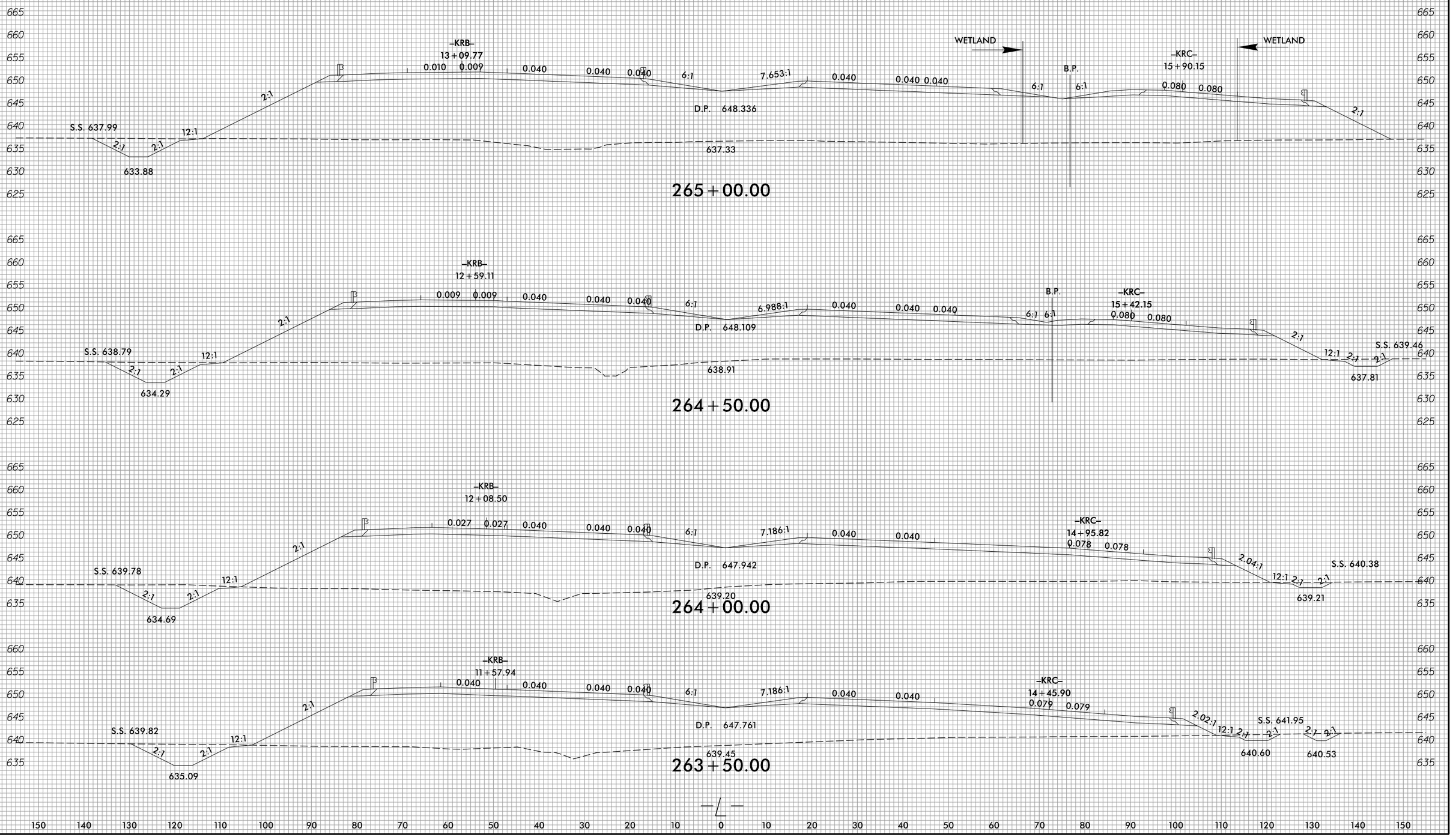
PERMIT DRAWING
SHEET 51 OF 267

ENGLISH

SITE 9



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8/17/99

ENGLISH

SS DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	17
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 DRAWING
SHEET 52 OF 267

SITE 10

SITE 11

S034 (PERENNIAL)

S036 (INTERMITTENT)

MATCHLINE –L– STA. 290+00 SEE SHEET 16

MATCHLINE –L– STA. 304+00 SEE SHEET 18

290+00 295+00 300+00 10+00 15+00

191 BILLY M. STEGALL

192 MARY K. SIMPSON

193 ROY N. BECK, JR. AND WIFE, CAROL G. BECK

198 ROY N. BECK JR. AND WIFE, CAROL L. BECK

200 JOHN H. SWINDELL AND WIFE, JEANNINE T. SWINDELL

205 MARK J. TRICKEY AND WIFE, LISA M. TRICKEY

132 JAMES RICHARD JENKINS III

204 HELGA E. RIDER

209 THOMAS H. KNOWLES AND WIFE, AGNES L. KNOWLES

208 DAVID JETHRO OATES, III

207 DAVID JETHRO OATES, III

206 VERNON F. FOXX AND WIFE, WANDA R. FOXX

DONALD ATKINSON AND WIFE, CLEVELAND B. ATKINSON

RUSHING CONSTRUCTION COMPANY

THEODORE BRYON BAUCOM AND WIFE, BOBBI JO L. BAUCOM

210 THEODORE BRYON BAUCOM AND WIFE, BOBBI JO L. BAUCOM

211 BILLY L. BAUCOM REVOCABLE TRUST

213 RUSHING CONSTRUCTION COMPANY

214 RUSHING CONSTRUCTION COMPANY

215 RUSHING CONSTRUCTION COMPANY

216 RAYMOND M. STEGALL JR. AND WIFE, REBECCA STEGALL

217 RAYMOND M. STEGALL JR. AND WIFE, REBECCA STEGALL

218 RUSHING CONSTRUCTION COMPANY

230 J. S. BAUCOM REVOCABLE TRUST

233 SANDRA D. BAIRD

194 WILLIAM RALPH JORDAN, EMMIE ANDERSON LANEY

195 JODIE P. STEGALL AND WIFE, NANCY G. STEGALL

196 RICHARD E. PETTEROUSI AND WIFE, LORA V. PETTEROUSI

197 JOEL N. BECK AND WIFE, CECELIE S. BECK

SEE CULVERT OUTLET DETAIL –L– STA. 293+48

SEE CULVERT INLET DETAIL –L– STA. 293+48

PSH SEE DETAIL N

STANDARD BASE DITCH SEE DETAIL AF

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL W

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL V

(2)12'x6' RCBC

15" RCP-III

36" RCP-III

2GI

3GI

FS

REMOVE

GRADE TO DRAIN

–CUL1–

–CUL2–

TES

PUE

6" WL

2" ENCASEMENT

±35.00' 120.00'

±70.00 160.00'

–CUL2–
PI Sta 12+43.36
Δ = 1° 41' 24.0" (LT)
D = 0° 20' 50.1"
L = 486.68'
T = 243.36'
R = 16,500.00'

FOR –L– PROFILE SEE SHT. 127

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
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FLEIS

8/17/99

ENGLISH

SS DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	17
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 DRAWING
SHEET 53 OF 267

MATCHLINE –L– STA. 290+00 SEE SHEET 16

MATCHLINE –L– STA. 304+00 SEE SHEET 18

S034 (PERENNIAL)

S036 (INTERMITTENT)

SITE 10

SITE 11

SEE CULVERT OUTLET DETAIL –L– STA. 293+48

PSH SEE DETAIL N

LATERAL BASE DITCH SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL AF

LATERAL V DITCH SEE DETAIL W

SPECIAL CUT DITCH SEE DETAIL A

SEE CULVERT INLET DETAIL –L– STA. 293+48

LATERAL V DITCH SEE DETAIL V

GRADE TO DRAIN

REMOVE

-CUL1-

-CUL2-

PI Sta 12+43.36
Δ = 1° 41' 24.0" (LT)
D = 0° 20' 50.1"
L = 486.68'
T = 243.36'
R = 16,500.00'

FOR –L– PROFILE SEE SHT. 127

ROY N. BECK, JR. AND WIFE, CAROL G. BECK

JOHN H. SWINDELL AND WIFE, JEANNINE T. SWINDELL

MARK J. TRICKEY AND WIFE, LISA M. TRICKEY

HELGA E. RIDER

THOMAS H. KNOWLES AND WIFE, AGNES L. KNOWLES

DAVID JETHRO OATES, III

VERNON F. FOXX AND WIFE, WANDA R. FOXX

DONALD ATKINSON AND WIFE, CLEVELAND B. ATKINSON

THEODORE BRYON BAUCOM AND WIFE, BOBBI JO L. BAUCOM

RUSHING CONSTRUCTION COMPANY

BILLY L. BAUCOM REVOCABLE TRUST

J. S. BAUCOM REVOCABLE TRUST

SANDRA D. BAIRD

RAYMOND M. STEGALL JR. AND WIFE, REBECCA STEGALL

JOEL N. BECK AND WIFE, CECELIE S. BECK

RICHARD E. TETEROUSE AND WIFE, LORA V. TETEROUSE

JODIE P. STEGALL AND WIFE, NANCY G. STEGALL

WILLIAM RALPH JORDAN AND WIFE, EMMIE ANDERSON LANEY

BILLY M. STEGALL

MARY K. SIMPSON

PLANS PREPARED BY :

RK&K

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FOR
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	127
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 54 OF 267

-L- STA. 279+11.40 =
-Y107- STA. 40+32.81
ELEV. = 655.06'

PI = 278+00.00
EL = 655.60'
VC = 250'
K = 296
DS = 73mph

(-)0.4810%

EXISTING GROUND

-L- STA. 283+52.46 =
-KLB- STA. 10+00.00, 47' LT
ELEV. = 652.94'

PROPOSED GRADE

BEGIN SP. CUT DITCH RT.
-L- STA. 281+00.00
EI = 651.71

(-)1.9667%

END SP. CUT DITCH RT.
-L- STA. 282+50.00
EI = 648.76

BEGIN SP. CUT DITCH LT.
-L- STA. 285+00.00
EI = 648.67

(-)0.8500%

END SP. CUT DITCH LT.
-L- STA. 287+00.00
EI = 646.97

(-)5.3400%

BEGIN SP. CUT DITCH RT.
-L- STA. 289+00.00
EI = 645.67

END SP. CUT DITCH RT.
BEGIN LAT. BASE DITCH RT.
-L- STA. 289+50.00
EI = 643.00

(-)1.00000%

BEGIN LAT. BASE DITCH LT.
-L- STA. 291+50.00
EI = 644.91

PI = 291+50.00
EI = 641.00

(-)1.7333%

(-)4.2857%

278+00 279+00 280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00

700 690 680 670 660 650 640 630 620 610

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 390	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 638.9	FT
BASE DISCHARGE	= 440	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 639.4	FT
OVERTOPPING DISCHARGE	= 1350	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 655.0	FT

STR 1703 Sta. 298+40

DRAINAGE AREA	= 35.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 640.5	FT
100 YEAR DISCHARGE	= 140	CFS
100 YEAR HW ELEVATION	= 640.9	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

-L- STA. 305+11.33 BK =
-L- STA. 363+50.00 AH

SITE 10

-L- STA. 297+00.22 =
-CULI- STA. 14+35.00
ELEV. = 646.46'

PI = 299+00.00
EL = 645.50'
VC = 350'
K = 239
DS = > 80mph

PI = 299+50.00
EI = 638.80

END LAT. V. DITCH LT.
-L- STA. 300+50.00
EI = 642.67

(-)0.4810%

(+)0.9843%

PROPOSED GRADE

PI = 293+25.00
EI = 633.50

(-)1.7857%

(-)4.2857%

(2)-12'X6' RCBC

(-)1.1429%

(+)4.5257%

(+)0.3000%

3ø36" RCP

(+)11.9300%

(+)10.4500%

(+)3.8700%

(+)4.7500%

EXISTING GROUND

PI = 293+00.00
EI = 634.00

END LAT. BASE DITCH LT.
-L- STA. 293+70.00
EI = 633.20

END LAT. BASE DITCH RT.
BEGIN SP. CUT DITCH RT.
-L- STA. 295+00.00
EI = 641.42

END SP. CUT DITCH RT.
-L- STA. 297+00.00
EI = 642.02

BEGIN LAT. V. DITCH LT.
-L- STA. 298+05.00
EI = 636.00

BEGIN LAT. V. DITCH RT.
-L- STA. 298+84.00
EI = 637.50

PI = 299+50.00
EI = 637.80

END LAT. V. DITCH RT.
-L- STA. 300+54.00
EI = 642.55

-L- STA. 302+26.18 =
-CULI2- STA. 14+54.02
ELEV. = 648.71'

BEGIN LAT. BASE DITCH LT.

FOR -L- PLAN SEE SHTS. 16 THRU 18

292+00 293+00 294+00 295+00 296+00 297+00 298+00 299+00 300+00 301+00 302+00 303+00 304+00 305+00 306+00

680 670 660 650 640 630 620 610 600 590

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

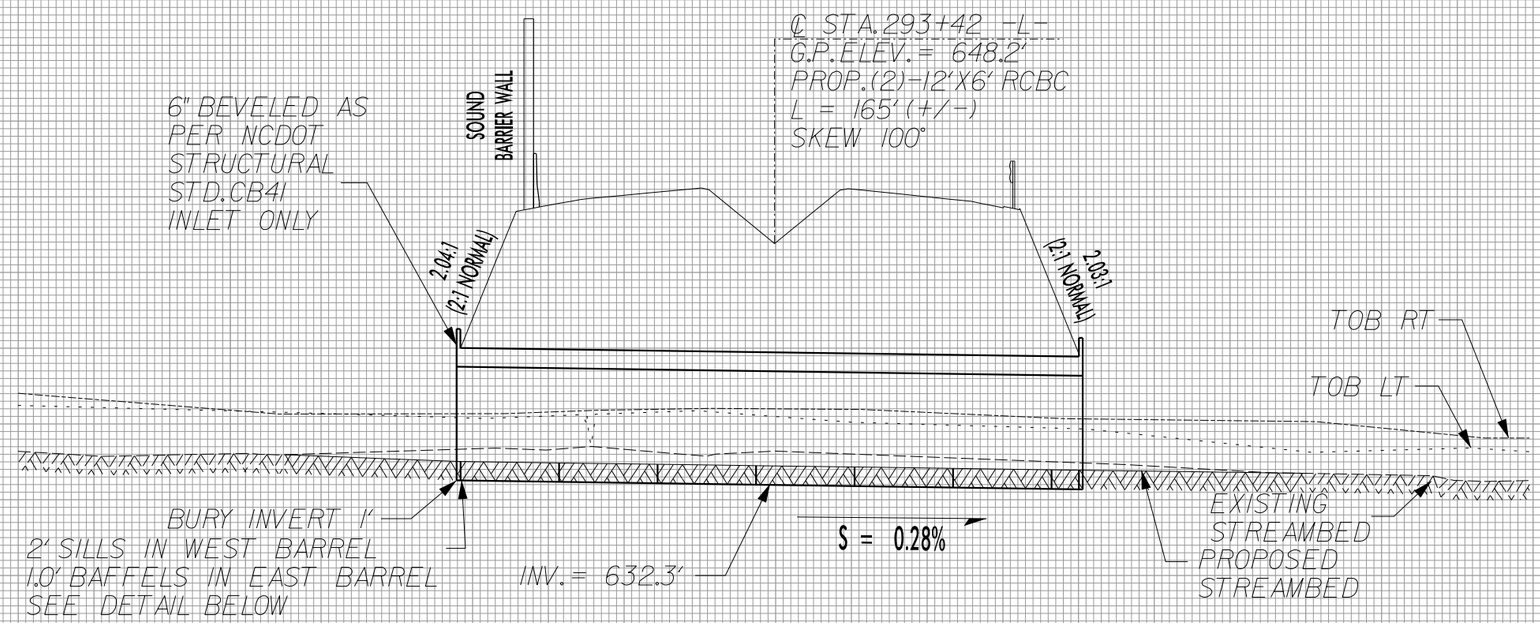
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

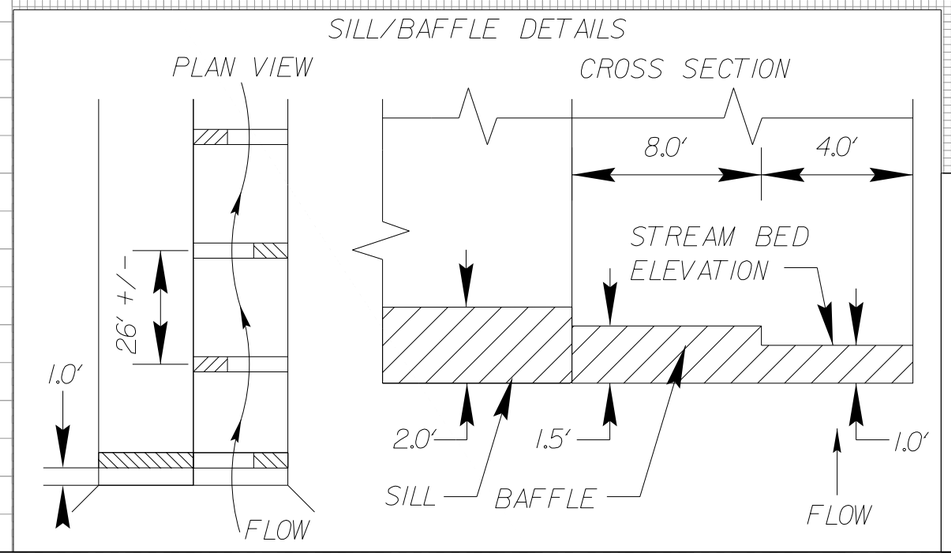
PERMIT DRAWING
SHEET 55 OF 267

ENGLISH

SITE 10
–L– 293+48



(2) 12' x 6' RCBC WITH BAFFLES



PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), MATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

8/30/2004
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Texas

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	18
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 DRAWING
SHEET 56 OF 267

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

P P DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

NAD 83

MATCHLINE –L– STA. 304+00 SEE SHEET 17

MATCHLINE –L– STA. 376+00 SEE SHEET 19

MATCHLINE –Y109– STA. 13+00 SEE SHEET 19

SITE 12

SITE 12

HELGA E. RIDER

EARL VAN SIMPSON

DEAN S. CARTER AND HUSBAND, FRANKIE E. CARTER

RODNEY MULLIS AND WIFE, PERONDA S. MULLIS

GOLDIA SMITH

RODNEY ALLEN MULLIS AND WIFE, PERONDA SUE MULLIS

JAMES W. SIMPSON AND WIFE, NANCY REID SIMPSON

THE J.S. BAUCOM REVOCABLE TRUST

THEODORE BRYON BAUCOM AND WIFE BOBBI JO BAUCOM

DEAN S. CARTER

VICKI G. MILLER

SANDRA D. BAIRD

NORMAN DARRELL SIMPSON JR.

NORMAN DARRELL SIMPSON AND WIFE, MARY M. SIMPSON

ROBERT NEYS MILLS

J. W. SIMPSON AND WIFE, NANCY P. SIMPSON

S 37d (PERENNIAL)

S037c (INTERMITTENT)

S037b (INTERMITTENT)

P 09

P 10

PROPOSED SOUND BARRIER WALL #1

SPECIAL CUT DITCH SEE DETAIL A

GRADE ROADSIDE SWALE DOWN TO DITCH; LINE W/CL B RIPRAP

SEE CULVERT OUTLET DETAIL –L– STA. 374+00 PDE

LATERAL BASE DITCH SEE DETAIL D

MEDIAN V DITCH SEE DETAIL I

SP. CUT BASE DITCH SEE DETAIL F

SP. CUT DITCH SEE DETAIL A

CHANNEL BLOCK SEE DETAIL O

STANDARD BASE DITCH SEE DETAIL AE

REMOVE SEE CULVERT INLET DETAIL –L– STA. 374+00

10' WIDE BERM, 2:1 SIDE SLOPES TOP ELEV. 634.5'

RETAIN

FOR –L– PROFILE SEE SHTS. 127 & 128
FOR –Y109– PROFILE SEE SHT. 184
FOR –SR4– PROFILE SEE SHT. 184

BRIDGE ON –L– OVER –Y109– (NOT TO SCALE)

△ = 54° 44' 07"

PLANS PREPARED BY :

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FOR
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	18
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 DRAWING
SHEET 57 OF 267

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

P P DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

NAD 83

MATCHLINE –L– STA. 304+00 SEE SHEET 17

MATCHLINE –L– STA. 376+00 SEE SHEET 19

MATCHLINE –Y109– STA. 13+00 SEE SHEET 19

HELGA E. RIDER

EARL VAN SIMPSON

DEAN S. CARTER AND HUSBAND, FRANKIE E. CARTER

RODNEY MULLIS AND WIFE, PERONDA S. MULLIS

GOLDIA SMITH

RODNEY ALLEN MULLIS AND WIFE, PERONDA SUE MULLIS

JAMES W. SIMPSON AND WIFE, NANCY REID SIMPSON

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THEODORE BRYON BAUCOM AND WIFE BOBBI JO BAUCOM

DEAN S. CARTER

VICKI G. MILLER

SANDRA D. BAIRD

NORMAN DARRELL SIMPSON JR.

NORMAN DARRELL SIMPSON AND WIFE, MARY M. SIMPSON

ROBERT NEYS MILLS

J. W. SIMPSON AND WIFE, NANCY P. SIMPSON

VOLLEYBALL COURT

SPECIAL CUT DITCH SEE DETAIL A

GRADE ROADSIDE SWALE DOWN TO DITCH LINE W/CL B RIPRAP

SEE CULVERT OUTLET DETAIL –L– STA. 374+00 PDE

S 37d (PERENNIAL)

LATERAL BASE DITCH SEE DETAIL D

30" RCP–IV

15" CAAP 2 ELBOWS ROD & LUG

18" RCP–III

15" RCP–IV

2GI

CPES

FS

REMOVE

SITE 12

P 09

P 10

7'x8' RCBC

MEDIAN V DITCH SEE DETAIL I

18" CAAP 2 ELBOWS ROD & LUG

15" RCP–III

PROPOSED SOUND BARRIER WALL #1

PROP. SBG

REMOVE

SP. CUT BASE DITCH SEE DETAIL F

CHANNEL BLOCK SEE DETAIL O

SP. CUT DITCH SEE DETAIL A

–SR4–

CHANNEL BLOCK SEE DETAIL O

S037c (INTERMITTENT)

S037b (INTERMITTENT)

STANDARD BASE DITCH SEE DETAIL AE

REMOVE SEE CULVERT INLET DETAIL –L– STA. 374+00 PDE

LATERAL BASE DITCH SEE DETAIL D

HW READY

RETAIN

10' WIDE BERM 2:1 SIDE SLOPES TOP ELEV. 634.5'

PDE

SITE 12

305+00

365+00

370+00

375+00

12+00

10+00

15+20

BRIDGE ON –L– OVER –Y109– (NOT TO SCALE)

370+00

△ = 54° 44' 07"

FOR –L– PROFILE SEE SHTS. 127 & 128
FOR –Y109– PROFILE SEE SHT. 184
FOR –SR4– PROFILE SEE SHT. 184

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	128
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

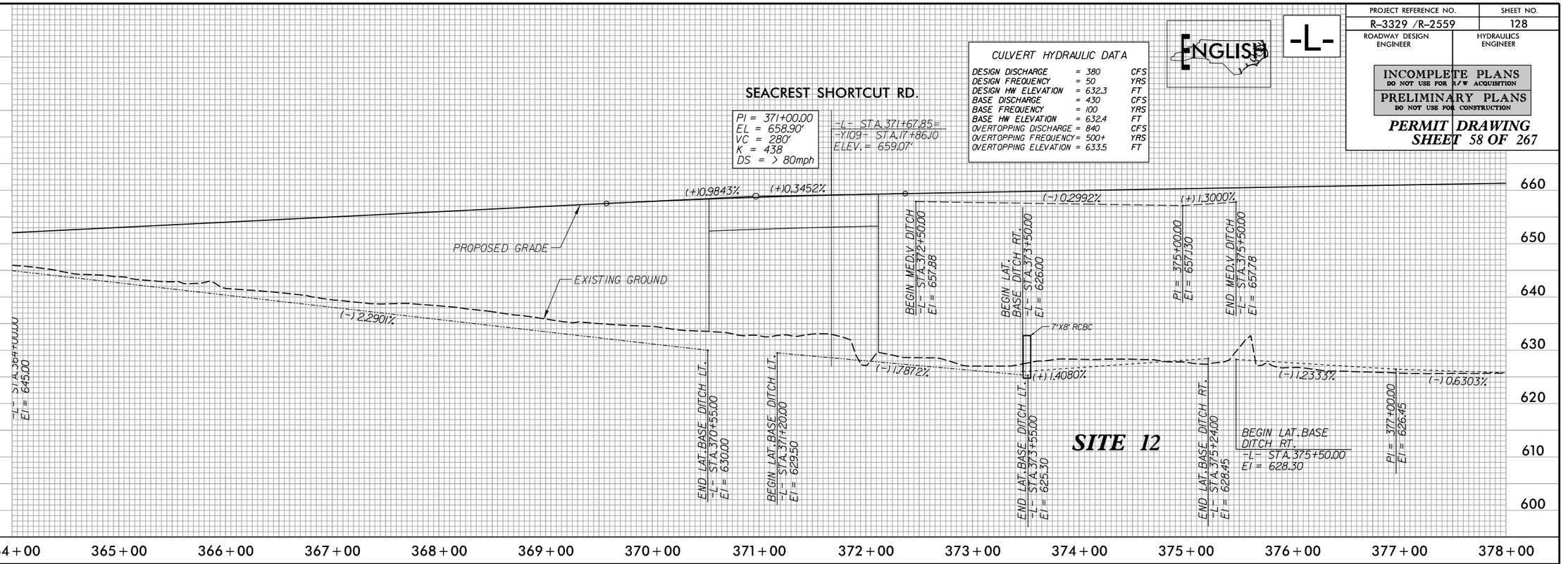
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

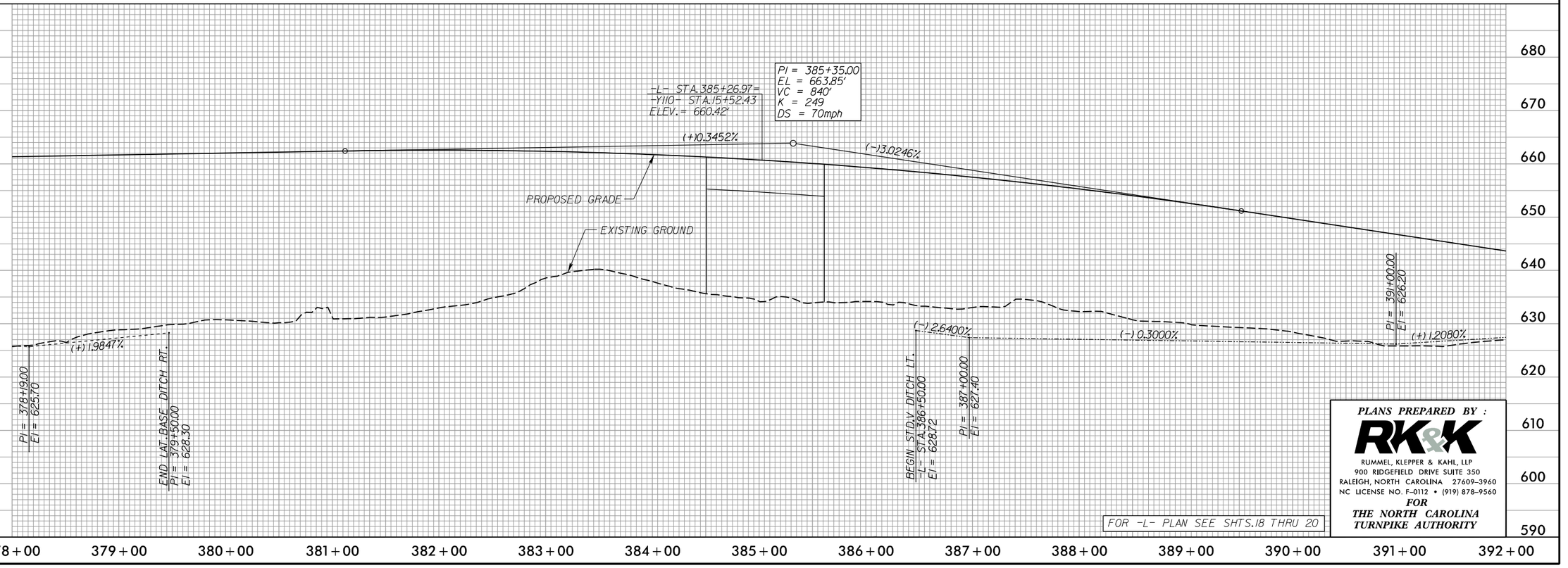
PERMIT DRAWING
SHEET 58 OF 267

ENGLISH

-L-

CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 380	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 632.3	FT
BASE DISCHARGE	= 430	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 632.4	FT
OVERTOPPING DISCHARGE	= 840	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 633.5	FT





FOR -L- PLAN SEE SHTS. 18 THRU 20

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

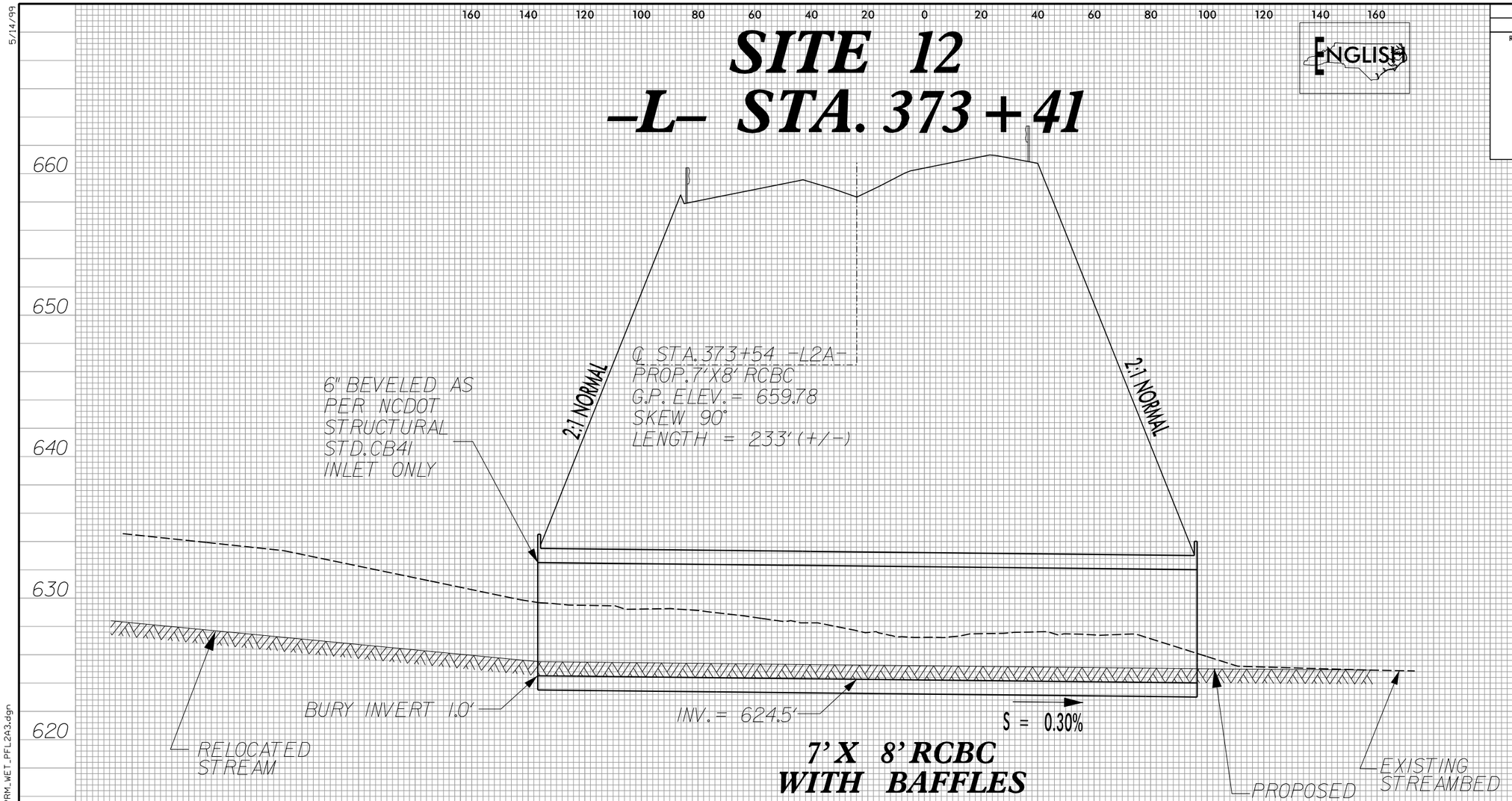
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

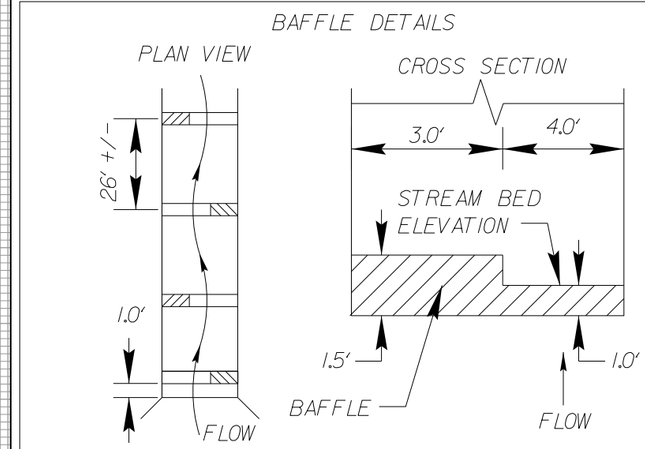
PERMIT DRAWING
SHEET 59 OF 267

ENGLISH

SITE 12
–L– STA. 373+41



7'X 8'RCBC WITH BAFFLES



PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 60 OF 267

NAD 83

P DENOTES IMPACTS IN SURFACE WATER (POND)

SITE 13

MATCHLINE –L– STA. 376+00 SEE SHEET 18

MATCHLINE –L– STA. 389+00 SEE SHEET 20

MATCHLINE –Y109– STA. 13+00 SEE SHEET 18

MATCHLINE –SR5– STA. 13+50 SEE SHEET 20

245 JAMES W. SIMPSON AND WIFE, NANCY REID SIMPSON DB 156 PG 578

249 TERRY R. SIMPSON AND WIFE, CARMEL H. SIMPSON

250 TERRY REID SIMPSON AND WIFE, CARMEL HARGETT SIMPSON DB 216 PG 123

251 ROY J. LESLEY AND DELILA E. LESLEY DB 852 PG 549

257 DOUGLAS E. TAYLOR AND WIFE, SHIRLEY ANN TAYLOR DB 164 PG 526

248 J. W. SIMPSON AND WIFE, NANCY SIMPSON DB 383 PG 610

252 RODNEY A. MULLIS AND WIFE, PERONDA S. MULLIS DB 4577 PG 841

253 LARRY DEAN PHILEMON AND WIFE, JEAN C. PHILEMON DB 532 PG 399

254 JOHNNY SIMPSON AND WIFE, SHIRLEY M. SIMPSON DB 3380 PG 529

255 CHARLES WAYNE BYRUM AND WIFE, JANICE HELMS BYRUM DB 361 PG 275

256 SHIRLEY ANN TAYLOR DB 485 PG 30

258 JAMES F. MARLOW DB 4147 PG 754

P 10

380+00

385+00

10+00

10+00

LATERAL BASE DITCH SEE DETAIL D

36" RCP–III

15" RCP

15" CAAP 2 ELBOWS ROD & LUG

STANDARD V DITCH SEE DETAIL J

REMOVE EXIST. RIP RAP

REMOVE EXIST. CULVERT

RETAIN

SA 1501 SECREST SHORTCUT RD

HEMBY BRIDGE TOWN LIMITS

UNION COUNTY

W22b

FOR –L– PROFILE SEE SHT. 128
FOR –SR5– PROFILE SEE SHT. 184

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 61 OF 267

P DENOTES IMPACTS IN SURFACE WATER (POND)

NAD 83

SITE 13

MATCHLINE –L– STA. 376+00 SEE SHEET 18

MATCHLINE –Y109– STA. 13+00 SEE SHEET 18

MATCHLINE –SR5– STA. 13+50 SEE SHEET 20

MATCHLINE –L– STA. 389+00 SEE SHEET 20

P 10

380+00

385+00

10+00

20+00

245 JAMES W. SIMPSON AND WIFE, NANCY REID SIMPSON DB 156 PG 578

249 TERRY R. SIMPSON AND WIFE, CARMEL H. SIMPSON

250 TERRY REID SIMPSON AND WIFE, CARMEL HARGETT SIMPSON DB 216 PG 123

251 ROY J. LESLEY AND DELILA E. LESLEY DB 852 PG 549

257 DOUGLAS E. TAYLOR AND WIFE, SHIRLEY ANN TAYLOR DB 164 PG 526

248 J. W. SIMPSON AND WIFE, NANCY SIMPSON DB 3183 PG 610

252 RODNEY A. MULLIS AND WIFE, PERONDA S. MULLIS DB 4577 PG 841

253 LARRY DEAN PHILEMON AND WIFE, JEAN C. PHILEMON DB 532 PG 399

254 JOHNNY SIMPSON AND WIFE, SHIRLEY M. SIMPSON DB 3380 PG 529

255 CHARLES WAYNE BYRUM AND WIFE, JANICE HELMS BYRUM DB 361 PG 275

256 SHIRLEY ANN TAYLOR DB 485 PG 30

258 JAMES F. MARLOW DB 4147 PG 754

LATERAL BASE DITCH SEE DETAIL D

36" RCP-III

15" RCP

18" RCP

15" CAAP 2 ELBOWS ROD & LUG

REMOVE EXIST. CULVERT

STANDARD V DITCH SEE DETAIL J

RETAIN

W22b

SA 1501 SECREST SHORTCUT RD

HEMBY BRIDGE TOWN LIMITS & UNION COUNTY

FOR –L– PROFILE SEE SHT. 128
FOR –SR5– PROFILE SEE SHT. 184

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING SHEET 62 OF 267

NAD 83

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SITE 14

MATCHLINE -SR5- STA. 13+50 SEE SHEET 19

MATCHLINE -L- STA. 389+00 SEE SHEET 19

MATCHLINE -L- STA. 402+00 SEE SHEET 21

MATCHLINE -SR5- STA. 27+00 SEE SHEET 21

15+00 20+00 25+00 390+00 395+00 400+00

INGRESS/EGRESS EASEMENT

257 DOUGLAS E. TAYLOR AND WIFE, SHIRLEY ANN TAYLOR

258 JAMES F. MARLOW

259 BRIAN KEITH GAULT AND KAREN LISA CHRISTENSEN

260 THE WILLIAMS COMPANY

202 JAMES F. MARLOW

UNION COUNTY INDIAN TRAIL TOWN LIMITS

WOODS

WELL

CONC BENCH

STONE WALKWAY

S038b (PERENNIAL)

S038a (INTERMITTENT)

SEE CULVERT OUTLET DETAIL -L- STA. 396+14

SEE CULVERT INLET DETAIL -L- STA. 396+14

FUTURE WIDENING BY OTHERS

STANDARD V DITCH SEE DETAIL J

2GI 15" RCP-III

2GI 18" RCP-III

2GI 15" RCP-III

18" CAAP 2 ELBOWS ROD & LUG

15" CAAP 2 ELBOWS ROD & LUG

2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL D

W 25 W 24 W22b

FOR -L- PROFILE SEE SHTS. 128 & 129
FOR -SR5- PROFILE SEE SHT. 184

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 63 OF 267

NAD 83

ENGLISH

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

SITE 14

MATCHLINE –SR5– STA. 13+50 SEE SHEET 19

MATCHLINE –L– STA. 389+00 SEE SHEET 19

MATCHLINE –L– STA. 402+00 SEE SHEET 21

MATCHLINE –SR5– STA. 27+00 SEE SHEET 21

15+00 | 20+00 | 25+00 | 390+00 | 395+00 | 400+00

FUTURE WIDENING BY OTHERS

STANDARD V DITCH SEE DETAIL J

2GI — 15" RCP-III — 2GI — 18" RCP-III — 2GI — 15" RCP-III — FS

18" CAAP 2 ELBOWS ROD & LUG

15" CAAP 2 ELBOWS ROD & LUG

2 TONS CL B RIPRAP W/7 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

SEE CULVERT OUTLET DETAIL –L– STA. 396+14

SEE CULVERT INLET DETAIL –L– STA. 396+14

LATERAL BASE DITCH SEE DETAIL D

W22b | W 25 | W 24

PDE

S038b (PERENNIAL)

S038a (INTERMITTENT)

DOUGLAS E. TAYLOR AND WIFE, SHIRLEY ANN TAYLOR

BRIAN KEITH GAULT AND KAREN LISA CHRISTENSEN

JAMES F. MARLOW

THE WILLIAMS COMPANY

INGRESS/EGRESS EASEMENT

UNION COUNTY INDIAN TRAIL TOWN LIMITS

WELL | CONC BENCH | STONE WALKWAY | CONC CURB & GUTTER | WOODS | SOIL

FOR –L– PROFILE SEE SHTS. 128 & 129
FOR –SR5– PROFILE SEE SHT. 184

PLANS PREPARED BY :

RK&K

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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5/28/99

SITE 14

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	129
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 64 OF 267

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 290	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 620.5	FT
BASE DISCHARGE	= 346	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 621	FT
OVERTOPPING DISCHARGE	= 600	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 628	FT

PI = 395+00.00
EL = 634.67'
VC = 550'
K = 208
DS = 75mph

PROPOSED GRADE
(−)3.0246%
(−)0.3742%
(+) 1.2080%
(+) 0.2900%
EXISTING GROUND
10'X6' RCBC
(+)1.5966%
623.9
(−) 0.9677%
(−) 0.3150%
(−) 0.2520%
(−) 0.9774%

END STD.V. DITCH LT.
-L- STA.393+50.00
El = 629.22

BEGIN STD.V. DITCH LT.
-L- STA.396+00.00
El = 622.83

BEGIN LAT.BASE DITCH RT.
-L- STA.397+00.00
El = 618.78

END STD.V. DITCH LT.
-L- STA.401+00.00
El = 624.28

BEGIN STD.V. DITCH LT.
-L- STA.401+50.00
El = 623.91

PI = 401+71.00
El = 626.30

PI = 403+50.00
El = 623.28

PI = 404+50.00
El = 623.60

392+00 393+00 394+00 395+00 396+00 397+00 398+00 399+00 400+00 401+00 402+00 403+00 404+00 405+00 406+00

580 590 600 610 620 630 640 650 660 670

PROPOSED GRADE
℄ TOLL ZONES 3.1 & 3.2
-L- STA.412+00.00
(+) 0.3140%
(+) 2.6400%
(−)0.3742%
(−) 0.2520%
(+) 0.3150%
(+) 0.9138%
(−) 0.9774%
EXISTING GROUND
(−) 2.0100%
(−) 0.3000%
(−) 1.3672%

END GRADE SECTION 2A
-L- STA.416+00.00
ELEV. = 626.81'

PI = 406+60.00
El = 620.25

PI = 407+00.00
El = 622.97

BEGIN MED.V DITCH
-L- STA.408+00.00
El = 626.73

PI = 409+00.00
El = 623.60

END LAT.BASE DITCH RT.
END STD.V. DITCH LT
-L- STA.409+50.00
El = 624.92 RT
El = 622.90 LT

END MED.V DITCH
-L- STA.411+00.00
El = 627.68

BEGIN SP.CUT DITCH RT.
-L- STA.413+00.00
El = 622.91

END SP.CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA.414+00.00
El = 620.90

PI = 415+50.00
El = 620.45

TIE TO SECTION 2A
LAT.BASE DITCH RT.
-L- STA.416+00.00
El = 619.77

406+00 407+00 408+00 409+00 410+00 411+00 412+00 413+00 414+00 415+00 416+00 417+00

580 590 600 610 620 630 640 650 660 670

FOR -L- PLAN SEE SHTS.20 & 21
FOR AET PLAN SEE SHEET AET-3

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

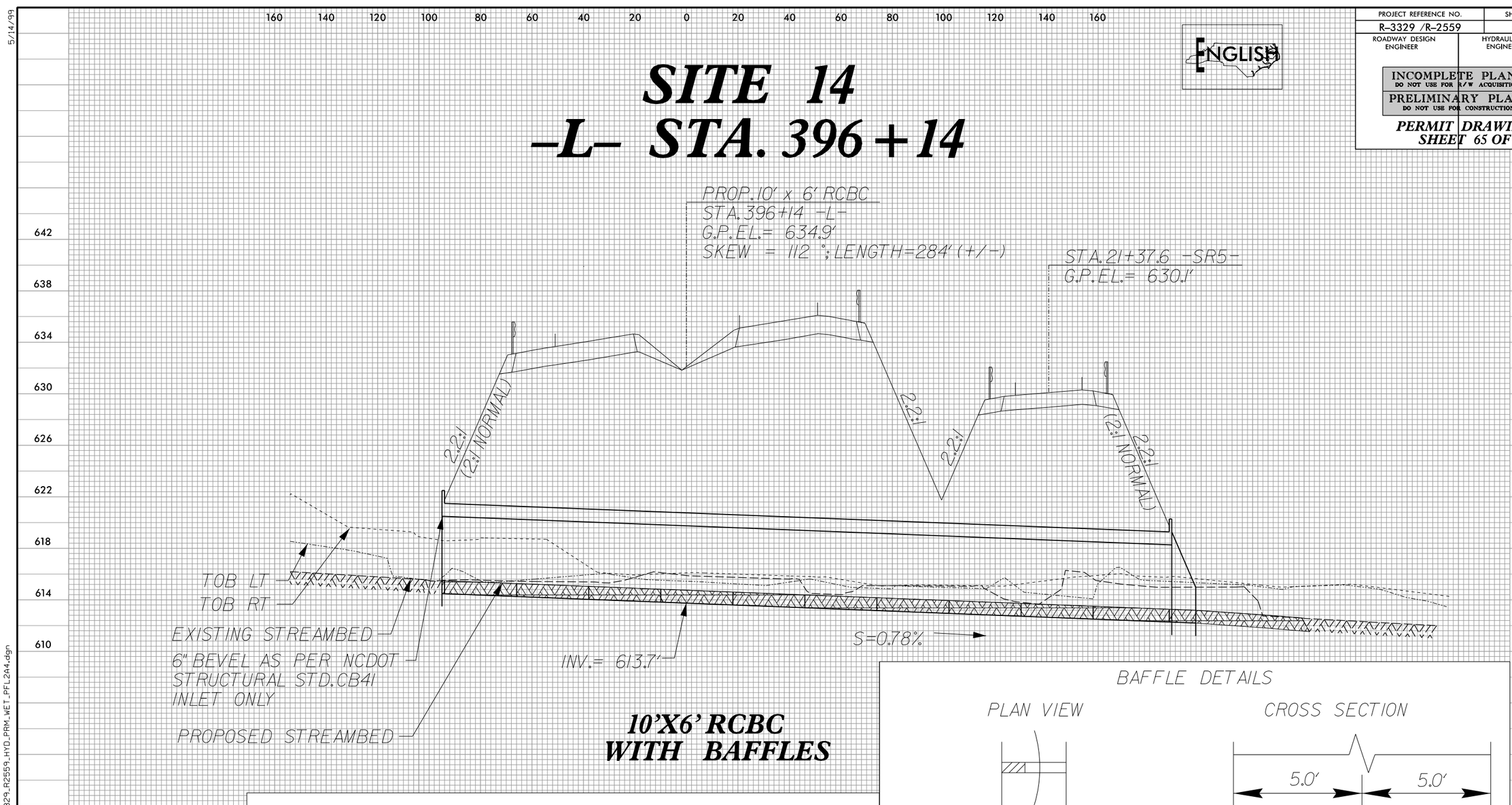
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 65 OF 267

ENGLISH

SITE 14
–L– STA. 396+14



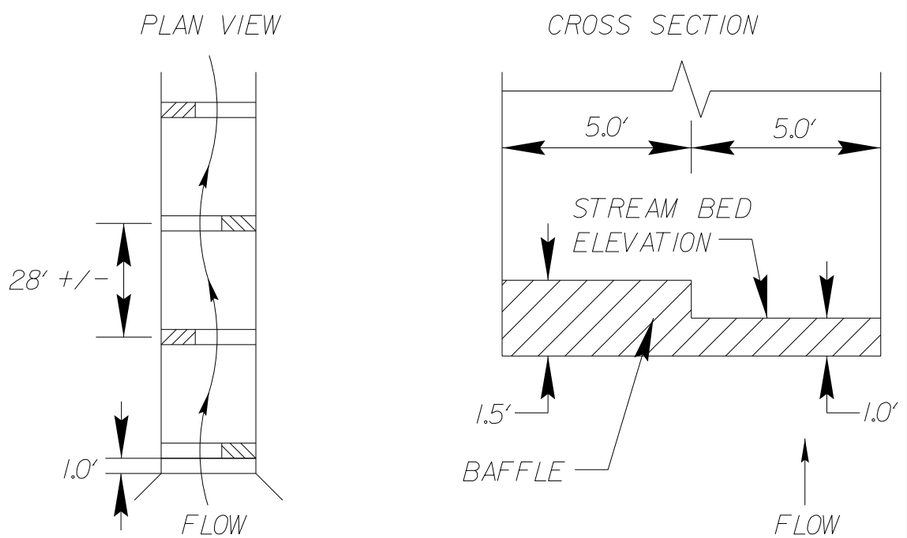
10'X6' RCBC WITH BAFFLES

PLACE BAFFLES 1.0' INSIDE CULVERT AT INLET AND OUTLET.

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

BAFFLE DETAILS



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0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2A-X55

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

ENGLISH

PERMIT DRAWING
SHEET 66 OF 267

SITE 14

650 640 630 620 610

-SR5-
22+22.80
0.020 0.020
2.15:1 3.600:1 2:1
623.26
616.84
0.040 0.040 6:1 7.349:1 0.040 0.040
D.P. 631.072
4.85:1 12:1 2:1 2:1
S.S. 621.03
619.58

397+50.00

650 640 630 620 610

WETLAND
WETLAND

-SR5-
21+71.44
0.020 0.020
2:1 2.187:1 2:1
623.12
615.99
0.040 0.040 6:1 7.349:1 0.040 0.040
D.P. 631.380
2:1 12:1 2:1 2:1
S.S. 620.65
618.78

397+00.00

650 640 630 620 610

WETLAND
WETLAND
WETLAND

-SR5-
21+20.09
0.020 0.020
2:1 2.774:1 2:1
622.98
615.77
0.040 0.040 6:1 7.349:1 0.040 0.040
D.P. 631.808
2:1

396+50.00

650 640 630 620 610

WETLAND

-SR5-
20+68.73
0.020 0.020
2.75:1 2.427:1 2:1
622.83
615.96
0.040 0.040 6:1 7.349:1 0.040 0.040
D.P. 632.356
2:1

396+00.00

650 640 630 620 610

WETLAND

-SR5-
20+17.38
0.020 0.020
3.40:1 3.28:1 2:1
618.94
0.040 0.040 6:1 7.349:1 0.040 0.040
D.P. 633.025
2:1

395+50.00

650 640 630 620 610

WETLAND

-SR5-
19+66.02
0.016 0.020
5.65:1 3.72:1 2:1
621.56
0.040 0.040 6:1 7.349:1 0.040 0.040
D.P. 633.815
2:1

395+00.00

—℄—

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	86
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 DRAWING
SHEET 67 OF 267

P P DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

NAD 83

MATCHLINE –Y107– STA. 47+00 SEE SHEET 16

MATCHLINE –Y107– STA. 60+00 SEE SHEET 87

MATCHLINE –SR107– STA. 12+00 SEE SHEET 16

SITE 15

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

SP. LAT. V DITCH SEE DETAIL G

STANDARD BASE DITCH SEE DETAIL U

DRAIN POND

FILL W/ FLOWABLE FILL

REMOVE

MONROE WEST CAPITAL, LLC

MILDRED H. SPENCER

DWAIN P. ROEKLE AND WIFE, DELORIS A. ROEKLE

DONNA R. HOSAFLOOK, ET UX

BILLY M. STEGALL

NORTH CAROLINA TELEPHONE COMPANY

ETHEL MAE BROOKS

CHRISTINE RUTH B. HORNE

TERRY W. KING AND WIFE, JOAN H. KING

DONALD RAY DEESE

GEORGE W. SHEARIN (O/S)

BOBBY THEODORE CARPENTER

MILDRED B. ROWELL

JESSE L. CARSON AND WIFE, CHERYL T. CARSON

PRESTON ALBERT DAVIDSON JR., ET UX

INDIAN TRAIL TOWN LIMITS

HEMBY BRIDGE TOWN LIMITS

N 22° 39' 27" W

FOR –Y107– PROFILE SEE SHT. 179

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

3/29/2014
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8/17/99

DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	86
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 DRAWING
SHEET 68 OF 267

MATCHLINE –Y107– STA. 47+00 SEE SHEET 16

MATCHLINE –Y107– STA. 60+00 SEE SHEET 87

MATCHLINE –SR107– STA. 12+00 SEE SHEET 16

SITE 15

P 05

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

SP. LAT. V DITCH SEE DETAIL G

STANDARD BASE DITCH SEE DETAIL U

DRAIN POND

FILL W/ FLOWABLE FILL

REMOVE

MONROE WEST CAPITAL, LLC

MILDRED H. SPENCER

DWAIN P. ROEKLE AND WIFE, DELORIS A. ROEKLE

DONNA R. HOSAFLOOK, ET UX

BILLY M. STEGALL

NORTH CAROLINA TELEPHONE COMPANY

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CHRISTINE RUTH B. HORNE

DONALD RAY DEESE

GEORGE W. SHARPE (DIS)

BOBBY THEODORE CARPENTER

MILDRED B. ROWELL

JESSE L. CARSON AND WIFE, CHERYL T. CARSON

PRESTON ALBERT DAVIDSON JR. ET UX

STINSON HARRIS RD

INDIAN TRAIL/FAIRVIEW RD

FOR –Y107– PROFILE SEE SHT. 179

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
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THE NORTH CAROLINA TURNPIKE AUTHORITY

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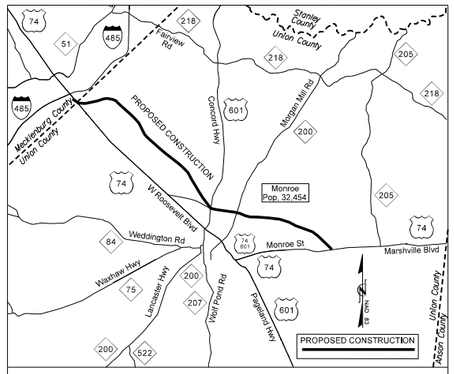
09/08/99

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

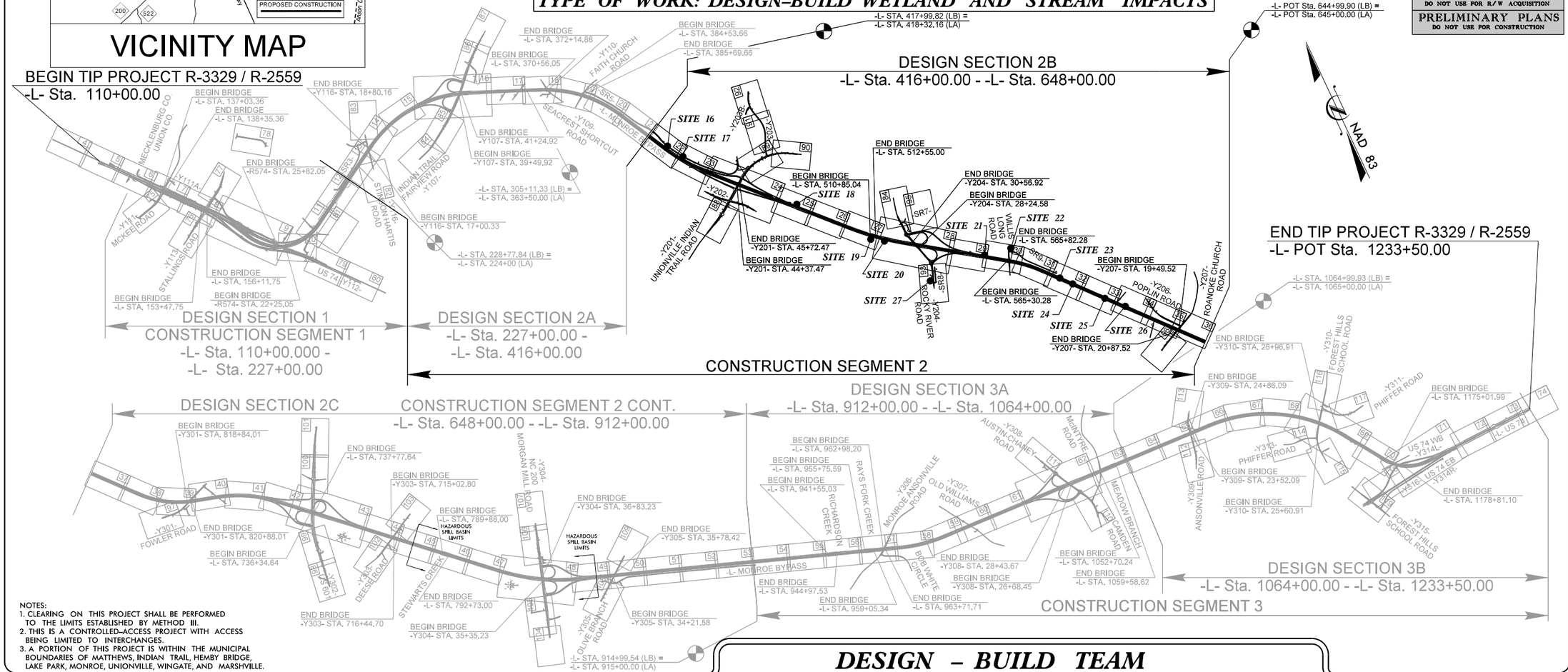
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD WETLAND AND STREAM IMPACTS

PERMIT DRAWING SHEET 69 OF 267

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*(TTST 11% +DUAL 7%)
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

NCDOT CONTACT: K. ZAK HAMIDI, PE

DESIGN - BUILD TEAM

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2006 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*
ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

$$$$$TIME$$$$$
8/23/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

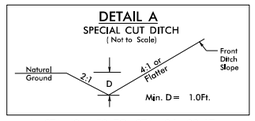
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 70 OF 267

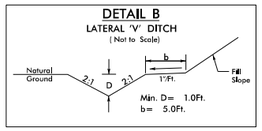
ENGLISH

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



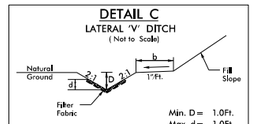
–L– STA. 424+50 TO STA. 426+00 LT
–L– STA. 441+00 TO STA. 454+00 RT
–L– STA. 442+50 TO STA. 444+50 LT
–L/–NRB– STA. 449+00 TO STA. 450+00 LT
–L– STA. 463+50 TO STA. 469+00 RT
–L– STA. 465+50 TO STA. 469+00 LT
–L– STA. 494+75 TO STA. 496+00 LT
–L– STA. 496+50 TO STA. 497+50 RT
–L– STA. 531+00 TO STA. 534+00 RT
–L– STA. 532+00 TO STA. 536+00 LT
–L– STA. 539+00 TO STA. 543+00 LT
–L– STA. 539+00 TO STA. 542+50 RT
–L– STA. 545+50 TO STA. 550+00 LT
–L– STA. 575+00 TO STA. 576+00 RT
–L– STA. 583+00 TO STA. 585+00 LT
–L– STA. 582+50 TO STA. 584+00 RT
–L– STA. 588+00 TO STA. 590+50 RT
–L– STA. 592+50 TO STA. 595+00 LT
–L– STA. 593+00 TO STA. 595+50 RT
–L– STA. 598+00 TO STA. 598+68 RT
–L– STA. 599+50 TO STA. 600+00 RT
–L– STA. 605+45 TO STA. 612+00 RT
–L– STA. 606+20 TO STA. 612+00 LT
–L– STA. 618+50 TO STA. 620+00 LT
–L– STA. 618+50 TO STA. 619+50 RT
–L– STA. 634+50 TO STA. 635+50 LT
–L– STA. 634+50 TO STA. 635+50 RT
–QRA– STA. 17+50 TO STA. 20+50 LT
–QRA– STA. 19+50 TO STA. 20+00 RT
–QRA– STA. 25+50 TO STA. 28+00 LT
–QLD– STA. 10+10 TO STA. 12+12 RT
–QLD– STA. 16+85 TO STA. 17+35 RT
–QRD– STA. 15+00 TO STA. 19+00 RT
–SR5– STA. 44+14 TO STA. 47+21 RT
–SR5– STA. 79+00 TO STA. 83+25 RT
–SR5– STA. 79+00 TO STA. 82+95 LT
–SR7– STA. 13+23 TO STA. 15+50 RT
–SR8– STA. 10+50 TO STA. 15+42 LT
–Y201– STA. 22+11 TO STA. 26+50 RT
–Y201– STA. 52+00 TO STA. 54+00 RT
–Y201– STA. 66+50 TO STA. 73+26 LT
–Y201– STA. 72+50 TO STA. 73+08 RT
–Y202– STA. 8+83 TO STA. 9+50 RT
–Y202– STA. 8+90 TO STA. 9+50 LT
–Y202– STA. 13+50 TO STA. 15+00 LT
–Y202– STA. 19+00 TO STA. 21+00 RT
–Y202– STA. 19+50 TO STA. 21+00 LT
–Y202– STA. 23+00 TO STA. 24+00 RT
–Y202– STA. 28+00 TO STA. 29+70 RT
–Y202– STA. 28+75 TO STA. 29+75 LT
–Y203– STA. 18+00 TO STA. 19+50 RT
–Y203– STA. 23+50 TO STA. 29+50 RT
–Y203– STA. 35+00 TO STA. 36+92 RT
–Y203– STA. 37+00 TO STA. 37+03 LT
–Y203B– STA. 12+50 TO STA. 13+64 LT
–Y203B– STA. 12+25 TO STA. 13+40 RT
–Y204– STA. 11+00 TO STA. 12+00 RT
–Y204– STA. 12+50 TO STA. 15+50 RT
–Y204– STA. 15+50 TO STA. 18+00 LT
–Y204– STA. 42+00 TO STA. 43+04 RT
–Y204– STA. 42+00 TO STA. 42+84 LT
–Y208– STA. 13+00 TO STA. 14+25 RT
–Y208– STA. 17+00 TO STA. 18+00 RT
–Y204_DET– STA. 20+34.66 TO STA. 21+84.66 RT

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



–L– STA. 431+50 TO STA. 433+62 RT
–L– STA. 513+00 TO STA. 515+00 RT
–L– STA. 558+00 TO STA. 559+10 RT
–L– STA. 566+50 TO STA. 569+50 RT
–L– STA. 566+50 TO STA. 572+00 LT
–L– STA. 573+00 TO STA. 575+00 RT
–L– STA. 584+50 TO STA. 586+00 RT
–L– STA. 590+50 TO STA. 593+00 RT
–L– STA. 591+18 TO STA. 591+70 LT
–L– STA. 604+25 TO STA. 605+45 RT
–L– STA. 605+00 TO STA. 606+20 LT
–L– STA. 612+00 TO STA. 614+00 RT
–L– STA. 614+03 TO STA. 615+00 LT
–L– STA. 638+37 TO STA. 639+50 RT
–QRA– STA. 20+50 TO STA. 25+50 LT
–QRA– STA. 28+00 TO STA. 28+76 LT
–QRD– STA. 19+00 TO STA. 19+71 LT
–QRD– STA. 19+00 TO STA. 19+41 RT
–SR5– STA. 78+25 TO STA. 79+00 LT
–SR9– STA. 15+00 TO STA. 19+10 RT
–SR9– STA. 15+66 TO STA. 18+59 LT
–Y201– STA. 26+75 TO STA. 27+50 RT
–Y201– STA. 48+50 TO STA. 48+87 LT
–Y202– STA. 17+00 TO STA. 17+85 LT
–Y203– STA. 15+67 TO STA. 18+00 RT
–Y204– STA. 36+00 TO STA. 39+00 RT
–Y207– STA. 14+00 TO STA. 15+00 LT

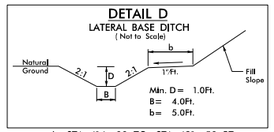
DETAIL C
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap

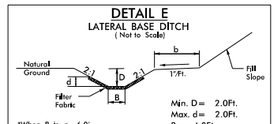
DETAIL C NOT USED IN SECTION 2B

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



–L– STA. 414+00 TO STA. 431+50 RT
–L– STA. 437+00 TO STA. 444+00 RT
–L– STA. 473+50 TO STA. 474+62 LT
–L– STA. 476+00 TO STA. 488+00 LT
–L– STA. 515+00 TO STA. 516+12 RT
–L– STA. 519+25 TO STA. 524+00 RT
–L– STA. 524+50 TO STA. 525+00 LT
–L– STA. 536+00 TO STA. 539+00 RT
–L– STA. 537+86 TO STA. 539+00 RT
–L– STA. 553+93 TO STA. 554+50 RT
–L– STA. 554+50 TO STA. 556+00 LT
–L– STA. 555+50 TO STA. 558+00 RT
–L– STA. 559+10 TO STA. 562+32 RT
–L– STA. 560+00 TO STA. 561+61 LT
–L– STA. 584+00 TO STA. 586+00 RT
–L– STA. 598+00 TO STA. 600+20 LT
–L– STA. 613+05 TO STA. 614+03 LT
–L– STA. 619+50 TO STA. 621+50 RT
–L– STA. 620+50 TO STA. 624+50 LT
–L– STA. 628+00 TO STA. 632+50 RT
–L– STA. 631+50 TO STA. 633+50 LT
–L– STA. 637+70 TO STA. 640+00 LT
–NRD– STA. 29+50 TO STA. 30+90 RT
–QLA– STA. 12+05 TO STA. 16+50 LT
–QRA– STA. 20+00 TO STA. 24+46 RT
–QRD– STA. 19+71 TO STA. 20+50 LT
–SR5– STA. 76+85 TO STA. 78+50 RT
–Y201– STA. 28+50 TO STA. 34+75 LT
–Y201– STA. 48+50 TO STA. 52+00 RT
–Y201– STA. 48+87 TO STA. 50+00 LT
–Y203– STA. 10+70 TO STA. 18+00 LT
–Y204– STA. 23+50 TO STA. 25+99 RT
–Y206– STA. 15+50 TO STA. 17+50 LT
–Y207– STA. 15+00 TO STA. 18+84 LT
–Y207– STA. 17+00 TO STA. 19+50 RT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)

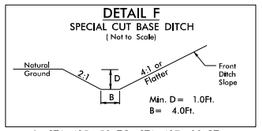


*When B is < 6.0'

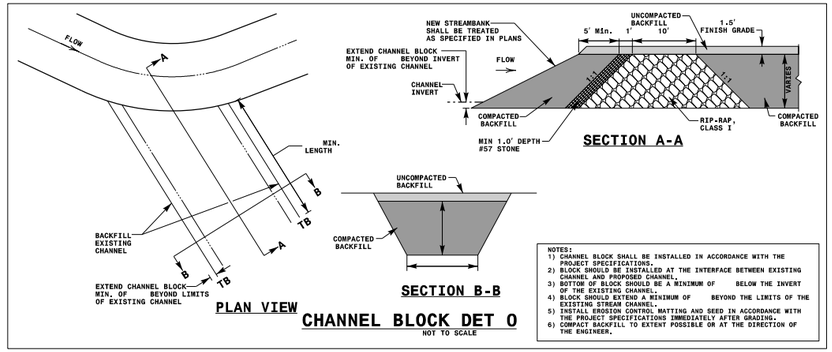
Type of Liner= Class B Rip–Rap

–L– STA. 433+62 TO STA. 435+50 RT
–L– STA. 444+00 TO STA. 445+50 RT
–L– STA. 474+62 TO STA. 476+00 LT
–L– STA. 477+00 TO STA. 484+00 RT
–L– STA. 524+00 TO STA. 525+50 RT
–L– STA. 585+50 TO STA. 587+75 LT
–L– STA. 637+00 TO STA. 638+37 RT
–SR5– STA. 55+75 TO STA. 57+06 LT
–Y206– STA. 24+67 TO STA. 25+50 LT

DETAIL F
SPECIAL CUT DITCH
(Not to Scale)



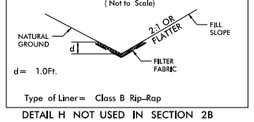
–L– STA. 435+50 TO STA. 437+00 RT
–L– STA. 470+50 TO STA. 473+50 LT
–L– STA. 472+50 TO STA. 477+00 RT
–L– STA. 554+50 TO STA. 555+50 RT
–SR5– STA. 78+50 TO STA. 79+00 RT
–Y201– STA. 21+90 TO STA. 28+50 LT
–Y203B– STA. 10+50 TO STA. 12+50 LT
–Y206– STA. 25+50 TO STA. 27+16 LT



CHANNEL BLOCK DET O
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 BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF BEYOND THE LIMITS OF THE EXISTING 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.

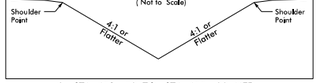
DETAIL H
TOE PROTECTION
(Not to Scale)



Type of Liner= Class B Rip–Rap

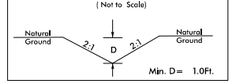
DETAIL H NOT USED IN SECTION 2B

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



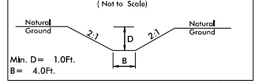
–L– STA. 453+50 TO STA. 455+00 MED
–L– STA. 490+00 TO STA. 491+00 MED
–L– STA. 530+00 TO STA. 532+50 MED
–L– STA. 583+00 TO STA. 585+00 MED
–L– STA. 588+00 TO STA. 592+50 MED
–L– STA. 608+50 TO STA. 610+50 MED
–L– STA. 618+50 TO STA. 622+50 MED
–L– STA. 634+50 TO STA. 635+50 MED

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



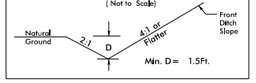
–Y204– STA. 13+50 RT; L=22', S=4.5%
BEG EL.=642.0, END EL.=641.0
–Y204– STA. 17+00 TO STA. 17+24 RT
L=38', S=2.1%, BEG EL.=643.8, END EL.=643.0
–SR5– STA. 64+88 LT; L=110', S=0.8%
BEG EL.=637.9, END EL.=637.0
–SR8– STA. 16+28 TO STA. 16+57 RT
L=54', S=2.4%, BEG EL.=645.3, END EL.=644.0

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



–Y202– STA. 14+15 LT; L=100', S=2.5%
BEG EL.=646.9, END EL.=644.4
–Y202– STA. 14+20 RT; L=273', S=0.3%
BEG EL.=644.0, END EL.=643.3
–Y202– STA. 28+75 LT, L=100', S=0.5%
BEG EL.=651.7, END EL.=651.2
–Y202– STA. 28+75 RT, L=100', S=6.1%
BEG EL.=658.1 END EL.=652.0
–L– STA. 629+50 LT; L=80', S=4.2%
BEG EL.=592.4, END EL.=589.0
–L– STA. 631+50 LT; L=55', S=2.9%
BEG EL.=590.8, END EL.=589.2
–Y201– 26+75 RT; L=115', S=0.3%
BEG EL.=634.4, END EL.=634.1
–L– STA. 556+00 LT; L=230', S=0.4%
BEG EL.=622.9, END EL.=622.0
–L– STA. 569+25 LT TO –SR9– 15+75 RT;
L=105', S=1.7%, BEG EL.=616.5, END EL.=614.5
–QRA– STA. 28+76 TO STA. 28+82 LT
L=18', S=0.6%, BEG EL.=621.0, END EL.=620.9
–SR5– STA. 78+25 LT; L=198', S=0.7%
BEG EL.=639.3, END EL.=638.0
–L– STA. 553+12 RT; L=112', S=6.6%
BEG EL.=631.7, END EL.=624.3

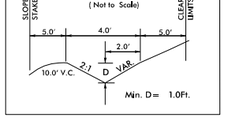
DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



DETAIL L NOT USED IN SECTION 2B

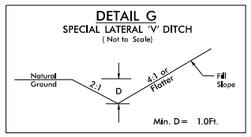
–L2B– STA. 477+43 RT

DETAIL M
BERM DITCH
(Not to Scale)

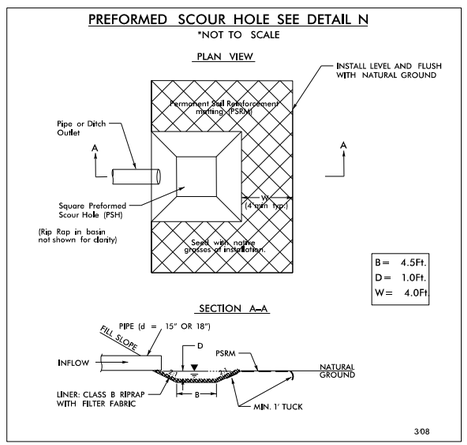


–L– STA. 615+00 TO STA. 618+00 RT
–L– STA. 532+00 TO STA. 534+40 RT

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

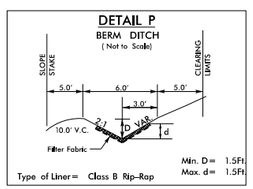


–Y208– STA. 18+00 TO STA. 19+00 RT



–L– STA. 426+00 LT
–L– STA. 484+95 RT

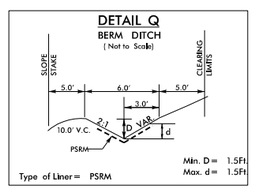
DETAIL P
BERM DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap

DETAIL P NOT USED IN SECTION 2B

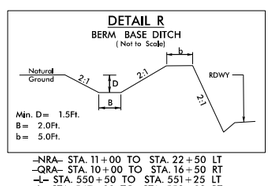
DETAIL Q
BERM DITCH
(Not to Scale)



Type of Liner= PSRM

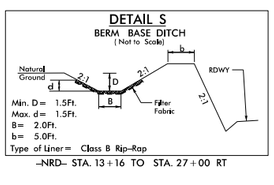
DETAIL Q NOT USED IN SECTION 2B

DETAIL R
BERM BASE DITCH
(Not to Scale)



–NRA– STA. 11+00 TO STA. 22+50 LT
–QRA– STA. 10+00 TO STA. 16+50 RT
–L– STA. 550+50 TO STA. 551+25 LT
–L– STA. 547+00 TO STA. 553+93 RT

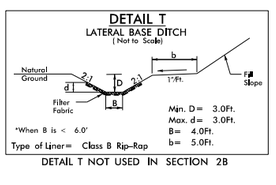
DETAIL S
BERM BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap

–NRD– STA. 13+16 TO STA. 27+00 RT

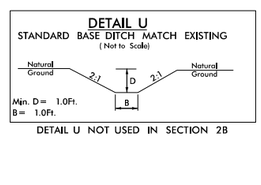
DETAIL T
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap

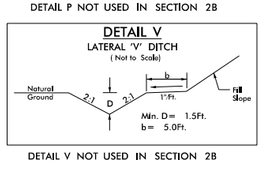
DETAIL T NOT USED IN SECTION 2B

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



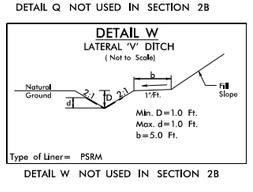
DETAIL U NOT USED IN SECTION 2B

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



DETAIL V NOT USED IN SECTION 2B

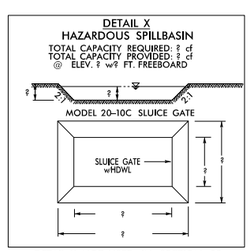
DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= PSRM

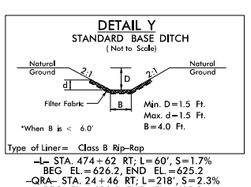
DETAIL W NOT USED IN SECTION 2B

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



DETAIL X NOT USED IN SECTION 2B

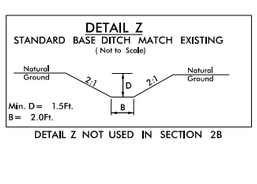
DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip–Rap

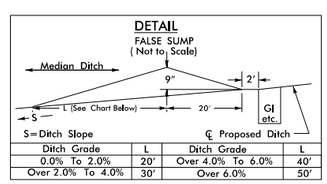
–L– STA. 474+62 RT; L=60', S=1.7%
BEG EL.=626.2, END EL.=625.2
–QRA– STA. 24+46 RT; L=218', S=2.3%
BEG EL.=620.9, END EL.=615.8
–Y201– STA. 28+15 LT, L=100', S=5.9%
BEG EL.=640.7, END EL.=634.8
–Y201– STA. 48+25 LT; L=196', S=3.2%
BEG EL.=646.0, END EL.=639.8

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



DETAIL Z NOT USED IN SECTION 2B

DETAIL
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'

9/29/2014
R:\Roadways\PERMITS_Environmental\Drawings\Section2B\R3329_R2559_HYD_PRM_DitchDet_Sec02B.dgn
FLewis

8/17/99

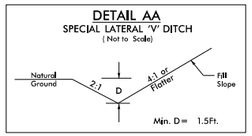
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

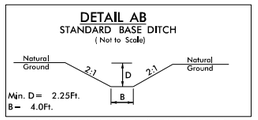
PERMIT DRAWING
SHEET 71 OF 267

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



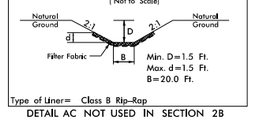
DETAIL AA NOT USED IN SECTION 2B

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



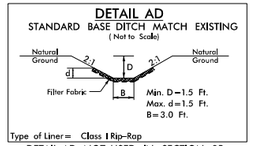
DETAIL AB NOT USED IN SECTION 2B

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



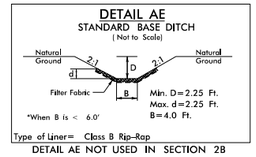
DETAIL AC NOT USED IN SECTION 2B

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



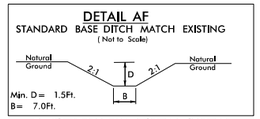
DETAIL AD NOT USED IN SECTION 2B

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



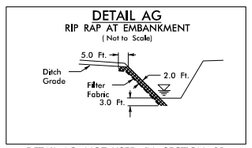
DETAIL AE NOT USED IN SECTION 2B

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



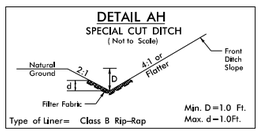
DETAIL AF NOT USED IN SECTION 2B

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



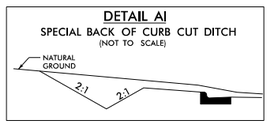
DETAIL AG NOT USED IN SECTION 2B

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



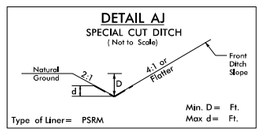
DETAIL AH NOT USED IN SECTION 2B

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



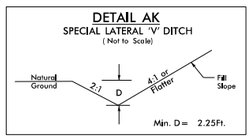
–QLD– STA. 12+12 TO STA. 16+85 RT
–Y203– STA. 18+00 TO STA. 30+00 LT

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



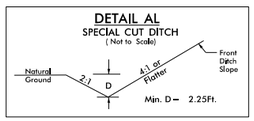
DETAIL AJ NOT USED IN SECTION 2B

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



DETAIL AK NOT USED IN SECTION 2B

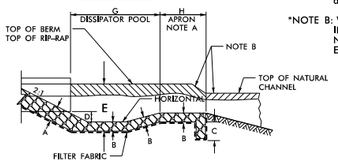
DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



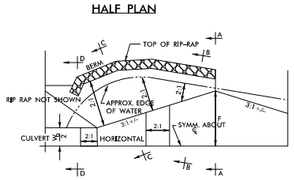
DETAIL AL NOT USED IN SECTION 2B

DETAIL AN
RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

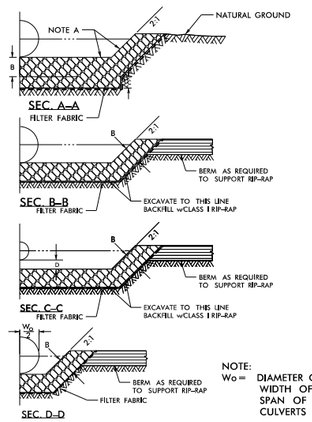


HALF PLAN



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

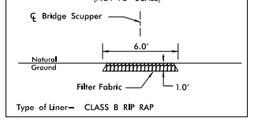
BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

*ALL DIMENSIONS APPROXIMATE IN FEET

5/05

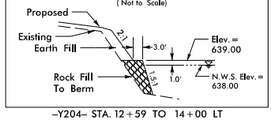
DETAIL AN NOT USED IN SECTION 2B

DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)



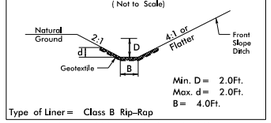
FROM STA. 511+14 TO STA. 511+50 RT.
CL. B RIP RAP=15 TONS, FF=25 SY
STA. 511+90 TO STA. 512+30 RT.
CL. B RIP RAP=13 TONS, FF=23 SY

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



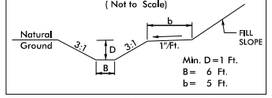
–Y204– STA. 12+59 TO 14+00 LT

DETAIL AP
SPECIAL CUT BASE DITCH
(Not to Scale)



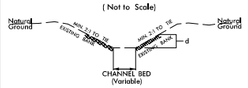
DETAIL AP NOT USED IN SECTION 2B

DETAIL AQ
LATERAL GRASSED SWALE
(Not to Scale)



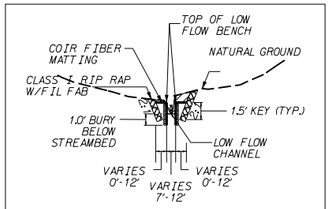
–L2B– STA. 499+00 TO STA. 511+61 LT
–L2B– STA. 515+00 TO STA. 517+00 LT
–L2B– STA. 524+50 TO STA. 526+00 LT
–Y204– STA. 32+00 TO STA. 33+50 LT

DETAIL AR
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)



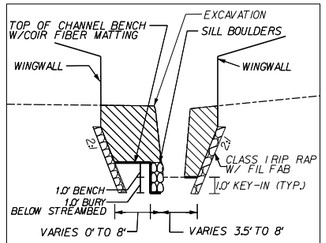
–L2B– STA. 432+80 LT, L=22', d=2.1'
–L2B– STA. 483+95 RT, L=18', d=1.2'
–L2B– STA. 591+18 LT, L=20', d=2.1'
–L2B– STA. 605+82 LT, L=24', d=2.6'

UT TO NORTH FORK CROOKED CREEK
–L– STA. 424+11.5



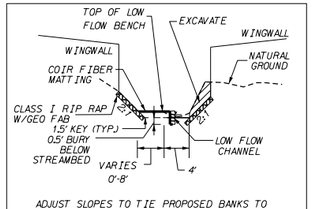
CULVERT INLET DETAIL (NTS)
LENGTH=65'

UT TO SOUTH FORK CROOKED CREEK
–L– STA. 515+45



CULVERT INLET DETAIL (NTS)
LENGTH=21'

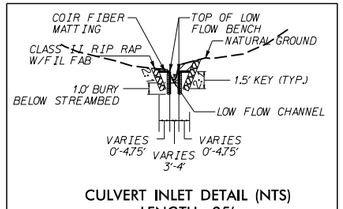
UT TO EAST FORK STEWARTS CREEK
–L– STA. 586+22



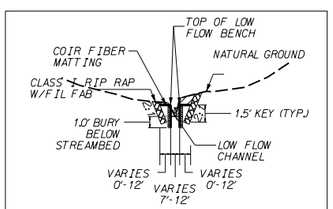
ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT INLET DETAIL (NTS)
LENGTH=66'

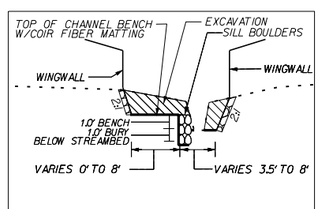
UT TO EAST FORK STEWARTS CREEK
–L– STA. 613+68



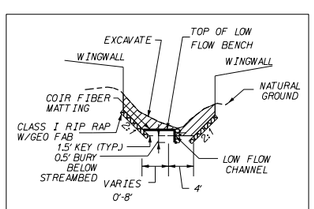
CULVERT INLET DETAIL (NTS)
LENGTH=25'



CULVERT OUTLET DETAIL (NTS)
LENGTH=57'

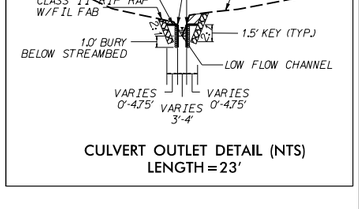


CULVERT OUTLET DETAIL (NTS)
LENGTH=26'



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH=93'



CULVERT OUTLET DETAIL (NTS)
LENGTH=23'

9/30/2014
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ENGLISH

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 72 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

SITE 16

NAD 83

W028

S043 (INTERMITTENT)

S039C (PERENNIAL)

MATCHLINE –SR5– STA. 41+00 SEE SHEET 21

MATCHLINE –SR5– STA. 54+50 SEE SHEET 23

MATCHLINE –L– STA. 416+00 SEE SHEET 21

MATCHLINE –L– STA. 430+00 SEE SHEET 23

264 PINE CREEK LAND COMPANY LLC

265 BONTERRA VILLAGE HOMEOWNERS ASSOCIATION INC

267 VIVIAN S. HONEYCUTT TRUSTEE

20' UNION COUNTY SANITARY SEWER EASEMENT

45+00 50+00 420+00 425+00

–SR5– –L–

SEE CULVERT OUTLET DETAIL STA. 424+00

SEE CULVERT INLET DETAIL STA. 424+00

PREFORMED SCOUR HOLE SEE DETAIL N

SPECIAL CUT DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL D

PROP. 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

24" ENCASEMENT

16" ENCASEMENT

24" RCP-III

18" RCP-III

15" RCP-III

PUE 16" SS

PDE

FS ELEV. 617.60

2GI-D

2GI

CB

RIP-RAP

WOODS

SR 1501 SEACREST SHORTCUT RD 35' BST 12' DI

FOR –L– PROFILE SEE SHT. 130
FOR –SR5– PROFILE SEE SHT. 202

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
8/30/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 73 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

SITE 16

NAD 83

W028

S043 (INTERMITTENT)

S039C (PERENNIAL)

MATCHLINE –SR5– STA. 41+00 SEE SHEET 21

MATCHLINE –SR5– STA. 54+50 SEE SHEET 23

MATCHLINE –L– STA. 416+00 SEE SHEET 21

MATCHLINE –L– STA. 430+00 SEE SHEET 23

BONTERRA VILLAGE HOMEOWNERS ASSOCIATION INC

PINE CREEK LAND COMPANY LLC

VIVIAN S. HONEYCUTT TRUSTEE

WOODS

45+00

50+00

420+00

425+00

–SR5–

–L–

SPECIAL CUT DITCH SEE DETAIL A

PROP. 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

BEG 48" WW FENCE

END 48" WW FENCE

SEE CULVERT OUTLET DETAIL STA. 424+00

SEE CULVERT INLET DETAIL STA. 424+00

PREFORMED SCOUR HOLE SEE DETAIL N

24" RCP-III

18" RCP-III

15" RCP-III

2GI-D

2GI

FS ELEV. 617.60

16" ENCASEMENT

24" ENCASEMENT

PUE

PDE

16" SS

SR 1501 SEACREST SHORTCUT RD

FOR –L– PROFILE SEE SHT. 130
FOR –SR5– PROFILE SEE SHT. 202

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
8/30/2004
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ekuhn

5/28/99

ENGLISH

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	130
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 74 OF 267

SITE 16

-L- STA. 417+99.82 BK=
-L- STA. 418+32.16 AH

CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 1000	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 616.2	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 616.9	FT
OVERTOPPING DISCHARGE	= 2250	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 623.8	FT

BEGIN GRADE SECTION 2B
-L- STA. 416+00.00
ELEV. = 626.81'

(-)0.3742%

PROPOSED GRADE

EXISTING GROUND
(-) 1.3672%

BEGIN SP.CUT DITCH LT.
-L- STA. 424+50.00
EI = 616.50

END SP.CUT DITCH LT.
-L- STA. 426+00.00
EI = 615.21

PI = 429+00.00
EL = 622.06'
VC = 390'
K = 197
DS = 73mph

(-) 0.8600%

3@12'X8' RCBC

(+) 0.8361%

(-)0.3742%

(+)1.6021%

(+) 1.4402%

PI = 423+56.00
EI = 609.43

PI = 426+00.00
EI = 611.47

416+00 417+00 418+00 419+00 420+00 421+00 422+00 423+00 424+00 425+00 426+00 427+00 428+00 429+00 430+00

670 660 650 640 630 620 610 600 590 580

PIPE HYDRAULIC DATA STR 2312 Sta.432+86		
DRAINAGE AREA	= 55.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 177.6	CFS
DESIGN HW ELEVATION	= 621.42	FT
100 YEAR DISCHARGE	= 206.4	CFS
100 YEAR HW ELEVATION	= 621.96	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 495.2	CFS
OVERTOPPING ELEVATION	= 628.47	FT

-L-STA. 431+83.01 =
-NRB- STA. 10+00.00, 47' LT
ELEV. = 626.60'

-L-STA. 435+97.79 =
-NRC- STA. 10+00.00, 47' RT
ELEV. = 633.24'

EXISTING GROUND

2@6' RCP

(-) 0.7742%

(+) 4.3945%

(+) 2.7589%

(+)1.6021%

PROPOSED GRADE

(+) 0.5034%

(-) 0.3000%

(-) 0.3000%

(+) 0.5000%

(+) 1.9700%

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA. 435+50.00
EI = 626.01

END SP.CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA. 437+00.00
EI = 630.15

BEGIN SP.CUT DITCH RT.
-L- STA. 441+00.00
EI = 641.29

BEGIN SP.CUT DITCH LT.
-L- STA. 442+50.00
EI = 641.29

PI = 442+86.00
EI = 633.10

PI = 443+50.00
EI = 640.54

PI = 443+50.00
EI = 640.99

PI = 444+00.00
EI = 633.67

END LAT.BASE DITCH RT.
BEGIN LAT.V DITCH RT.
-L- STA. 431+50.00
EI = 619.39

PI = 433+62.00
EI = 617.75

430+00 431+00 432+00 433+00 434+00 435+00 436+00 437+00 438+00 439+00 440+00 441+00 442+00 443+00 444+00

670 660 650 640 630 620 610 600 590 580

FOR -L- PLAN SEE SHTS. 22, 23

PLANS PREPARED BY :
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
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ekeu

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

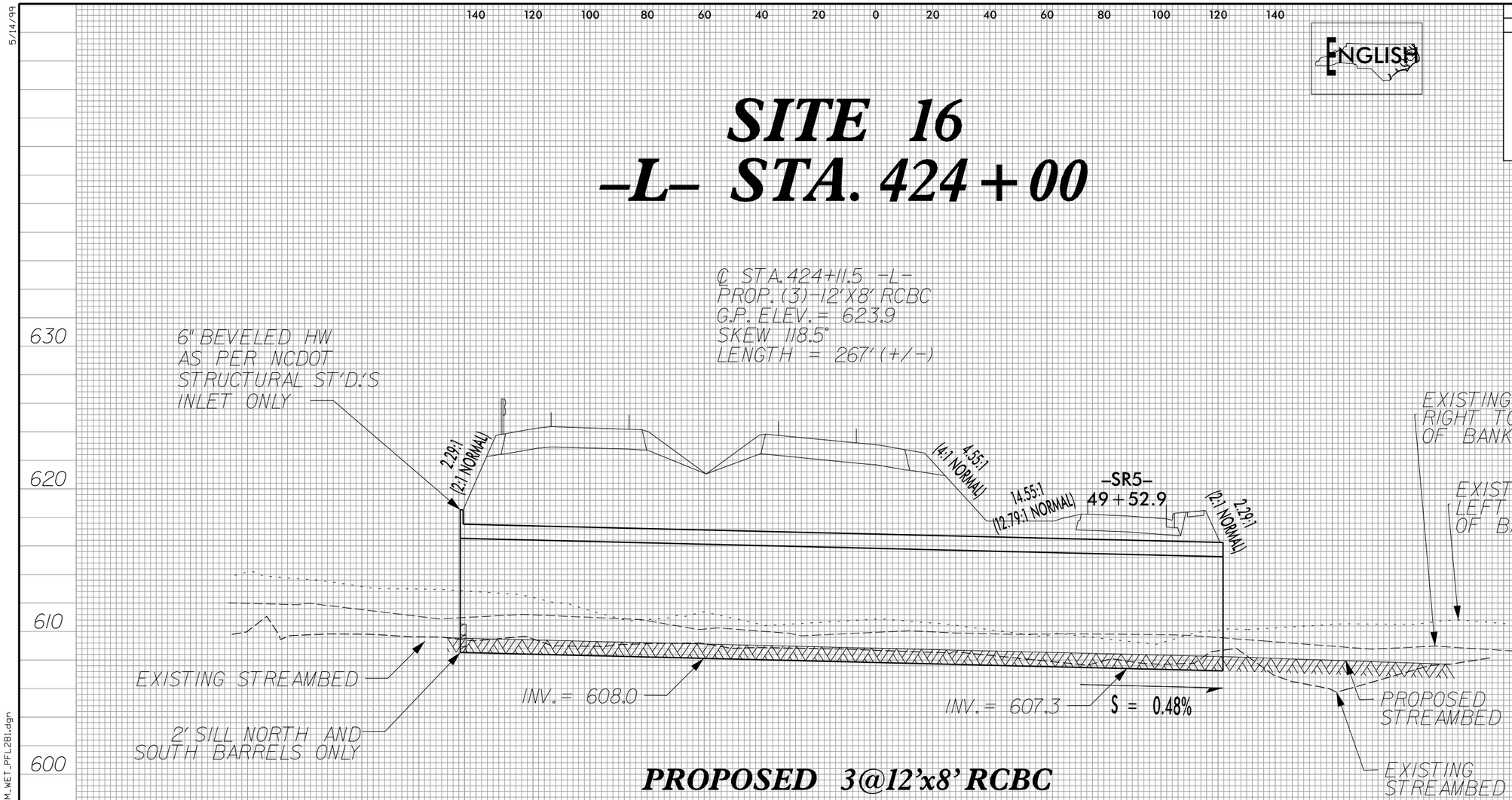
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 75 OF 267

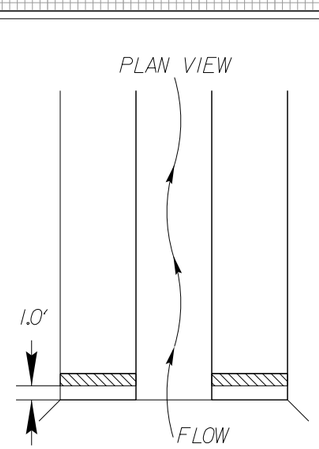
ENGLISH

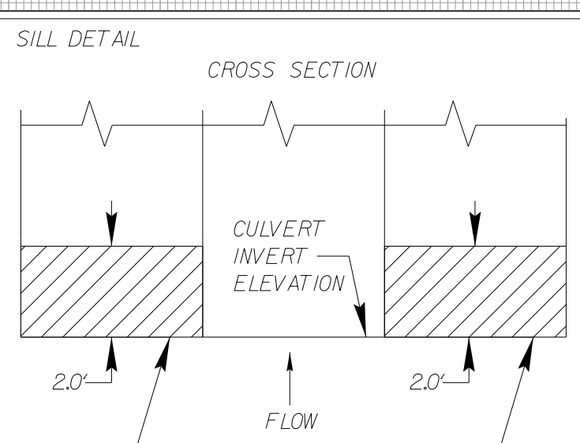
SITE 16
-L- STA. 424+00

℄ STA. 424+11.5 -L-
PROP. (3)-12'X8' RCBC
G.P. ELEV. = 623.9
SKEW 118.5°
LENGTH = 267' (+/-)



PROPOSED 3@12'x8' RCBC





PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

5/14/99

8/30/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	23
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 DRAWING
SHEET 76 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 17

S041b (PERENNIAL)

S043 (INTERMITTENT)

MATCHLINE –SR5– STA. 54+50 SEE SHEET 22

MATCHLINE –L– STA. 430+00 SEE SHEET 22

MATCHLINE –SR5– STA. 68+00 SEE SHEET 24

MATCHLINE –L– STA. 444+00 SEE SHEET 24

MATCHLINE –NRC– STA. 18+00 SEE SHEET 24

267 VIVIAN S. HONEYCUTT TRUSTEE

270 CHRISTOPHER BATCHELOR AND WIFE, SHANNON C. BATCHELOR

271 GENE H. CLARK AND WIFE, JACKIE K. CLARK

269 JOHN ROBERT CLARK AND WIFE, ANGIE CLARK

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

STANDARD V DITCH SEE DETAIL J

SPECIAL CUT DITCH SEE DETAIL A

OVERHEAD SIGN SP. CUT BASE DITCH SEE DETAIL F

15" CAAP

36" RCP-III

30" RCP-III

24" RCP-III

18" RCP-III

15" RCP-III

66" RCP-III

54" RCP-III BURIED 1'

2GI-A

2GI

FS

CB

HW

55+00

60+00

15+00

20+00

435+00

440+00

-SR5-

-L-

-NRB-

-NRC-

S 36° 01' 33.0" E

S 34° 56' 19.7" E

NOTE: INSTALL 1 66" RCP AT –L– STA. 432+86 BURIED 1.0' BELOW STREAM BED. INSTALL SECOND 66" RCP 1.0' ABOVE STREAM BED.

2 S F D

GARAGE

SILO

GAZEBO

MAILBOXES

PLANTERS

WELL HOUSE

BRICK PATIO

GAS TANK

1 S WOOD BARN

1 S BK D

GARDEN

WOODS

CONC

WD DECK

CANOPY

6' CHL

30" HDPE

FOR –L– PROFILE SEE SHT. 130
FOR –SR5– PROFILE SEE SHTS. 202, 202A
FOR –NRB– PROFILE SEE SHT. 190
FOR –NRC– PROFILE SEE SHT. 191

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$$$$$$TIME$$$$$
8/9/2004
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FLEIS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	23
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 DRAWING
SHEET 77 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

SITE 17

S041b (PERENNIAL)

S043 (INTERMITTENT)

MATCHLINE –SR5– STA. 54+50 SEE SHEET 22

MATCHLINE –L– STA. 430+00 SEE SHEET 22

MATCHLINE –SR5– STA. 68+00 SEE SHEET 24

MATCHLINE –L– STA. 444+00 SEE SHEET 24

MATCHLINE –NRC– STA. 18+00 SEE SHEET 24

NAD 83

VIVIAN S. HONEYCUTT TRUSTEE

CHRISTOPHER BATCHELOR AND WIFE, SHANNON C. BATCHELOR

GENE H. CLARK AND WIFE, JACKIE K. CLARK

JOHN ROBERT CLARK AND WIFE, ANGIE CLARK

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

STANDARD V DITCH SEE DETAIL J

SPECIAL CUT DITCH SEE DETAIL A

OVERHEAD SIGN SP. CUT BASE DITCH SEE DETAIL F

PROP. 48" WW FENCE

15" CAAP

15" RCP-III

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

36" RCP-III BURIED 2'

2GI-A

2GI

CB

HW

S 36° 01' 33.0" E

S 34° 56' 19.7" E

-SR5-

-L-

-NRB-

-NRC-

55+00

60+00

435+00

15+00

20+00

440+00

NOTE: INSTALL 1.66' RCP AT –L– STA. 432+86 BURIED 1.0' BELOW STREAM BED. INSTALL SECOND 66" RCP 1.0' ABOVE STREAM BED.

FOR –L– PROFILE SEE SHT. 130
FOR –SR5– PROFILE SEE SHTS. 202, 202A
FOR –NRB– PROFILE SEE SHT. 190
FOR –NRC– PROFILE SEE SHT. 191

PLANS PREPARED BY :

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$$$$$$TIME$$$$$
8/24/2004
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ELEVATION

5/28/99

ENGLISH

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	130
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 78 OF 267

-L- STA. 417+99.82 BK=
-L- STA. 418+32.16 AH

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1000	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 616.2	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 616.9	FT
OVERTOPPING DISCHARGE	= 2250	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 623.8	FT

BEGIN GRADE SECTION 2B
-L- STA. 416+00.00
ELEV. = 626.81'

(-)0.3742%

PROPOSED GRADE

EXISTING GROUND

(-) 1.3672%

BEGIN SP.CUT DITCH LT.
-L- STA. 424+50.00
EI = 616.50

END SP.CUT DITCH LT.
-L- STA. 426+00.00
EI = 615.21

PI = 429+00.00
EL = 622.06'
VC = 390'
K = 197
DS = 73mph

(-) 0.8600%

3@12'X8' RCBC

(+) 0.8361%

(-)0.3742%

(+)1.6021%

(+) 1.4402%

PI = 423+56.00
EI = 609.43

PI = 426+00.00
EI = 611.47

670 660 650 640 630 620 610 600 590 580

416+00 417+00 418+00 419+00 420+00 421+00 422+00 423+00 424+00 425+00 426+00 427+00 428+00 429+00 430+00

SITE 17

PIPE HYDRAULIC DATA
STR 2312 Sta.432+86

DRAINAGE AREA	= 55.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 177.6	CFS
DESIGN HW ELEVATION	= 621.42	FT
100 YEAR DISCHARGE	= 206.4	CFS
100 YEAR HW ELEVATION	= 621.96	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 495.2	CFS
OVERTOPPING ELEVATION	= 628.47	FT

-L-STA. 431+83.01 =
-NRB- STA. 10+00.00, 47' LT
ELEV. = 626.60'

-L-STA. 435+97.79 =
-NRC- STA. 10+00.00, 47' RT
ELEV. = 633.24'

EXISTING GROUND

2@6' RCP

(-) 0.7742%

(+) 4.3945%

(+) 2.7589%

(+)1.6021%

PROPOSED GRADE

(+) 0.5034%

(-) 0.3000%

(-) 0.3000%

(+) 0.5000%

(+) 1.9700%

END LAT.BASE DITCH RT.
BEGIN LAT.V DITCH RT.
-L- STA. 431+50.00
EI = 619.39

PI = 433+62.00
EI = 617.75

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA. 435+50.00
EI = 626.01

END SP.CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA. 437+00.00
EI = 630.15

BEGIN SP.CUT DITCH RT.
-L- STA. 441+00.00
EI = 641.29

BEGIN SP.CUT DITCH LT.
-L- STA. 442+50.00
EI = 641.29

PI = 442+86.00
EI = 633.10

PI = 443+50.00
EI = 640.54

PI = 443+50.00
EI = 640.99

PI = 444+00.00
EI = 633.67

670 660 650 640 630 620 610 600 590 580

430+00 431+00 432+00 433+00 434+00 435+00 436+00 437+00 438+00 439+00 440+00 441+00 442+00 443+00 444+00

FOR -L- PLAN SEE SHTS. 22, 23

PLANS PREPARED BY :
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R-2559_2014
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Ekelly

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

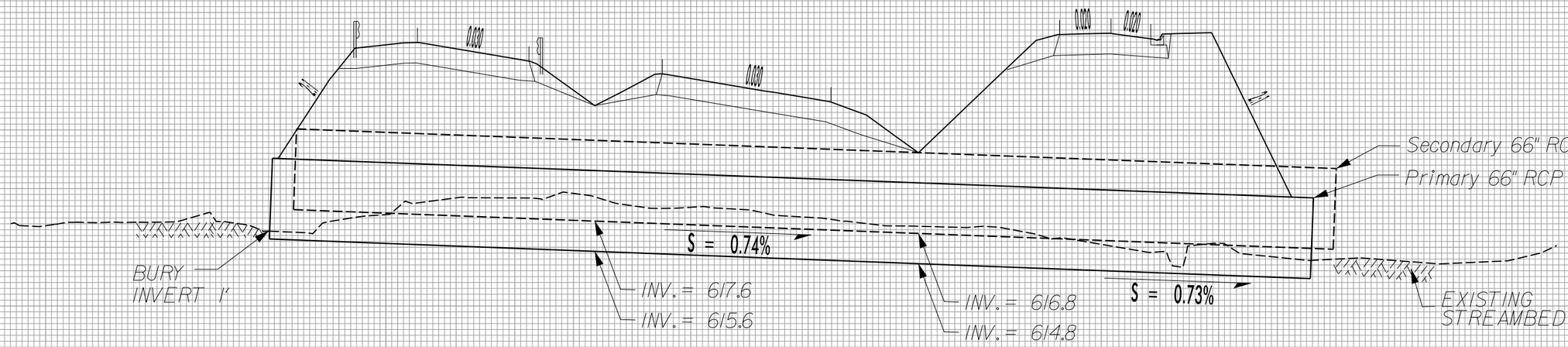
PERMIT DRAWING
SHEET 79 OF 267

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

ENGLISH

SITE 17
–L– STA. 432+98

640 630 620 610 600



NOTE: BURY PRIMARY 66" RCP 1.0' BELOW STREAM BED.
INSTALL SECONDARY 66" RCP 1.0' ABOVE STREAM BED

2 @ 66" RCP

640 630 620 610 600

9/29/2014
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ekang

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 80 OF 267

ENGLISH

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 18

MATCHLINE –L– STA. 472+00 SEE SHEET 24

MATCHLINE –L– STA. 486+00 SEE SHEET 26

WOODS

W032

363
CO-OWNERSHIP:
THE HAROLD & PAULINE FUNDERBURK LIVING TRUST
& GAYLE M. TOLBERT

S053 (INTERMITTENT)

S052a (INTERMITTENT)

S052b (INTERMITTENT)

BERM BASE DITCH SEE DETAIL R

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

CHANNEL BLOCK SEE DETAIL O

PROP. 48" WW FENCE

OVERHEAD SIGN

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT BASE DITCH SEE DETAIL F

BERM BASE DITCH SEE DETAIL S

STANDARD BASE DITCH SEE DETAIL Y

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

PREFORMED SCOUR HOLE SEE DETAIL N

2 ELBOWS ROD & LUG

NOTE: INSTALL 54" RCP AT –L– STA. 483+00 BURIED 1.0' BELOW STREAM BED. INSTALL TWO 42" RCP 1.0' ABOVE STREAM CHANNEL

–NRA–

–NRD–

–L–

15+00

475+00

480+00

485+00

36" RCP–III

42" RCP–III

54" RCP–III

2GI–A

2GI

FS

HW

TS

TDE

REMOVE

346
ZENOBIA ANN QUICK HIGGINS
AND
TERRY BENNY QUICK

362
ZENOBIA ANN QUICK HIGGINS

INDIAN TRAIL TOWN LIMITS
UNION COUNTY

EIP

WELL

S

FOR –L– PROFILE SEE SHT. 132
FOR –NRA– PROFILE SEE SHT. 189
FOR –NRD– PROFILE SEE SHT. 192

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8/23/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 81 OF 267

ENGLISH

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 18

MATCHLINE –L– STA. 472+00 SEE SHEET 24

MATCHLINE –L– STA. 486+00 SEE SHEET 26

W032

S053 (INTERMITTENT)

S052a (INTERMITTENT)

S052b (INTERMITTENT)

CO-OWNERSHIP:
THE HAROLD & PAULINE FUNDERBURK LIVING TRUST & GAYLE M. TOLBERT

ZENOBIA ANN QUICK HEGGINS AND TERRY BENNY QUICK

ZENOBIA ANN QUICK HEGGINS

INDIAN TRAIL TOWN LIMITS
UNION COUNTY

WOODS

BERM BASE DITCH SEE DETAIL R

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

CHANNEL BLOCK SEE DETAIL O

PROP. 48" WW FENCE

OVERHEAD SIGN

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT BASE DITCH SEE DETAIL F

BERM BASE DITCH SEE DETAIL S

STANDARD BASE DITCH SEE DETAIL Y

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

PREFORMED SCOUR HOLE SEE DETAIL N

2 ELBOWS ROD & LUG

NOTE: INSTALL 54" RCP AT –L– STA. 483+00 BURIED 1.0' BELOW STREAM BED. INSTALL TWO 42" RCP 1.0' ABOVE STREAM CHANNEL

–NRA–

–NRD–

–L–

475+00

480+00

485+00

15+00

36" RCP–III

54" RCP–III

2GI–A

2GI

FS

HW

TS

TDE

REMOVE

FOR –L– PROFILE SEE SHT. 132
FOR –NRA– PROFILE SEE SHT. 189
FOR –NRD– PROFILE SEE SHT. 192

PLANS PREPARED BY :

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ENGLISH

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	132
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 82 OF 267

SITE 18

PIPE HYDRAULIC DATA
STR 2507 Sta.483+00

DRAINAGE AREA	= 62.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 199.8	CFS
DESIGN HW ELEVATION	= 622.21	FT
100 YEAR DISCHARGE	= 232.2	CFS
100 YEAR HW ELEVATION	= 623.13	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 423.5	CFS
OVERTOPPING ELEVATION	= 630.35	FT

PI = 481+00.00
EL = 632.62'
VC = 800'
K = 659
DS > 80mph

-L-STA. 474+99.65 =
-NRA- STA. 10+00.00, 47' LT
ELEV. = 630.82'

-L-STA. 477+48.77 =
-NRD- STA. 10+00.00, 47' RT
ELEV. = 631.44'

BEGIN SP.CUT BASE DITCH RT.
-L- STA. 472+50.00
El = 625.59

END SP.CUT BASE DITCH LT.
BEGIN LAT.BASE DITCH LT.
-L- STA. 473+50.00
El = 624.75

PI = 474+00.000
El = 624.60

PI = 474+62.000
El = 623.96 LT.
El = 624.95 RT.

PI = 476+00.000
El = 620.05

BEGIN MED.V DITCH
-L- STA. 476+50.00
El = 628.27

END SP.CUT BASE DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA. 477+00.00
El = 624.24

END MED.V DITCH
-L- STA. 478+00.00
El = 628.68

PI = 482+15.00
El = 618.00

END LAT.BASE DITCH RT.
-L- STA. 484+00.00
El = 617.00

PROPOSED GRADE

EXISTING GROUND

(+)0.3319%
(-) 0.3000%
(-)0.3000%
(-)0.3000%
(-) 1.0323%
(-) 2.8333%
(-) 0.2733%
(-) 0.3333%
(-)1.0343%
(+) 0.5248%

54" &2642' RCP

472+00 473+00 474+00 475+00 476+00 477+00 478+00 479+00 480+00 481+00 482+00 483+00 484+00 485+00 486+00

580 590 600 610 620 630 640 650 660 670

PROPOSED GRADE

(+) 0.5248%

EXISTING GROUND

END LAT.BASE DITCH LT.
-L- STA. 488+00.00
El = 621.07

BEGIN MED.V DITCH
-L- STA. 490+00.00
El = 621.17

END MED.V DITCH
-L- STA. 491+00.00
El = 620.60

(-) 0.5700%

℄ TOLL ZONE 4-1 &4-2
-L-STA. 495+00.00

(-)0.8817%

BEGIN SP.CUT DITCH LT.
-L- STA. 494+75.00
El = 615.82

(-) 0.3920%

END SP.CUT DITCH LT.
-L- STA. 496+00.00
El = 615.33

BEGIN SP.CUT DITCH RT.
-L- STA. 496+50.00
El = 614.38

(-) 0.3500%

END SP.CUT DITCH RT.
-L- STA. 497+50.00
El = 614.03

BEGIN LAT.BASE SWALE LT.
-L- STA. 499+00.00
El = 608.03

(-) 2.0800%

PI = 499+50.00
El = 606.99

486+00 487+00 488+00 489+00 490+00 491+00 492+00 493+00 494+00 495+00 496+00 497+00 498+00 499+00 500+00

560 570 580 590 600 610 620 630 640 650

FOR -L- PLAN SEE SHTS. 25, 26

PLANS PREPARED BY :

RK&K

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FOR
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$$$$$$TIME$$$$$$
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5/14/99

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

ENGLISH

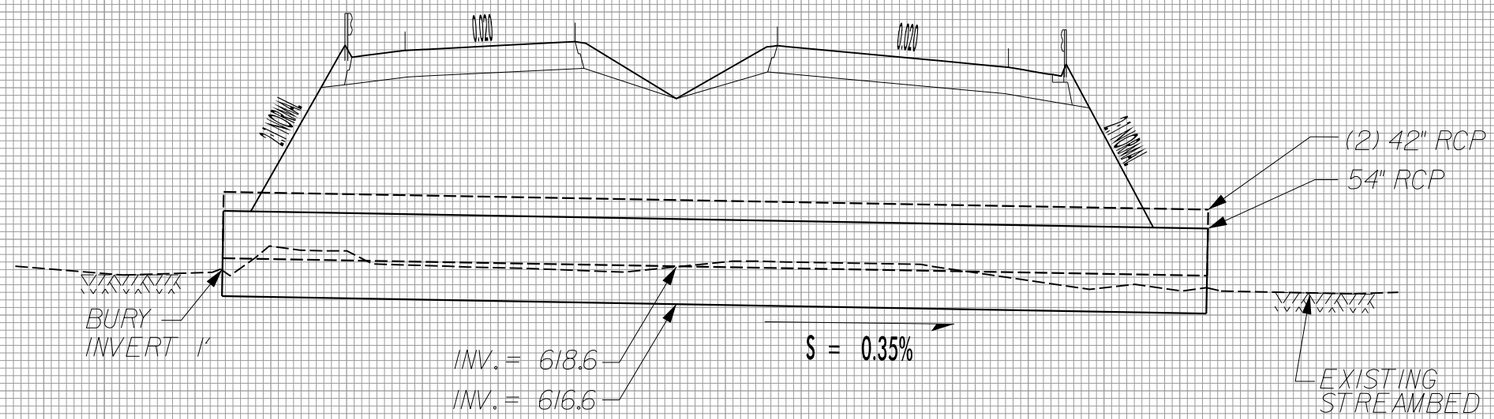
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 83 OF 267

SITE 18
–L– STA. 483+00



NOTE: BURY 54" RCP 1.0' BELOW STREAM BED.
INSTALL (2) 42" RCP 1.0' ABOVE STREAM CHANNEL.

(2) 42" RCP
54" RCP

9/29/2014
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Ekaur

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	27
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 DRAWING
SHEET 84 OF 267

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 19

S056c (PERENNIAL)

S047 (PERENNIAL)

S055 (PERENNIAL)

365 FRANKLIN W. HOWEY, JR.

371 THE TY-PAR REALTY, INC., PROFIT SHARING PLAN, ET AL

TOP 602.45 LID BOLTED SHUT

FSMH

8" PVC

TOP 602.99
INV (N) 599.04
INV (S) 599.15

MATCHLINE –L– STA. 500+00 SEE SHEET 26

MATCHLINE –L– STA. 514+00 SEE SHEET 28

LATERAL GRASS SWALE SEE DETAIL AQ

PROP. 48" WW FENCE

505+00

510+00

S 43° 41' 48.0" E

18" RCP-III

15" RCP-III

2GI

FS

2 ELBOWS RODS & LUGS

+60.00 150.00'

+60.00 75.00'

+60.00 130.00'

BEG 48" WW FENCE

END 48" WW FENCE

SCOUR PROTECTION SEE DETAIL AO

GRADE TO DRAIN

LATERAL V DITCH SEE DETAIL B

W038

SOUTH FORK CROOKED CREEK

WOODS

–L– OVER SOUTH FORK CROOKED CREEK (NOT TO SCALE)

20'

FOR –L– PROFILE SEE SHT. 133

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$$TIME$$$$$$
8/27/2014
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ekeus

8/17/99

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	27
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 DRAWING
SHEET 85 OF 267

NAD 83

SITE 19

S056c (PERENNIAL)

S047 (PERENNIAL)

S055 (PERENNIAL)

365 FRANKLIN W. HOWEY, JR.

371 THE TY-PAR REALTY, INC., PROFIT SHARING PLAN, ET AL

TOP 602.45 LID BOLTED SHUT

FSMH

8" PVC

TOP 602.93
INV. IN 599.04
INV. IS 599.15

MATCHLINE –L– STA. 500+00 SEE SHEET 26

MATCHLINE –L– STA. 514+00 SEE SHEET 28

S 43° 41' 48.0" E

505+00

510+00

–L–

LATERAL GRASS SWALE SEE DETAIL AQ

PROP. 48" WW FENCE

18" RCP-III

15" RCP-III

2GI

2 ELBOWS RCP & LUG

FS

+60.00 150.00'

+60.00 75.00'

+60.00 130.00'

BEG 48" WW FENCE

END 48" WW FENCE

SCOUR PROTECTION SEE DETAIL AO

GRADE TO DRAIN

LATERAL V DITCH SEE DETAIL B

W038

SOUTH FORK CROOKED CREEK

–L– OVER SOUTH FORK CROOKED CREEK (NOT TO SCALE)

20'

FOR –L– PROFILE SEE SHT. 133

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$$TIME$$$$$
8/21/2014
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ekeus

5/28/99

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	133
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 86 OF 267

SITE 19

BRIDGE HYDRAULIC DATA
STR NA Sta.511+71

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5300	CFS
DESIGN HW ELEVATION	= 610.4	FT
100 YEAR DISCHARGE	= 6800	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 610.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 14500	CFS
OVERTOPPING ELEVATION	= 615.3	FT

SOUTH FORK CROOKED CREEK

PI = 503+00.00
EL = 613.22'
VC = 500'
K = 301
DS > 80mph

PROPOSED GRADE

(−)0.8817%

(+)0.7778%

(−) 0.5005%

(−) 1.9087%

(−) 0.3500%

(−) 3.0447%

(−) 0.3000%

NAT GRND LT

NAT GRND RT

(−) 2.4450%

EXISTING GROUND

PI = 503+56.56
EI = 605.16

PI = 504+00.00
EI = 603.55

PI = 507+00.00
EI = 602.50

PI = 508+50.00
EI = 597.93

END LAT. BASE SWALE LT.
-L- STA. 511+61.00
EI = 597.00

BEGIN LAT. V DITCH RT.
-L- STA. 513+00.00
EI = 608.57

500+00 501+00 502+00 503+00 504+00 505+00 506+00 507+00 508+00 509+00 510+00 511+00 512+00 513+00 514+00

660 650 640 630 620 610 600 590 580 570

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 460	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 610.0	FT
BASE DISCHARGE	= 500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 610.5	FT
OVERTOPPING DISCHARGE	= 3350	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 623.6	FT

PROPOSED GRADE

(+)0.7778%

(−) 2.4458%

(2) 8x8 RCBC

(+) 1.3000%

(−) 1.8571%

EXISTING GROUND

END LAT. BASE SWALE LT.
-L- STA. 517+00.00
EI = 605.00

END LAT. BASE DITCH RT.
-L- STA. 516+12.00
EI = 601.60

BEGIN LAT. BASE SWALE LT.
-L- STA. 516+00.00
EI = 603.70

END LAT. V DITCH RT.
BEGIN LAT. BASE DITCH RT.
PI = 515+00.000
EI = 603.68

BEGIN LAT. BASE DITCH RT.
-L- STA. 519+25.00
EI = 607.81

24" RCP

(+) 5.2467%

(+) 1.6000%

(+) 2.2568%

PI = 524+00.00
EI = 618.53

BEGIN LAT. BASE SWALE LT.
-L- STA. 524+50.00
EI = 622.15

END LAT. BASE DITCH RT.
-L- STA. 525+50.00
EI = 626.40

END LAT. BASE SWALE LT.
-L- STA. 526+00.00
EI = 624.55

514+00 515+00 516+00 517+00 518+00 519+00 520+00 521+00 522+00 523+00 524+00 525+00 526+00 527+00 528+00

660 650 640 630 620 610 600 590 580 570

FOR -L- PLAN SEE SHTS. 27, 28

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
R/25/2014
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Ekelly

REVISIONS

NAD 83

MATCHLINE –Y204– STA. 38+50 SEE SHEET 94

MATCHLINE –SR1– STA. 12+00 SEE SHEET 94

SHEET 28A

SITE 20

MATCHLINE –L– STA. 514+00 SEE SHEET 27

MATCHLINE –L– STA. 542+50 SEE SHEET 29

MATCHLINE –Y204– STA. 19+00 SEE SHEET 93

A

D

BRIDGE ON –Y204– OVER –L– (NOT TO SCALE)

ENGLISH

DENOTES FILL IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	28
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 87 OF 267

FOR –L– PROFILE SEE SHT. 133, 134
FOR –Y204– PROFILE SEE SHT. 195, 196
FOR –L– PROFILE SEE SHT. 198
FOR –SR1– PROFILE SEE SHT. 197
FOR –Y204– PROFILE SEE SHT. 199
FOR –Y204– PROFILE SEE SHT. 198

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3968
NC LICENSE NO. P-0112 • (919) 878-9560
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THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$$TIME$$$$$
9/30/2014
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REVISIONS

PROJECT REFERENCE NO. R-3329 / R-2559 | SHEET NO. 28
RW SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING
SHEET 88 OF 267

ENGLISH

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

NAD 83

MATCHLINE –Y204– STA. 38+50 SEE SHEET 94

MATCHLINE –SR1– STA. 12+00 SEE SHEET 94

SHEET 28A

SITE 20

MATCHLINE –L– STA. 514+00 SEE SHEET 27

MATCHLINE –L– STA. 542+50 SEE SHEET 29

MATCHLINE –Y204– STA. 19+00 SEE SHEET 93

A

D

BRIDGE ON –Y204– OVER –L– (NOT TO SCALE)

FOR –L– PROFILE SEE SHT. 133, 134
FOR –Y204– PROFILE SEE SHT. 195, 196
FOR –Y2A– PROFILE SEE SHT. 198
FOR –Y3A– PROFILE SEE SHT. 197
FOR –Y4A– PROFILE SEE SHT. 197
FOR –Y5A– PROFILE SEE SHT. 198

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
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RALEIGH, NORTH CAROLINA 27609-3968
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9/30/2014
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ENGLISH

F F DENOTES FILL IN WETLAND

T T DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	28A
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 DRAWING
SHEET 89 OF 267

SITE 20

MATCHLINE -L- STA. 514+00 SEE SHEET 27

S055 (PERENNIAL)

LATERAL GRASSED SWALE SEE DETAIL AQ

END 48" F WW FENCE

SEE CULVERT OUTLET DETAIL STA. 515+50

BEG 48" WW FENCE

PROP. 48" WW FENCE

2GI

15" RCP-III

GRAU 350

TYPE M350

515+00

(2)-8'x8' RCBC

520+00

18" RCP-III

FS

END 48" WW FENCE

SEE CULVERT INLET DETAIL STA. 515+50

BEG 48" WW FENCE

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

WX822

LATERAL BASE DITCH SEE DETAIL D

525+00

24" RCP-III

LATERAL GRASSED SWALE SEE DETAIL AQ

LATERAL BASE DITCH SEE DETAIL E

PUE

8" WL

6" FSS

8" DIP

8" PVC

30' CITY OF MONROE PUBLIC UTILITY EASEMENT

377 WILLIAM J. AUSTIN AND WIFE, JANICE H. AUSTIN

371 THE TY-PAR REALTY, INC., PROFIT SHARING PLAN, ET AL

DENNIS L. ASHLEY AND WIFE CONSTANCE PIERZYNSKI ASHLEY

386 MICHAEL ERIC EFIRD AND WIFE, JILL WOLFE EFIRD

385 THE TY-PAR REALTY, INC. PROFIT SHARING PLAN TOWN & COUNTRY DEVELOPERS, LLC. KIJ PROPERTIES, LLC, KIM C. LEE

UNION COUNTY

MONROE CITY LIMITS

-L-

-DRA-

-DLA-

-Y204-

INV=618.75 PDE

15" RCP-III

PLUG

REMOVE

WOODS

FSS

GR

S 10°39'57" E 169.11'

S 10°17'42" E 95.95'

S 35°05'49" E 191.31'

S 14°59'08" E 184.19'

N 87°21'49" W 192.55'

S 28°52'50" W 166.33'

S 87°24'35" E 445.93'

S 72°54'18" E 63.31'

N 28°52'24" W 44.42'

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

9:30:2004
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Ekeus

ENGLISH

F F DENOTES FILL IN WETLAND

T T DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	28A
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 DRAWING
SHEET 90 OF 267

SITE 20

MATCHLINE -L- STA. 514+00 SEE SHEET 27

S055 (PERENNIAL)

LATERAL GRASSED SWALE SEE DETAIL AQ

PROP. 48" WW FENCE

END 48" F WW FENCE

SEE CULVERT OUTLET DETAIL STA. 515+50

BEG 48" WW FENCE

2GI

15" RCP-III

GRAU 350

TYPE M350

515+00

(2)-8'x8' RCBC

FS 520+00

18" RCP-III

525+00

24" RCP-III

SEE CULVERT INLET DETAIL STA. 515+50

END 48" WW FENCE

BEG 48" WW FENCE

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

WX822

LATERAL BASE DITCH SEE DETAIL E

PUE

8" WL

8" FSS

8" DIP

8" PVC

30" CMP

39' CITY OF MONROE GENERAL PUBLIC UTILITY EASEMENT

WILLIAM J. AUSTIN AND WIFE, JANICE H. AUSTIN (377)

DENNIS ASHLEY AND WIFE CONSTANCE PIERZYNSKI ASHLEY

THE TY-PAR REALTY, INC., PROFIT SHARING PLAN, ET AL (371)

MICHAEL ERIC EFIRD AND WIFE, JILL WOLFE EFIRD (386)

THE TY-PAR REALTY, INC., PROFIT SHARING PLAN TOWN & COUNTRY DEVELOPERS, LLC. KIJ PROPERTIES, LLC, KIM C. LEE (385)

UNION COUNTY LIMITS

MONROE CITY LIMITS

WOODS

-ORA-

-OLA-

-L-

PDE

PLUG

REMOVE

15" CMP

2 ELBOWS MOD & LIG

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
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NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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Ekeus

5/28/99

ENGLISH

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	133
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 91 OF 267

BRIDGE HYDRAULIC DATA
STR NA Sta.511+71

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5300	CFS
DESIGN HW ELEVATION	= 610.4	FT
100 YEAR DISCHARGE	= 6800	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 610.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 14500	CFS
OVERTOPPING ELEVATION	= 615.3	FT

PI = 503+00.00
EL = 613.22'
VC = 500'
K = 301
DS > 80mph

PROPOSED GRADE

SOUTH FORK CROOKED CREEK

(−) 0.8817%

(+) 0.7778%

(−) 0.5005%

(−) 1.9087%

(−) 0.3500%

(−) 3.0447%

(−) 0.3000%

NAT GRND LT

NAT GRND RT

(−) 2.4450%

EXISTING GROUND

PI = 503+56.55
EI = 605.16

PI = 504+00.00
EI = 603.55

PI = 507+00.00
EI = 602.50

PI = 508+50.00
EI = 597.93

END LAT. BASE SWALE LT.
-L- STA. 511+61.00
EI = 597.00

BEGIN LAT. V DITCH RT.
-L- STA. 513+00.00
EI = 608.57

500+00 501+00 502+00 503+00 504+00 505+00 506+00 507+00 508+00 509+00 510+00 511+00 512+00 513+00 514+00

660 650 640 630 620 610 600 590 580 570

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 460	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 610.0	FT
BASE DISCHARGE	= 500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 610.5	FT
OVERTOPPING DISCHARGE	= 3350	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 623.6	FT

SITE 20

PROPOSED GRADE

(+) 0.7778%

(+) 5.2467%

(+) 1.6000%

(+) 2.2568%

24" RCP

(2) 8x8 RCBC

(−) 2.7458%

(+) 1.3000%

(−) 1.8571%

EXISTING GROUND

END LAT. BASE SWALE LT.
-L- STA. 517+00.00
EI = 605.00

END LAT. BASE DITCH RT.
-L- STA. 516+12.00
EI = 601.60

BEGIN LAT. BASE SWALE LT.
-L- STA. 516+00.00
EI = 603.70

END LAT. V DITCH RT.
BEGIN LAT. BASE DITCH RT.
PI = 515+00.000
EI = 603.68

BEGIN LAT. BASE DITCH RT.
-L- STA. 519+25.00
EI = 607.81

PI = 524+00.00
EI = 618.53

BEGIN LAT. BASE SWALE LT.
-L- STA. 524+50.00
EI = 622.15

END LAT. BASE DITCH RT.
-L- STA. 525+50.00
EI = 626.40

END LAT. BASE SWALE LT.
-L- STA. 526+00.00
EI = 624.55

514+00 515+00 516+00 517+00 518+00 519+00 520+00 521+00 522+00 523+00 524+00 525+00 526+00 527+00 528+00

660 650 640 630 620 610 600 590 580 570

FOR -L- PLAN SEE SHTS. 27, 28

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
R-2559 20M
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Ekelly

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

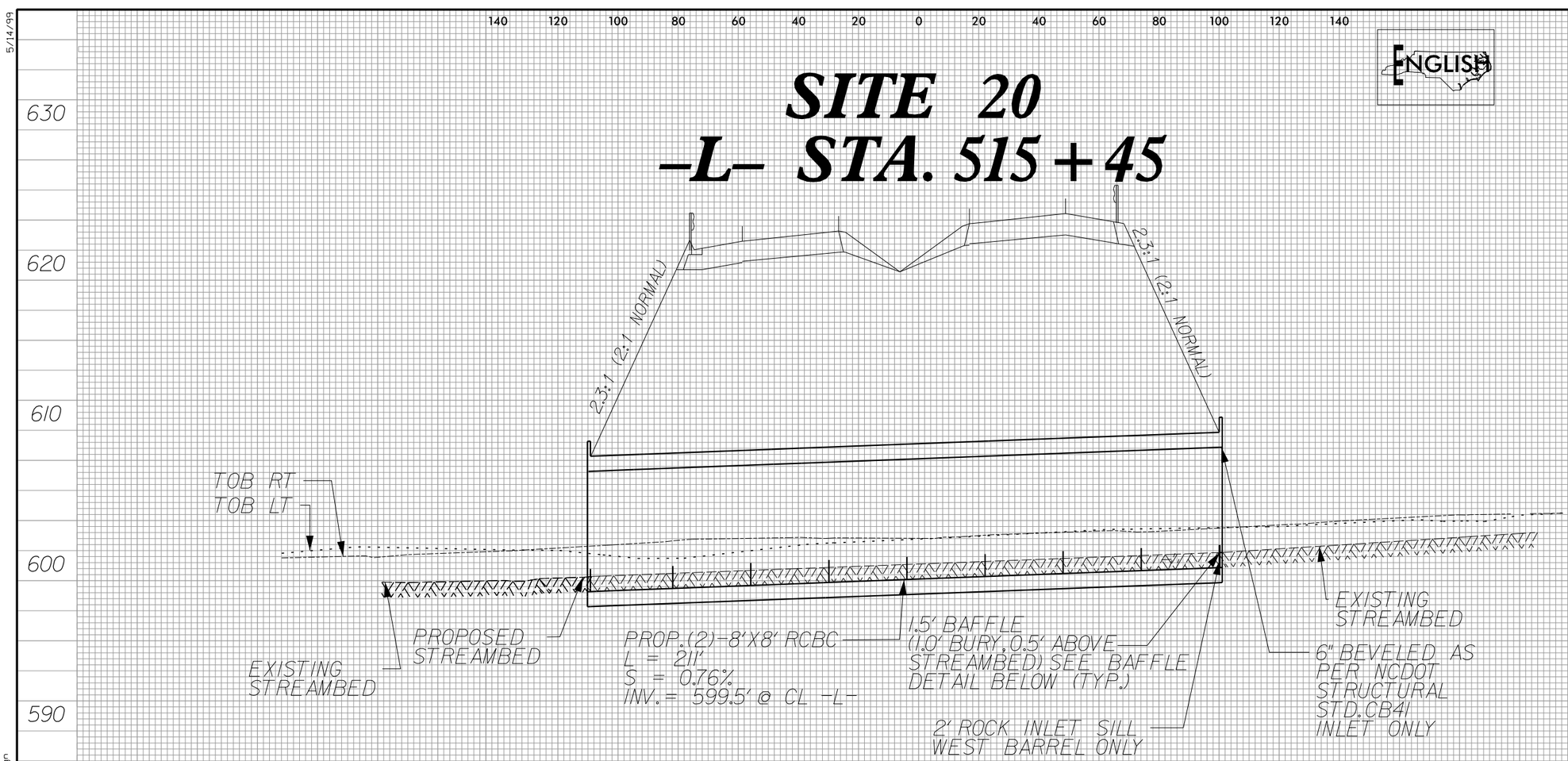
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 92 OF 267

ENGLISH

SITE 20
-L- STA. 515+45

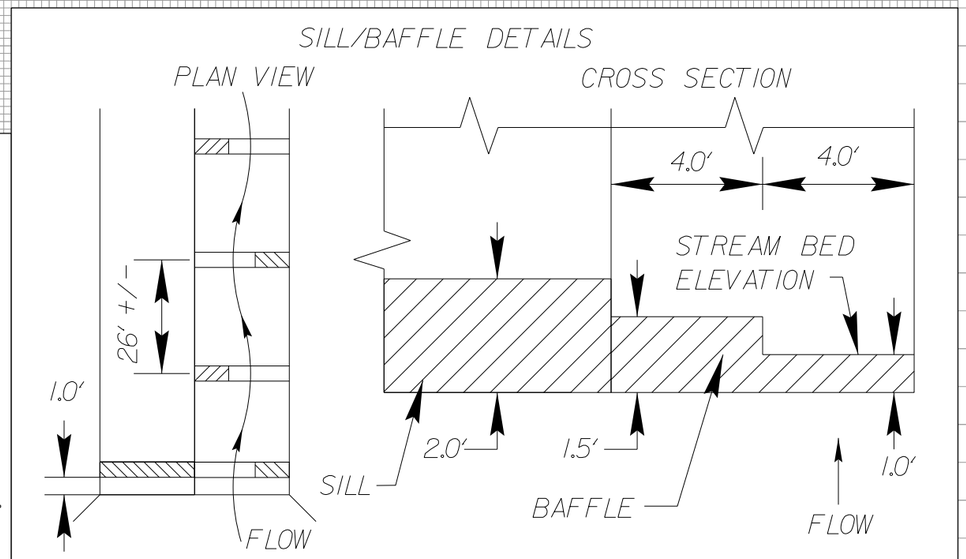


2@8'x8' RCBC WITH BAFFLES

PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.



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Elkins

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2B-X36

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

ENGLISH

PERMIT DRAWING
SHEET 93 OF 267

630 620 610

3.69:1 0.020 0.020 0.020 6.555:1 6:1 0.020 0.020 2:1

D.P. 622.056

614.10

518+00.00

630 620 610

3.11:1 0.020 0.020 0.020 6.555:1 6:1 0.020 0.020 2:1

D.P. 621.667

611.69

517+50.00

640 630 620 610

2:1 0.020 0.020 0.020 6.555:1 6:1 0.020 0.020 2:1 WETLAND

3:1 3:1 12:1

605.00

D.P. 621.278

608.39

517+00.00

SITE 20

630 620 610 600

2:1 0.020 0.020 0.020 6.555:1 6:1 0.020 0.020 2:1 WETLAND

3:1 3:1 12:1

604.35

D.P. 620.889

604.56

516+50.00

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

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	29
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 DRAWING
SHEET 94 OF 267

ENGLISH

F F DENOTES FILL IN WETLAND

S 64A (INTERMITTENT)

NAD 83

SITE 21

MATCHLINE –L– STA. 542 + 50 SEE SHEET 28

MATCHLINE –L– STA. 556 + 00 SEE SHEET 30

403 JACK C. WINCHESTER AND WIFE RUTH A. WINCHESTER

402 MARY ANN SHEPLEY

TIMOTHY MCDOW AND WIFE BRENDA TERRELL MCDOW

405 KENNETH R. MCDOW AND WIFE TERESA H. MCDOW

406 HURLEY LONG AND WIFE, PAULINE LONG

WOODS

REBAR

RUINS

HR

SHED

AXLE

5' WW FENCE

PROP. 48" WW FENCE

BERM BASE DITCH SEE DETAIL R

SPECIAL CUT DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT BASE DITCH SEE DETAIL F

STANDARD BASE DITCH SEE DETAIL K

15+00

N 52° 11' 33.1" W

545+00

S 55° 11' 33.1" E

550+00

555+00

-L-

2GI

2GI-A

FS

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

42" RCP-III

54" RCP-III

FS ELEV. 629.96

HW

PDE

C

A

RW

FOR –L– PROFILE SEE SHT. 134
FOR –QRA– PROFILE SEE SHT. 197
FOR –QRD– PROFILE SEE SHT. 198

PLANS PREPARED BY :

RK&K

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	29
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 DRAWING
SHEET 95 OF 267

ENGLISH

F F DENOTES FILL IN WETLAND

S 64A (INTERMITTENT)

NAD 83

SITE 21

MATCHLINE –L– STA. 542+50 SEE SHEET 28

MATCHLINE –L– STA. 556+00 SEE SHEET 30

402 MARY ANN SHEPLEY

403 JACK C. WINCHESTER AND WIFE RUTH A. WINCHESTER

405 KENNETH R. MCDOW AND WIFE TERESA H. MCDOW

406 HURLEY LONG AND WIFE, PAULINE LONG

TIMOTHY MCDOW AND WIFE BRENDA TERRELL MCDOW

WOODS

RUINS

HR

SHED

AXLE

REBAR

545+00

550+00

555+00

15+00

S 55° 11' 33.1" E

N 52° 11' 33.1" W

–L–

BERM BASE DITCH SEE DETAIL R

SPECIAL CUT DITCH SEE DETAIL A

PROP. 48" WW FENCE

5' WW FENCE

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT BASE DITCH SEE DETAIL F

STANDARD BASE DITCH SEE DETAIL K

2GI

2GI-A

FS

HW

PDE

FS ELEV. 629.96

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

42" RCP-III

54" RCP-III

60" RCP-III

FOR –L– PROFILE SEE SHT. 134
FOR –QRA– PROFILE SEE SHT. 197
FOR –QRD– PROFILE SEE SHT. 198

PLANS PREPARED BY :

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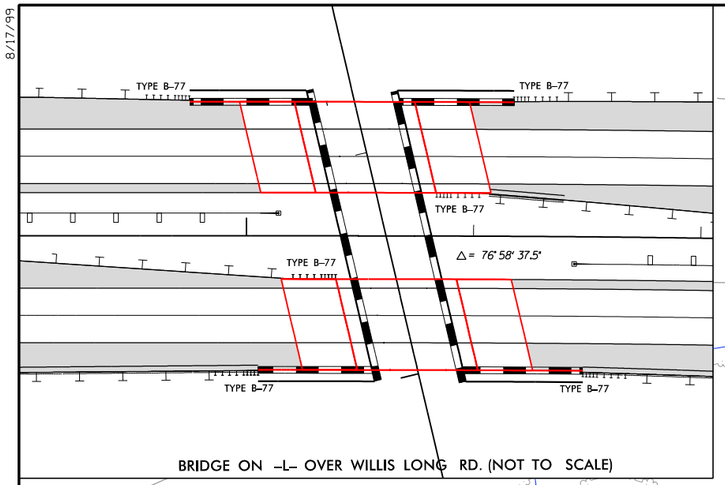
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING SHEET 96 OF 267



BRIDGE ON –L– OVER WILLIS LONG RD. (NOT TO SCALE)

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

SITE 22

FOREST HILLS BAPTIST CHURCH

Q10 = 88.1 CFS
V10 = 2.9 FT/S

WX823

NAD 83

403 JACK C. WINCHESTER AND WIFE RUTH A. WINCHESTER

404 TIMOTHY MCDOW AND WIFE BRENDA TERRELL MCDOW

407 RONALD COLIN HOUGH AND WIFE PEGGY C. HOUGH

408 CYNTHIA JOYCE LONG THOMAS AND HUSBAND, NORMAN CONWAY THOMAS

406 HURLEY LONG REVOCABLE TRUST

406 HURLEY LONG AND WIFE, PAULINE LONG

S064b (INTERMITTENT)

S064c (INTERMITTENT)

P 30

S 61° 36' 26.1" E

N 21° 58' 45.1" E

N 21° 34' 48.0" E

–SR9–

–Y208–

–L–

20+00

560+00

565+00

570+00

15" RCP-III

24" RCP-IV

30" RCP-III

REMOVE

STANDARD BASE DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL V DITCH SEE DETAIL B

SPECIAL LAT V DITCH SEE DETAIL G

SPECIAL CUT DITCH SEE DETAIL A

15" CAAP 2 ELBOWS ROD & LUG

2 ELBOWS ROD & LUG

8 TONS CL B RIPRAP W/21 SY FIL FAB

PROP. 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

4' SPT RAIL FENCE

4' CL FENCE

5' WW FENCE

5' WOOD FENCE

MATCHLINE –L– STA. 556+00 SEE SHEET 29

MATCHLINE –L– STA. 570+00 SEE SHEET 31

FOR –L– PROFILE SEE SHT. 135
FOR –SR9– PROFILE SEE SHT. 199
FOR –Y208– PROFILE SEE SHT. 201

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
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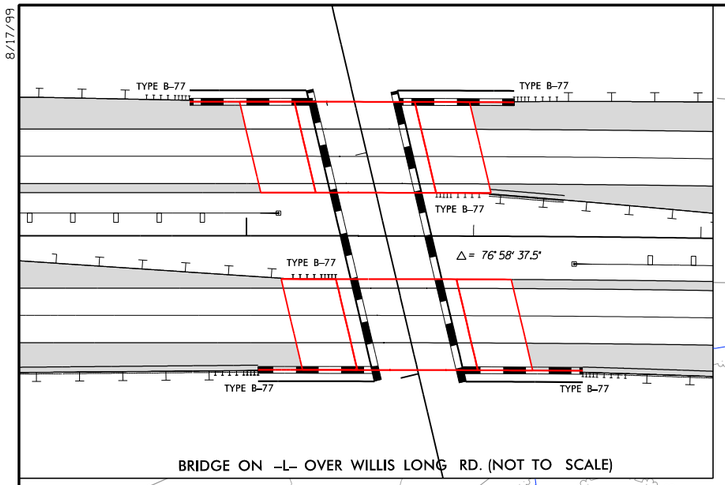

BRIDGE ON –L– OVER WILLIS LONG RD. (NOT TO SCALE)

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING SHEET 97 OF 267

SITE 22

SITE 21

MATCHLINE –L– STA. 556+00 SEE SHEET 29

MATCHLINE –L– STA. 570+00 SEE SHEET 31

FOREST HILLS BAPTIST CHURCH

JACK C. WINCHESTER AND WIFE RUTH A. WINCHESTER

TIMOTHY MCDOW AND WIFE BRENDA TERRELL MCDOW

RONALD COLIN HOUGH AND WIFE PEGGY C. HOUGH

CYNTHIA JOYCE LONG THOMAS AND HUSBAND, NORMAN CONWAY THOMAS

HURLEY LONG REVOCABLE TRUST

HURLEY LONG AND WIFE, PAULINE LONG

WILLIS LONG ROAD

WX823

Q10 = 88.1 CFS
V10 = 2.9 FT/S

NAD 83

S064b (INTERMITTENT)

S064c (INTERMITTENT)

P 30

S 55° 11' 33.1" E

S 61° 36' 26.1" E

N 21° 58' 45.1" E

N 21° 34' 48.0" E

–L– 20+00

–L– 560+00

–L– 565+00

–L– 15+00

–SR9–

–Y208–

STANDARD BASE DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL V DITCH SEE DETAIL B

SPECIAL LAT V DITCH SEE DETAIL G

SPECIAL CUT DITCH SEE DETAIL A

PROP. 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

15" CAAP 2 ELBOWS ROD & LUG

15" RCP-III

24" RCP-IV

30" RCP-III

REMOVE 15" RCP-III

8 TONS CL B RIPRAP W/21 SY FIL FAB

PDE

2GI

FS

SEPTIC TANK

SHED

WELL

GRAVEL

CONC

ISBD

DECK

MTL CANOPY

MTL BLDG

CMU BLDG

ISE BARN

MTL POLE

GATE

WOODS

5' WW FENCE

4' WW FENCE

4' CL FENCE

5' WOOD FENCE

4' SPT RAIL FENCE

SOIL

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

FOR –L– PROFILE SEE SHT. 135
FOR –SR9– PROFILE SEE SHT. 199
FOR –Y208– PROFILE SEE SHT. 201

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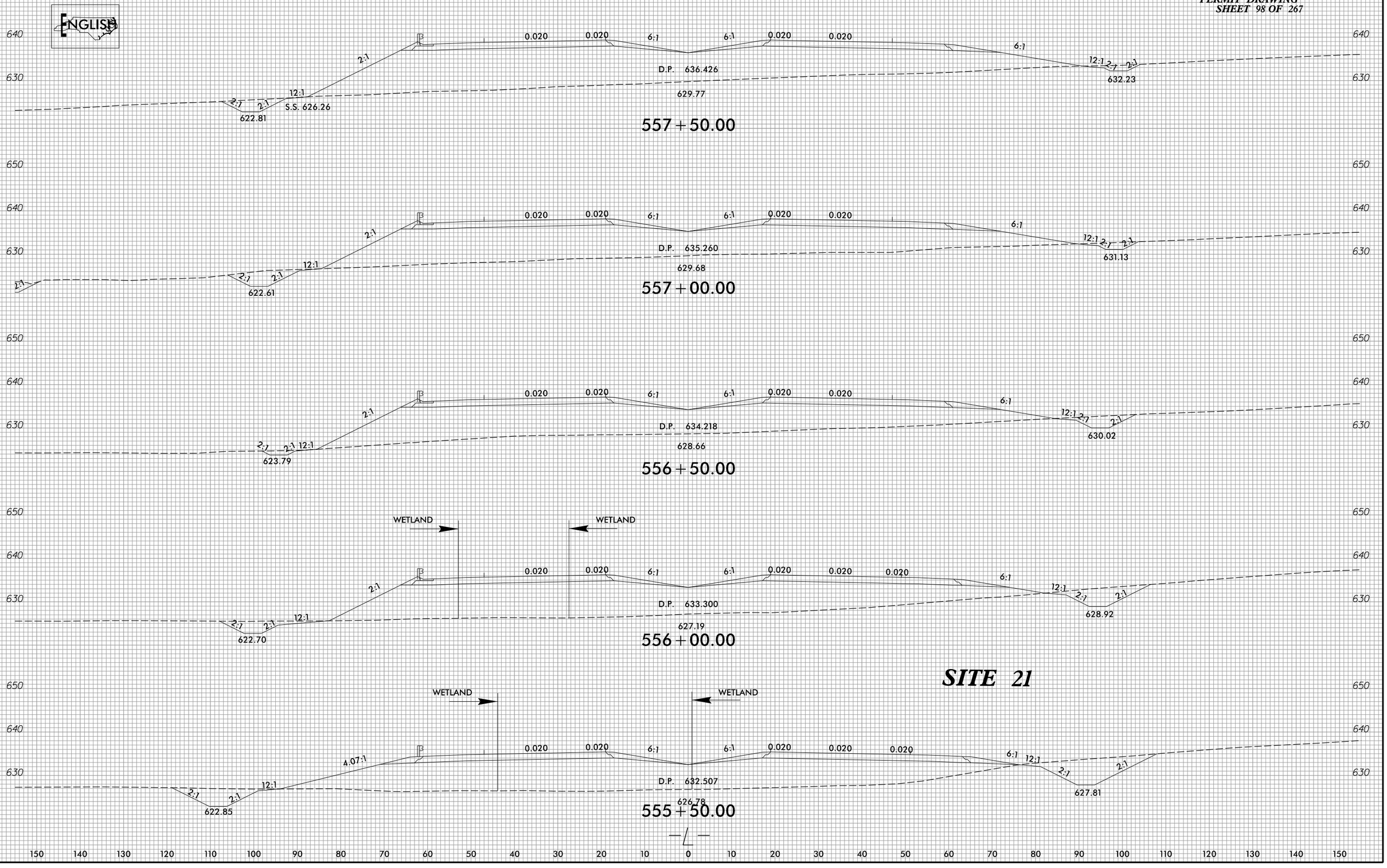
	R-3329 / R-2559	2B-X51

PERMIT DRAWING
SHEET 98 OF 267



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2B-X162

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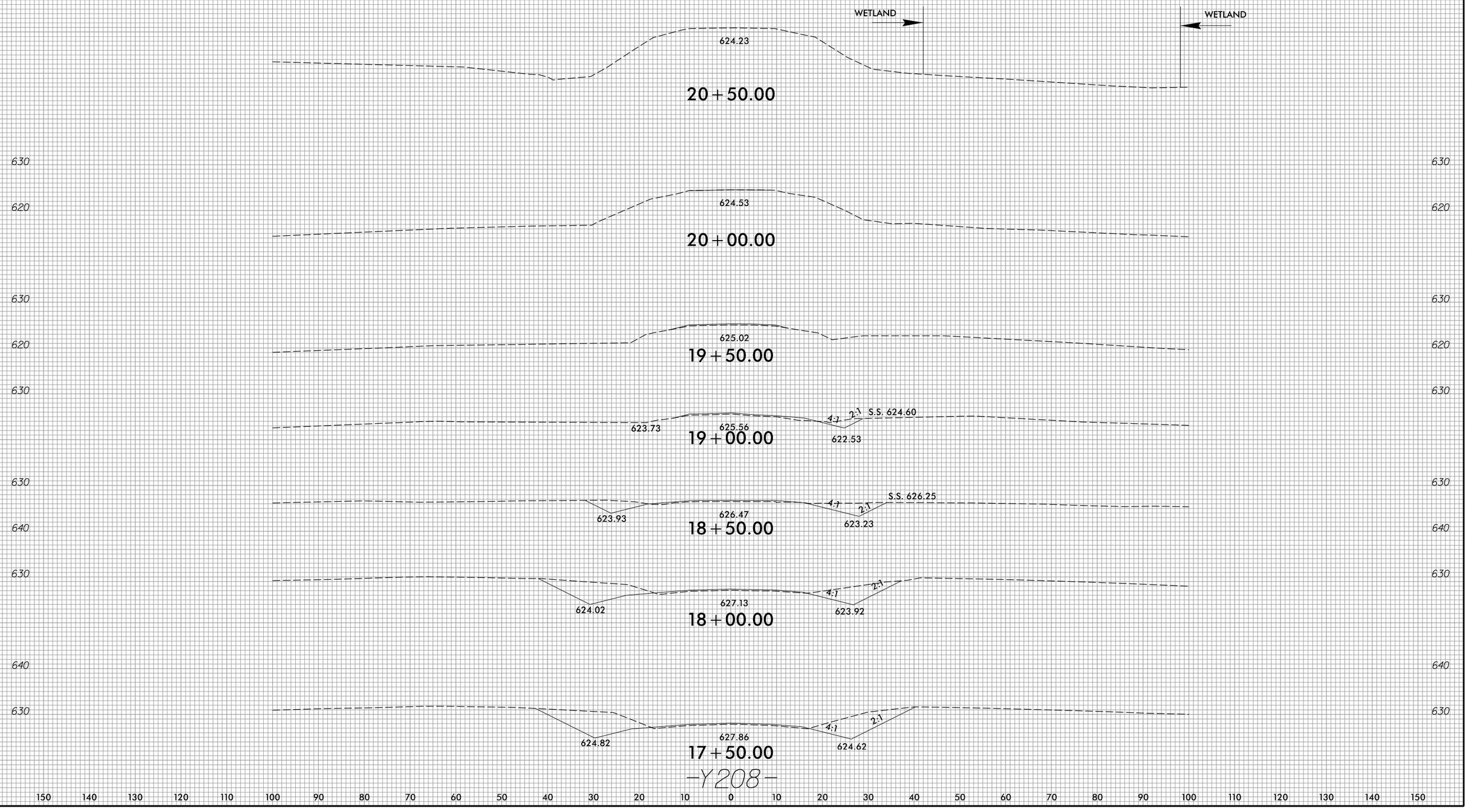
PERMIT DRAWING
SHEET 99 OF 267

ENGLISH

SITE 22



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

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 100 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

MATCHLINE –SR9– STA. 29+00 SEE SHEET 31

MATCHLINE –L– STA. 582+50 SEE SHEET 31

MATCHLINE –L– STA. 596+00 SEE SHEET 33

SITE 23

SITE 24

S068c (PERENNIAL)

S069 (INTERMITTENT)

S068b (PERENNIAL)

S068a (INTERMITTENT)

410 COTH FAMILY TRUST

412 FRANK PHUNG AND WIFE, SYLVIA PHUNG

411 THOMAS RAY POPLIN AND WIFE, JUDY H. POPLIN

413 THOMAS M. AYCOTH

414 JAMES RAY MILLS AND WIFE TERRIE DARLENE MILLS

415 LEROY L. PRESLAR AND WIFE DORIS S. PRESLAR

UNIONVILLE TOWN LIMITS

MTL CHICKEN HOUSE

WOODS

GRAVEL

SHED

WATER PUMP

WOOD POST

MTL CANOPY

U/G GAS TANK

ISFD

2SFD

PROP. 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

SEE CULVERT OUTLET DETAIL STA. 586+00

SEE CULVERT INLET DETAIL STA. 586+00

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

2 ELBOWS ROD & LUG

15" CAAP

18" RCP-III

24" RCP-III

15" RCP-III

60" RCP-III

24"x19" RCP-HE

12"x7" RCP-BC

CAT-1

2GI

FS

HW

PROP. SBG

GRAU 350

585+00

590+00

595+00

FOR –L– PROFILE SEE SHT. 135, 136
FOR –SR9– PROFILE SEE SHT. 200

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/30/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 101 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

MATCHLINE –SR9– STA. 29+00 SEE SHEET 31

MATCHLINE –L– STA. 582+50 SEE SHEET 31

MATCHLINE –L– STA. 596+00 SEE SHEET 33

SITE 23

SITE 24

S068c (PERENNIAL)

S069 (INTERMITTENT)

S068b (PERENNIAL)

S068a (INTERMITTENT)

410 COTH FAMILY TRUST

412 FRANK PHUNG AND WIFE, SYLVIA PHUNG

411 THOMAS RAY POPLIN AND WIFE, JUDY H. POPLIN

413 THOMAS M. AYCOTH

414 JAMES RAY MILLS AND WIFE TERRIE DARLENE MILLS

415 LEROY L. PRESLAR AND WIFE DORIS S. PRESLAR

30+00 585+00 590+00 595+00

PROP. 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

PDE

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL A

SEE CULVERT OUTLET DETAIL STA. 586+00

SEE CULVERT INLET DETAIL STA. 586+00

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

2 ELBOWS ROD & LUG

74" RCP-III

18" RCP-III

15" CAAP

15" RCP-III

12" x 7" RA-RC

24" RCP-III

60" RCP-III

2GI

2GIC

CAT-1

HW

FS

PROP. SBG

GRAU 350

FOR –L– PROFILE SEE SHT. 135, 136
FOR –SR9– PROFILE SEE SHT. 200

PLANS PREPARED BY :

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FOR
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ENGLISH

SITE 23

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	136
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 102 OF 267

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 606.2	FT
BASE DISCHARGE	= 650	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 606.5	FT
OVERTOPPING DISCHARGE	= 1295	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 614.7	FT

PIPE HYDRAULIC DATA
STR 3201 Sta.591+21

DRAINAGE AREA	= 23.60	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 79.9	CFS
DESIGN HW ELEVATION	= 610.24	FT
100 YEAR DISCHARGE	= 92.9	CFS
100 YEAR HW ELEVATION	= 610.80	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 173.2	CFS
OVERTOPPING ELEVATION	= 614.65	FT

PI = 596+00.00
EL = 619.46'
VC = 1,760'
K = 775
DS > 80mph

PI = 584+00.00
EI = 611.600 MED.
EI = 610.47 LT.

END MED.V DITCH
-L- STA.585+00.00
EI = 611.94
END SP.CUT DITCH LT.
EI = 610.81
BEGIN LAT.BASE DITCH LT.
-L- STA.585+50.00
EI = 603.40

PI = 589+50.000
EI = 614.060

BEGIN LAT.V DITCH LT.
-L- STA.591+18.00
EI = 600.73

END MED.V DITCH
-L- STA.592+50.00
EI = 611.16
BEGIN SP.CUT DITCH LT.
EI = 610.06

END SP.CUT DITCH LT.
-L- STA.595+00.00
EI = 610.81

EXISTING GROUND
PROPOSED GRADE

(+)0.4039%
(-)1.8657%

(+) 0.3400%
(+) 0.3400%
(-) 5.2900%
(-) 3.4700%
(+) 3.4700%
12'X7' RCBC
2ø36" RCP
(-) 2.0000%
(+) 0.6333%
(+) 0.6500%
(-) 2.8889%
(-) 0.3000%
48" RCP
(+) 0.8400%
(-) 2.8889%
(+) 2.3700%
(+) 0.5192%
(+) 0.3000%
(+) 0.6440%

PI = 585+00.00
EI = 599.73

END SP.CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA.584+00.00
EI = 603.20

END LAT.BASE DITCH RT.
-L- STA.586+00.00
EI = 603.20

PI = 586+50.00
EI = 598.11

END LAT.BASE DITCH LT.
-L- STA.587+75.00
EI = 595.61

BEGIN MED.V DITCH
-L- STA.588+00.00
EI = 613.11
BEGIN SP.CUT DITCH RT.
EI = 611.85

PI = 589+00.000
EI = 612.50

END SP.CUT DITCH RT.
BEGIN LAT.V DITCH RT.
-L- STA.590+50.00
EI = 609.61

PI = 591+25.000
EI = 606.00

END LAT.V DITCH LT.
-L- STA.591+70.00
EI = 601.00

PI = 592+00.000
EI = 606.63

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA.593+00.00
EI = 609.00

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA.593+00.00
EI = 609.00

END SP.CUT DITCH RT.
-L- STA.595+50.00
EI = 610.61

584+00 585+00 586+00 587+00 588+00 589+00 590+00 591+00 592+00 593+00 594+00 595+00 596+00 597+00 598+00

640 630 620 610 600 590 580 570

PIPE HYDRAULIC DATA
STR 3301 Sta.605+35

DRAINAGE AREA	= 47.25	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 155.4	CFS
DESIGN HW ELEVATION	= 595.80	FT
100 YEAR DISCHARGE	= 180.6	CFS
100 YEAR HW ELEVATION	= 596.45	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 248.6	CFS
OVERTOPPING ELEVATION	= 598.55	FT

PI = 607+50.00
EL = 598.00'
VC = 540'
K = 249
DS > 80mph

BEGIN LAT.BASE DITCH LT.
-L- STA.598+00.00
EI = 608.54
BEGIN LAT.V DITCH RT.
EI = 608.54

BEGIN SP.CUT DITCH RT.
-L- STA.599+50.00
EI = 608.00

END SP.CUT DITCH RT.
-L- STA.600+00.00
EI = 606.31

30" RCP
(-) 4.9853%
(-) 3.3800%
(-) 3.7682%

END LAT.V DITCH RT.
-L- STA.598+68.00
EI = 605.15

END LAT.BASE DITCH LT.
-L- STA.600+20.00
EI = 600.25

PI = 604+89.000
EI = 590.20

BEGIN LAT.V DITCH RT.
-L- STA.604+25.00
EI = 591.50

72" RCP
(+) 3.2143%
(-) 2.0312%
(-) 1.5488%

BEGIN LAT.V DITCH LT.
-L- STA.605+00.00
EI = 589.00

PI = 605+82.000
EI = 587.73

END LAT.V DITCH LT.
BEGIN SP.CUT DITCH LT.
-L- STA.606+20.00
EI = 588.50

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA.605+45.00
EI = 592.00

EXISTING GROUND
PROPOSED GRADE

(-)1.8657%
(+)0.3042%
(+) 0.8889%
(+) 1.0879%
(+) 2.0263%

BEGIN MED.V DITCH
-L- STA.608+50.00
EI = 595.81

(-) 0.3000%
(+) 0.3300%
(+) 2.8200%
(-) 0.5000%
(-) 1.8400%

PI = 609+50.000
EI = 595.60 RT.
EI = 595.51 MED.

PI = 609+50.000
EI = 592.09

-L- STA.610+41.01 =
-CUL3- STA.10+00.00
ELEV. = 598.89'

END MED.V DITCH
-L- STA.610+50.00
EI = 595.84 MED.
EI = 594.91 LT.

598+00 599+00 600+00 601+00 602+00 603+00 604+00 605+00 606+00 607+00 608+00 609+00 610+00 611+00 612+00

640 630 620 610 600 590 580 570 560 550

FOR -L- PLAN SEE SHT. 32, 33, 34

PLANS PREPARED BY :
RK&K
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

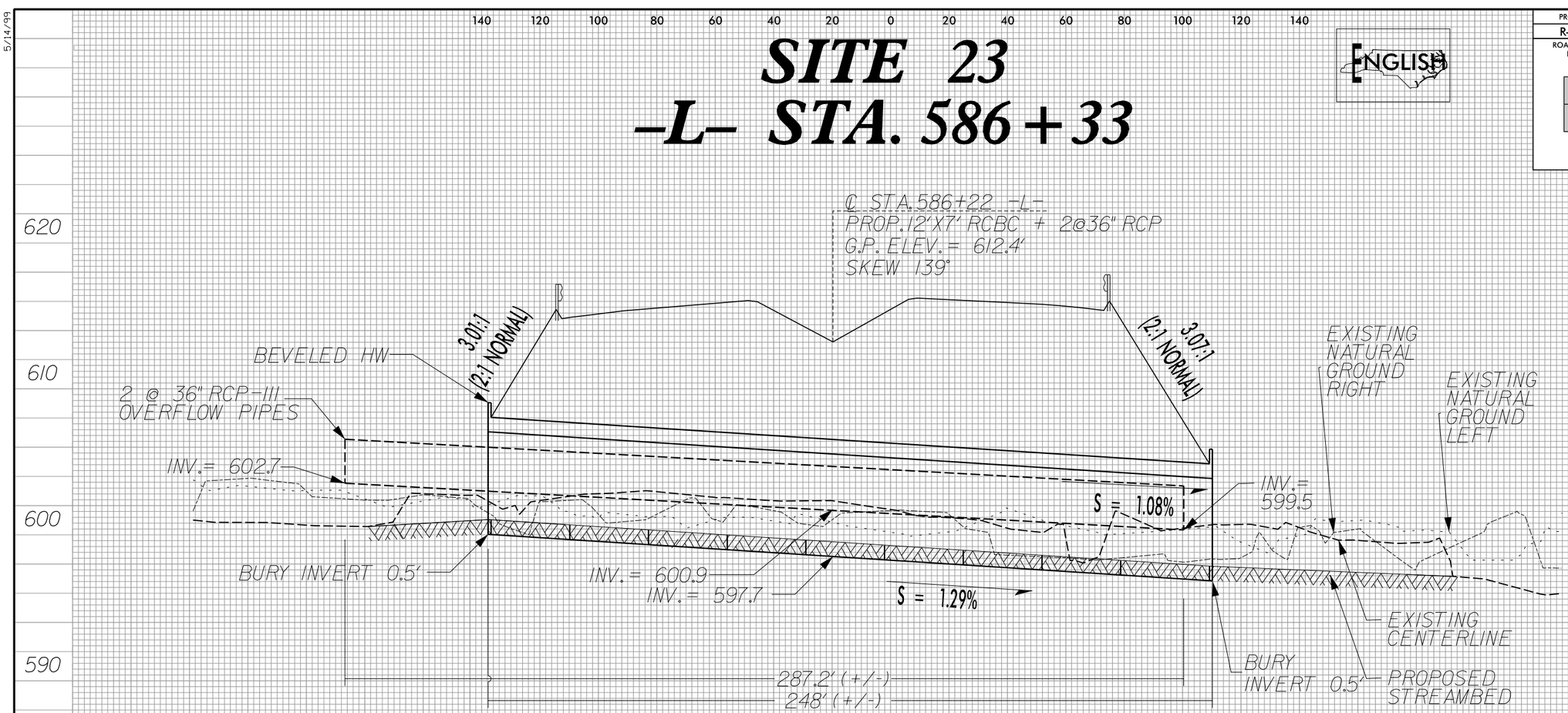
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

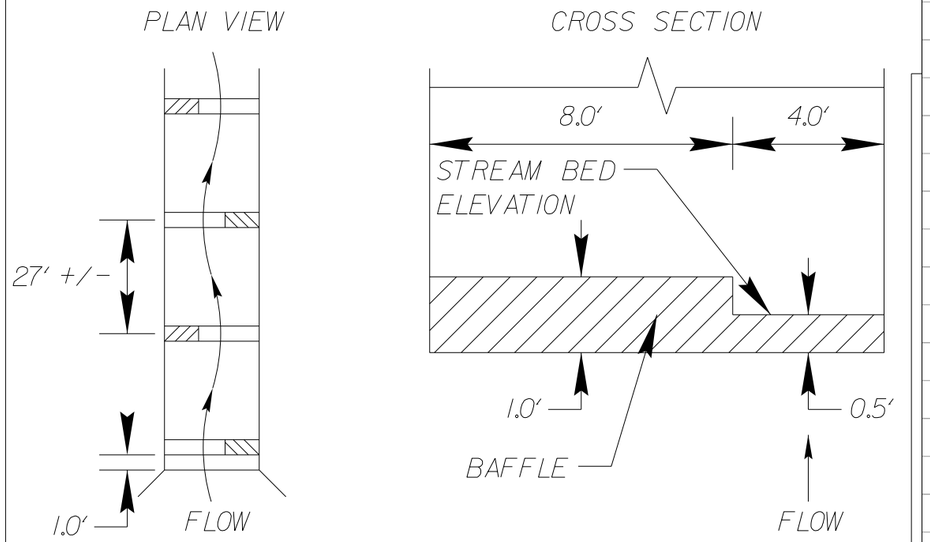
PERMIT DRAWING
SHEET 103 OF 267

SITE 23
-L- STA. 586+33

ENGLISH



12' x 7' RCBC WITH BAFFLES



ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERTCONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 104 OF 267

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

ENGLISH

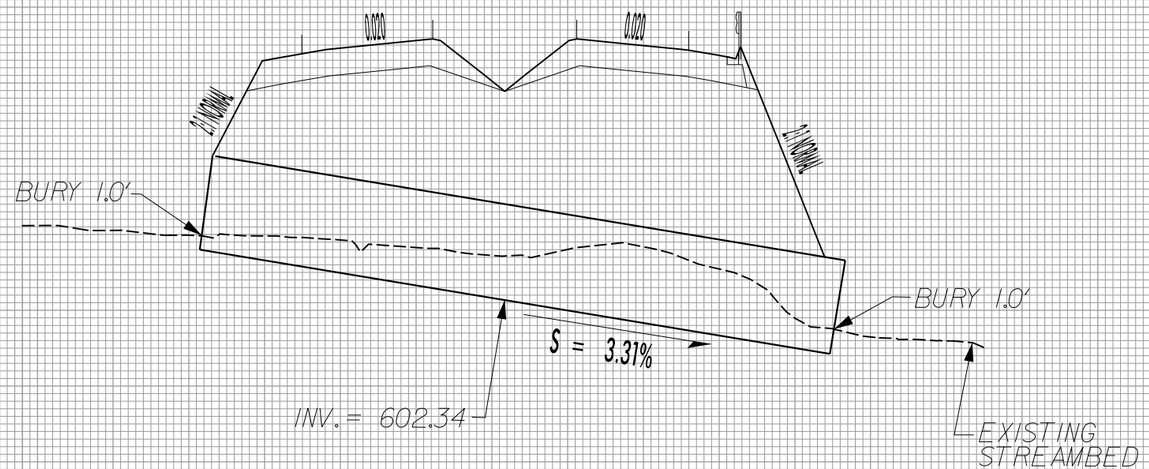
SITE 24
-L- STA. 591+00

620

610

600

590



60" RCP

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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 105 OF 267

NAD 83

MATCHLINE –L– STA. 596+00 SEE SHEET 32

MATCHLINE –L– STA. 610+00 SEE SHEET 34

SITE 25

S070b (INTERMITTENT)

411 THOMAS RAY POPLIN AND WIFE, JUDY H. POPLIN

418 DARRIN J. FITCH AND WIFE SUSAN D. FITCH

419 SHANNON SADLER BRIAN BLANCHARD

420 BRADLEY MAURICE HENSON MARY ALLYSON SPURRIER

421 BRUCE MARX AND WIFE LINDA L. MARX

422 DAVID E. HATMAKER

423 RICKY MALCOMB AND WIFE ROXANNE MALCOMB

417 JULIA LEE SECREST DEESE

UNIONVILLE TOWN LIMITS

PROP. 48" WW FENCE

TDE 15" CMP — REMOVE GRADE TO DRAIN

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

15" CAAP 2 ELBOWS ROD & LUG

30" RCP-III

15" RCP-III

CAT-1

GRAU 350

600+00

605+00

–L– S 41° 27' 50.3" E

FOR –L– PROFILE SEE SHT. 136

PLANS PREPARED BY :
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
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$$$$$$TIME$$$$$$
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Ekeus

8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 106 OF 267

NAD 83

SITE 25

MATCHLINE –L– STA. 596+00 SEE SHEET 32

MATCHLINE –L– STA. 610+00 SEE SHEET 34

S070b (INTERMITTENT)

TDE 15" CMP

REMOVE GRADE TO DRAIN

PROP. 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

15" CAAP 2 ELBOWS ROD & LUG

MEDIAN V DITCH SEE DETAIL I

15" RCP-III

30" RCP-III

2GI FS

CAT-1

GRAU 350

HW 15

600+00

605+00

–L– S 41° 27' 50.3" E

THOMAS RAY POPLIN AND WIFE, JUDY H. POPLIN (411)

DARRIN J. FITCH AND WIFE SUSAN D. FITCH (418)

SHANNON SADLER BRIAN BLANCHARD (419)

BRADLEY MAURICE HENSON MARY ALLYSON SPURRIER (420)

BRUCE MARX AND WIFE LINDA L. MARX (421)

DAVID E. HATMAKER (422)

RICKY MALCOMB AND WIFE ROXANNE MALCOMB (423)

JULIA LEE SECREST DEESE (417)

UNIONVILLE TOWN LIMITS

FOR –L– PROFILE SEE SHT. 136

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
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ENGLISH

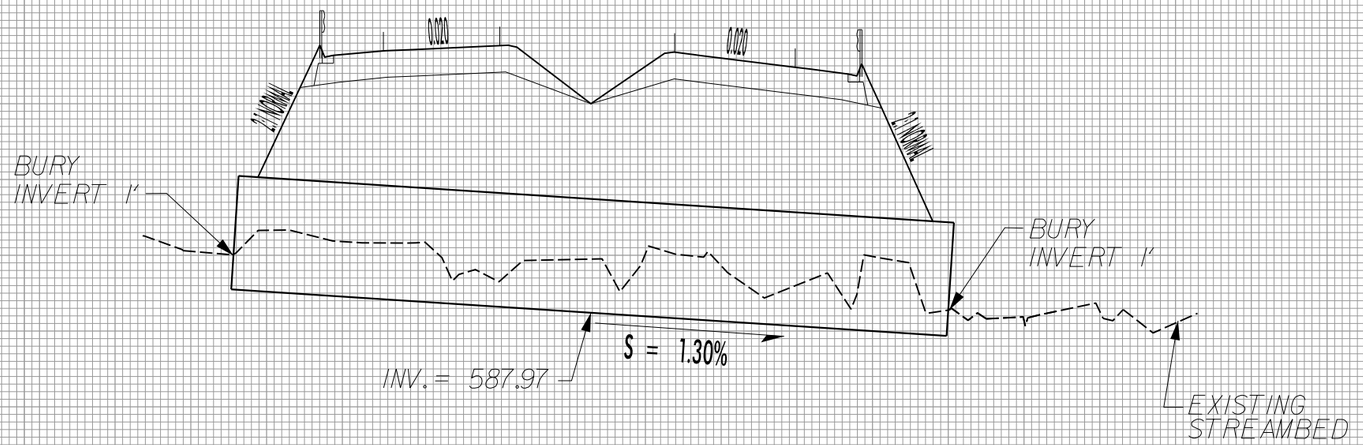
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 107 OF 267

SITE 25
–L– STA. 605+35



72" RCP

605 595 585 575

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Plotted:

8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 108 OF 267

NAD 83

MATCHLINE –Y206– STA. 24+00
SEE SHEET 35

MATCHLINE –L– STA. 610+00 SEE SHEET 33

MATCHLINE –L– STA. 624+00 SEE SHEET 35

℄ TOLL ZONE
–L– STA. 618+00

SITE 26

S064i (PERENNIAL)

S064h (PERENNIAL)

S071 (INTERMITTENT)

W073b

W073a

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

SEE CULVERT OUTLET DETAIL STA. 613+67

SEE CULVERT INLET DETAIL STA. 613+67

MEDIAN V DITCH SEE DETAIL I

BERM DITCH SEE DETAIL M

PROP. 48" WW FENCE

PROP. SBG

GRADE TO DRAIN

REMOVE

RICHLAND A. PLYLER AND WIFE CHERYL A. PLYLER (432)

KEVIN BLANCHARD AND WIFE, ANDREA N. MULLIS (428)

MICHAEL GRAHAM AND WIFE MARSHA GRAHAM (431)

PATRICK J. WALSH AND WIFE, LINDA M. WALSH (427)

BRIANNE EVANS GORDON (426)

DAVID MICHAEL CANIPE AND WIFE HEATHER CANIPE (425)

CHARLES R. EVERHART WANDA L. SHUFF (424)

JAMES R. PRICE, II AND WIFE TRACY K. PRICE (433)

JAMES R. PRICE, II AND WIFE, TRACY K. PRICE (434)

JAMES R. PRICE, II (429)

JAMES R. PRICE, II AND WIFE TRACY K. PRICE (430)

BARRY C. WILLIAMS AND WIFE AMY L. WILLIAMS (436)

ARTT H. CAMPBELL (435)

FOR –L– PROFILE SEE SHT. 136, 137
FOR –Y206– PROFILE SEE SHT. 201

PLANS PREPARED BY :

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FOR
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING SHEET 109 OF 267

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 26

MATCHLINE –L– STA. 610+00 SEE SHEET 33

MATCHLINE –L– STA. 624+00 SEE SHEET 35

MATCHLINE –Y206– STA. 24+00 SEE SHEET 35

℄ TOLL ZONE –L– STA. 618+00

S064i (PERENNIAL)

S064h (PERENNIAL)

S071 (INTERMITTENT)

W073b

W073a

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL E

SPECIAL CUT DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

SEE CULVERT OUTLET DETAIL STA. 613+67

SEE CULVERT INLET DETAIL STA. 613+67

PROP. 48" WW FENCE

GRADE TO DRAIN

MEDIAN V DITCH SEE DETAIL I

BERM DITCH SEE DETAIL M

BDO

REMOVE

FOR –L– PROFILE SEE SHT. 136, 137
FOR –Y206– PROFILE SEE SHT. 201

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/23/2014
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FLEIS

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

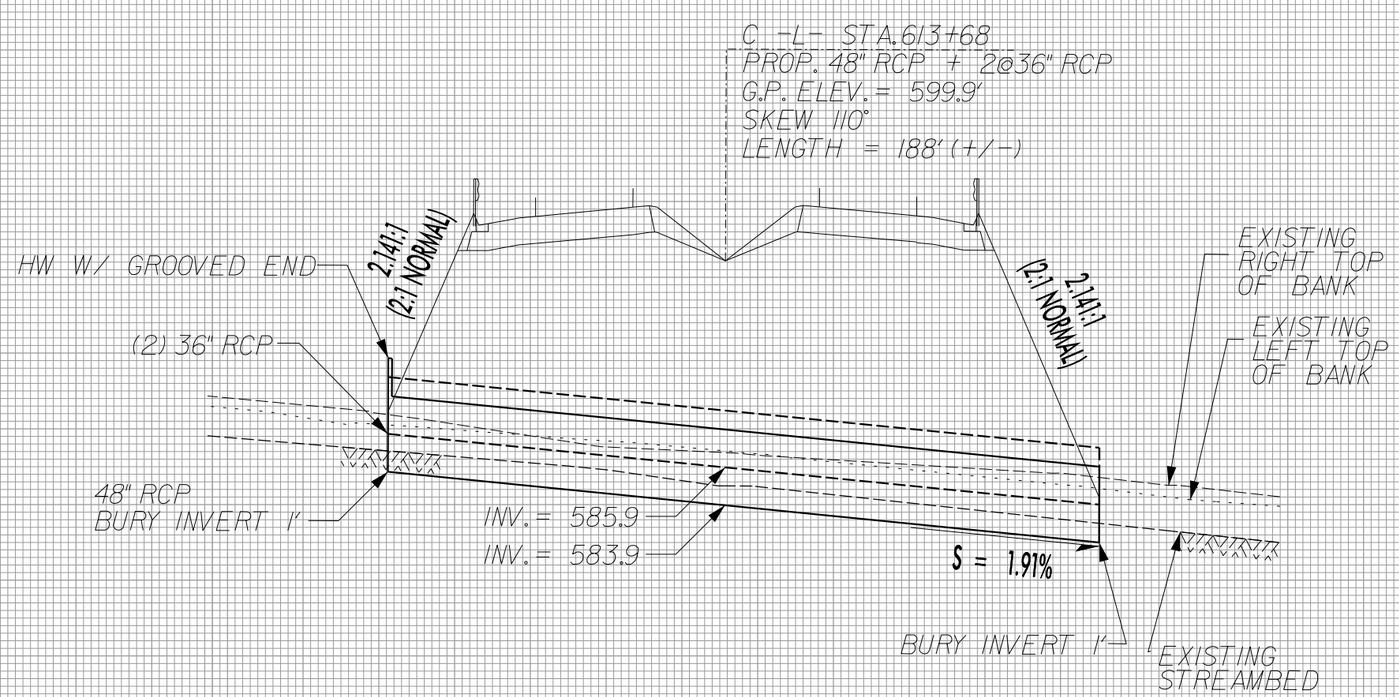
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 110 OF 267

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

ENGLISH

SITE 26
–L– STA. 613+68



48" RCP
(2) 36" RCP

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	93
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 DRAWING
SHEET 111 OF 267

ENGLISH

P P DENOTES IMPACTS IN SURFACE WATER (POND)

NAD 83

SITE 27

P 23

MATCHLINE -Y204- STA. 19+00 SEE SHEET 28

FOR -Y204- PROFILE SEE SHT. 195

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8/17/2016
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ENGLISH

P P DENOTES IMPACTS IN SURFACE WATER (POND)

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	93
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 DRAWING
SHEET 112 OF 267

NAD 83

SITE 27

P 23

VIRGINIA M. TYSON (394)

B. IVAN SECREST (393)

B. IVAN SECREST (392)

W. N. JARMAN AND WIFE, JEANETTE B. JARMAN (391)

KIM D. KILLET (390)

IRON PEDDLERS II, LLC (398)

IRON PEDDLERS II, LLC (399)

DECOY TRUCKING, INC. (397)

DECOY TRUCKING, INC (396)

DECORATIVE CREATIONS, INC. (400)

10' CITY OF MONROE GENERAL PUBLIC UTILITY EASEMENT

ROCK FILL IN POND SEE DETAIL AM

END 48" WW FENCE

PROP. 48" WW FENCE

SPECIAL CUT DITCH SEE DETAIL A

STANDARD V DITCH SEE DETAIL J

BEG 48" WW FENCE

15' RCP IV

24' RCP IV

18"

-Y204-

-SR8-

13+00

15+00

MATCHLINE -Y204- STA. 19+00 SEE SHEET 28

FOR -Y204- PROFILE SEE SHT. 195

PLANS PREPARED BY :

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FOR
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8/17/2004
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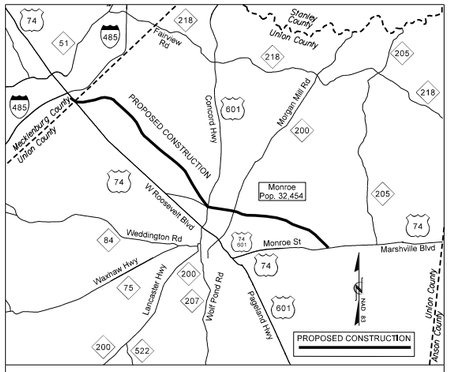
ferris

09/08/99

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

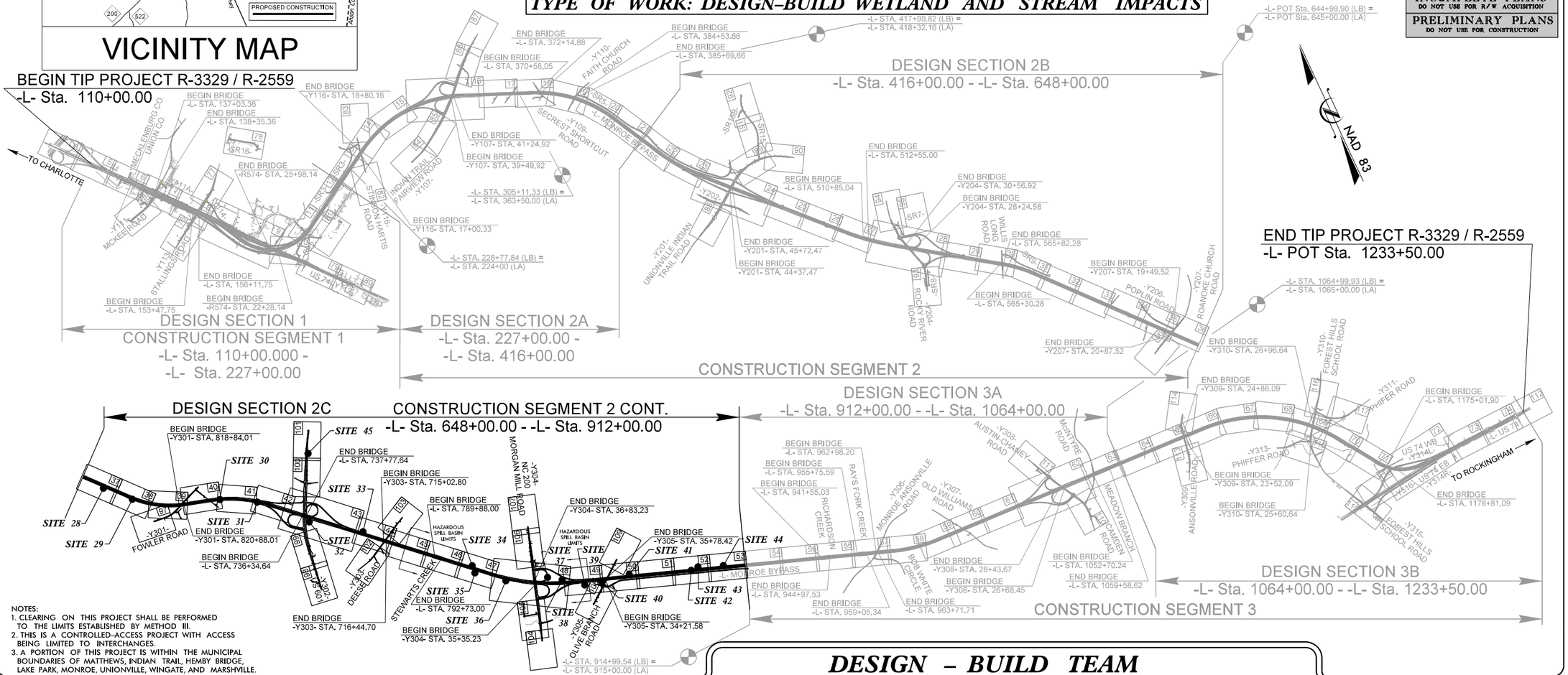
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD WETLAND AND STREAM IMPACTS

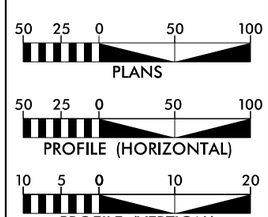
PERMIT DRAWING SHEET 1\3 OF 267

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

DESIGN - BUILD TEAM

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

9/29/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	DITCH DET

R/W SHEET NO.

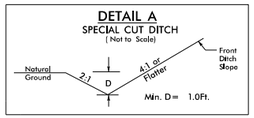
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 114 OF 267

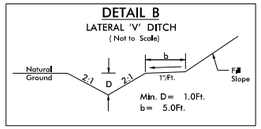
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0Ft.

–L2C– STA. 673+50 TO STA. 678+00 LT
–L2C– STA. 681+00 TO STA. 684+50 RT
–L2C– STA. 707+00 TO STA. 708+50 RT
–L2C– STA. 707+00 TO STA. 709+00 LT
–L2C– STA. 715+50 TO STA. 721+50 RT
–L2C– STA. 795+50 TO STA. 796+00 LT
–L2C– STA. 818+26 TO STA. 819+50 LT
–L2C– STA. 821+50 TO STA. 829+50 RT
–L2C– STA. 822+00 TO STA. 829+00 LT
–L2C– STA. 835+00 TO STA. 838+50 RT
–L2C– STA. 872+00 TO STA. 874+50 LT
–L2C– STA. 895+00 TO STA. 897+25 LT
–RRA– STA. 24+00 TO STA. 27+50 RT
–RRB– STA. 26+00 TO STA. 28+80 RT
–RRC– STA. 18+13.62 TO STA. 20+00 LT
–TRA– STA. 20+00 TO STA. 21+00 LT
–Y301– STA. 806+40 TO STA. 807+00 RT
–Y301– STA. 829+50 TO STA. 830+15 LT
–Y302– STA. 141+13 TO STA. 142+00 RT
–Y302– STA. 141+75 TO STA. 142+50 LT
–Y302– STA. 161+00 TO STA. 161+45 LT & RT
–Y302A– STA. 11+60 TO STA. 13+00 LT
–Y302A– STA. 11+60 TO STA. 12+75 RT
–Y302B– STA. 11+00 TO STA. 14+00 RT
–Y302B– STA. 12+00 TO STA. 14+20 LT
–Y302C– STA. 10+85 TO STA. 11+70 RT
–Y303– STA. 706+50 TO STA. 707+50 LT
–Y303– STA. 727+20 TO STA. 728+65 RT
–Y304– STA. 13+19.93 TO STA. 15+20 LT
–Y304– STA. 19+00 TO STA. 19+50 RT
–Y305– STA. 42+50 TO STA. 43+60 RT
–SR13– STA. 13+00 TO STA. 15+00 RT

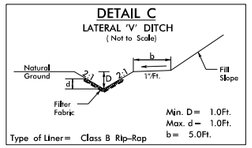
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



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

–L2C– STA. 820+50 TO STA. 821+50 LT
–L2C– STA. 877+60 TO STA. 879+00 LT
–L2C– STA. 900+00 TO STA. 901+00 LT
–TRA– STA. 25+00 TO STA. 27+50 RT
–Y301– STA. 811+46 TO STA. 814+50 RT
–Y302– STA. 103+77.79 TO STA. 104+74.17 RT
–Y302– STA. 118+50 TO STA. 119+50 RT
–Y303– STA. 713+50 TO STA. 714+90 RT

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

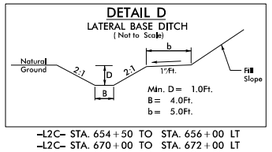


Min. D= 1.0Ft.
Max. d= 1.0Ft.
b= 5.0Ft.

Type of Liner= Class B Rip-Rap

–Y303– STA. 710+00 TO STA. 711+05 LT
–Y303– STA. 711+18 TO STA. 713+50 RT

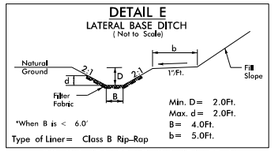
DETAIL D
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0Ft.
B= 4.0Ft.
b= 5.0Ft.

–L2C– STA. 654+50 TO STA. 656+00 LT
–L2C– STA. 670+00 TO STA. 672+00 LT
–L2C– STA. 692+50 TO STA. 694+00 LT
–L2C– STA. 698+00 TO STA. 705+20 LT
–L2C– STA. 701+00 TO STA. 703+00 RT
–L2C– STA. 741+69 TO STA. 744+00 RT
–L2C– STA. 758+55 TO STA. 763+00 LT
–L2C– STA. 782+50 TO STA. 785+50 RT
–L2C– STA. 784+50 TO STA. 785+50 LT
–L2C– STA. 793+30 TO STA. 797+00 RT
–L2C– STA. 807+12 TO STA. 811+00 LT
–L2C– STA. 853+00 TO STA. 855+40 RT
–L2C– STA. 853+00 TO STA. 857+50 LT
–L2C– STA. 867+18 TO STA. 870+18 RT
–L2C– STA. 896+40 TO STA. 898+50 RT
–L2C– STA. 898+00 TO STA. 900+00 LT
–RLA– STA. 10+00 TO STA. 13+48.04 LT
–TLA– STA. 15+00 TO STA. 17+50 LT
–TRD– STA. 17+64 TO STA. 20+00 RT
–TRD– STA. 20+77 TO STA. 23+00 RT
–Y301– STA. 810+50 TO STA. 813+00 LT
–Y301A– STA. 13+50 TO STA. 15+00 LT
–Y302– STA. 110+80 TO STA. 116+00 RT
–Y302– STA. 111+10 TO STA. 115+00 LT
–Y302– STA. 124+00 TO STA. 126+50 LT
–Y302– STA. 129+40 TO STA. 131+00 RT
–Y302– STA. 133+75 TO STA. 138+00 RT
–Y303– STA. 717+00 TO STA. 720+20 RT (b Varies, see plans)
–Y304– STA. 28+00 TO STA. 35+00 LT
–Y305– STA. 29+00 TO STA. 31+70 LT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



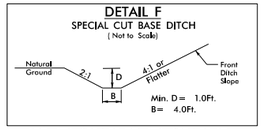
Min. D= 2.0Ft.
Max. d= 2.0Ft.
B= 4.0Ft.
b= 5.0Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

–L2C– STA. 654+00 TO STA. 656+88 RT
–L2C– STA. 663+50 TO STA. 670+00 LT
–L2C– STA. 890+50 TO STA. 892+95 LT
–Y301– STA. 811+00 TO STA. 813+00 LT
–Y302– STA. 133+98 TO STA. 134+83 LT
–TRD– STA. 17+65 TO STA. 20+75 LT

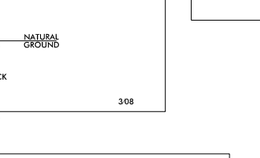
DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D= 1.0Ft.
B= 4.0Ft.

–L2C– STA. 690+50 TO STA. 692+50 LT
–L2C– STA. 897+25 TO STA. 898+00 LT
–RRA– STA. 30+00 TO STA. 31+00 RT
–Y301– STA. 806+40 TO STA. 810+50 LT

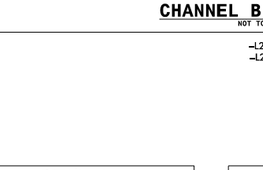
DETAIL G
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.

–L2C– STA. 838+50 TO STA. 839+77 RT
–Y302– STA. 98+50 TO STA. 110+10 LT
–Y302– STA. 108+50 TO STA. 110+80 RT
–Y302– STA. 150+50 TO STA. 151+84 RT
–Y304– STA. 13+19.93 TO STA. 15+20 RT
–Y304– STA. 19+00 TO STA. 20+00 LT
–Y304– STA. 21+35 TO STA. 23+00 LT
–Y304– STA. 21+50 TO STA. 24+00 RT
–Y304– STA. 42+40 TO STA. 43+80 LT
–Y304– STA. 51+00 TO STA. 52+64 LT
–Y304– STA. 51+00 TO STA. 52+82 RT
–Y304– STA. 56+00 TO STA. 57+50 RT

DETAIL H
TOE PROTECTION
(Not to Scale)

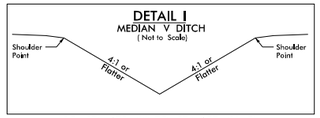


d= 1.0Ft.

Type of Liner= Class B Rip-Rap

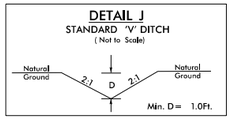
–L2C– STA. 866+00 TO STA. 867+00 LT
–TRA– STA. 15+30 TO STA. 16+55 RT
–Y302– STA. 126+50 TO STA. 127+30 LT
–Y302– STA. 133+95 TO STA. 136+55 LT
–Y301A– STA. 19+43 TO STA. 19+90 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



–L2C– STA. 675+00 TO STA. 677+00 CL
–L2C– STA. 690+50 TO STA. 693+00 CL
–L2C– STA. 707+00 TO STA. 708+50 CL
–L2C– STA. 782+50 TO STA. 783+50 CL
–L2C– STA. 795+00 TO STA. 799+00 CL
–L2C– STA. 827+00 TO STA. 829+00 CL
–L2C– STA. 831+00 TO STA. 835+00 CL
–L2C– STA. 872+50 TO STA. 874+00 RT
–L2C– STA. 893+00 TO STA. 897+50 CL
–L2C– STA. 892+50 TO STA. 896+70 RT
–L2C– STA. 899+50 TO STA. 902+50 RT

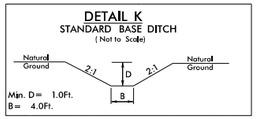
DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.

DETAIL J NOT USED IN SECTION 2C

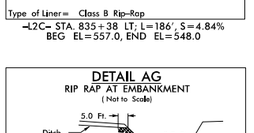
DETAIL K
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.0Ft.
B= 4.0Ft.

–L2C– STA. 665+00 LT; L=150', S=2.82%
BEG EL=558.26, END EL=554.03
–L2C– STA. 776+00 RT; L=115', S=0.35%
BEG EL=556.1, END EL=555.7
–L2C– STA. 817+00 LT; L=80', S=4.00%
BEG EL=549.5, END EL=546.3
–L2C– STA. 855+40 RT; L=150', S=0.65%
BEG EL=547.0, END EL=546.0
–RLC– STA. 17+00 TO 20+55 LT; L=340', S=0.44%
BEG EL=568.5, END EL=567.0
–Y304– STA. 15+20 RT; L=165', S=0.22%
BEG EL=580.0, END EL=579.6

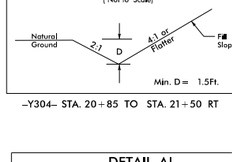
DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.5Ft.

–L2C– STA. 767+50 TO STA. 768+00 RT
–Y302– STA. 138+00 TO STA. 140+00 RT

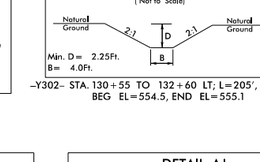
DETAIL M
BERM DITCH
(Not to Scale)



Min. D= 1.0Ft.

–L2C– STA. 702+50 TO STA. 714+00 RT
–L2C– STA. 713+00 TO STA. 721+00 LT
–L2C– STA. 859+40 TO STA. 864+00 LT
–L2C– STA. 866+10 TO STA. 873+20 LT
–L2C– STA. 905+30 TO STA. 909+50 LT
–RRA– STA. 18+00 TO STA. 22+75 RT

DETAIL P
BERM DITCH
(Not to Scale)

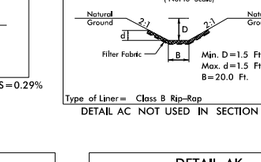


Min. D= 1.5Ft.
Max. d= 1.5Ft.

Type of Liner= Class B Rip-Rap

DETAIL P NOT USED IN SECTION 2C

DETAIL Q
BERM DITCH
(Not to Scale)

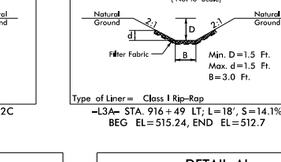


Min. D= 1.5Ft.
Max. d= 1.5Ft.

Type of Liner= PSRM

–RRB– STA. 15+00 TO STA. 20+45 LT

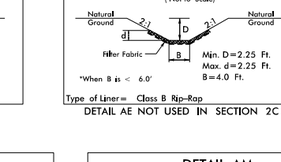
DETAIL R
BERM BASE DITCH
(Not to Scale)



Min. D= 1.5Ft.
B= 2.0Ft.
b= 5.0Ft.

–L2C– STA. 656+50 TO STA. 663+50 LT

DETAIL S
BERM BASE DITCH
(Not to Scale)

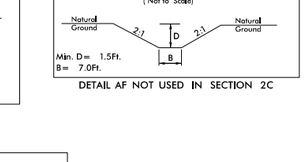


Min. D= 1.5Ft.
Max. d= 1.5Ft.
B= 2.0Ft.
b= 5.0Ft.

Type of Liner= Class B Rip-Rap

DETAIL S NOT USED IN SECTION 2C

DETAIL T
LATERAL BASE DITCH
(Not to Scale)



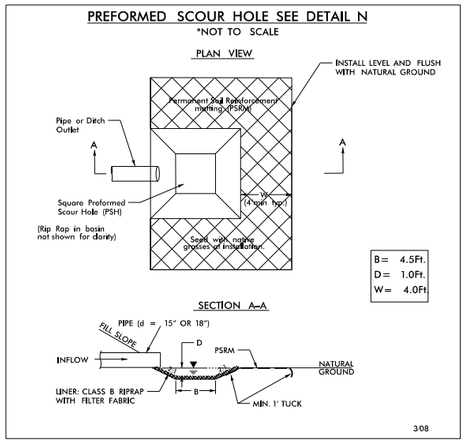
Min. D= 3.0Ft.
Max. d= 3.0Ft.
B= 4.0Ft.
b= 5.0Ft.

*When B is < 6.0'

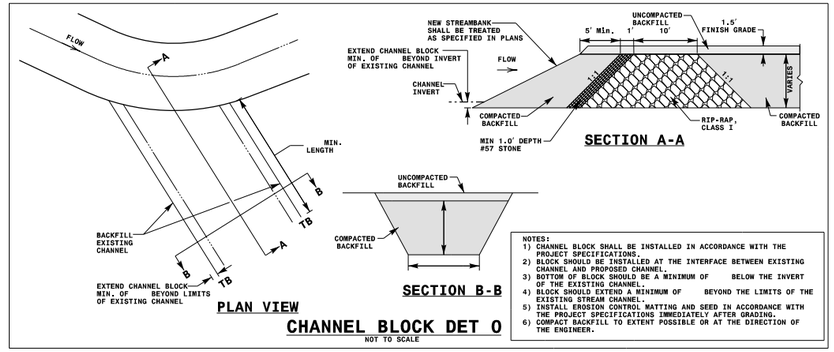
Type of Liner= Class B Rip-Rap

DETAIL T NOT USED IN SECTION 2C

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE



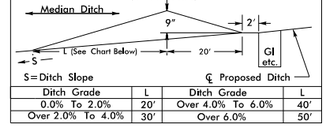
–L2C– STA. 659+50 RT
–L2C– STA. 671+00 RT
–Y317– STA. 57+00 RT



CHANNEL BLOCK DET 0
NOT TO SCALE

–L2C– STA. 654+26 RT
–L2C– STA. 701+25 RT

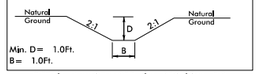
DETAIL
FALSE SUMP
(Not to Scale)



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'

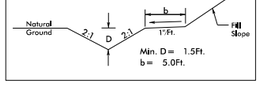
DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



Min. D= 1.0Ft.
B= 1.0Ft.

DETAIL U NOT USED IN SECTION 2C

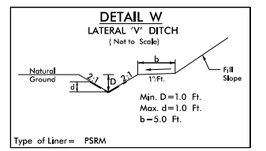
DETAIL V
LATERAL 'V' DITCH
(Not to Scale)



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

–Y302– STA. 104+74.17 TO STA. 108+50 RT
–Y302– STA. 116+00 TO STA. 118+50 RT
–Y303– STA. 707+50 TO STA. 710+00 LT
–Y317– STA. 11+60 TO STA. 16+88.38 LT

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

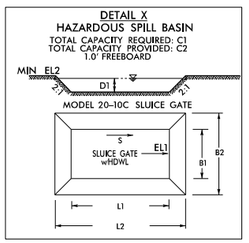


Min. D=1.0 Ft.
Max. d=1.0 Ft.
b=5.0 Ft.

Type of Liner= PSRM

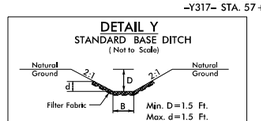
–L2C– STA. 819+50 TO STA. 821+50 LT
–Y305– STA. 26+77.73 TO STA. 29+00 LT

DETAIL X
HAZARDOUS SPILL BASIN
TOTAL CAPACITY REQUIRED: C1
TOTAL CAPACITY PROVIDED: C2
1.0' FREEBOARD



–L2C– 818+00 LT
C1=8996cf C2=9016cf EL1=552.9' EL2=558.0'
D1=4.0' L1=65.0' L2=81.0'
B1=22.0' B2=38.0' S=0.30%
–L2C– 807+00 LT
C1=11454cf C2=11952cf EL1=525.0' EL2=530.2'
D1=4.0' L1=60.0' L2=76.0'
B1=35.0' B2=51.0' S=0.30%
–L2C– 786+50 RT
C1=15074cf C2=16192cf EL1=532.0' EL2=537.2'
D1=4.0' L1=75.0' L2=91.0'
B1=40.0' B2=62.0' S=0.30%
–L2C– 793+00 RT
C1=11980cf C2=12015cf EL1=518.0' EL2=522.2'
D1=3.0' L1=75.0' L2=87.0'
B1=43.0' B2=55.0' S=0.30%
–TRD– 14+50 LT
C1=2760cf C2=3024cf EL1=555.8' EL2=559.0'
D1=2.0' L1=40.0' L2=48.0'
B1=30.0' B2=38.0' S=0.30%
–TRD– 20+25 RT
C1=2532cf C2=2916cf EL1=561.4' EL2=535.5'
D1=3.0' L1=30.0' L2=46.0'
B1=20.0' B2=36.0' S=0.30%
–TRA– 22+25 LT
C1=21602cf C2=36963cf EL1=547.5' EL2=552.0'
D1=4.0' L1=183.0' L2=199.0'
B1=59.0' B2=75.0' S=0.30%

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



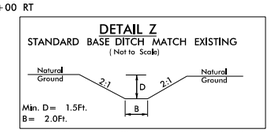
Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B=4.0 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

–L2C– STA. 835+38 LT; L=186', S=4.84%
BEG EL=557.0, END EL=548.0

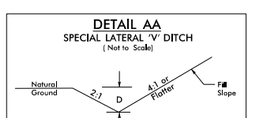
DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



Min. D= 1.5Ft.
B= 2.0Ft.

–Y302A– STA. 12+75 RT; L=80', S=0.31%
BEG EL=567.0, END EL=566.7

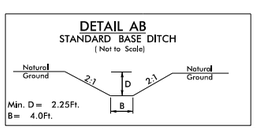
DETAIL AA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.5Ft.

–Y304– STA. 20+85 TO STA. 21+50 RT

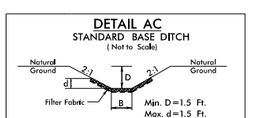
DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.25Ft.
B= 4.0Ft.

–Y302– STA. 130+55 TO 132+60 LT; L=205', S=0.29%
BEG EL=554.5, END EL=555.1

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)

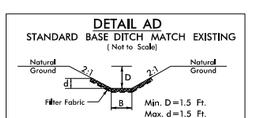


Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=20.0 Ft.

Type of Liner= Class B Rip-Rap

DETAIL AC NOT USED IN SECTION 2C

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)

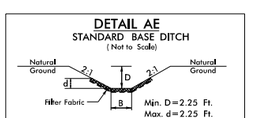


Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=3.0 Ft.

Type of Liner= Class I Rip-Rap

–L3A– STA. 916+49 LT; L=18', S=14.1%
BEG EL=515.24, END EL=512.7

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



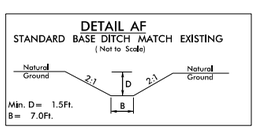
Min. D=2.25 Ft.
Max. d=2.25 Ft.
B=4.0 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

DETAIL AE NOT USED IN SECTION 2C

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



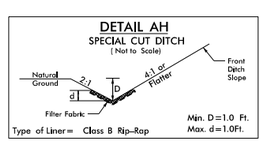
Min. D= 1.5Ft.
B= 7.0Ft.

DETAIL AF NOT USED IN SECTION 2C

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)

DETAIL AG NOT USED IN SECTION 2C

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)

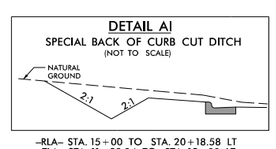


Min. D=1.0 Ft.
Max. d=1.0Ft.

Type of Liner= Class B Rip-Rap

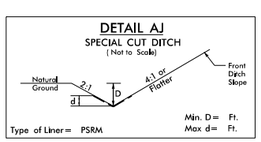
DETAIL AH NOT USED IN SECTION 2C

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



–RLA– STA. 15+00 TO STA. 20+18.58 LT
–TLA– STA. 11+98.24 TO STA. 15+00 LT
–TLD– STA. 12+27.70 TO STA. 15+50 RT

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)

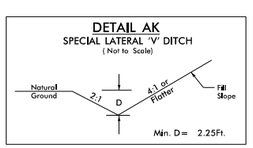


Min. D= Ft.
Max d= Ft.

Type of Liner= PSRM

DETAIL AJ NOT USED IN SECTION 2C

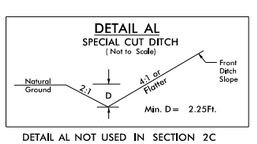
DETAIL AK
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 2.25Ft.

DETAIL AK NOT USED IN SECTION 2C

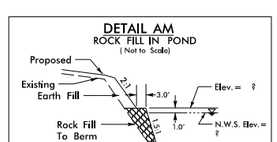
DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 2.25Ft.

DETAIL AL NOT USED IN SECTION 2C

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



–L2C– STA. 848+25 TO 850+07 RT
–Y302– STA. 151+80 TO STA. 152+78 RT
–Y304– STA. 52+75 LT

9/29/2014
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Ekaas

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	DITCH DET
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

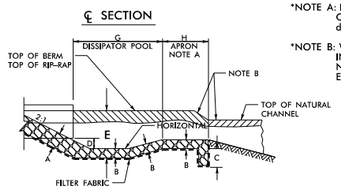
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 115 OF 267

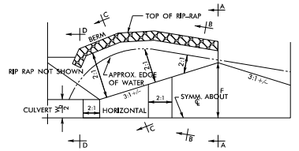
DETAIL AN

RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

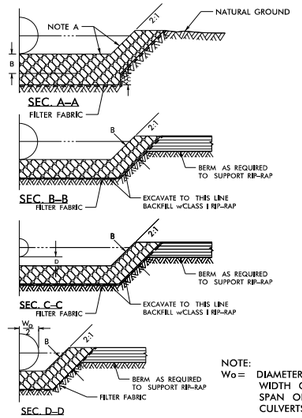


HALF PLAN



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	4.0							
B	3.0							
C	1.0							
D	1.25							
E	6.75							
F	6.3							
G	12.5							
H	6.3							

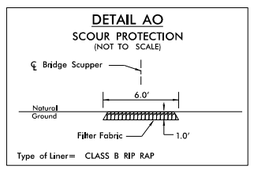
*ALL DIMENSIONS APPROXIMATE IN FEET

BASIN #	LOCATION (AT OUTLET)
1	–L– STA. 791+20 RT
2	
3	
4	
5	
6	
7	
8	

5/05

DETAIL AN NOT USED IN SECTION 2C

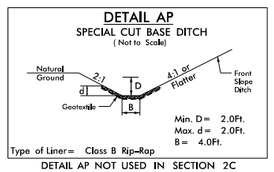
DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)



Type of Liner= CLASS B RIP RAP

DETAIL AO NOT USED IN SECTION 2C

DETAIL AP
SPECIAL CUT BASE DITCH
(Not to Scale)

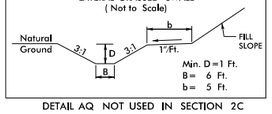


Min. D= 2.0Ft.
Max. d= 2.0Ft.
B= 4.0Ft.

Type of Liner= Class B Rip–Rap

DETAIL AP NOT USED IN SECTION 2C

DETAIL AQ
LATERAL GRASSED SWALE
(Not to Scale)



Min. D=1 Ft.
B= 6 Ft.
b= 5 Ft.

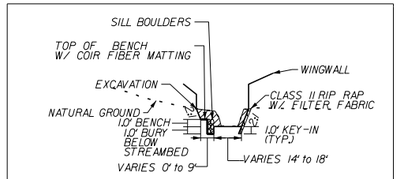
DETAIL AQ NOT USED IN SECTION 2C

DETAIL AR
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)

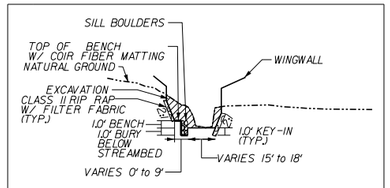
Class I Rip Rap

–L2C– STA. 656+88 RT, L=12', d=1.4'
–L2C– STA. 738+81 RT, L=24', d=4.0'
–L2C– STA. 816+70 LT, L=16', d=0.5'
–L2C– STA. 840+88 LT, L=22', d=1.0'
–TRA– STA. 19+02 LT, L=22', d=0.6'
–TRD– STA. 18+33 LT, L=20', d=0.5'
–L2C– STA. 865+99 LT, L=5', d=0.8'
–L2C– STA. 867+16 RT, L=14', d=2.5'
–L2C– STA. 893+69 RT, L=28', d=4'
–L2C– STA. 903+89 LT, L=5', d=1.7'
–L2C– STA. 903+89 RT, L=18', d=1.4'

EAST FORK
STEWARTS CREEK
–L– STA. 669+12

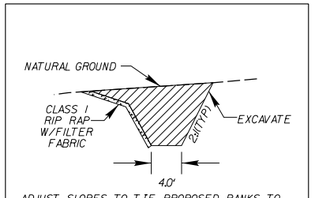


CULVERT INLET DETAIL (NTS)
LENGTH = 42'



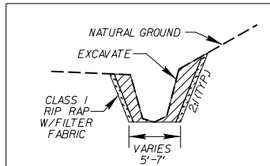
CULVERT OUTLET DETAIL (NTS)
LENGTH = 34'

UT TO
STEWARTS CREEK
–L– STA. 702+70



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

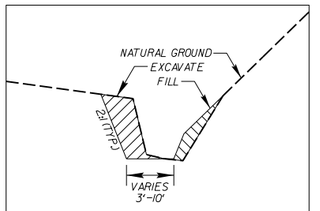
CULVERT INLET DETAIL (NTS)
LENGTH = 30'



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

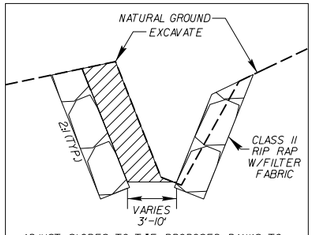
CULVERT OUTLET DETAIL (NTS)
LENGTH = 39'

UT TO
STEWARTS CREEK
–L– STA. 805+89



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT INLET DETAIL (NTS)
LENGTH = 33'



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH = 49'

9/29/2014
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Ekang

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 116 OF 267

TS FS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

MATCHLINE –L– STA. 648+00 SEE SHEET 36

MATCHLINE –L– STA. 662+00 SEE SHEET 38

BEGIN SECTION 2C
-L- POT Sta. 648+00.00

448
DONALD WINCHESTER PRICE
DARLENE PRICE
DB 4099 PG 391
PB 1 PG 948

444
LEROY J. HINSON
AND WIFE
MARY L. HINSON
DB 449 PG 170

CAS PIPER STATION

6" STEEL
4" STEEL
3" STEEL
6" CL FENCE

650+00
655+00
660+00
-L-

PROP 48" WW FENCE

LATERAL BASE DITCH
SEE DETAIL D

BERM BASE DITCH
SEE DETAIL R

15" RCP-III
2GI
2GI-D
FS
HW
36" RCP-III
S 41° 27' 50.3" E

18" RCP-III
24" RCP-III
30" RCP-III
15" RCP-III
2GI-A

CHANNEL BLOCK
SEE DETAIL O

REMOVE

BANK STABILIZATION
AT PIPE OUTLET
SEE DETAIL AR

PSH
SEE DETAIL N

LATERAL BASE DITCH
SEE DETAIL E

GATE

W 75
W 76
W 77

S 78b
(INTERMITTENT)

SITE 28

UNIONVILLE TOWN LIMITS
UNION COUNTY

445
JAMES A. HANDY
AND WIFE
MARY ANN HANDY
DB 751 PG 74
PB D PG 729

446
CHERYL NAPIER
DB 4675 PG 673
PB 3 PG 80

447
ERIC PEREZ AND
DEBBIE DRAKE
DB 1888 PG 835
PB 3 PG 80

448
DONALD WINCHESTER PRICE
DARLENE PRICE
DB 4099 PG 391
PB 1 PG 948

FOR –L– PROFILE SEE SHT. 139

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
8/17/2016
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ekeen

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 117 OF 267

TS FS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

ENGLISH

MATCHLINE –L– STA. 648+00 SEE SHEET 36

MATCHLINE –L– STA. 662+00 SEE SHEET 38

BEGIN SECTION 2C
–L– POT Sta. 648+00.00

448 DONALD WINCHESTER PRICE
DARLENE PRICE

444 LEROY J. HINSON AND WIFE MARY L. HINSON

GAS PIPER STATION

6' STEEL
4' STEEL
3' STEEL
6' CL FENCE

PROP 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

BERM BASE DITCH SEE DETAIL R

15" RCP-III
2GI-D
FS
HW
36" RCP-III
S 41° 27' 50.3" E

650+00
15" RCP-III
–L–
655+00
660+00

2GI
18" RCP-III
24" RCP-III
2GI-A
30" RCP-III
15" RCP-III

CHANNEL BLOCK SEE DETAIL O

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

PSH SEE DETAIL N

REMOVE

LATERAL BASE DITCH SEE DETAIL E

GATE

UNIONVILLE TOWN LIMITS
UNION COUNTY

W 75
W 76
W 77

S 78b
(INTERMITTENT)

SITE 28

446 CHERYL NAPIER

447 ERIC PEREZ AND DEBBIE DRAKE

445 JAMES A. HANDY AND WIFE MARY ANN HANDY

448 DONALD WINCHESTER PRICE DARLENE PRICE

WOODS
WOOD POST
FOOT BRIDGE
DECK
ISFD
CONC
SHED
WELL
RUINS
SEPTIC TANK
GRAVEL
REAR YARD
5' CL FENCE
4 RAIL FENCE
MTL BLDG
GYM
MTL POLE
AXLE
PLANTER
BRICK PATIO
BACK RD 16' BST
DUSTY HOLLOW RD 18' BST
SHELTER
EXISTING R/W

FOR –L– PROFILE SEE SHT. 139

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
9/24/2014
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Ekeus

8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING SHEET 118 OF 267

NAD 83

MATCHLINE –L– STA. 662+00 SEE SHEET 37

MATCHLINE –L– STA. 676+00 SEE SHEET 39

448 DONALD WINCHESTER PRICE DARLENE PRICE

457 ANTHONY BRENT FOWLER

456 RONALD DAVID FOWLER AND WIFE CATHERINE K. FOWLER

781 CATHY FOWLER PRESSLEY AND HUSBAND KENNETH W. PRESSLEY

450 JAMES LESTER MULLIS AND WIFE, JOSEPHINE F. MULLIS

451 ADDIE M. STRAWN

452 JANICE P. SIMPSON, CHAD L. SIMPSON, AND SUZANNE S. BAUCOM

W 78

S 76

S 78d (PERENNIAL)

S 41° 27' 50.3" E

665+00

670+00

675+00

-L-

UNIONVILLE TOWN LIMITS
UNION COUNTY

WOODS

6" STEEL

4" STEEL

END 48" WW FENCE

BEG 48" WW FENCE (PERENNIAL)

PROP 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL E

BERM BASE DITCH SEE DETAIL R

STANDARD BASE DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

SEE CULVERT INLET DETAIL –L– STA. 669+12

SEE CULVERT OUTLET DETAIL –L– STA. 669+12

PSH SEE DETAIL N

15" RCP-III

30" RCP-III

15" CAAP 2 ELBOWS ROD & LUG

3@9'X12' RCBC

TYPE B-77

2GI

FS

JS

ST

SF

EXISTING R/W

MTL POLE

MTL BLDG

CONC HW

DOG PEN

HTR

SHELTER

IS CMU BLDG

CMU BLDG

GRAVEL

WALL

CONC

ISFD

DECK

2SFD

SOIL

BK COLUMN

GATE

4' WW FENCE

RUINS

BST

24" CMP

IR RCP

SITE 29

FOR –L– PROFILE SEE SHT. 139

PLANS PREPARED BY :

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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
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ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PERMIT DRAWING
SHEET 119 OF 267

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

NAD 83

MATCHLINE –L– STA. 662+00 SEE SHEET 37

MATCHLINE –L– STA. 676+00 SEE SHEET 39

SITE 29

S 41° 27' 50.3" E

665+00 –L– 670+00 675+00

W 78

S 76 (PERENNIAL)

S 78d (PERENNIAL)

448 DONALD WINCHESTER PRICE DARLENE PRICE

457 ANTHONY BRENT FOWLER

456 RONALD DAVID FOWLER AND WIFE CATHERINE K. FOWLER

450 JAMES LESTER MULLIS AND WIFE, JOSEPHINE F. MULLIS

451 ADDIE M. STRAWN

452 JANICE P. SIMPSON, CHAD L. SIMPSON, AND SUZANNE S. BAUCOM

78l CATHY FOWLER PRESSLEY AND HUSBAND KENNETH W. PRESSLEY

UNIONVILLE-TOWN LIMITS UNION COUNTY

BERM BASE DITCH SEE DETAIL R

STANDARD BASE DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

PROP 48" WW FENCE

END 48" WW FENCE

BEG 48" WW FENCE

SEE CULVERT INLET DETAIL –L– STA. 669+12

SEE CULVERT OUTLET DETAIL –L– STA. 669+12

PSH SEE DETAIL N

15" CAAP 2 ELBOWS ROD & LUG

15" RCP-III

30" RCP-III

3@9'X12' RCBC

FOR –L– PROFILE SEE SHT. 139

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	139
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 120 OF 267

BEGIN SECTION 2C
-L- STA 648+00.00
ELEV. = 588.25'

BEGIN LAT. BASE DITCH LT.
-L- STA.654+50.00
EI = 573.81

END LAT. BASE DITCH LT.
-L- STA.656+00.00
EI = 571.73

PROPOSED GRADE

(-)0.3000%

(-)1.3900%

(-)2.8300%

36" RCP

EXISTING GROUND

(-)1.2500%

(-)0.9420%

BEGIN LAT. BASE DITCH RT.
PI = 654+00.000
EI = 571.53

PI = 654+50.000
EI = 571.38

END LAT. BASE DITCH RT.
PI = 656+88.000
EI = 564.63

PIPE HYDRAULIC DATA
STR 3706 Sta.656+44

DRAINAGE AREA	= 11.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 44	CFS
DESIGN HW ELEVATION	= 575.1	FT
100 YEAR DISCHARGE	= 52	CFS
100 YEAR HW ELEVATION	= 575.5	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

PI = 661+00.00
EL = 572.00'
VC = 500'
K = 162.3
DS > 80 mph

620 610 600 590 580 570 560 550 540 530

648+00 649+00 650+00 651+00 652+00 653+00 654+00 655+00 656+00 657+00 658+00 659+00 660+00 661+00 662+00

600 590 580 570 560 550 540 530 520 510

662+00 663+00 664+00 665+00 666+00 667+00 668+00 669+00 670+00 671+00 672+00 673+00 674+00 675+00 676+00

CULVERT HYDRAULIC DATA
STR NA Sta.669+12

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 2400	CFS
DESIGN HW ELEVATION	= 547.5	FT
100 YEAR DISCHARGE	= 2700	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 548.6	FT
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING DISCHARGE	= 4850	CFS
OVERTOPPING ELEVATION	= 559.7	FT

PROPOSED GRADE

EXISTING GROUND

SITE 29

BEGIN LAT. BASE DITCH LT.
-L- STA.663+50.00
EI = 560.00

(-)3.9800%

(3)-9'X12' RCBC

(+)2.6000%

END LAT BASE DITCH LT.
BEGIN LAT BASE DITCH LT.
-L- STA.670+00.00
EI = 534.13

END LAT BASE DITCH LT.
-L- STA.672+00.00
EI = 539.33

BEGIN SP.CUT DITCH LT.
-L- STA.673+50.00
EI = 554.23

BEGIN MED.V DITCH
-L- STA.675+00.00
EI = 557.23

PI = 674+80.00
EL = 559.00'
VC = 500'
K = 390
DS > 80 mph

(-)0.9420%

(+)0.3414%

(-) 0.3000%

(-) 0.3000%

PI = 675+97.00
EI = 556.94

PI = 675+97.00
EI = 553.47

FOR -L- PLAN SEE SHTS. 37 & 38

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

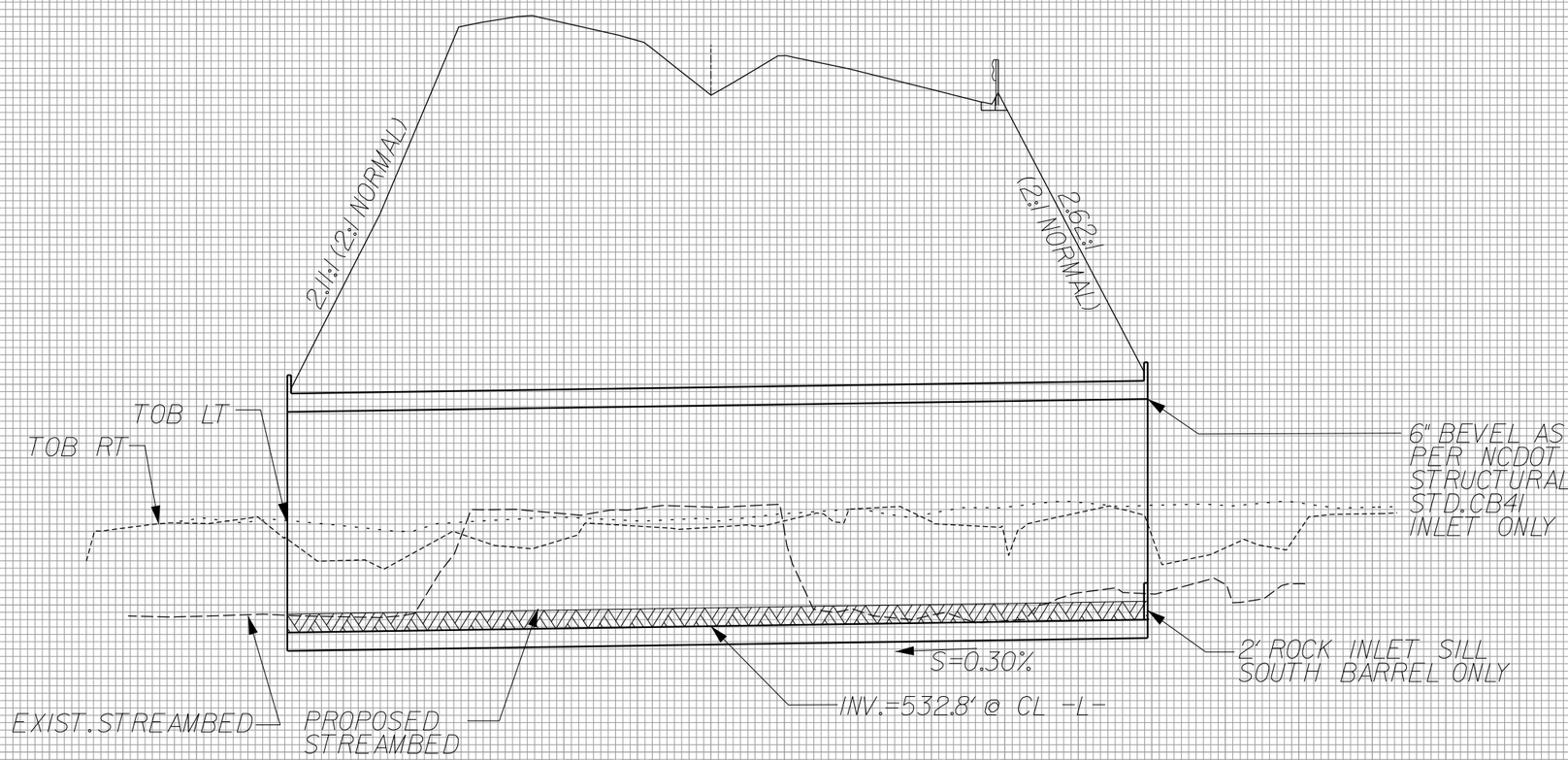
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

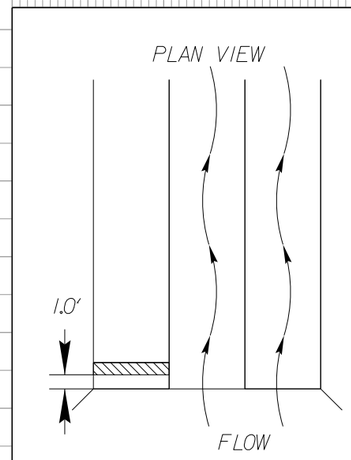
PERMIT DRAWING
SHEET 121 OF 267

ENGLISH

SITE 29
–L– STA. 669+18



PROPOSED 3–9'X12' RCBC



PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	40
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 DRAWING SHEET 122 OF 267

NAD 83

SPECIAL CUT DITCH SEE DETAIL A

459 ARMALEE F. HINSON

458 PRESTON BAUCOM, JR AND WIFE, GRACE FOWLER BAUCOM

462 EDWARD LEE FOWLER

464 KENNETH W. PRESSLEY AND WIFE, CATHY FOWLER PRESSLEY

466 PRESTON BAUCOM, JR.

465 STEVE D. EDWARDS AND WIFE, PAMELA B. EDWARDS

468 BARBARA BAUCOM BOYCE

20' CITY OF MONROE GENERAL PUBLIC UTILITY EASEMENT

FOWLER ROAD

-Y301- N 69° 18' 45" E

825+00

-Y301A- 11+00

S 27° 28' 08" E 13+00

MATCHLINE -Y301- STA 823+00 SEE SHEET 39

MATCHLINE -L- STA. 690+00 SEE SHEET 39

MATCHLINE -L- STA. 703+00 SEE SHEET 41

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL D

30" RCP-III

2GI

MEDIAN V DITCH SEE DETAIL I

S 74° 05' 42.1" E

695+00 -L-

700+00

REMOVE

30" RCP-III

LATERAL BASE DITCH SEE DETAIL D

PROP 48" WW FENCE

PROP 48" WW FENCE

S 80b (PERENNIAL)

S 80c (PERENNIAL)

GATE

W 80

CHANNEL BLOCK SEE DETAIL Q

TOE PROTECTION SEE DETAIL H

15" CAAP 2 ELBOWS ROD & LUG

2GI

SEE CULVERT OUTLET DETAIL -L- STA. 702+70

TOE PROTECTION SEE DETAIL H

LATERAL BASE DITCH SEE DETAIL D

470 ARMALEE F. HINSON

469 CHRISTOPHER JOHN HAMMONDS AND WIFE, ASHLEY DAWN HAMMONDS

468 GRACE F. BAUCOM ESTATE

467 JOHN H. BOYCE AND WIFE, A. B.

475 ANDREW JACK FOWLER FAMILY LMT. PART.

SITE 30

PLANS PREPARED BY :

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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	40
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 DRAWING SHEET 123 OF 267

NAD 83

SPECIAL CUT DITCH SEE DETAIL A

FOWLER ROAD

-Y301- N 69° 18' 45" E

825+00

11+00 -Y301A-

S 27° 28' 08" E 13+00

MATCHLINE -Y301- STA. 823+00 SEE SHEET 39

MATCHLINE -L- STA. 690+00 SEE SHEET 39

MATCHLINE -L- STA. 703+00 SEE SHEET 41

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL D

PROP 48" WW FENCE

30" RCP-III

2GI

MEDIAN V DITCH SEE DETAIL I

S 74° 05' 42.1" E

695+00 -L-

700+00

S 80b (PERENNIAL)

S 80c (PERENNIAL)

W 80

CHANNEL BLOCK SEE DETAIL Q

TOE PROTECTION SEE DETAIL H

15" CAAP 2 ELBOWS ROD & LUG

SEE CULVERT OUTLET DETAIL -L- STA. 702+70

LATERAL BASE DITCH SEE DETAIL D

SITE 30

459 ARMALEE F. HINSON

458 PRESTON BAUCOM, JR AND WIFE, GRACE FOWLER BAUCOM

468 BARBARA BAUCOM BOYCE

466 PRESTON BAUCOM, JR.

462 EDWARD LEE FOWLER

464 KENNETH W. PRESSLEY AND WIFE, CATHY FOWLER PRESSLEY

465 STEVE D. EDWARDS AND WIFE, PAMELA B. EDWARDS

470 ARMALEE F. HINSON

469 CHRISTOPHER JOHN HAMMONDS AND WIFE, ASHLEY DAWN HAMMONDS

467 JOHN H. BOYCE AND WIFE, B. [illegible]

475 ANDREW JACK FOWLER FAMILY LMT. PART.

GRACE F. BAUCOM ESTATE

20' CITY OF MONROE GENERAL PUBLIC UTILITY EASEMENT

4' WW FENCE

PLANS PREPARED BY :

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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	41
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 DRAWING
SHEET 124 OF 267

NAD 83

SITE 30

462 EDWARD LEE FOWLER

WOODS

479 DENNIS W. CANTILE

S 80a (PERENNIAL)

TIE EXIST. DITCH TO LATERAL BASE DITCH

TIE EXIST. DITCH TO LATERAL BASE DITCH

LATERAL BASE DITCH SEE DETAIL D

REMOVE 36" RCP. GRADE SLOPES TO MATCH EXISTING

REMOVE

SEE CULVERT INLET DETAIL –L– STA. 702+70

PROP 48" WW FENCE

BERM DITCH SEE DETAIL M

BDO

18" CAAP 2 ELBOWS ROD & LUG

FS

2GI

SPECIAL CUT DITCH SEE DETAIL A

MATCHLINE –L– STA. 703+00 SEE SHEET 40

705+00

710+00

715+00

MATCHLINE –L– STA. 717+00 SEE SHEET 42

–L–

MEDIAN V DITCH SEE DETAIL I

24" RCP-III

36" RCP-III

2GI-A

42" RCP-III

15" CAAP 2 ELBOWS ROD & LUG

TIE BERM DITCH TO LATERAL BASE DITCH

WOODS

462 EDWARD LEE FOWLER

3.6' WD

WD

2.8' BK

ISFD

GR

4' CONC

4' WD RAIL

EIP

REBAR

EXISTING R/W

15" RCP

SR 1502 MAPLE HILL RD 19' BST

CLEARING R/W

476 MICHAEL WILSON PARKER AND WIFE, CRYSTAL PARKER

477 MICHAEL WAYNE FOWLER AND WIFE, CYNTHIA P. FOWLER

POOL

2SFD

CONC

DOUGLAS V. FOWLER

478 NCDOT

PLANS PREPARED BY :

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FOR
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9/29/2014
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8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	41
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 DRAWING
SHEET 125 OF 267

NAD 83

SITE 30

S 80a
(PERENNIAL)

462
EDWARD LEE FOWLER

WOODS
479
DENNIS W. CANTILE

MATCHLINE -L- STA. 703+00 SEE SHEET 40

MATCHLINE -L- STA. 717+00 SEE SHEET 42

TIE EXIST. DITCH TO LATERAL BASE DITCH

LATERAL BASE DITCH SEE DETAIL D

REMOVE 36" RCP, GRADE SLOPES TO MATCH EXISTING

REMOVE

SEE CULVERT INLET DETAIL -L- STA. 702+70

TIE EXIST DITCH TO LATERAL BASE DITCH

PROP 48" WW FENCE

SPECIAL CUT DITCH SEE DETAIL A

2GI

705+00

710+00

715+00

-L-

MEDIAN V DITCH SEE DETAIL I

24" RCP-III

36" RCP-III

42" RCP-III

2GI-A

15" CAAP 2 ELBOWS ROD & LUG

BDO

FS

18" CAAP 2 ELBOWS ROD & LUG

BERM DITCH SEE DETAIL M

TIE BERM DITCH TO LATERAL BASE DITCH

462
EDWARD LEE FOWLER

476
MICHAEL WILSON PARKER AND WIFE, CRYSTAL PARKER

477
MICHAEL WAYNE FOWLER AND WIFE, CYNTHIA P. FOWLER

478
NCDOT

DOUGLAS V. FOWLER

3.6' WD

2.8' BK

ISFD

4" CONC

4' WD RAIL

GR

REBAR

EXISTING R/W

15' RCD

SR 1002 MAPLE HILL RD

18' BST

RIP RAP

EIP

POOL

FOR -L- PROFILE SEE SHTS. 140 & 203

PLANS PREPARED BY :

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	140
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 126 OF 267

610 600 590 580 570 560 550 540 530 520

676+00 677+00 678+00 679+00 680+00 681+00 682+00 683+00 684+00 685+00 686+00 687+00 688+00 689+00 690+00

-L- POS Sta. 688+22.27 =
-Y301- POT Sta. 819+86.69
ELEV. = 563.58'

EXISTING GROUND

PROPOSED GRADE

END MED.V DITCH
-L- STA.677+00.00
EI = 557.25

(+) 0.3000%

(+) 0.3000%

END SP.CUT DITCH LT.
-L- STA.678+00.00
EI = 554.09

BEGIN SP.CUT DITCH RT.
-L- STA.681+00.00
EI = 560.00

(+) 0.3029%

END SP.CUT DITCH RT.
-L- STA.684+50.00
EI = 561.06

690 600 590 580 570 560 550 540 530 520 510

690+00 691+00 692+00 693+00 694+00 695+00 696+00 697+00 698+00 699+00 700+00 701+00 702+00 703+00 704+00

BEGIN MED.V DITCH
-L- STA.690+50.00
EI = 561.51

PI = 692+17.000
EI = 561.000

END MED.V DITCH
-L- STA.693+00.00
EI = 562.14

END LAT.BASE DITCH RT.
EI = 561.01

-L- STA.699+23.87 =
-Y301A- STA.16+76.94
ELEV. = 567.28'

PI = 699+70.00
EL = 567.50'
VC = 210'
K = 271
DS = 72 mph

(+)0.3414%

(−)0.4321%

PI = 701+56.000
EI = 556.19

(−) 0.3054%

(+) 1.3735%

(−) 2.7133%

(−) 3.4660%

(−) 0.5800%

(+) 3.8944%
30" RCP

(−) 0.5800%

(+) 2.7200%

(−) 0.9406%

(+) 0.3000%

7'-X7' RCBC

BEGIN SP.CUT BASE DITCH LT.
-L- STA.690+50.00
EI = 560.08

BEGIN LAT.BASE DITCH RT.
-L- STA.691+20.00
EI = 554.00

END SP.CUT BASE DITCH LT.
BEGIN LAT.BASE DITCH
-L- STA.692+50.00
EI = 558.92

PI = 693+00.000
EI = 558.63

END LAT.BASE DITCH
-L- STA.694+00.00
EI = 561.35

BEGIN LAT.BASE DITCH LT.
-L- STA.698+00.00
EI = 567.40

PI = 699+60.000
EI = 563.33

END LAT.BASE DITCH RT.
-L- STA.703+00.00
EI = 550.30

BEGIN LAT.BASE DITCH RT.
-L- STA.701+50.00
EI = 549.85

EI = STA.703+75.00
EI = 554.13

SITE 30

CULVERT HYDRAULIC DATA
STR NA Sta.702+70

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 340	CFS
DESIGN HW ELEVATION	= 560.8	FT
100 YEAR DISCHARGE	= 390	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 561.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 632	CFS
OVERTOPPING ELEVATION	= 565.7	FT

PIPE HYDRAULIC DATA
STR 4401 Sta.692+17

DRAINAGE AREA	= 8.45	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 24.1	CFS
DESIGN HW ELEVATION	= 561.13	FT
100 YEAR DISCHARGE	= 26.5	CFS
100 YEAR HW ELEVATION	= 561.33	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

FOR -L- PLAN SEE SHTS. 39 - 41

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

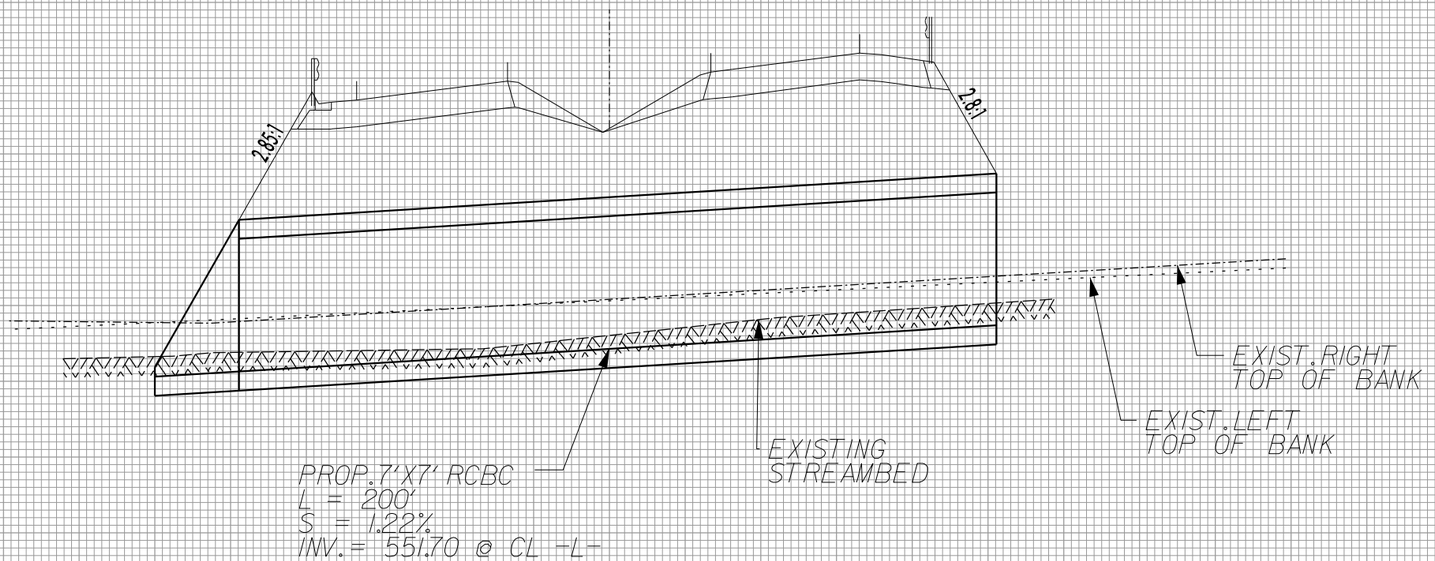
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 127 OF 267

ENGLISH

SITE 30
-L- STA. 702+97



PROPOSED 7'X7' RCBC
BURIED 1.0'

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

570 566 562 558 554 550 546 542 538

8/28/2014
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ENGLISH

F F DENOTES FILL IN WETLAND

NAD 83

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	42
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 DRAWING
SHEET 128 OF 267

MATCHLINE –L– STA. 717+00 SEE SHEET 41

MATCHLINE –L– STA. 731+00 SEE SHEET 43

MATCHLINE –RRC– STA. 22+50 SEE SHEET 43

SITE 31

W 81

479 DENNIS W. CANTILE

480 601 CENTER, LLC

478 NCDOT

477 MICHAEL WAYNE FOWLER AND WIFE, CYNTHIA P. FOWLER

494 MELDONIA F. SIMPSON

481 ANDREW J. FOWLER AND RUBY H. FOWLER PC B PG 376B

REBAR

25 ELEC

BDO

BERM DITCH SEE DETAIL M

BERM DITCH SEE DETAIL Q

PROP 48" WW FENCE

15" CSAP 2 ELBOWS ROD & TIE

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

15" RCP-III

SPECIAL CUT DITCH SEE DETAIL A

2GI

2GI-A

FS

C/A

R/W

15+00

20+00

720+00

725+00

730+00

9/29/2014
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Elena

8/17/99

ENGLISH

F F DENOTES FILL IN WETLAND

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	42
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 DRAWING
SHEET 129 OF 267

NAD 83

MATCHLINE –L– STA. 717+00 SEE SHEET 41

MATCHLINE –L– STA. 731+00 SEE SHEET 43

MATCHLINE –RRC– STA. 22+50 SEE SHEET 43

MATCHLINE –RRB– STA. 25+00 SEE SHEET 43

SITE 31

W 81

479 DENNIS W. CANTILE

480 601 CENTER, LLC

478 NCDOT

477 MICHAEL WAYNE FOWLER AND WIFE, CYNTHIA P. FOWLER

494 MELDONIA F. SIMPSON

481 ANDREW J. FOWLER AND RUBY H. FOWLER PC B PG 376B

BERM DITCH SEE DETAIL Q

BERM DITCH SEE DETAIL M

SPECIAL CUT DITCH SEE DETAIL A

PROP 48" WW FENCE

BDO

REBAR

25 ELEC

SSW & ELEC

15" CMP 2 ELBOWS ROD & TAG

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

15" RCP-III

2GI

2GI-A

FS

720+00

725+00

730+00

15+00

20+00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X33

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

PERMIT DRAWING
SHEET 130 OF 267

SITE 31

ENGLISH

585 580 575 570 565 560 555

WETLAND

578.61 2:1 569.89 6:1 –RRB– 11+92.08 0.040 0.040 0.040 6:1 574.92 7.186:1 0.040 0.040 –RRC– 10+30.86 6:1 2:1 565.00

D.P. 568.693

718+00.00

590 585 580 575 570 565 560 555

WETLAND

577.35 2:1 569.41 6:1 –RRB– 11+41.53 0.040 0.040 0.040 6:1 575.83 7.186:1 0.040 0.040 6:1 2:1 564.85

D.P. 568.340

717+50.00

590 585 580 575 570 565 560 555

WETLAND

576.10 2:1 568.98 6:1 –RRB– 10+91.02 0.040 0.040 0.040 6:1 577.12 7.186:1 0.040 0.040 6:1 2:1 564.70

D.P. 567.987

717+00.00

595 590 585 580 575 570 565 560 555

575.49 2:1 568.60 6:1 –RRB– 10+40.54 0.040 0.040 0.040 6:1 578.37 7.186:1 0.040 0.040 6:1 2:1 564.55

D.P. 567.635

716+50.00

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

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X34

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

PERMIT DRAWING
SHEET 131 OF 267

ENGLISH

595 590 585 580 575 570 565 560 555

584.59 — 2:1 — 571.60 — 6:1 — –RRB– 13+44.02 — 0.041 — 0.040 — 580.67 — 6:1 — 7.349:1 — 0.040 — 0.040 — –RRC– 11+79.47 — 0.040 — 6:1 — 2:1 — 565.45

D.P. 569.585

719+50.00

595 590 585 580 575 570 565 560 555

582.94 — 2:1 — 571.03 — 6:1 — –RRB– 12+93.31 — 0.041 — 0.040 — 0.040 — 578.07 — 6:1 — 7.349:1 — 0.040 — 0.040 — –RRC– 11+29.98 — 0.040 — 6:1 — 2:1 — 565.30

D.P. 569.233

719+00.00

SITE 31

590 585 580 575 570 565 560 555

580.30 — 2:1 — 570.45 — 6:1 — –RRB– 12+42.67 — 0.041 — 0.040 — 0.040 — WETLAND — 574.11 — 6:1 — 7.349:1 — 0.040 — 0.040 — –RRC– 10+80.45 — 0.040 — 6:1 — 2:1 — 565.15

D.P. 568.880

718+50.00

—L—

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

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	43
RW. SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PERMIT DRAWING SHEET 132 OF 267

NAD 83

MATCHLINE –Y302– STA. 136+00 SEE SHEET 100

MATCHLINE –RRC– STA. 25+00 SEE SHEET 42

MATCHLINE –L– STA. 731+00 SEE SHEET 42

MATCHLINE –RRC– STA. 22+50 SEE SHEET 42

MATCHLINE –Y302– STA. 121+00 SEE SHEET 99

MATCHLINE –L– STA. 758+00 SEE SHEET 44

A

B

C

SITE 32

SITE 33

SHEET 43A

SHEET 43B

MSE WALL

△ = 74° 13' 13.0"

BRIDGE ON –L– OVER –Y302– (NOT TO SCALE)

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY
RK&K
RUMMEL, KLEPPER & KAHL, LLP
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NC LICENSE NO. P-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	43
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 133 OF 267

MATCHLINE –Y302– STA. 136+00 SEE SHEET 100

MATCHLINE –RRB– STA. 25+00 SEE SHEET 42

MATCHLINE –L– STA. 731+00 SEE SHEET 42

MATCHLINE –RRC– STA. 22+50 SEE SHEET 42

MATCHLINE –Y302– STA. 121+00 SEE SHEET 99

MATCHLINE –L– STA. 758+00 SEE SHEET 44

A

B

C

SITE 33

SITE 32

W 86

W 82

S 81a (PERENNIAL)

S 81b (INTERMITTENT)

WX814

SHEET 43A

SHEET 43B

BRIDGE ON –L– OVER –Y302– (NOT TO SCALE)

MSE WALL

Δ = 74°13'13.0"

NAD 83

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

GRAPHIC SCALE
50 25 0 50 100
PLANS

FOR –L– PROFILE SEE SHTS. 141 & 142
FOR –Y302– PROFILE SEE SHTS. 204 & 205
FOR –RLA– PROFILE SEE SHT. 207
FOR –REC– PROFILE SEE SHT. 210
FOR –RRA– PROFILE SEE SHTS. 206 & 207
FOR –RRB– PROFILE SEE SHT. 208
FOR –RRC– PROFILE SEE SHT. 209

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	43A
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 DRAWING
SHEET 134 OF 267

A

SITE 32

MATCHLINE -L- STA. 747+00 SEE SHEET 43B

NAD 83

N 63° 11' 13.7" W

N 20° 01' 33.3" W

S 47° 38' 36.8" E

30+00 20+00 25+00 15+00 10+00 735+00 740+00 745+00

-L- -RLA- -RRA-

SEE DETAIL A
30" RCP-III
2GI-A
FS
4OTCB
15" RCP-III
24" RCP-III
PROP 48" WW FENCE
BERM DITCH SEE DETAIL M
BDO 24" CAAP 2 ELBOWS ROD & LUG
CA
RW
CB
18" RCP-III
15" CAAP 2 ELBOWS ROD & LUG
SP. BACK OF CURB DITCH SEE DETAIL AI
LATERAL BASE DITCH SEE DETAIL D
42" RCP-III
60" RCP-IV
60" RCP-III
HW
2GI
MSE WALL
24" RCP-IV
65" RCP-IV
W 82
REMOVE 77' 30" RCP
JB w/MH
30" RCP-III
FLARE END SECTION
RETAIN
COLLAR
TOE PROTECTION SEE DETAIL H
BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR
S 81a
(PERENNIAL)
REMOVE PIPE AND GRADE TO MATCH EXIST. CHANNEL
FILL W/ FLOWABLE
STANDARD BASE DITCH SEE DETAIL K
NCDOT
WELL
WOODS
CONC
GR
BST
RCP
CMP
CMPA
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S DENOTES IMPACTS IN SURFACE WATER
F F DENOTES FILL IN WETLAND

ENGLISH

9/29/2014
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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	43A
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 DRAWING
SHEET 135 OF 267

A

SITE 32

NAD 83

N 63° 11' 13.7" W

N 20° 01' 33.3" W

S 47° 38' 36.8" E

-RLA-

-RRA-

-L-

-1302-

-1502-

30+00
20+00
25+00
15+00
10+00
735+00
740+00
745+00

4OTCB
2GI-A
2GI
CB
FS
HW
MSE WALL
NCDOT
WOODS
WELL

30" RCP-III
15" RCP-III
24" RCP-III
60" RCP-III
42" RCP-III
60" RCP-IV
24" RCP-IV
15" RCP-IV
30" RCP
15" CAAP 2 ELBOWS ROD & LUG
BDO 24" CAAP 2 ELBOWS ROD & LUG
2 ELBOWS ROD & LUG
15" CAAP

SEE DETAIL A
PROP 48" WW FENCE
BERM DITCH SEE DETAIL M
SP. BACK OF CURB DITCH SEE DETAIL AI
LATERAL BASE DITCH SEE DETAIL D
TOE PROTECTION SEE DETAIL H
STANDARD BASE DITCH SEE DETAIL K
BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR
REMOVE 17' 30" RCP
JB w/MH
RETAIN
COLLAR
FILL W/ FLOWABLE
REMOVE PIPE AND GRADE TO MATCH EXIST. CHANNEL

W 82
S 81a (PERENNIAL)

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

ENGLISH

MATCHLINE -L- STA. 747+00 SEE SHEET 43B

9/29/2014
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FKeys

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

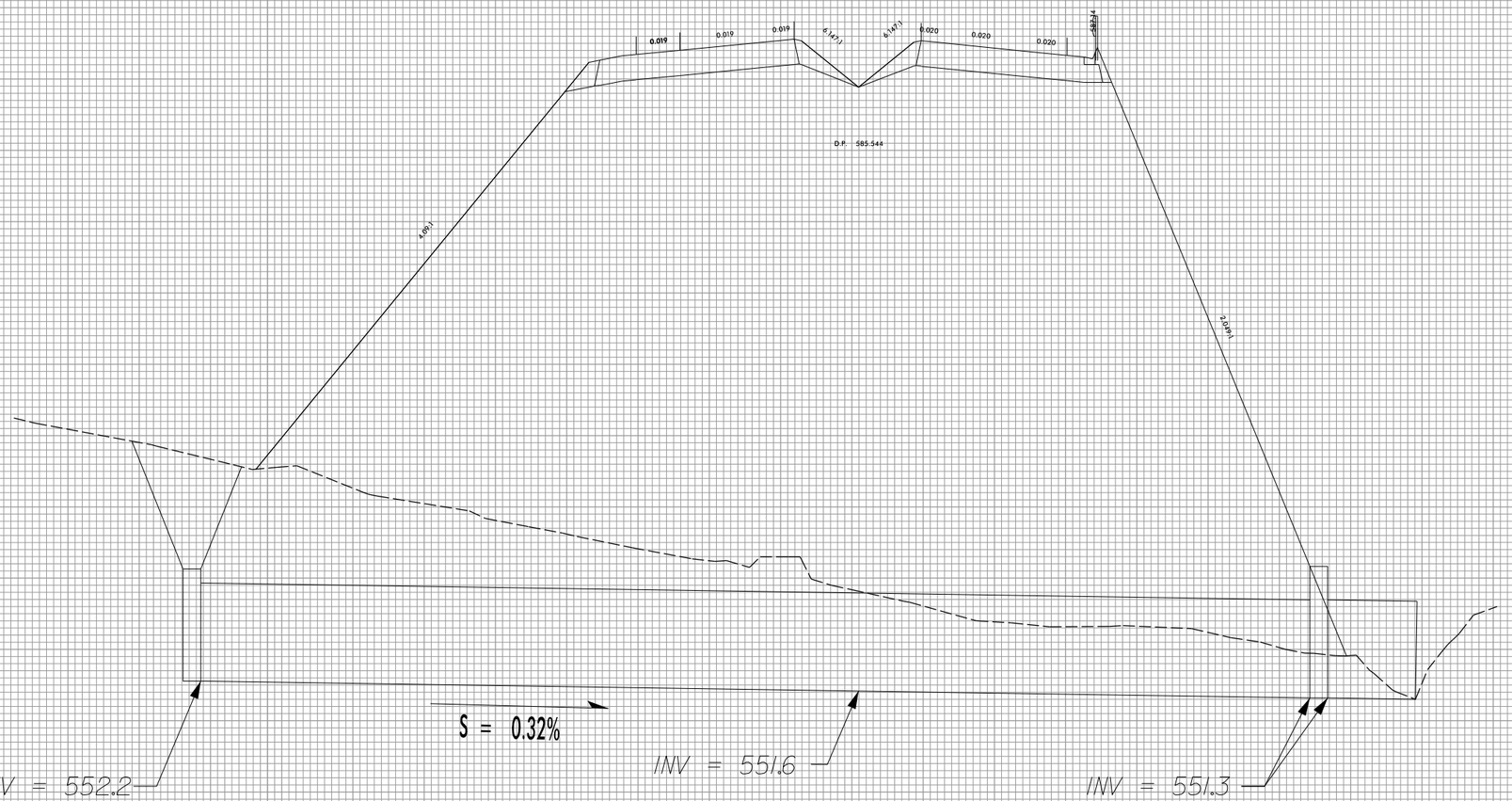
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 136 OF 267

ENGLISH

SITE 32
–L– STA. 738+46



PROPOSED 66" RCP

9/28/2014
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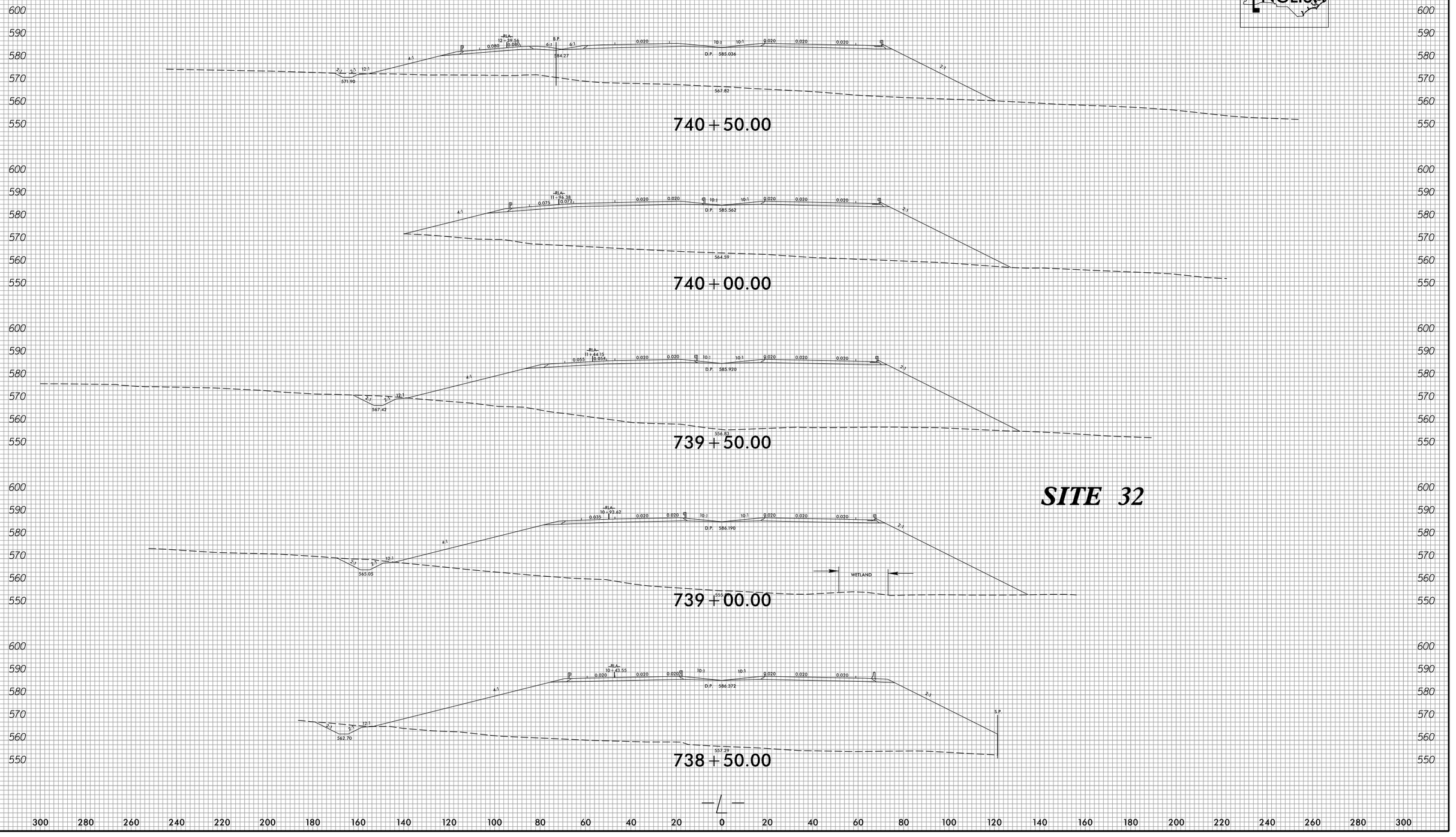
0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X44

PERMIT DRAWING
SHEET 137 OF 267

ENGLISH



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Fkeys

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PLANS PREPARED BY :

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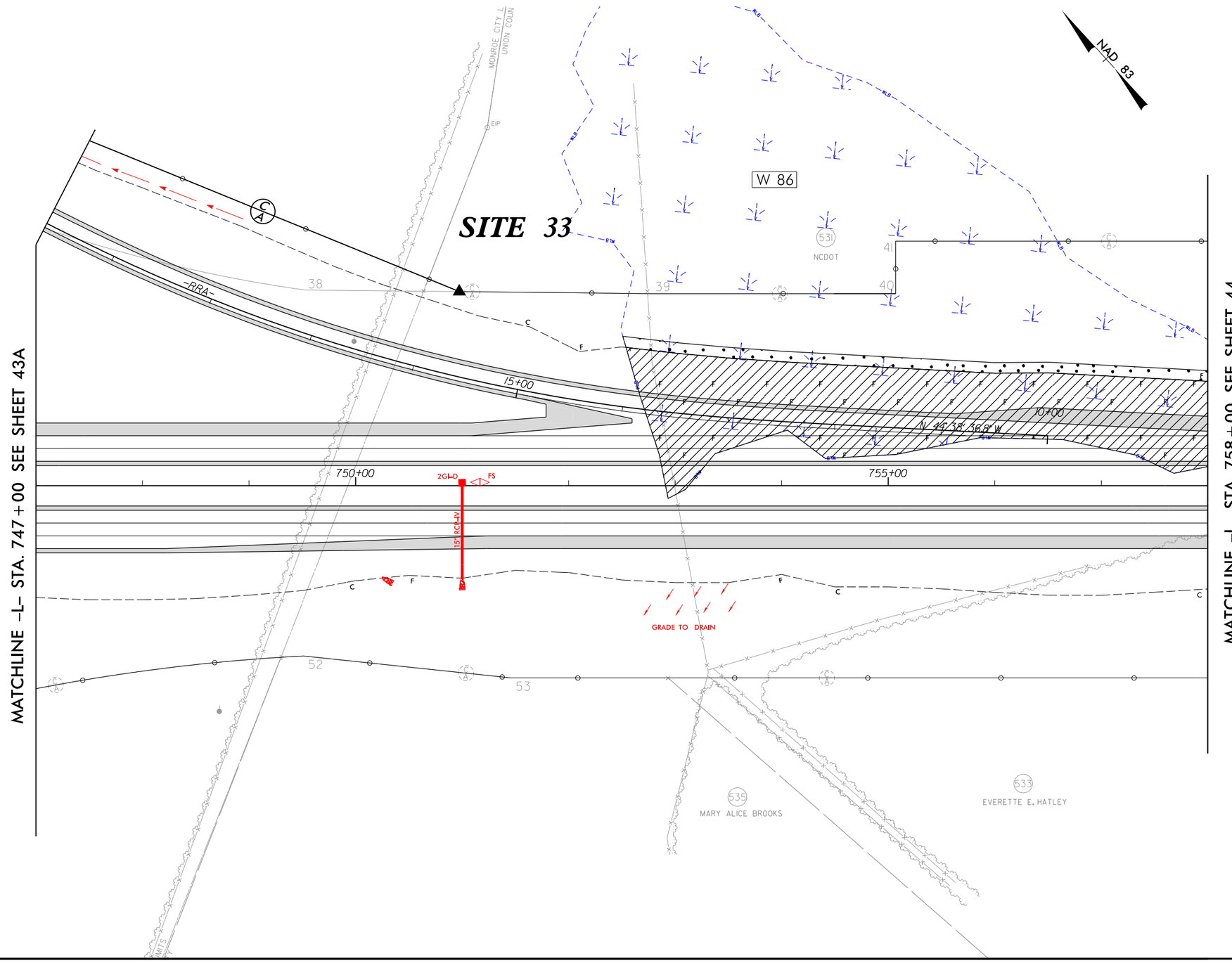
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	43B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 138 OF 267



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ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PLANS PREPARED BY :

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FOR
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TURNPIKE AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	43B
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 DRAWING
SHEET 139 OF 267

NAD 83

MONROE CITY L
UNION COUN

SITE 33

W 86

531
NCDOT

MATCHLINE -L- STA. 747+00 SEE SHEET 43A

MATCHLINE -L- STA. 758+00 SEE SHEET 44

-RRA-

15+00

10+00

N 44° 38' 36.8" W

750+00

755+00

2GI-D

FS

15" RCP-LV

GRADE TO DRAIN

535
MARY ALICE BROOKS

533
EVERETTE E. HATLEY

38 39 40 41 52 53

9/29/2014
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Fkeys

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	44
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 DRAWING
SHEET 140 OF 267

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83

SITE 33

MATCHLINE –Y303– STA. 719+00 SEE SHEET 103

MATCHLINE –L– STA. 758+00 SEE SHEET 43

MATCHLINE –L– STA. 772+00 SEE SHEET 45

MATCHLINE –Y303– STA. 712+00 SEE SHEET 102

RICHARD LEE PURSER (541)

CHRISTOPHER LEE PURSER AND WIFE, BRANDI ELK'S PURSER (540)

NCDOT (531)

NCDOT (532)

EVERETTE E. HATLEY (533)

SHARON E. HELMS (553)

THOMAS (552)

W 86

UNION COUNTY

WOODS

POND

EXISTING R/W

75' ACCESS R/W DB 908 PG 196

LATERAL BASE DITCH SEE DETAIL D

Q10=21.0 CFS
V10=2.69 FT\S

Q10=20.6 CFS
V10=2.41 FT\S

15" RCP-III

24" RCP-IV

2GI

FS

760+00

765+00

770+00

FILL W FLOWABLE FILL

15" CAAP 2 ELBOWS ROD & LUG

MSE WALL

WSE WALL 715+00

SPECIAL CUT DITCH SEE DETAIL L

LATERAL V. DITCH SEE DETAIL B

LATERAL V. DITCH SEE DETAIL C

RETAIN

PUE

3 WW & 25BW

4' WW FENCE

8" CONC

8" STEEL

8" PVC

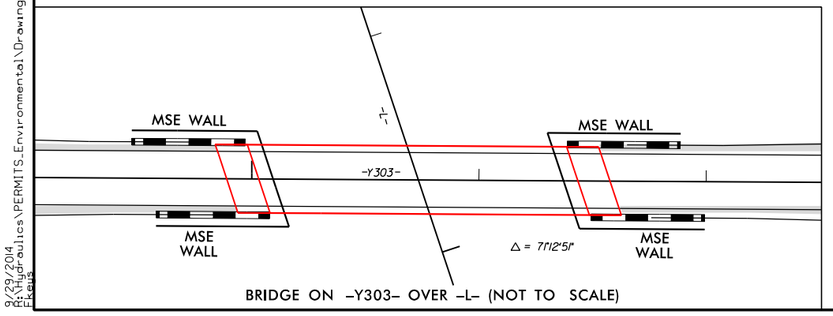
8" WL

16" EXPRESSWAY

EXIST. 12" OF 16" EXPRESSWAY

ABOVE GROUND GAS VALVE

W/LT



BRIDGE ON –Y303– OVER –L– (NOT TO SCALE)

PLANS PREPARED BY :

RK&K

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RALEIGH, NORTH CAROLINA 27609–3960
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	44
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 DRAWING
SHEET 141 OF 267

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NAD 83

SITE 33

MATCHLINE –Y303– STA. 719+00 SEE SHEET 103

MATCHLINE –L– STA. 758+00 SEE SHEET 43

MATCHLINE –L– STA. 772+00 SEE SHEET 45

MATCHLINE –Y303– STA. 712+00 SEE SHEET 102

RICHARD LEE PURSER

CHRISTOPHER LEE PURSER AND WIFE, BRANDI ELK'S PURSER

NCDOT

EVERETTE E. HATLEY

SHARON E. HELMS

UNION COUNTY

W 86

WOODS

POND

EXISTING R/W

LATERAL BASE DITCH SEE DETAIL D

Q10=21.0 CFS
V10=2.69 FT\S

Q10=20.6 CFS
V10=2.41 FT\S

FILL W FLOWABLE FILL

15" CAAP 2 ELBOWS ROD & LUG

15" RCP III

2GI

FS

24" RCP IV

SPECIAL CUT DITCH SEE DETAIL L

LATERAL V DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL C

MSE WALL

WSE WALL 775+00

760+00

765+00

770+00

PUE

RETAIN

4' WW FENCE

3' WW & 25BW

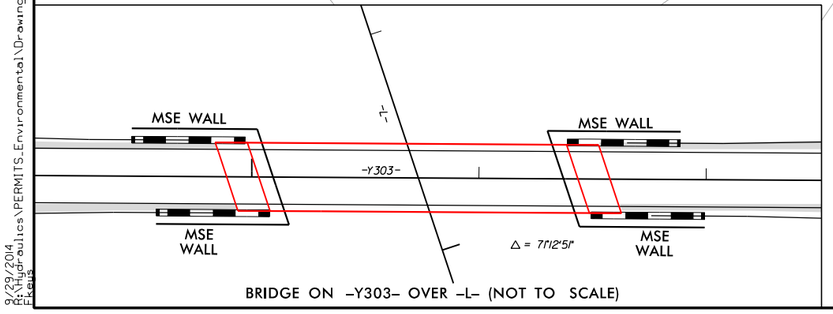
8" STEEL

8" PVC

8" WL

16" EXISTING WL

ABOVE GROUND GAS VALVE



BRIDGE ON –Y303– OVER –L– (NOT TO SCALE)

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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8/23/99

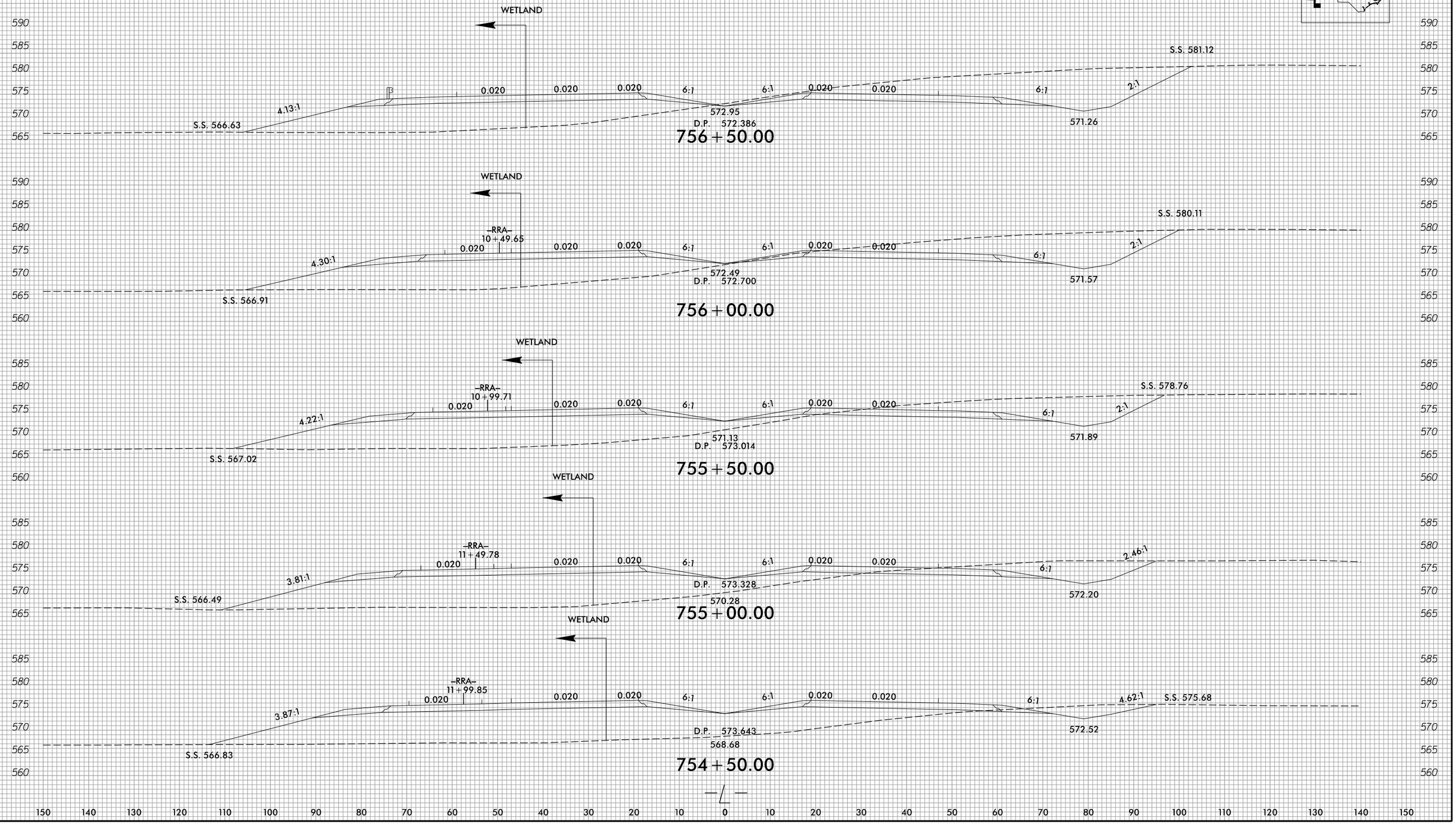
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X50

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

PERMIT DRAWING
SHEET 142 OF 267

SITE 33

ENGLISH



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8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	47
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 DRAWING
SHEET 143 OF 267

NAD 83

MATCHLINE –L– STA. 800+00 SEE SHEET 46

MATCHLINE –L– STA. 814+00 SEE SHEET 48

SITE 34

SITE 35

W 95

S 88a
(INTERMITTENT)

S 86
(PERENNIAL)

W 93

562 NCDOT

567 DONALD MILLARD BAUCOM AND WIFE, JOYCE D. BAUCOM

563 NCDOT

566 BOVA CORPORATION

WOODS

PROP 48" WW FENCE

HAZARDOUS SPILL BASIN SEE DETAIL X

SEE CULVERT OUTLET DETAIL –L– STA. 803+89

SLUICE GATE

LATERAL BASE DITCH SEE DETAIL D LINE ENTRANCE TO BASIN W/CLASS B RIPRAP –L– 807+12–807+50 LT

30" CAAP 2 ELBOWS ROD & LUG

SPRING BOX

END 48" WW FENCE

BEGIN 48" WW FENCE

END 48" WW FENCE

SEE CULVERT INLET DETAIL –L– STA. 805+89

BEGIN 48" WW FENCE

SWALE

EXISTING R/W

S 47°38'37" E 754.68'

S 47°38'37" E 563.29'

S 48°01'10" E 257.24'

S 47° 38' 36.8" E

805+00

810+00

-L-

15" RCP-III

30" RCP-III

24" RCP-III

10'X6' RCBC

2GI

2GI-A

FS

C

F

S30.11

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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

3/29/2014
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8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	47
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 DRAWING SHEET 144 OF 267

NAD 83

MATCHLINE –L– STA. 800+00 SEE SHEET 46

MATCHLINE –L– STA. 814+00 SEE SHEET 48

SITE 34

SITE 35

W 95

S 88a
(INTERMITTENT)

S 86
(PERENNIAL)

W 93

562
NCDOT

567
DONALD MILLARD BAUCOM AND WIFE, JOYCE D. BAUCOM

566
BOVA CORPORATION

WOODS

PROP 48" WW FENCE

EXISTING R/W

HAZARDOUS SPILL BASIN SEE DETAIL X

SEE CULVERT OUTLET DETAIL –L– STA 805+89

SLUICE GATE

30" RCP-III

LATERAL BASE DITCH SEE DETAIL D LINE ENTRANCE TO BASIN W/CLASS B RIPRAP –L– 807+12–807+50 LT

15" RCP-III

SPRING BOX

END 48" WW FENCE

BEGIN 48" WW FENCE

30" CAAP 2 ELBOWS ROD & LUG

2GI

15" RCP-III

10'X7' RCBC

805+00

–L–

FS

2GI-A

S 47° 38' 36.8" E

24" RCP-III

810+00

END 48" WW FENCE

SEE CULVERT INLET DETAIL –L– STA. 805+89

BEGIN 48" WW FENCE

FOR –L– PROFILE SEE SHT. 144

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THE NORTH CAROLINA
TURNPIKE AUTHORITY

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	144
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

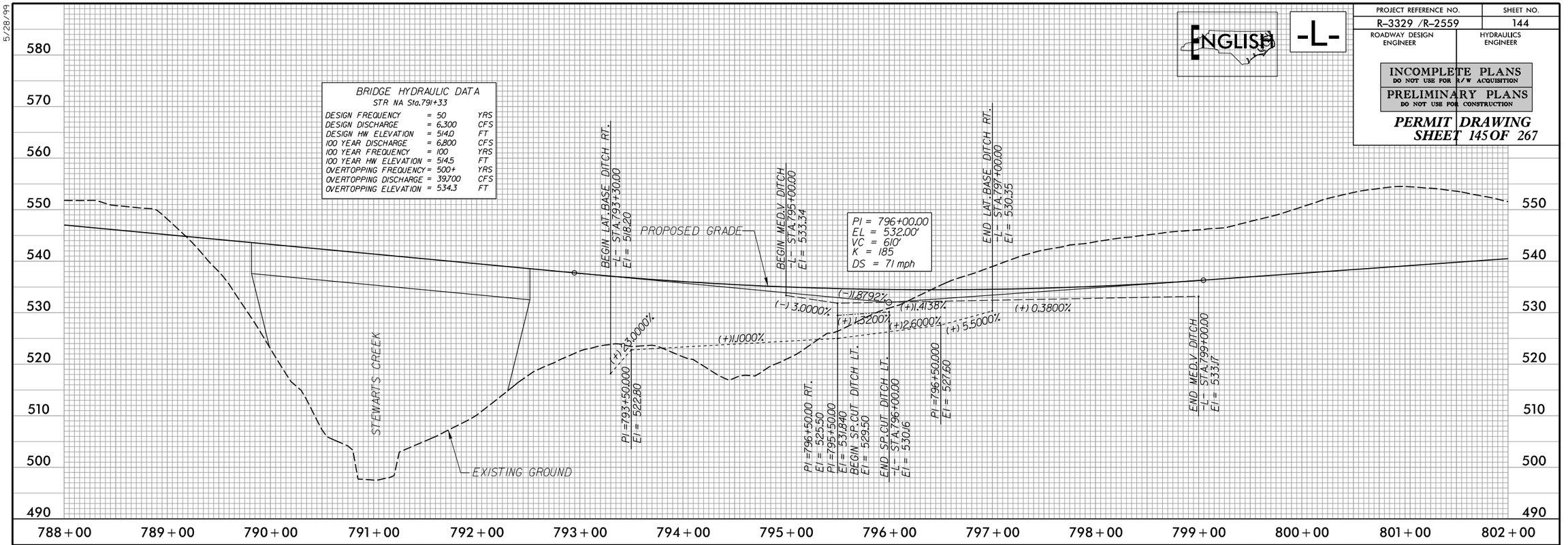
ENGLISH

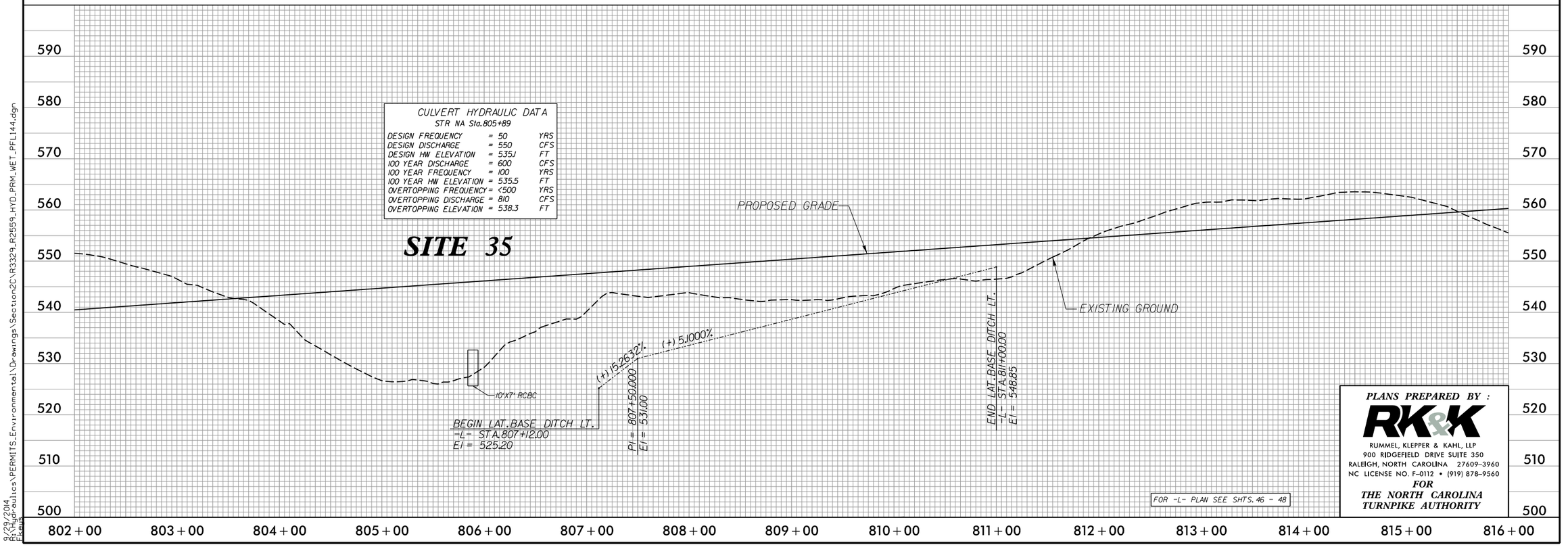
-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 145 OF 267





PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
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FOR
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TURNPIKE AUTHORITY

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

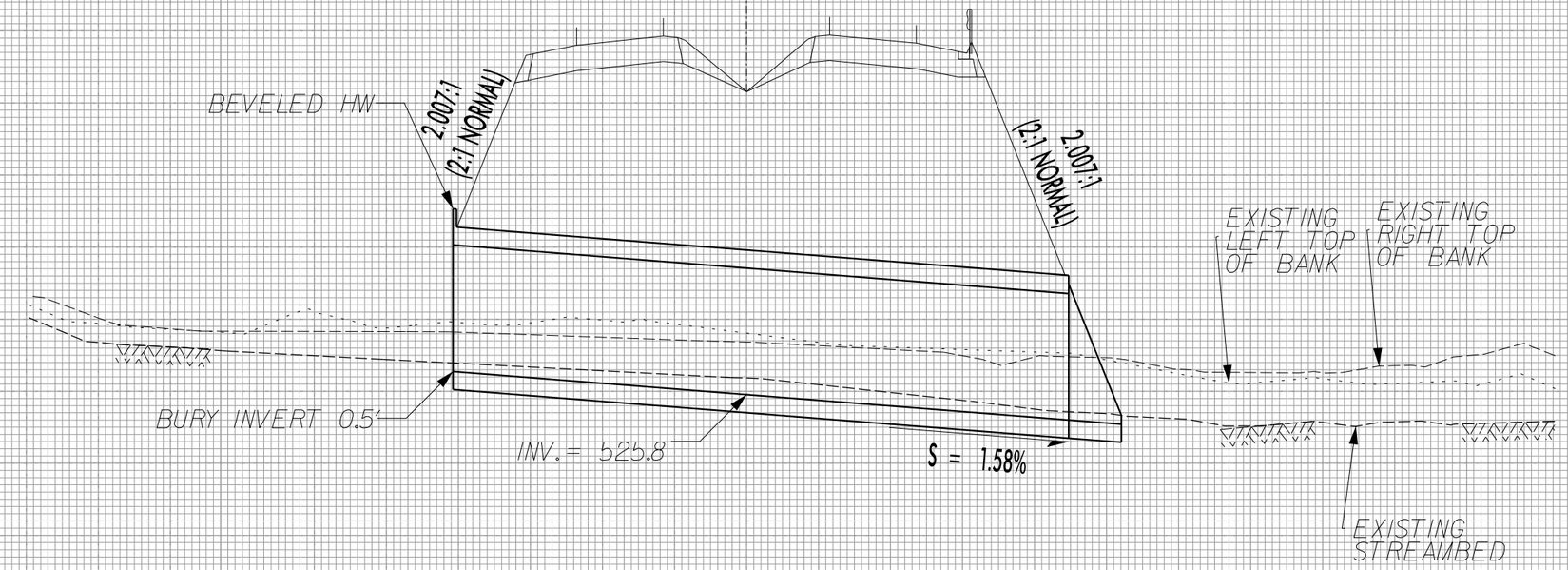
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 146 OF 267

ENGLISH

SITE 35
–L– STA. 805+89



PROPOSED 10'X7' RCBC

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ffeuf

REVISIONS

PROJECT REFERENCE NO. R-3329 / R-2559 | SHEET NO. 48

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 147 OF 267

MSE WALL
MSE WALL
MSE WALL
MSE WALL
Δ= 101° 52' 01.4"
BRIDGE ON -Y304- OVER -L- (NOT TO SCALE)

MATCHLINE -Y304- STA. 43+00 SEE SHEET 106

MATCHLINE -L- STA. 814+00 SEE SHEET 48

MATCHLINE -TRA- STA. 18+00 SEE SHEET 49

MATCHLINE -L- STA. 842+00 SEE SHEET 49

MATCHLINE -TRD- STA. 16+00 SEE SHEET 49

MATCHLINE -Y304- STA. 28+00 SEE SHEET 105

SITE 36

SITE 37

SITE 38

A

D

SHEET 48A

SHEET 48B

N 12° 16' 21.9" W

N 34° 22' 32.2" W

N 72° 16' 21.9" W

S 89a (INTERMITTENT)

S 92a (INTERMITTENT)

S 92b (INTERMITTENT)

S 93a (INTERMITTENT)

S 93b (PERENNIAL)

S 94 (INTERMITTENT)

S 95a (INTERMITTENT)

S 95b (INTERMITTENT)

S 96 (INTERMITTENT)

W 99

W 101

W 102

W 103

W 104

PROP 48" WW FENCE

-L- 820+00

825+00

830+00

835+00

840+00

-TRA- 25+00

-TRA- 26+00

-TRA- 27+00

-TRA- 28+00

-TRD- 10+00

-TRD- 11+00

-TRD- 12+00

-TRD- 13+00

-TRD- 14+00

-TRD- 15+00

-TRD- 16+00

-TRD- 17+00

-TRD- 18+00

-TRD- 19+00

-TRD- 20+00

-TRD- 21+00

-TRD- 22+00

-TRD- 23+00

-TRD- 24+00

-TRD- 25+00

-TRD- 26+00

-TRD- 27+00

-TRD- 28+00

-TRD- 29+00

-TRD-

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 148 OF 267

MSE WALL
MSE WALL
MSE WALL
MSE WALL
Δ= 101° 52' 01.4"
BRIDGE ON -Y304- OVER -L- (NOT TO SCALE)

MAP 83

MATCHLINE -Y304- STA. 43+00 SEE SHEET 106

MATCHLINE -L- STA. 814+00 SEE SHEET 48

MATCHLINE -TRA- STA. 18+00 SEE SHEET 49

MATCHLINE -L- STA. 842+00 SEE SHEET 49

MATCHLINE -TRD- STA. 16+00 SEE SHEET 49

MATCHLINE -Y304- STA. 28+00 SEE SHEET 105

A

D

SITE 36

SITE 37

SITE 38

SHEET 48A

SHEET 48B

S 89a (INTERMITTENT)
S 92a (INTERMITTENT)
S 92b (INTERMITTENT)
S 93a (INTERMITTENT)
S 93b (PERENNIAL)
S 94 (INTERMITTENT)
S 95a (INTERMITTENT)
S 95b (INTERMITTENT)
S 96 (INTERMITTENT)
W 99
W 101
W 102
W 103
W 104

PROP 48" WW FENCE
EXISTING R/W
PROP. R/W
-L-
-TRA-
-TRD-
-Y304-
-TRB-
-TRC-
-FLY1-
-FLY2-
-FLY3-
-FLY4-
-FLY5-
-FLY6-
-FLY7-
-FLY8-
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DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY:
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NC LICENSE NO. P-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/17/99

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

P P DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48A
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 DRAWING
SHEET 149 OF 267

NAD 83

UNION COUNTY
MONROE CITY LIMITS

593 JAMES WELLS AND WIFE, DOROTHY WELLS

568 RICKEY D. TAYLOR AND WIFE, DELORES T. TAYLOR

594 NCDOT

IS MTL BLD

ISBKD

CONC

GR

S

G

W/LT

EIP

EXISTING R/W

EXISTING 20' R/W

RICKEY D. TAYLOR & WIFE DELORES T.

91 92 93 94

8' GR

24" RCP REMOVE

EXISTING 20' R/W

POND

PROP 48" WW FENCE

S 89a (INTERMITTENT)

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SLUICE GATE

HAZARDOUS SPILL BASIN SEE DETAIL X

30" RCP-III

STANDARD BASE DITCH SEE DETAIL K

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL W

2GI-D

15" RCP-III

2GI

24" RCP-III

815+00

2GI-A

820+00

24" RCP-III

FS

15" RCP-III

825+00

15" RCP-III

2GI-D

MEDIAN -V- DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL A

PUE

PROP 48" WW FENCE

REMOVE

840+00

804+00

MSE WALL

46' EASEMENT

HW

SITE 36

W 99

101 102 103 104 105 106 107

EXISTING R/W

24" RLEC

TCE

CONC

GR

W/LT

85FT

9' SOIL

569 RICKEY D. TAYLOR AND WIFE, DELORES T. TAYLOR

570 RICHARD M. EWEN

576 OLIN E. SMITH AND WIFE, SHERRY R. SMITH

9/29/2014
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ERIC

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

8/17/99

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

P P DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48A
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 DRAWING SHEET 150 OF 267

NAD 83

UNION COUNTY
MONROE CITY LIMITS

JAMES WELLS AND WIFE, DOROTHY WELLS

RICKEY D. TAYLOR AND WIFE, DELORES T. TAYLOR

RICKEY D. TAYLOR & WIFE DELORES T.

NCDOT

EXISTING 20' R/W

EXISTING R/W

PROP 48" WW FENCE

S 89a (INTERMITTENT)

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SLUICE GATE

HAZARDOUS SPILL BASIN SEE DETAIL X

STANDARD BASE DITCH SEE DETAIL K

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL W

PIPES DO NOT CONNECT

30" RCP-III

18" RCP-III

15" RCP-III

24" RCP-III

48" RCP-III

2GI

2GI-A

2GI-D

815+00

820+00

825+00

40+00

-X204-

-L-

FS

HW

W 99

SITE 36

POND

DRAIN POND

REMOVE

PUE

PROP 48" WW FENCE

MSE WALL

SCUPPER

MEDIAN V DITCH SEE DETAIL I

ATTENUATOR

TYPE B-77

2 SCUPPERS

TCE

EXISTING R/W

569 KEY D. TAYLOR AND WIFE, DRES T. TAYLOR

570 RICHARD M. EWEN

576 OLIN E. SMITH AND WIFE, SHERRY R. SMITH

9/29/2014
K:\Projects\PERMITS_Environmental\Drawings\Section2C\R3329_R2559_HYD_PRM_WET_PSH048A_con.dgn
ERIC

PLANS PREPARED BY :

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NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

8/23/99

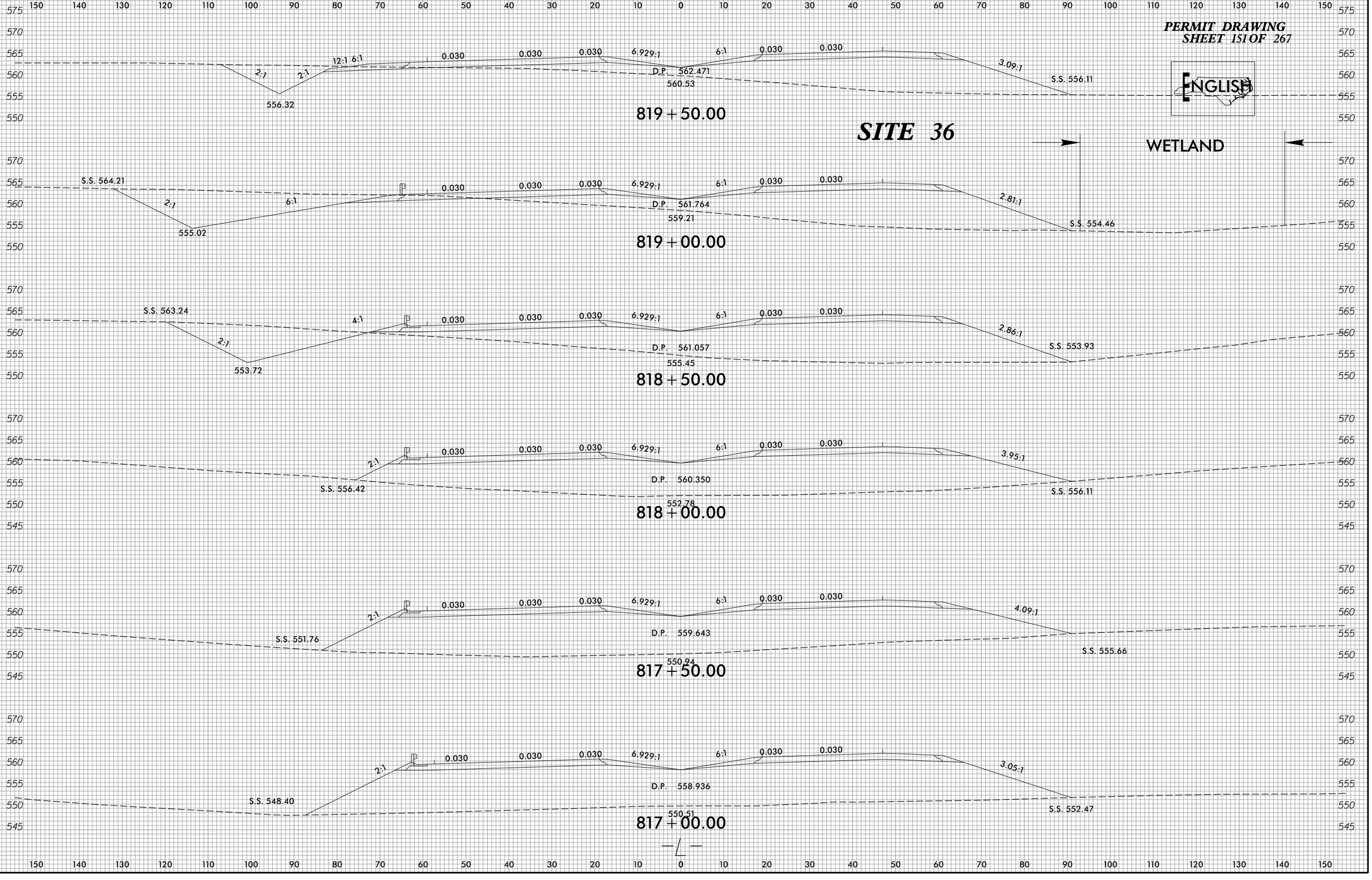
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X78

PERMIT DRAWING
SHEET 151 OF 267

ENGLISH

WETLAND

SITE 36



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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48B
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 DRAWING
SHEET 152 OF 267

ENGLISH

NAD 83

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

A

D

SITE 37

SITE 38

JOSEPH H. PORTER AND WIFE, LENELL B. PORTER

NCDOT

RODNEY L. PIERCE AND WIFE, KANDY R. PIERCE

W 101

W 102

W 103

W 104

S 92a (INTERMITTENT)

S 92b (INTERMITTENT)

S 93a (INTERMITTENT)

S 93b (PERENNIAL)

S 94 (INTERMITTENT)

S 95a (INTERMITTENT)

S 95b (INTERMITTENT)

S 96 (INTERMITTENT)

LATERAL V DITCH SEE DETAIL C

LATERAL BASE DITCH SEE DETAIL D

SP. BACK OF CURB DITCH SEE DETAIL AI

STANDARD BASE DITCH SEE DETAIL Y

MEDIAN V DITCH SEE DETAIL I

SP. LAT. V DITCH SEE DETAIL G

SPECIAL CUT DITCH SEE DETAIL A

HAZARDOUS SPILL BASIN SEE DETAIL X

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SLUICE GATE

MSE WALL

MORGAN MILL RD

-TRA- N 34° 22' 32.2" W

-TRD- S 79° 28' 49.0" W

MATCHLINE -TRA- STA. 18+00 SEE SHEET 49

MATCHLINE -L- STA. 842+00 SEE SHEET 49

MATCHLINE -TRD- STA. 16+00 SEE SHEET 49

PLANS PREPARED BY :
RK&K
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48B
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 DRAWING
SHEET 153 OF 267

ENGLISH

NAD 83

DENOTES MECHANIZED CLEARING

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

A

D

SITE 37

SITE 38

JOSEPH H. PORTER AND WIFE, LENELL B. PORTER

RODNEY L. PIERCE AND WIFE, KANDY R. PIERCE

NCDOT

W 101 | W 102 | W 103 | W 104

S 92a (INTERMITTENT) | S 92b (INTERMITTENT) | S 93a (INTERMITTENT) | S 93b (PERENNIAL) | S 94 (INTERMITTENT) | S 95a (INTERMITTENT) | S 95b (INTERMITTENT) | S 96 (INTERMITTENT)

-L- 25+00 | -L- 20+00 | -L- 15+00 | -TRA- N 34°22'32.2" W | -TRD- S 79°28'49.0" W | -TLD- | -Y304DET- | -Y304DET-

MATCHLINE -TRA- STA. 18+00 SEE SHEET 49

MATCHLINE -L- STA. 842+00 SEE SHEET 49

MATCHLINE -TRD- STA. 16+00 SEE SHEET 49

LATERAL V DITCH SEE DETAIL C

LATERAL BASE DITCH SEE DETAIL D

SP. BACK OF CURB DITCH SEE DETAIL AI

STANDARD BASE DITCH SEE DETAIL Y

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL A

SP. LAT. V DITCH SEE DETAIL G

HAZARDOUS SPILL BASIN SEE DETAIL X

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SLUICE GATE

MSE WALL

MORGAN MILL RD

PROP 48" WW FENCE

PSRM

24" RCP-III | 30" RCP-III | 36" RCP-III | 42" RCP-III | 48" RCP-III | 15" RCP-III | 18" RCP-III

CB | OTCB | HW | FS | DI | PUE | 2GI

PLANS PREPARED BY :

RK&K

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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

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8/23/99

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	R-3329 / R-2559	2C-X215

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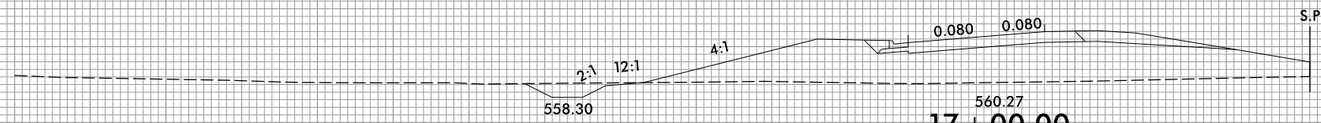
PERMIT DRAWING
SHEET 154 OF 267

ENGLISH

575 570 565 560 555



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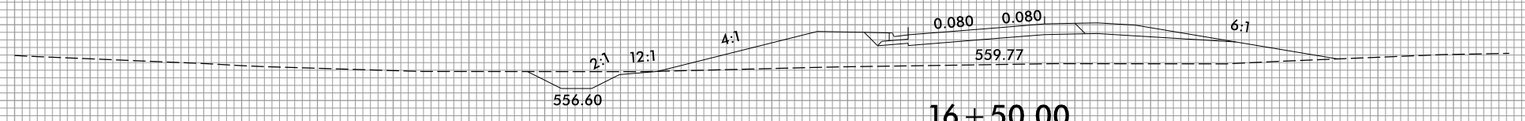
575 570 565 560 555 550



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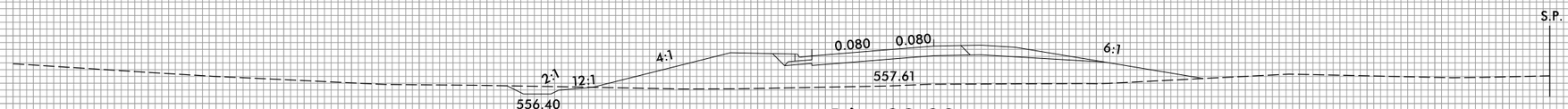


16 + 00.00

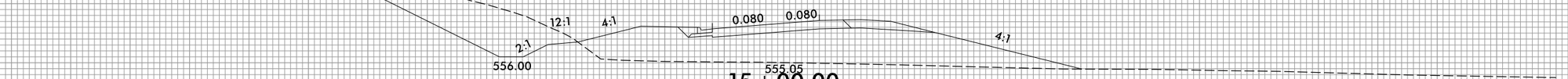
WETLAND WETLAND

SITE 37

570 565 560 555 550

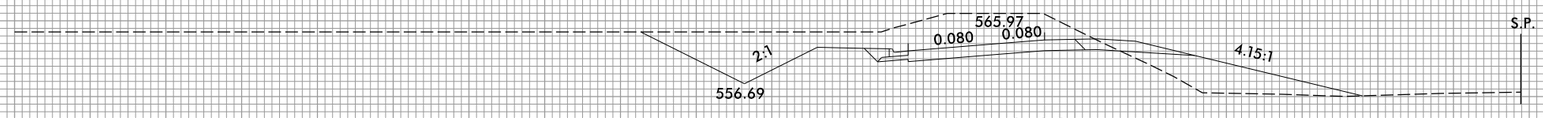
15 + 50.00

570 565 560 555 550



15 + 00.00

570 565 560 555 550



14 + 50.00

-TLA-

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

9/29/2014
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Fkeys

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X210

PERMIT DRAWING
SHEET 155 OF 267

ENGLISH

WETLAND

0.080 0.080 50:1

2:1 3:1

548.86

19 + 00.00

WETLAND

0.080 0.080 50:1

2:1 3:1

548.22

18 + 50.00

WETLAND

0.080 0.080 50:1

2:1 3:1

548.66

18 + 00.00

SITE 38

S.P.

0.080 0.080 50:1

2:1 3:7

552.11

17 + 50.00

S.P.

0.080 0.080 50:1

2:1 3.77:1

555.61

17 + 00.00

-TRA-

9/29/2014
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Fkeys

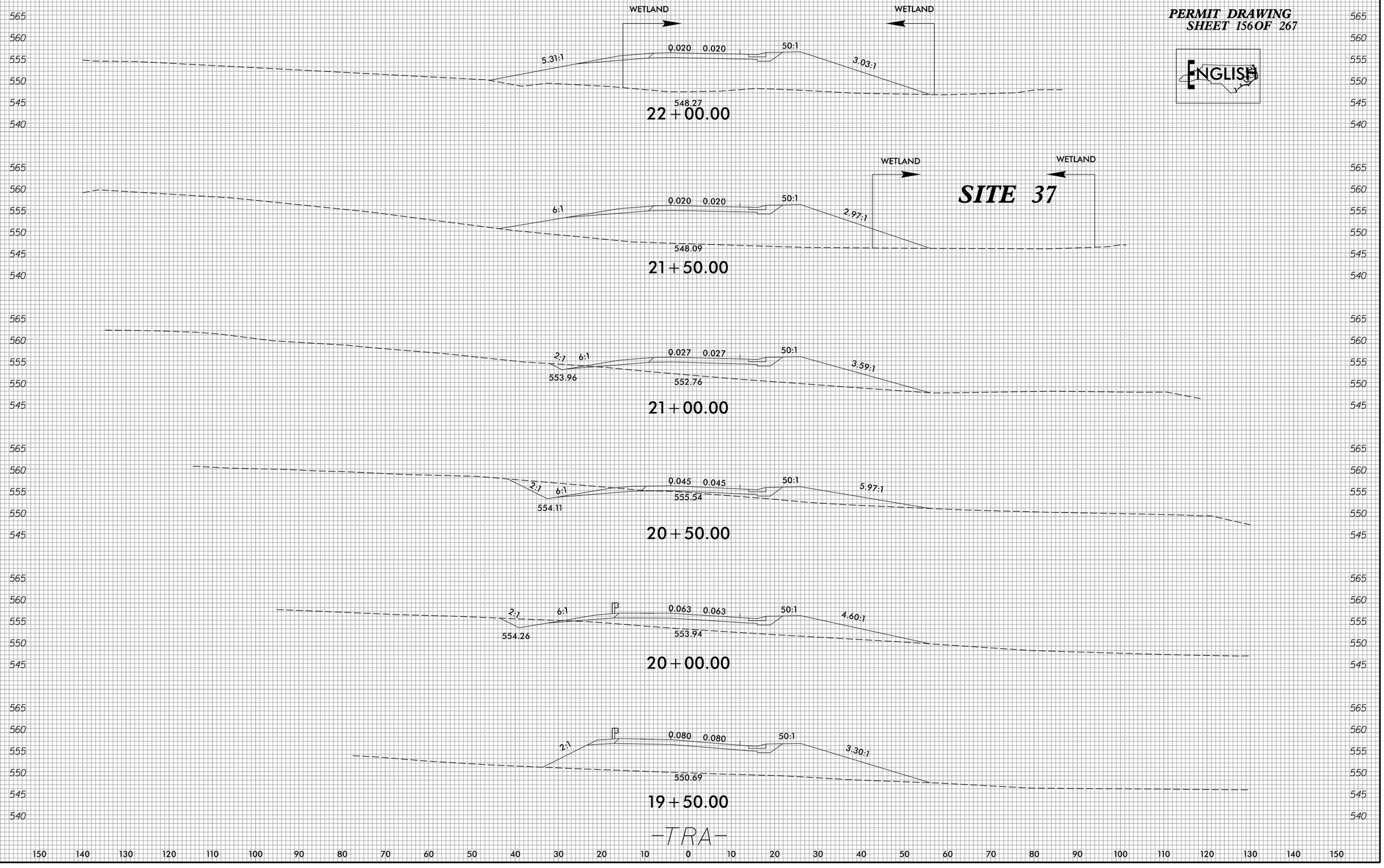
8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X211

PERMIT DRAWING
SHEET 156 OF 267

ENGLISH

SITE 37



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Fkeys

8/17/99

ENGLISH

F/F DENOTES FILL IN WETLAND

P/P DENOTES IMPACTS IN SURFACE WATER (POND)

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	49
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 DRAWING SHEET 157 OF 267

NAD 83

607 JOSEPH H. PORTER AND WIFE, LENELL B. PORTER DB 923 PG 308

617 JOSEPH H. PORTER AND WIFE, LENELL B. PORTER DB 1466 PG 54

619 NCDOT DB 1527 PG 540

627 JAMES C. MCCOLLUM AND WIFE, ELIZABETH C. MCCOLLUM DB 354 PG 540 DB 3807 PG 214

634 NCDOT DB 1401 PG 549

622 HAROLD J. BAUCOM AND WIFE, OLLIE G. BAUCOM DB 3198 PG 302

623 HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM DB 1453 PG 414

633 WILLIE DEAN BAUCOM DB 309 PG 82

SITE 38

SITE 39

SITE 40

MATCHLINE –TRA– STA. 18+00 SEE SHEET 48

MATCHLINE –L– STA. 842+00 SEE SHEET 48

MATCHLINE –TRD– STA. 16+00 SEE SHEET 48

MATCHLINE –L– STA. 856+00 SEE SHEET 50

MATCHLINE –Y305–

SEE SHEET 108

PROP 48" WW FENCE

PUE

TOE PROTECTION SEE DETAIL H

LATERAL BASE DITCH SEE DETAIL D

ROCK FILL IN POND SEE DETAIL AM

STANDARD BASE DITCH SEE DETAIL K

HAZARDOUS SPILL BASIN SEE DETAIL X

SLUICE GATE

20" RCP-HI

24" RCP-HI

15" RCP-HI

-TRA-

-TRD-

-L-

N 67° 33' 38.8" W

S 70° 33' 38.8" E

845+00

850+00

855+00

15+00

P 48

P 49

WOODS

POND

TURKEY HOUSE

TURKEY HOUSE

551.33

550.05

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
8/21/2014
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rbaulics

8/17/99

ENGLISH

F F DENOTES FILL IN WETLAND

P P DENOTES IMPACTS IN SURFACE WATER (POND)

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	49
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 DRAWING SHEET 158 OF 267

NAD 83

607 JOSEPH H. PORTER AND WIFE, LENELL B. PORTER

617 JOSEPH H. PORTER AND WIFE, LENELL B. PORTER

627 JAMES C. MCCOLLUM AND WIFE, ELIZABETH C. MCCOLLUM

618 NCDOT

634 NCDOT

631

622 HAROLD J. BAUCOM AND WIFE, OLLIE G. BAUCOM

623 HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM

633 WILLIE DEAN BAUCOM

SITE 38

SITE 39

SITE 40

MATCHLINE -TRA- STA. 18+00 SEE SHEET 48

MATCHLINE -L- STA. 842+00 SEE SHEET 48

MATCHLINE -TRD- STA. 16+00 SEE SHEET 48

MATCHLINE -L- STA. 856+00 SEE SHEET 50

MATCHLINE -Y305-

SEE SHEET 108

PROP 48" WW FENCE

EXISTING R/W

EIP

PUE

TOE PROTECTION SEE DETAIL H

LATERAL BASE DITCH SEE DETAIL D

ROCK FILL IN POND SEE DETAIL AM

STANDARD BASE DITCH SEE DETAIL K

HAZARDOUS SPILL BASIN SEE DETAIL X

SLUICE GATE

POND

TURKEY HOUSE

WOODS

-TRA-

-TRD-

-L-

N 67° 33' 38.8" W

S 70° 33' 38.8" E

15+00

845+00

850+00

855+00

P 48

P 49

30" RCP-HI

24" RCP-HI

18" RCP-HI

2GH

2FH

2GL

2FL

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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$$$$$$TIME$$$$$$
8/31/2014
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ekuhn

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

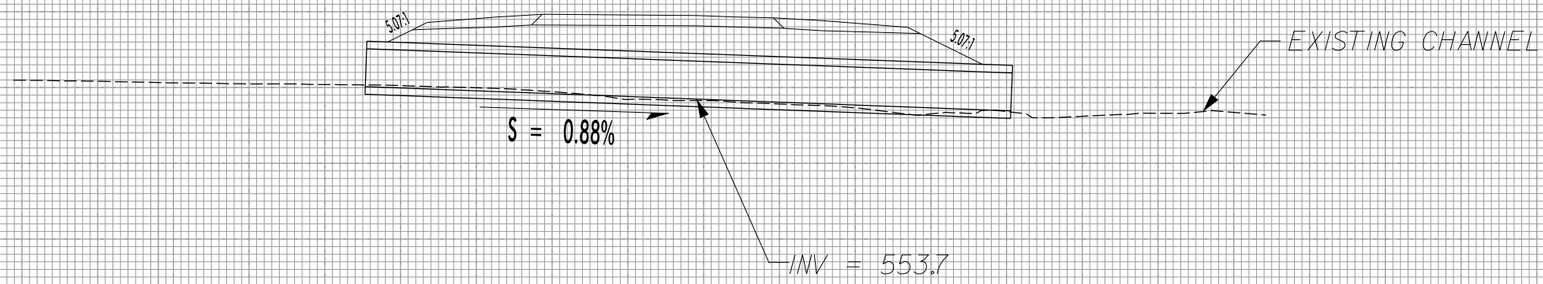
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 159 OF 267

ENGLISH

SITE 38
–TRD– STA. 17+63



PROPOSED 60" RCP III

9/29/2014
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Flaum

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

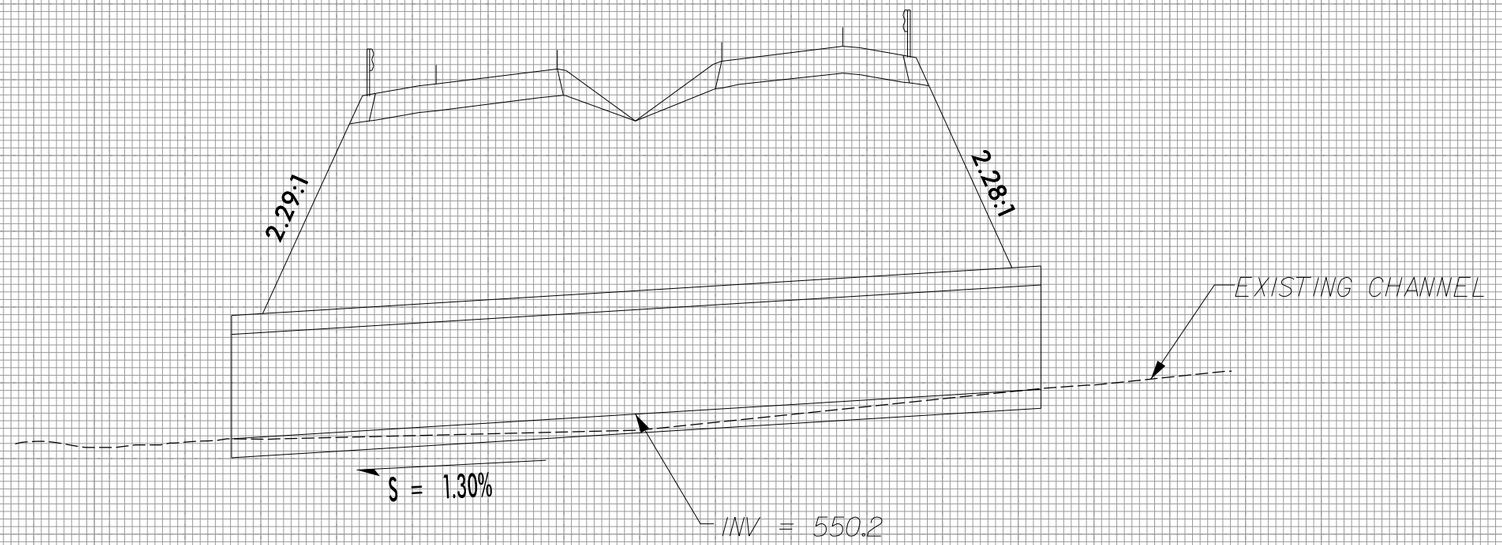
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 160 OF 267

ENGLISH

SITE 38
–L– STA. 840+31



PROPOSED 66" RCP III

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

570 576 572 568 564 560 556 552 548

9/29/2014
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Elkins

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

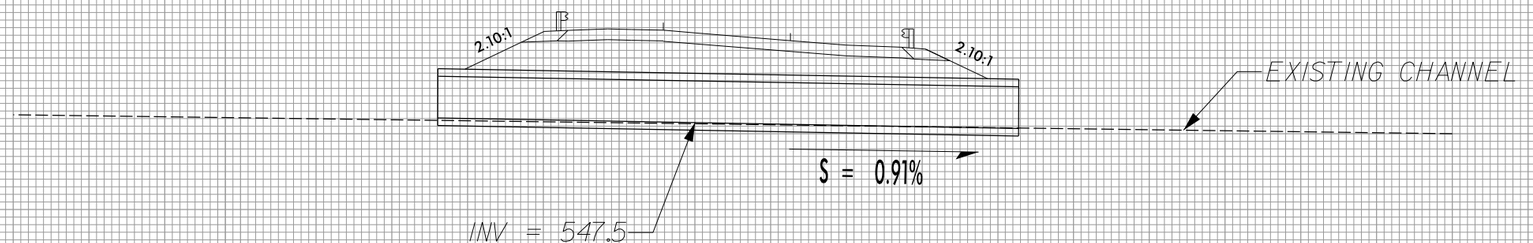
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 161 OF 267

ENGLISH

SITE 38
-TRA- STA. 18+86



PROPOSED 66" RCP III

8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X86

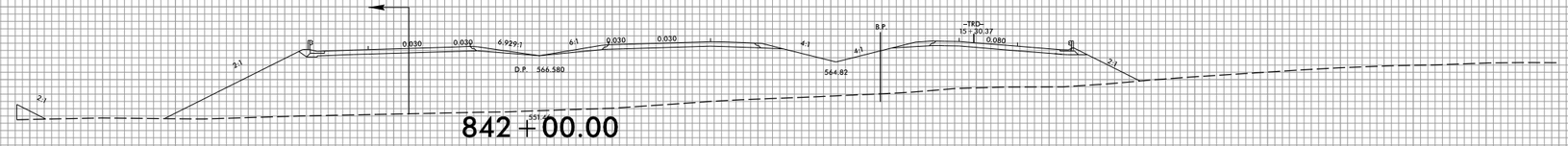
300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

ENGLISH

PERMIT DRAWING
SHEET 162 OF 267

580 570 560 550 540

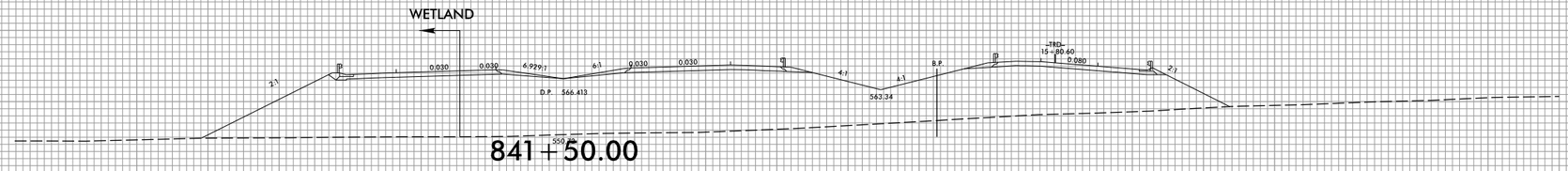
WETLAND



842+00.00

SITE 38

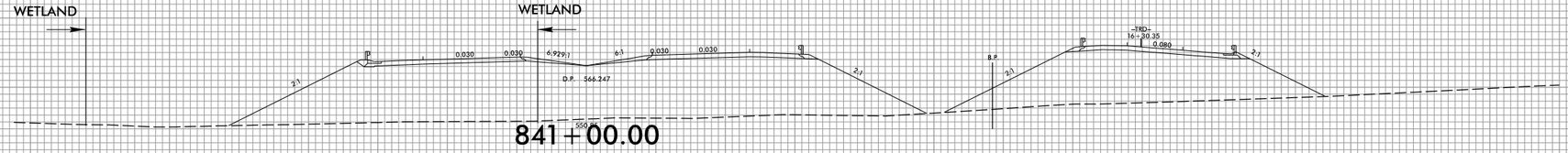
WETLAND



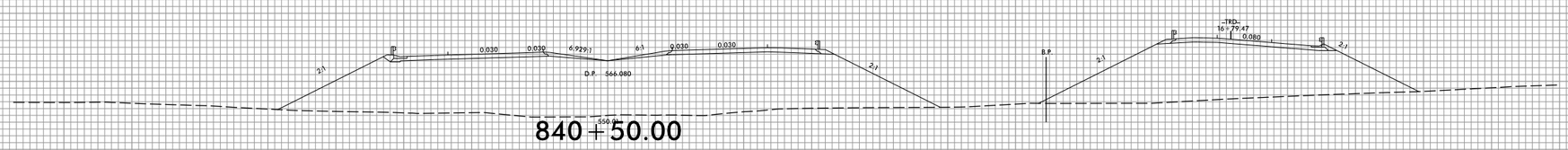
841+50.00

WETLAND

WETLAND



841+00.00



840+50.00

9/29/2004
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Keys

8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

P P DENOTES IMPACTS IN SURFACE WATER (POND)

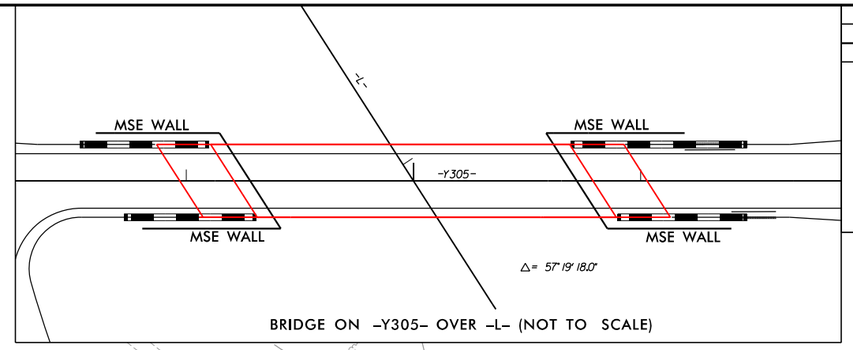
S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	50
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 DRAWING
SHEET 163 OF 267



BRIDGE ON -Y305- OVER -L- (NOT TO SCALE)

NAD 83

MATCHLINE -Y305- STA. 40+00 SEE SHEET 109

JAMES C. MCCOLLUM AND WIFE, ELIZABETH C. MCCOLLUM (627)

SADIE I. GRIFFIN REVOCABLE TRUST (629)

NCDOT (631)

BRENDA B. GODWIN (638)

BRENDA B. GODWIN DB 104 PG 104 (636)

HAZEL B. MCCOLLUM (645)

OLIVE BRANCH ROAD -Y305- N 52° 07' 02.7" E

TEMPORARY FOR DETOUR

25+00 -Y305ET-

PUE

BEGIN 48" WW FENCE

PROP 48" WW FENCE

EXISTING R/W

WOODS

SITE 40

SITE 41

15" CAAP 2 ELBOWS ROD & LUG

15" RCP-III

LATERAL BASE DITCH SEE DETAIL D

END 48" WW FENCE

REMOVE

MSE WALL

BERM DITCH SEE DETAIL M

BDO 18" CAAP 2 ELBOWS ROD & LUG

18" RCP-III

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

BERM DITCH SEE DETAIL M -L- 866+80-867+30 USE CLASS B RIPRAP

TOE PROTECTION SEE DETAIL H

PX 75

S 102b (INTERMITTENT)

860+00 -L- S 70° 33' 38.8" E 865+00

MATCHLINE -L- STA. 856+00 SEE SHEET 49

MATCHLINE -L- STA. 870+00 SEE SHEET 51

P 49

HP -Y305- STA. 34+23.73

LATERAL V DITCH SEE DETAIL V

15+00

2 ELBOWS RSD & LUG

85" CAAP

N 85° 22' 31.4" E

MATCHLINE -Y305- STA. 33+00 SEE SHEET 108

MATCHLINE -Y317- STA. 12+00 SEE SHEET 108

S 62° 37' 30.7" E

-Y317-

20+00 S 70° 33' 38.8" E

BILL M. TAYLOR AND WIFE, BOBBIE DEASON TAYLOR (642)

BRENDA B. GODWIN (643)

JIMMY MELVIN WATKINS AND SHELLY BENTON WATKINS (644)

HAZEL B. MCCOLLUM (647)

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -L- PROFILE SEE SHT. 146
FOR -Y305- PROFILE SEE SHT. 217
FOR -Y317- PROFILE SEE SHT. 218
FOR -DR2- PROFILE SEE SHT. 2C-2M
FOR -DR4- PROFILE SEE SHT. 2C-2M

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
8/23/2014
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FEATURE

8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

P P DENOTES IMPACTS IN SURFACE WATER (POND)

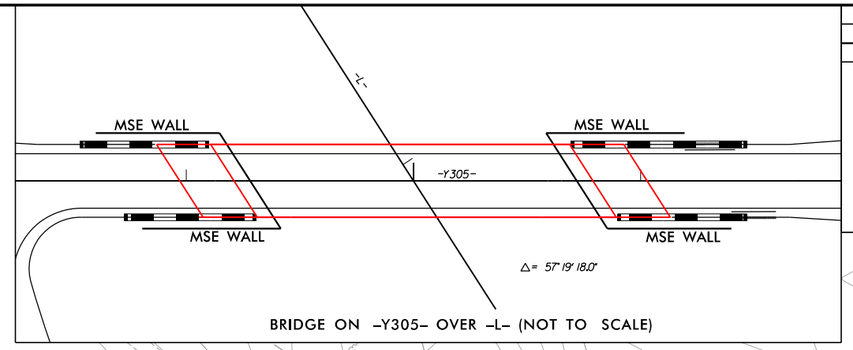
S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	50
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 DRAWING
SHEET 164 OF 267



BRIDGE ON -Y305- OVER -L- (NOT TO SCALE)

NAD 83

MATCHLINE -Y305- STA. 40+00 SEE SHEET 109

JAMES C. MCCOLLUM AND WIFE, ELIZABETH C. MCCOLLUM

SADIE I. GRIFFIN REVOCABLE TRUST

NCDOT

BRENDA B. GODWIN

OLIVE BRANCH ROAD -Y305- N 52° 07' 02.7" E

TEMPORARY FOR DETOUR

MONROE CITY LIMITS
UNION COUNTY

BRENDA B. GODWIN
DB 104 PG 104

HAZEL B. MCCOLLUM

WOODS

PROP 48" WW FENCE

BEGIN 48" WW FENCE

END 48" WW FENCE

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

BERM DITCH SEE DETAIL M

-L- 866+80-867+30 USE CLASS B RIPRAP

TOE PROTECTION SEE DETAIL H

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL V

REMOVE

SITE 40

SITE 41

15" CAAP 2 ELBOWS ROD & LUG

15" RCP-III

BDO 18" CAAP 2 ELBOWS ROD & LUG

18" RCP-III

24" RCP-III

MSE WALL

2GI

2GI-D

FS

860+00

865+00

20+00

15+00

-L-

S 70° 33' 38.8" E

N 85° 22' 31.4" E

S 52° 37' 30.0" E

P 49

PX 75

S 102b (INTERMITTENT)

-Y317-

MATCHLINE -L- STA. 856+00 SEE SHEET 49

MATCHLINE -Y305- STA. 33+00 SEE SHEET 108

MATCHLINE -Y317- STA. 12+00 SEE SHEET 108

MATCHLINE -L- STA. 870+00 SEE SHEET 51

BILL M. TAYLOR AND WIFE, BOBBIE DEASON TAYLOR

BRENDA B. GODWIN

JIMMY MELVIN WATKINS AND SHELLY BENTON WATKINS

HAZEL B. MCCOLLUM

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -L- PROFILE SEE SHT. 146
FOR -Y305- PROFILE SEE SHT. 217
FOR -Y317- PROFILE SEE SHT. 218
FOR -DR2- PROFILE SEE SHT. 2C-2M
FOR -DR4- PROFILE SEE SHT. 2C-2M

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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$$$$$$TIME$$$$$
8/23/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	108
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 DRAWING
SHEET 165 OF 267

NAD 83

SITE 40

MATCHLINE –L–
SEE SHEET 49

E 35°10'38.4" W
3+00
12+00
PROP. P 49
STANDARD BASE DITCH SEE DETAIL K
SEE SHEET 49

DONALD CHANEY

765 HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM

623 HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM

635 WILLIE DEAN BAUCOM, ET ALS

633 WILLIE DEAN BAUCOM

634

ISBKD

WD CANOPY

TEMPORARY FOR DETOUR

EXISTING 400 YR WSE (AT 10803 INLET)

36" ENDWALL

SEE SHEET 49

SPECIAL CUT DITCH SEE DETAIL A

48" IND RAILROAD

EXISTING R/W

2" PE

REMOVE

25+00

15" RCP-III

PRES

OLIVE BRANCH ROAD -Y305-

SR 1005 OLIVE BRANCH RD

22.5° BST

N 52°07'02.7" E

REMOVE

REMOVE

REMOVE

RETAIN

20" DIP

15" RCP-III

8" CITY OF MONROE WATERLINE EASEMENT

LATERAL V DITCH SEE DETAIL W

-Y305 DET-

LATERAL BASE DITCH SEE DETAIL D

30+00

BEG CA

BEG 48" WW FENCE

S 37°52'57.3" E

36" RCP-V

FILL W/ FLOWABLE FILL

95' RCP

MATCHLINE –Y305–
STA. 33+00
SEE SHEET 50

8" CITY OF MONROE WATERLINE EASEMENT

SSMH
TOP 550.73
LID BOLTED SHUT

SSMH
TOP 543.24
INV (NW) 533.84
INV (NE) 534.14
INV (SE) 530.44
LID BOLTED SHUT

PUE

8" PVC

18" RCP

18" DIP

BILL M. & BOBBIE DEASON TAYLOR

642 HILL CEMETERY

642 BILL M. TAYLOR AND WIFE, BOBBIE DEASON TAYLOR

VANN JUNIOR & MARTHA LOVE

SSMH
TOP 536.65
INV (NW) 527.55
INV (SE) 527.25

8" PVC
18" DIP

MATCHLINE –Y317–
STA. 12+00
SEE SHEET 50

2" UNKNOWN

ENGLISH

DENOTES IMPACTS IN SURFACE WATER (POND)

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
8/17/2016
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ekeus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	108
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 DRAWING
SHEET 166 OF 267

NAD 83

SITE 40

MATCHLINE –L–
SEE SHEET 49

MATCHLINE –Y305– STA. 33+00 SEE SHEET 50

MATCHLINE –Y317– STA. 12+00 SEE SHEET 50

DONALD CHANEY

HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM

WILLIE DEAN BAUCOM, ET ALS

HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM

WILLIE DEAN BAUCOM

BILL M. & BOBBIE DEASON TAYLOR

BILL M. TAYLOR AND WIFE, BOBBIE DEASON TAYLOR

HILL CEMETERY

VANN JUNIOR & MARTHA LOVE

OLIVE BRANCH ROAD –Y305–

TEMPORARY FOR DETOUR

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL W

LATERAL BASE DITCH SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL K

REMOVE

15" RCP-III

30" RCP-V

IN 52° 07' 02.7" E

S 37° 52' 57.3" E

FILL W/ FLOWABLE FILL

8' CITY OF MONROE WATERLINE EASEMENT

ISBKD

WD CANOPY

SSMH TOP 550.73 LID BOLTED SHUT

SSMH TOP 543.24 INV (NW) 533.84 INV (NE) 534.14 INV (SE) 530.44

SSMH TOP 536.65 INV (NW) 527.55 INV (SE) 527.25

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y305– PROFILE SEE SHT. 217

DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	52
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 DRAWING SHEET 167 OF 267

NAD 83

645 HAZEL B. MCCOLLUM

648 ROBERT H. MORRISON

WOODS

SITE 43

SITE 42

MATCHLINE –L– STA. 884+00 SEE SHEET 51

MATCHLINE –L– STA. 898+00 SEE SHEET 53

157

EXISTING R/W

PROP 48" WW FENCE

END 48" WW FENCE

BEGIN 48" WW FENCE

W 107

LATERAL BASE DITCH SEE DETAIL E

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT BASE DITCH SEE DETAIL F

BDO

2GI-D

24" CAAP 2 ELBOWS ROD & LUG

24" RCP-III

S 106

(INTERMITTENT)

HW

885+00

890+00

895+00

S 70° 33' 38.8" E

-L-

FS

2GI

MEDIAN V DITCH SEE DETAIL I

84" RCP-III BURIED 1.0

S 103b

(PERENNIAL)

40+00

45+00

50+00

-Y317-

PROP 48" WW FENCE

15" RCP-III

18" RCP-III

36" RCP-III

CPES

18" CAAP 2 ELBOWS ROD & LUG

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL D

175

PDE

TOE

650 ROBERT H. MORRISON

SET BACK CHANNEL TO EXISTING DIMENSIONS

REMOVE 24" RCP

647 HAZEL B. MCCOLLUM

651 HARRY MEYERS

PLANS PREPARED BY :

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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	52
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 DRAWING
SHEET 168 OF 267

NAD 83

645 HAZEL B. MCCOLLUM

648 ROBERT H. MORRISON

MATCHLINE –L– STA. 884+00 SEE SHEET 51

MATCHLINE –L– STA. 898+00 SEE SHEET 53

SITE 42

SITE 43

EXISTING R/W

PROP 48" WW FENCE

END 48" WW FENCE

BEGIN 48" WW FENCE

W 107

LATERAL BASE DITCH SEE DETAIL E

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT BASE DITCH SEE DETAIL F

BDO

2GI-D

24" CAAP 2 ELBOWS ROD & LUG

24" RCP III

S 106 (INTERMITTENT)

HW

885+00

FS

S 70° 33' 38.8" E

890+00

–L–

895+00

2GI

MEDIAN V DITCH SEE DETAIL I

84" RCP III

BURIED 1.0

S 103b (PERENNIAL)

40+00

PROP 48" WW FENCE

45+00

–Y317–

50+00

CPES

18" CAAP 2 ELBOWS ROD & LUG

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL D

36" RCP III

WOODS

175

157

PDE

650 ROBERT H. MORRISON

647 HAZEL B. MCCOLLUM

651 HARRY MEYERS

SET BACK CHANNEL TO EXISTING DIMENSIONS

REMOVE

PLANS PREPARED BY :

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$$$$$$TIME$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	147
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 169 OF 267

ENGLISH

-L-

PIPE HYDRAULIC DATA
STR 5101 Sta.878+06

DRAINAGE AREA	= 11.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 42	CFS
DESIGN HW ELEVATION	= 545.5	FT
100 YEAR DISCHARGE	= 45	CFS
100 YEAR HW ELEVATION	= 545.8	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

BEGIN SP.CUT DITCH LT.
-L- STA.872+00.00
EI = 537.44

END MED.V DITCH RT.
-L- STA.874+00.00
EI = 539.44

BEGIN LAT.V DITCH LT.
-L- STA.877+60.00
EI = 543.88

END LAT.V DITCH LT.
-L- STA.879+00.00
EI = 545.04

PI = 881+70.00
EL = 555.00'
VC = 1,140'
K = 254
DS = 71 mph

(+)1.4783%
(-)13.0088%
(+)2.5600%
(+)2.7200%
(-)3.9474%
(+)4.2703%
(+)1.1708%
(-)2.6545%
36" RCP
(+)3.0824%

EXISTING GROUND
PROPOSED GRADE

BEGIN MED.V DITCH RT.
-L- STA.872+50.00
EI = 536.91

PI = 873+00.000
EI = 540.00 LT.
EI = 538.270 MED.RT.

PI = 873+76.000
EI = 537.00

END SP.CUT DITCH LT.
-L- STA.874+50.00
EI = 540.16

PI = 878+15.000
EI = 542.42

590 580 570 560 550 540 530 520 510 500

872+00 873+00 874+00 875+00 876+00 877+00 878+00 879+00 880+00 881+00 882+00 883+00 884+00 885+00 886+00

SITE 43

PIPE HYDRAULIC DATA
STR 5214 Sta.893+24

DRAINAGE AREA	= 81.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 240	CFS
DESIGN HW ELEVATION	= 520.3	FT
100 YEAR DISCHARGE	= 280	CFS
100 YEAR HW ELEVATION	= 521.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 350	CFS
OVERTOPPING ELEVATION	= 522.6	FT

EXISTING GROUND
PROPOSED GRADE
(-)13.0088%

BEGIN MED.V DITCH RT.
-L- STA.892+50.00
EI = 519.72

BEGIN MED.V DITCH
-L- STA.893+00.00
EI = 521.08

PI = 893+00.00
EL = 521.00'
VC = 700'
K = 194
DS = 73 mph

END MED.V DITCH RT.
-L- STA.896+70.00
EI = 518.12

END MED.V DITCH
-L- STA.897+50.00
EI = 520.63

BEGIN MED.V DITCH RT.
-L- STA.899+50.00
EI = 520.70

(-)6.6200%
(-)12.8690%
(-)13.0088%
(+)0.6000%
(-)0.3810%
(-)0.3300%
(-)1.7244%
(+)1.7400%
(+)6.4150%
(+)0.3067%
(+)0.3000%
(+)0.3000%
(+)0.3000%

BEGIN LAT.BASE DITCH LT.
-L- STA.890+50.00
EI = 524.58

PI = 891+50.000
EI = 517.96

END LAT.BASE DITCH LT.
-L- STA.892+95.00
EI = 513.80

84" RCP

BEGIN SP.CUT DITCH LT.
-L- STA.895+00.00
EI = 518.46

BEGIN LAT.BASE DITCH RT.
-L- STA.896+40.00
EI = 508.20

PI = 896+50.000
EI = 508.23

PI = 897+00.000
EI = 519.760

END SP.CUT DITCH LT.
BEGIN SP.CUT BASE DITCH LT.
-L- STA.897+25.00
EI = 514.58

END SP.CUT BASE DITCH LT.
BEGIN LAT.BASE DITCH LT.
-L- STA.898+00.00
EI = 514.80

END LAT.BASE DITCH RT.
-L- STA.898+50.00
EI = 521.06

END LAT.BASE DITCH LT.
BEGIN LAT.V DITCH LT.
-L- STA.900+00.00
EI = 515.40

FOR -L- PLAN SEE SHTS. 51 - 53

560 550 540 530 520 510 500 490 480 470

886+00 887+00 888+00 889+00 890+00 891+00 892+00 893+00 894+00 895+00 896+00 897+00 898+00 899+00 900+00

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

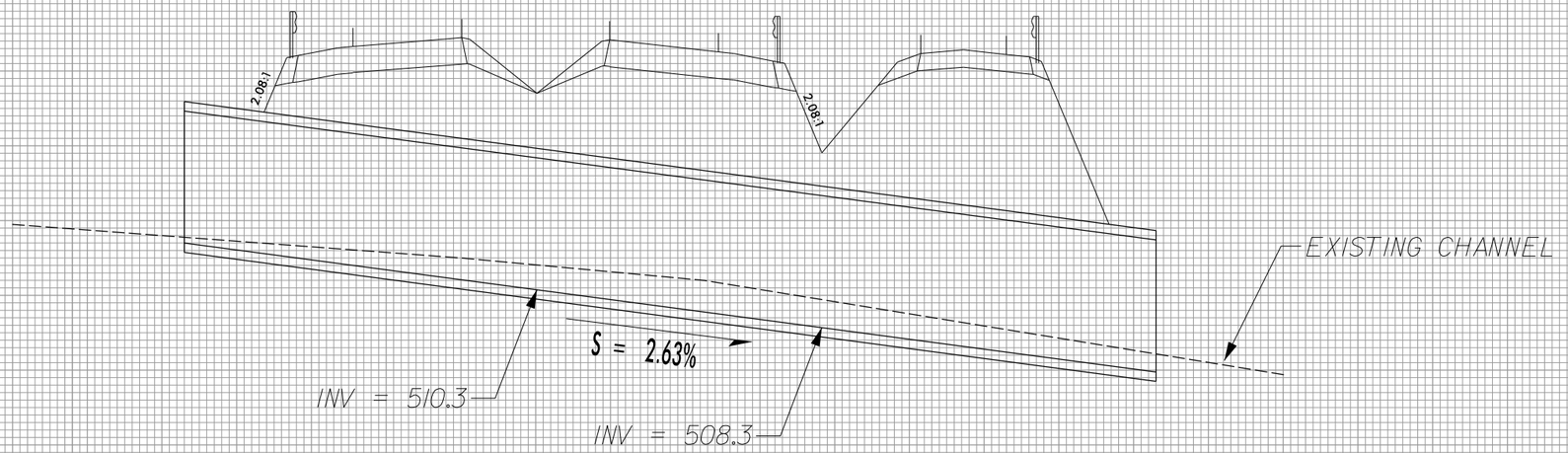
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 170 OF 267

ENGLISH

SITE 43
–L– STA. 893+24



PROPOSED 84" RCP III
BURIED 1.0'

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

570 526 522 518 514 510 506 502 498

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	R-3329 / R-2559	2C-X107

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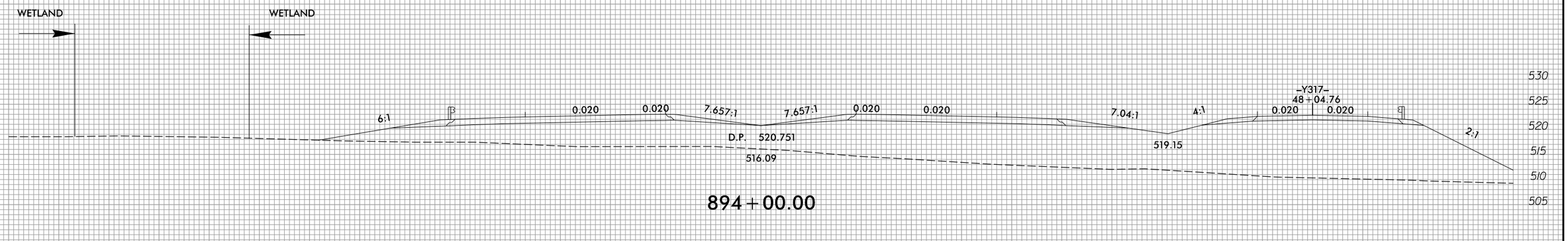
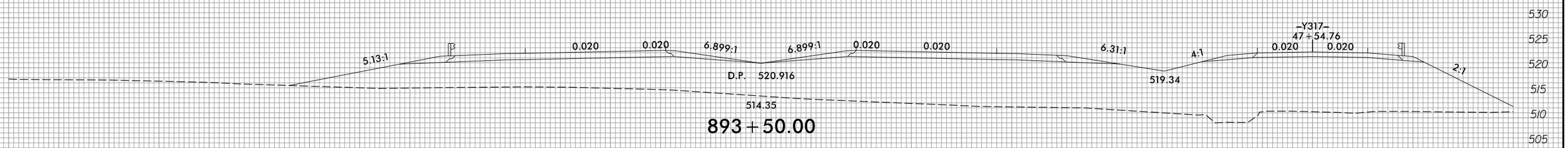
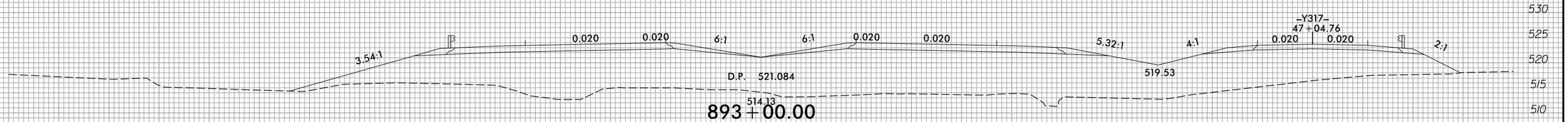
PERMIT DRAWING
SHEET 171 OF 267

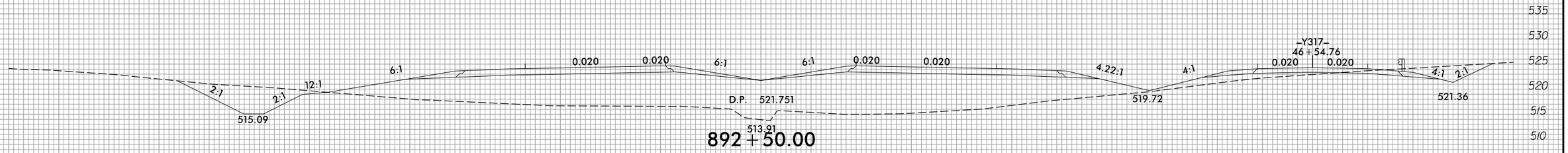
ENGLISH

SITE 43









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

9/29/2014
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Fteng

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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	53
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 DRAWING
SHEET 172 OF 267

NAD 83

SITE 44

MATCHLINE –L– STA. 898+00 SEE SHEET 52

MATCHLINE –L– STA. 912+00 SEE SHEET 54

WOODS

ROBERT H. MORRISON

EDWARDS TIMBER COMPANY, INC.

EXISTING R/W

PROP 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

W 111

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR FS

BDO

BERM DITCH SEE DETAIL M

15" CAAP 2 ELBOWS ROD & LUG

15" RCP-III

FS

2GI

HW

S 108a
(INTERMITTENT)

BEGIN JS

900+00

W 112

S 70° 33' 38.8" E

–L–

905+00

910+00

MEDIAN V DITCH SEE DETAIL I

55+00

60+00

65+00

–Y317–

PSH SEE DETAIL N

Q10=7.0 CFS
V10=0.92 FT\S

S 108b
(PERENNIAL)

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AM

176

177

159

TCE

PIPE

POOL

TOE

654

EDWARDS TIMBER COMPANY

650

ROBERT H. MORRISON

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	53
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 DRAWING
SHEET 173 OF 267

NAD 83

SITE 44

MATCHLINE –L– STA. 898+00 SEE SHEET 52

MATCHLINE –L– STA. 912+00 SEE SHEET 54

ROBERT H. MORRISON

EDWARDS TIMBER COMPANY, INC.

EDWARDS TIMBER COMPANY

WOODS

EXISTING R/W

PROP 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

W 111

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR FS

BDO

15" CAAP 2 ELBOWS ROD & LUG

BERM DITCH SEE DETAIL M

15" RCP-III

FS

2GI

HW

S 108a
(INTERMITTENT)

BEGIN JS

W 112

S 70° 33' 38.8" E

–L–

–Y317–

900+00

905+00

910+00

55+00

60+00

65+00

MEDIAN V DITCH SEE DETAIL I

15" RCP-II

PSH SEE DETAIL N

Q10=7.0 CFS
V10=0.92 FT/S

S 108b
(PERENNIAL)

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

TCE

TOE

POE

176

177

159

652

654

650

FOR –L– PROFILE SEE SHTS. 147 & 148
FOR –Y317– PROFILE SEE SHT. 219

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
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0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	2C-X112

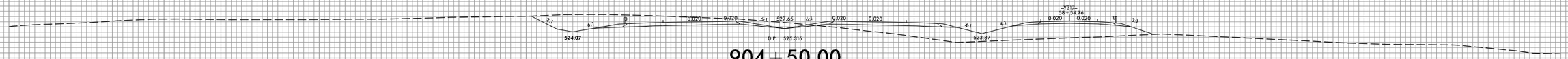
300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

PERMIT DRAWING
SHEET 174 OF 267

ENGLISH

SITE 44

570 560 550 540 530 520 510



904+50.00

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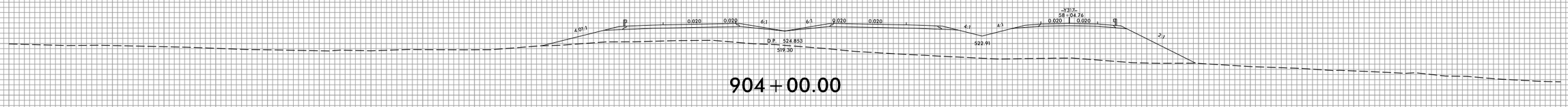

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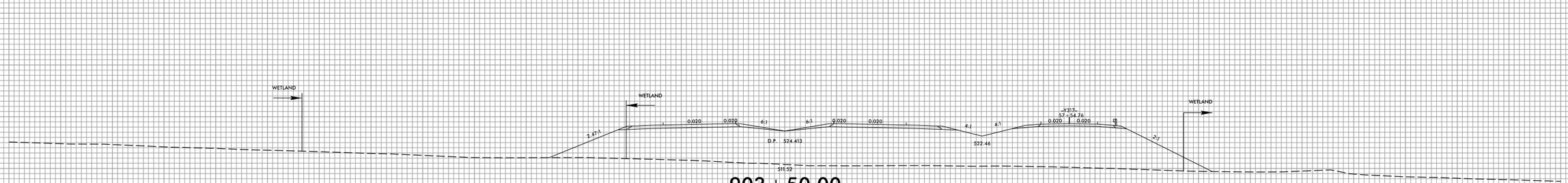

903+50.00

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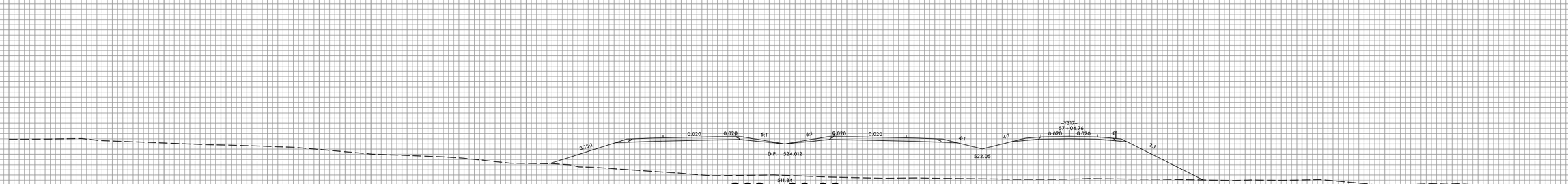

903+00.00

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	101
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 DRAWING
SHEET 175 OF 267

P P DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

NAD 83

MATCHLINE –Y302– STA. 150+00 SEE SHEET 100

CMSB FAMILY PROPERTIES, LLC

PLACED BY SIG

ISFD

PORCH

WELL

BENCH

PWM

SPECIAL CUT DITCH SEE DETAIL A

WOODS

8" PVC

US 601 CONCORD HWY 24' BST

US 601
–Y302–

155+00

160+00

EXISTING R/W

8" WL

GV

PFH

PUE

COLLAR

24" RCP-H

RETAIN

RCP

26° 48' 46.3" E

REMOVE 15" RCP

ROCK FILL IN POND SEE DETAIL AM

REMOVE

15" RCP-H

REMOVE

PPEX

14" RCP-H

PDE

SP. LAT. V DITCH SEE DETAIL G

SP. LAT. V DITCH

SPECIAL CUT DITCH SEE DETAIL A

15" RCP

EXIST

GUY

MB

EOP

EOT

TW

SIDEWALK

SITE 45

POND

P X69

501
LAWRENCE A. SIMPSON AND WIFE, DONNIE H. SIMPSON

S 81°17'01" E 547.88'

500
RALPH D. KEZIAH AND WIFE, MARY JOLENE KEZIAH

S 81°17'01" E 553.72'

499
CMSB FAMILY PROPERTIES, LLC

498
CMSB FAMILY PROPERTIES, LLC

PLANS PREPARED BY :

RK&K

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FOR
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8/29/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	101
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 DRAWING
SHEET 176 OF 267

P P DENOTES IMPACTS IN SURFACE WATER (POND)

ENGLISH

NAD 83

MATCHLINE –Y302– STA. 150+00 SEE SHEET 100

CMSB FAMILY PROPERTIES, LLC

498

PLACED BY SIG

I S F D

PORCH

WELL

BENCH

PWM

SPECIAL CUT DITCH SEE DETAIL A

WOODS

15" RCP

REMOVE

PPEX

8" PVC

155+00

160+00

US 601 –Y302–

US 601 CONCORD HWY 24' BST

EXISTING R/W

PUE

PEH

GV

8" WL

COLLAR

24" RCP

26° 48' 46.3" E

RETAIN

15" RCP

ROCK FILL IN POND SEE DETAIL AM

REMOVE

14" RCP

PDE

SP. LAT. V DITCH SEE DETAIL G

SITE 45

POND

P X69

S 47°88' 00" E

S 81°17' 01" E

553.78'

501

LAWRENCE A. SIMPSON AND WIFE, DONNIE H. SIMPSON

500

RALPH D. KEZIAH AND WIFE, MARY JOLENE KEZIAH

499

CMSB FAMILY PROPERTIES, LLC

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y302– PROFILE SEE SHTS. 205 & 206

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

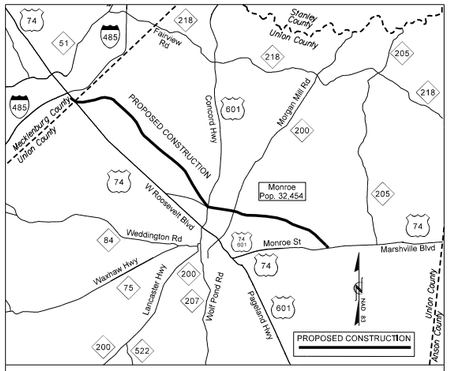
$$$$$$TIME$$$$$
8/29/2014
C:\Users\pgoulios\PERMITS_Environmental\Drawings\Section2C\R3329_R2559_HYD_PRM_WET_PSH101_con.dgn
ER_USER

09/08/09

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

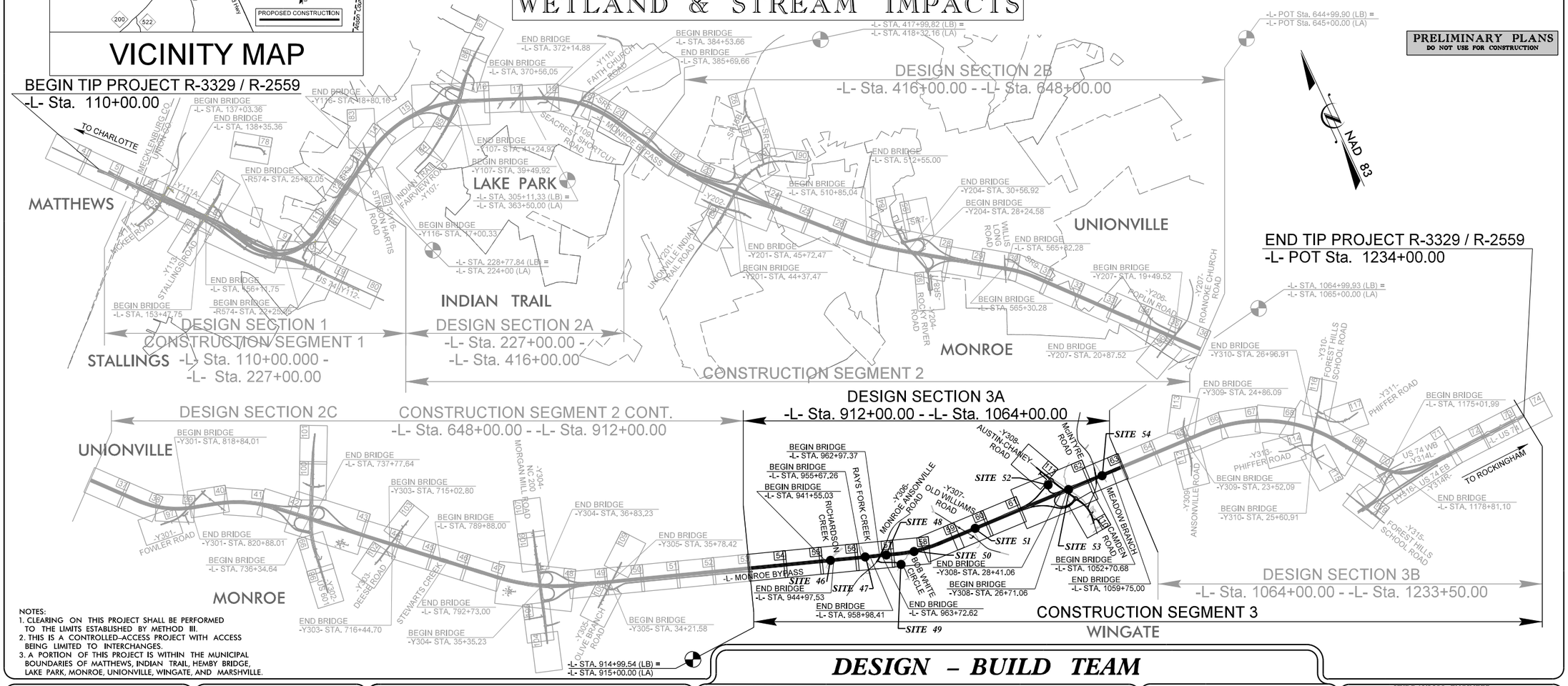
LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD

PERMIT DRAWINGS
SHEET 177 OF 267

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WETLAND & STREAM IMPACTS



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

DESIGN - BUILD TEAM

PLANS PREPARED BY :

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021

2006 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

Steve A. Drum, P.E.
PROJECT ENGINEER

Michael A. Holt, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

9/22/2014
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default

8/17/99

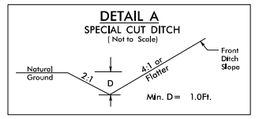
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 178 OF 267

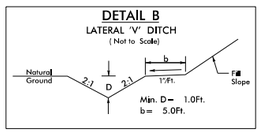
ENGLISH

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



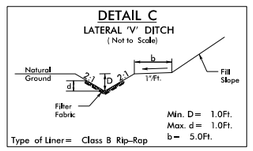
–L– STA. 973+75 TO STA. 974+50 LT
–L– STA. 986+50 TO STA. 987+50 RT
–L– STA. 1063+50 TO STA. 1064+00 LT
–Y320– STA. 13+50 TO STA. 14+60 RT
–DR2– STA. 8+70 TO STA. 9+00 LT

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



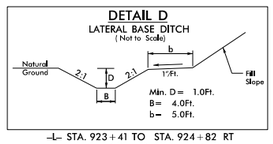
–L– STA. 965+00 TO STA. 965+39 LT
–Y306– STA. 29+50 TO STA. 30+00 RT
–Y318– STA. 16+00 TO STA. 16+50 LT
–Y318– STA. 24+17 TO STA. 24+75 RT
–L– STA. 977+75 TO STA. 978+20 LT
–L– STA. 1001+00 TO STA. 1001+75 LT
–Y308– STA. 30+25 TO STA. 31+75 LT
–L– STA. 1049+50 TO STA. 1052+00 LT
–L– STA. 1062+00 TO STA. 1063+73 RT

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



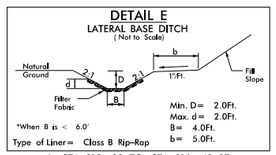
–L– STA. 924+82 TO STA. 925+00 RT
–L– STA. 928+58 TO STA. 928+88 LT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



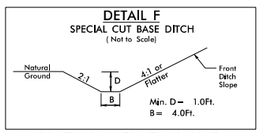
–L– STA. 923+41 TO STA. 924+82 RT
–L– STA. 955+00 TO STA. 955+50 LT
–L– STA. 959+50 TO STA. 961+50 RT
–L– STA. 985+00 TO STA. 986+35 LT
–L– STA. 992+50 TO STA. 993+97 LT
–L– STA. 1001+75 TO STA. 1002+60 LT
–VLC– STA. 20+75 TO STA. 22+40 LT
–L– STA. 1041+65 TO STA. 1043+00 LT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



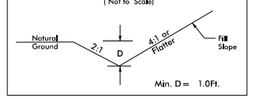
–L– STA. 915+00 TO STA. 916+43 RT
–L– STA. 916+43 TO STA. 917+00 RT
–L– STA. 923+40 TO STA. 923+85 LT
–L– STA. 929+58 TO STA. 930+59 RT
–L– STA. 937+15 TO STA. 939+50 LT
–L– STA. 939+50 TO STA. 942+10 LT
–L– STA. 939+15 TO STA. 941+05 RT
–L– STA. 946+35 TO STA. 947+20 LT
–L– STA. 954+70 TO STA. 955+00 LT
–L STA. 958+80 TO STA. 962+20 LT
–Y306– STA. 28+80 RT TO –L– STA. 966+25 RT
–L– STA. 975+54 TO STA. 977+30 LT
–L– STA. 976+20 TO STA. 979+00 RT
–L– STA. 981+44 TO STA. 982+50 LT
–L– STA. 993+55 TO STA. 998+00 RT
–L– STA. 993+97 TO STA. 998+50 LT
–L– STA. 1001+16 TO STA. 1003+00 RT
–L– STA. 1002+60 TO STA. 1003+15 LT
–Y308– STA. 21+50 TO STA. 25+35 RT
–Y308– STA. 20+50 LT TO –VRC– STA. 28+34 RT
–L– STA. 1039+00 RT TO –Y308– STA. 25+45 LT
–L– STA. 1041+65 TO STA. 1043+00 LT
–L– STA. 1059+30 TO STA. 1063+00 LT
–L– STA. 1060+00 TO STA. 1060+50 RT

DETAIL F
SPECIAL CUT DASH DITCH
(Not to Scale)



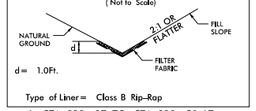
–VRB– STA. 17+00 TO STA. 26+30 LT
–Y308– STA. 35+00 TO STA. 36+50 LT
–VRB– STA. 18+50 TO STA. 23+50 RT

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



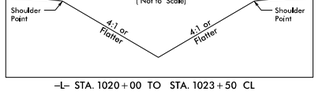
DETAIL G NOT USED IN SECTION 3A

DETAIL H
TOE PROTECTION
(Not to Scale)



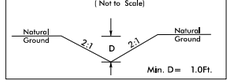
–L– STA. 928+97 TO STA. 929+50 LT
–L– STA. 964+50 TO STA. 965+00 LT
–Y308– STA. 31+75 TO STA. 32+50 LT
–L– STA. 1050+50 TO STA. 1051+50 RT
–L– STA. 1052+00 TO STA. 1052+68 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



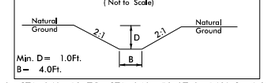
–L– STA. 1020+00 TO STA. 1023+50 CL

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



–Y318– STA. 23+70 TO STA. 24+00 LT
L=35', S=1.50%
BEG EL=455.50, END EL=456.03
–Y308– STA. 37+35 LT; L=35', S=2.77%
BEG EL=549.74, END EL=548.77
–Y308– STA. 28+91 RT; L=55', S=3.18%
BEG EL=520.75, END EL=519.00
–Y308– STA. 28+91 RT; L=110', S=7.27%
BEG EL=519.00, END EL=511.00

DETAIL K
STANDARD BASE DITCH
(Not to Scale)

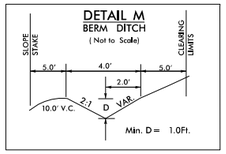


–L– STA. 942+10 TO STA. 943+50 LT; L=140', S=4.6%
BEG EL=456.4, END EL=450.0
–L– STA. 943+50 TO STA. 944+04 LT; L=54', S=1.9%
BEG EL=450.0, END EL=449.0
–L– STA. 955+50 TO STA. 956+82 LT; L=132', S=2.0%
BEG EL=452.0, END EL=449.36
–L– STA. 957+13 TO STA. 958+80 LT; L=167', S=2.65%
BEG EL=449.55, END EL=453.98
–L– STA. 957+50 TO STA. 958+00 RT; L=50', S=1.00%
BEG EL=449.50, END EL=450.00
–L– STA. 958+00 TO STA. 958+50 RT; L=50', S=3.00%
BEG EL=450.00, END EL=451.50
–L– STA. 958+50 TO STA. 959+50 RT; L=100', S=0.50%
BEG EL=451.50, END EL=452.00
–Y308– STA. 35+75 LT; L=45', S=2.4%
BEG EL=542.42, END EL=543.50
–Y319– STA. 23+12 RT; L=45', S=14.00%
BEG EL=515.0, END EL=508.7
–Y319– STA. 23+55 RT; L=100', S=0.50%
BEG EL=508.7, END EL=508.2

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)

DETAIL L NOT USED IN SECTION 3A

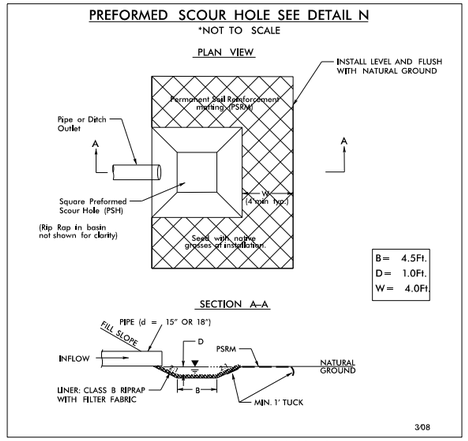
DETAIL M
BERM DITCH
(Not to Scale)



–L– STA. 913+25 TO STA. 913+75 LT
–L– STA. 919+25 TO STA. 921+00 LT
–L– STA. 1019+00 TO STA. 1020+00 LT
–VRC– STA. 14+50 TO STA. 15+60 RT
–VRC– STA. 20+40 TO STA. 21+00 RT

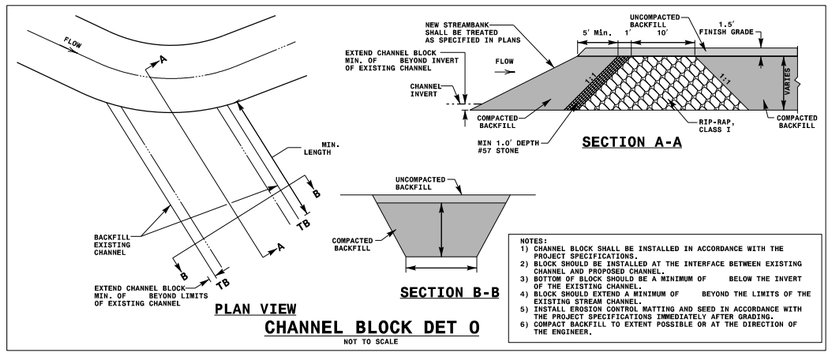
PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE

PLAN VIEW



–L– STA. 945+65 LT
–L– STA. 979+00 LT
–L– STA. 1041+00 LT
–Y319– STA. 23+60 +/– RT

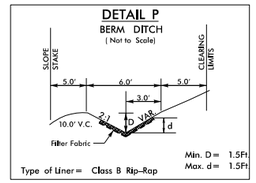
CHANNEL BLOCK DET O



NOT TO SCALE

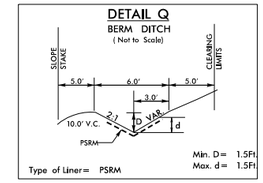
DETAIL O NOT USED IN SECTION 3A

DETAIL P
BERM DITCH
(Not to Scale)



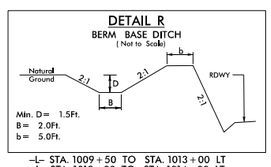
DETAIL P NOT USED IN SECTION 3A

DETAIL Q
BERM DITCH
(Not to Scale)



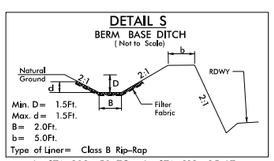
–L– STA. 921+00 TO STA. 921+80 LT
–L– STA. 930+50 TO STA. 933+80 LT

DETAIL R
BERM BASE DITCH
(Not to Scale)



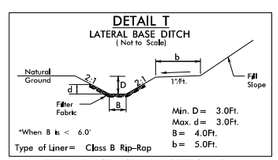
–L– STA. 1009+50 TO STA. 1013+00 LT
–L– STA. 1013+00 TO STA. 1014+00 LT
–L– STA. 1023+50 TO STA. 1027+00 LT
–VRB– STA. 16+70 TO STA. 17+00 LT

DETAIL S
BERM BASE DITCH
(Not to Scale)



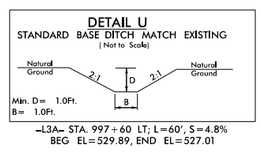
–L– STA. 909+50 TO –L– STA. 913+25 LT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)



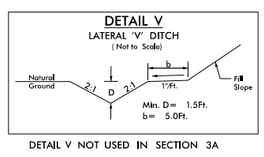
DETAIL T NOT USED IN SECTION 3A

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



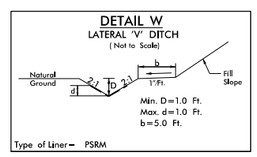
–L3A– STA. 997+60 LT; L=60', S=4.8%
BEG EL=529.89, END EL=527.01

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



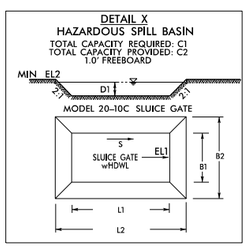
DETAIL V NOT USED IN SECTION 3A

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



–L– STA. 923+85 TO STA. 924+75 LT
–L– STA. 974+50 TO STA. 975+54 LT
–L– STA. 1000+00 TO STA. 1001+16 RT
–L– STA. 1042+30 TO STA. 1043+50 RT
–L– STA. 1060+50 TO STA. 1062+00 RT

DETAIL X
HAZARDOUS SPILL BASIN
TOTAL CAPACITY REQUIRED: C1
TOTAL CAPACITY PROVIDED: C2
1.0' FREEBOARD



DETAIL X NOT USED IN SECTION 3A

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8/17/99

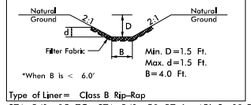
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 179 OF 267

ENGLISH

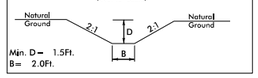
DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

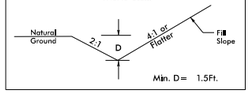
–L– STA. 941+05 TO STA. 941+50 RT; L=45', S=10.5%
BEG EL=456.7, END EL=452.0
–L– STA. 941+50 TO STA. 942+38 RT; L=88', S=4.6%
BEG EL=452.0, END EL=448.0
–L– STA. 1059+50 TO STA. 1060+00 RT
L=50', S=0.50%
BEG EL=509.00, END EL=509.25
–Y319– STA. 21+35 RT
L=52', S=0.40%
BEG EL=510.20, END EL=510.00

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



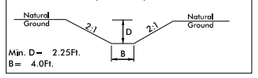
DETAIL Z NOT USED IN SECTION 3A

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



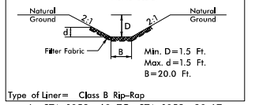
DETAIL AA NOT USED IN SECTION 3A

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



–VLC– STA. 15+00 LT; L=305', S=0.89%
BEG EL=522.71, END EL=522.00

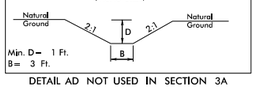
DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



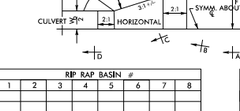
Type of Liner= Class B Rip-Rap

–L– STA. 1058+60 TO STA. 1059+30 LT
L=70', S=0.20%
BEG EL=508.50, END EL=508.58

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)

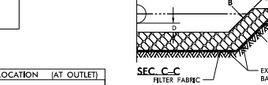


DETAIL AD NOT USED IN SECTION 3A

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)

Type of Liner= Class B Rip-Rap

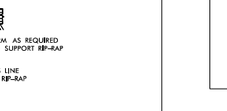
–L– STA. 1002+60 LT; L=54', S=3.43%
BEG EL=530.35, END EL=528.50
–L– STA. 1002+60 LT; L=27', S=1.00%
BEG EL=528.50, END EL=528.23
–Y308– STA. 30+00 RT; L=214', S=1.55%
BEG EL=514.31, END EL=511.00
–Y308– STA. 32+85 LT; L=23', S=0.30%
BEG EL=518.04, END EL=517.97

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



–Y308– STA. 10+08 RT; L=120', S=0.50%
BEG EL=536.8, END EL=536.2

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



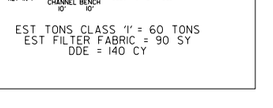
–L– STA. 942+35 RT 6 TONS CL I; 7 SY FF
–L– STA. 944+07 LT 5 TONS CL I; 7 SY FF
–L– STA. 956+80 LT 6 TONS CL I; 7 SY FF
–L– STA. 957+13 LT 7 TONS CL I; 7 SY FF
–L– STA. 957+50 RT 18 TONS CL I; 18 SY FF
–Y308– STA. 29+51 RT 5 TONS CL I; 7 SY FF
–Y308– STA. 28+43 RT 5 TONS CL I; 7 SY FF
–Y308– STA. 25+45 LT 10 TONS CL I; 14 SY FF
–VRC– STA. 28+34 RT 10 TONS CL I; 14 SY FF

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)

Type of Liner= Class B Rip-Rap

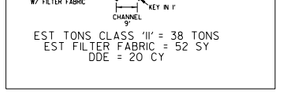
–Y308– STA. 37+00 TO STA. 37+50 RT
–Y318– STA. 15+87 TO STA. 17+00 RT
–Y318– STA. 16+50 TO STA. 17+50 LT

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



DETAIL AI NOT USED IN SECTION 3A

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= PSRM

–L– STA. 1042+30 TO STA. 1043+50 RT
–Y307– STA. 28+64 LT TO STA. 29+41 RT
–Y307– STA. 28+64 TO STA. 29+39 LT
–Y308– STA. 13+50 TO STA. 14+60 LT
–Y308– STA. 14+50 TO STA. 16+49 LT
–Y308– STA. 20+50 TO STA. 21+50 RT
–Y308– STA. 33+50 TO STA. 35+00 RT
–VLC– STA. 18+00 TO STA. 20+35 LT

DETAIL
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'

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

DETAIL AK NOT USED IN SECTION 3A

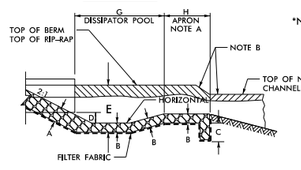
DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)

DETAIL AL NOT USED IN SECTION 3A

DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)

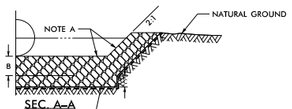
DETAIL AN
RIP-RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

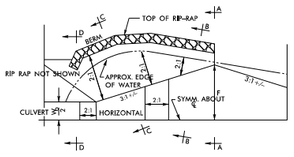


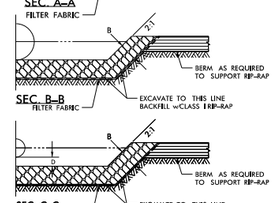
*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



HALF PLAN





DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

*ALL DIMENSIONS APPROXIMATE IN FEET

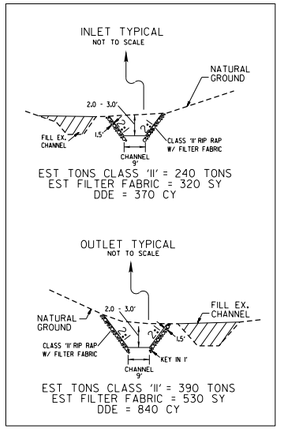
BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

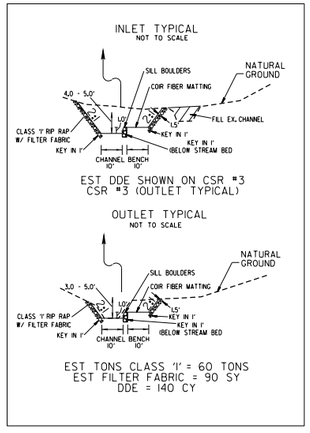
5/05

DETAIL AN NOT USED IN SECTION 3A

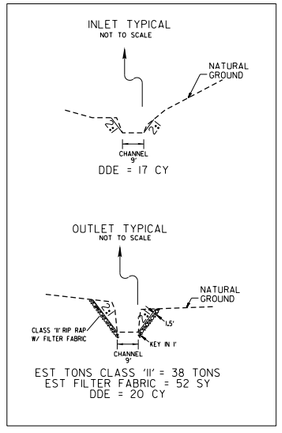
CORRESPONDS TO –L– 975+83 9'X7' RCBC



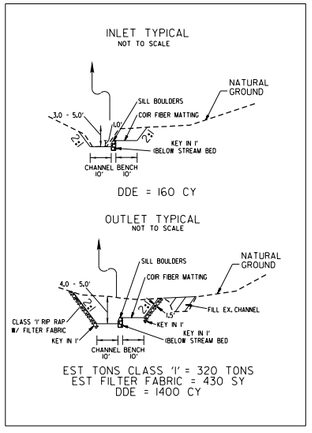
CORRESPONDS TO –L– 1041+25 2@10'X6' RCBC



CORRESPONDS TO –Y318– 15+85 9'X7' RCBC



CORRESPONDS TO –VRC– 28+46 2@10'X6' RCBC



9/22/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	56
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 180 OF 267

ENGLISH

100' 0' 100' 200' 300'
GRAPHIC SCALE

DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 46

MATCHLINE -L- STA. 940+00 SEE SHEET 55

MATCHLINE -L- STA. 954+00 SEE SHEET 57

655 ROBERT GILES, ET ALS

658 NCDOT

660 H. F. WILLIAMS III, ET ALS

657 ROBERT GILES, ET ALS

WOODS

RICHARDSON CREEK

BANK STABILIZATION

PROP. 48" WW FENCE

945+00

950+00

-L- S 70° 33' 38.8" E

2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL E

STANDARD BASE DITCH SEE DETAIL K

15" CAAP W/2 ELBOWS ROD & LUG

RIP RAP AT EMBANKMENT SEE DETAIL AG

PREFORMED SCOUR HOLE SEE DETAIL N

PSH

15 TONS CL I RIPRAP W/29 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

SPECIAL GRADE

18" RCP-III

15" RCP-III

15" RCP-IV

3GI-A

2GI

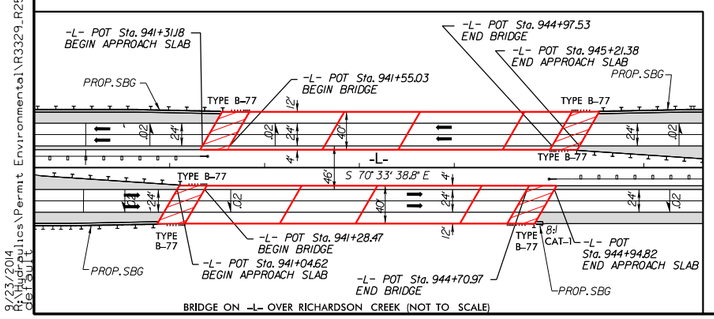
FS

HW=?

1 TONS CL B RIPRAP W/5 SY FIL FAB

S 111
(PERENNIAL)

FOR -L- PROFILE SEE SHT.150



BRIDGE ON -L- OVER RICHARDSON CREEK (NOT TO SCALE)

PLANS PREPARED BY :

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
www.mulkeyinc.com

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/23/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	56
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 181 OF 267

ENGLISH

100' 0' 100' 200' 300'
GRAPHIC SCALE

DENOTES IMPACTS IN SURFACE WATER

NAD 83

SITE 46

BANK STABILIZATION

PROP. 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL E

2 TONS CL B RIPRAP W/7 SY FIL FAB

STANDARD BASE DITCH SEE DETAIL K

PREFORMED SCOUR HOLE SEE DETAIL N

PSH

15 TONS CL I RIPRAP W/29 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

SPECIAL GRADE

15" CAAP W/2 ELBOWS ROD & LUG

RIP RAP AT EMBANKMENT SEE DETAIL AG

945+00

950+00

-L-

S 70° 33' 38.8" E

15" RCP-III 2GI

18" RCP-III

FS

HW

3GI-A

1 TONS CL B RIPRAP W/5 SY FIL FAB

MATCHLINE -L- STA. 940+00 SEE SHEET 55

MATCHLINE -L- STA. 954+00 SEE SHEET 57

RICHARDSON CREEK

S 111
(PERENNIAL)

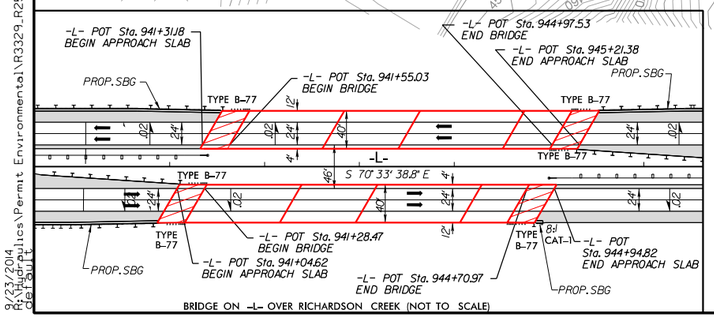
ROBERT GILES, ET ALS

H. F. WILLIAMS III, ET AL S

NCDOT

WOODS

FOR -L- PROFILE SEE SHT.150



BRIDGE ON -L- OVER RICHARDSON CREEK (NOT TO SCALE)

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

3/23/2004
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	150
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 182 OF 267

-L-

ENGLISH

SITE 46

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 17,000 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 465.9 FT
BASE DISCHARGE	= 18,000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 466.4 FT
OVERTOPPING DISCHARGE	= 70,500+CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 480.0 FT
DATE OF SURVEY	= 03/2012
W.S.ELEVATION AT DATE OF SURVEY	= 445.6 FT

PIPE HYDRAULIC DATA
-L- Sta. 947+29.00

DRAINAGE AREA	= 7.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 33.5	CFS
DESIGN HW ELEVATION	= 471.2	FT
100 YEAR DISCHARGE	= 36.5	CFS
100 YEAR HW ELEVATION	= 471.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 92	CFS
OVERTOPPING ELEVATION	= 476.1	FT

PI = 947+50.00
EL = 476.00'
VC = 1,200'
K = 438
DS = 80+ MPH

PROPOSED GRADE
EXISTING GROUND
RICHARDSON CREEK
(−) 1.6170%
(+) 1.1228%
(+) 0.5000%
(−) 4.4267%
(−) 10.5161%
(−) 4.9364%
(−) 10.4444%
(−) 4.5455%
(−) 4.5714%
(−) 3.0000%
(+) 6.6667%
(+) 19.0000%
60'
END LAT. BASE DITCH LT. STA.941+00.00 EL = 461.83'
END LAT. BASE DITCH RT. BEGIN STD. BASE DITCH LT. STA.942+10.00 EL = 456.40'
END LAT. BASE DITCH RT. BEGIN STD. BASE DITCH RT. STA.941+05.00 EL = 456.70'
STA.941+50.00 EL = 452.00'
END STD. BASE DITCH RT. STA.942+38.00 EL = 448.00'
STA.943+50.00 EL = 450.00'
END STAND. BASE DITCH LT. STA.944+04.00 EL = 448.38'
BEGIN LAT. BASE DITCH LT. STA.946+35.00 EL = 457.00'
STA.946+50.00 EL = 458.00'
END LAT. BASE DITCH LT. STA.947+20.00 EL = 471.30'
BEGIN SP. GRADE LT. STA.947+50.00 EL = 475.06'
END SP. GRADE LT. STA.948+50.00 EL = 475.56'

SITE 47

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5,700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 460.8 FT
BASE DISCHARGE	= 6,100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 461.2 FT
OVERTOPPING DISCHARGE	= 51,000+CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 483.8 FT
DATE OF SURVEY	= 03/2012
W.S.ELEVATION AT DATE OF SURVEY	= 443.7 FT

PROPOSED GRADE
RAYS FORK CREEK
(+) 1.1228%
(−) 2.0000%
(−) 3.1250%
(+) 2.6527%
(+) 1.0000%
(+) 3.0000%
(+) 11.0000%
(+) 2.6000%
(+) 0.5000%
(+) 1.0000%
(+) 11.2000%
(+) 3.0000%
(+) 3.9216%
(−) 5.1282%
(+) 10.0000%
60'
BEGIN LAT. BASE DITCH LT. STA.954+70.00 EL = 453.60'
STA.955+00.00 EL = 453.00'
END LAT. BASE DITCH LT. BEGIN ST. AND. BASE DITCH LT. STA.955+50.00 EL = 452.00'
STA.956+50.00 EL = 450.00'
END STAND. BASE DITCH LT. STA.956+82.00 EL = 449.00'
BEGIN STD. BASE DITCH RT. STA.957+50.00 EL = 449.50'
BEGIN STD. BASE DITCH LT. STA.957+13.00 EL = 449.55'
STA.958+00.00 EL = 450.00'
STA.958+50.00 EL = 451.50'
END STD. BASE DITCH LT. BEGIN LAT. BASE DITCH LT. STA.958+80.00 EL = 453.98'
END STD. BASE DITCH RT. BEGIN LAT. BASE DITCH RT. STA.959+50.00 EL = 452.00'
STA.959+00.00 EL = 454.50'
STA.960+00.00 EL = 465.50'
STA.960+50.00 EL = 453.00'
STA.961+00.00 EL = 454.30'
END LAT. BASE DITCH RT. STA.961+50.00 EL = 454.90'
END LAT. BASE DITCH LT. STA.962+20.00 EL = 472.10'
BEGIN LAT. BASE DITCH RT. STA.963+11.00 EL = 459.90'
STA.964+64.00 EL = 465.90'
BEGIN LAT. "Y" DITCH LT. STA.965+00.00 EL = 470.00'
END LAT. BASE DITCH RT. STA.965+39.00 EL = 468.00'

MONROE ANSONVILLE ROAD
-L- STA.963+26.07' =
-Y306- STA.30+68.40

PIPE HYDRAULIC DATA
-L- Sta. 965+09.00

DRAINAGE AREA	= 26.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 117	CFS
DESIGN HW ELEVATION	= 472.8	FT
100 YEAR DISCHARGE	= 136	CFS
100 YEAR HW ELEVATION	= 473.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 230	CFS
OVERTOPPING ELEVATION	= 477.7	FT

SITE 48

PI = 967+70.00
EL = 498.68'
VC = 300'
K = 485
DS = 80+ MPH

FOR -L- PLAN SEE SHTS.56 & 57

PLANS PREPARED BY :
MULKEY
ENGINEERS & CONSULTANTS
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RALEIGH, N.C. 27636
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(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/22/2014
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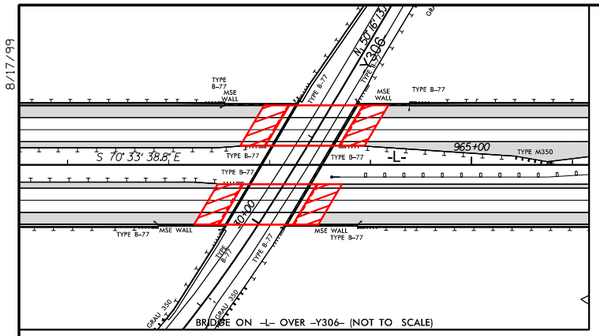
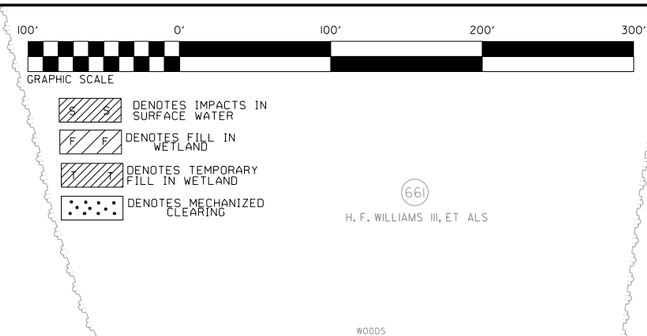
940+00 941+00 942+00 943+00 944+00 945+00 946+00 947+00 948+00 949+00 950+00 951+00 952+00 953+00 954+00

954+00 955+00 956+00 957+00 958+00 959+00 960+00 961+00 962+00 963+00 964+00 965+00 966+00 967+00 968+00

520 510 500 490 480 470 460 450 440 430

8/17/99





PERMIT DRAWINGS
SHEET 183 OF 267

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	57
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

PLANS PREPARED BY :

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

NAD 83

SITE 48

658 NCDOT

RAYS FORK CREEK

BANK STABILIZATION

MATCHLINE -L- STA. 954+00 SEE SHEET 56

PROP. 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL E
3 TONS CL B RIPRAP W/10 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL D
STANDARD BASE DITCH SEE DETAIL K
RIP RAP AT EMBANKMENT SEE DETAIL AG
18" CAAP W/2 ELBOWS ROD & LUG
15" RCP-III
2GI
FS
955+00
960+00
-L- S 70° 33' 38.8" E
2 TONS CL B RIPRAP W/7 SY FIL FAB
PROP. 48" WW FENCE
15" CAAP W/2 ELBOWS ROD & LUG
MSE WALL
TBDI
18" RCP-III
-Y306- +48.90
50.00'
35+00
+50.00
50.00'
PROP. 48" WW FENCE
2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL V DITCH SEE DETAIL B
TOE PROTECTION SEE DETAIL HS
60" RCP-IV
S 114a
(INTERMITTENT)
965+00
N 30° 16' 13.7" E
-Y306-
15" RCP-III
PROP. 48" WW FENCE
2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL E
LATERAL V DITCH SEE DETAIL B
3 TONS CL B RIPRAP W/10 SY FIL FAB
-Y306- +08.81
45.00'
+60.00
26.21'
SITE 47
660 H. F. WILLIAMS III, ET ALS
662 ED WILLIAMS MCLEAN, ET ALS
S 112
(PERENNIAL)
RAYS FORK CREEK
6" STEEL
2" PVC
8" PVC
6" PVC
EXISTING R/W
BOB WHITE CIRCLE
-Y318-
N 65° 14' 05.4" W
20+00
WOODS
40 TONS CL 'A' RIPRAP W/75 SY FIL FAB
N 30° 23' 14.3" W
664 RACHEL WILLIAMS MCLEAN HEIRS
W 138
Q10 = 49.0cfs
V10 = 1.8fps
PAVEMENT REMOVAL
MONROE ANSONVILLE RD
-Y306-
N 74° 51' 13.2" E
25+00
BRIDGE #1
MATCHLINE -Y318- STA. 19+00 SEE SHEET 58
MATCHLINE -L- STA. 968+00 SEE SHEET 58

FOR -L- PROFILE SEE SHT.150
FOR -Y306- PROFILE SEE SHT.225
FOR -318- PROFILE SEE SHT.225

BRIDGE ON -L- OVER RAYS FORK CREEK (NOT TO SCALE)

9/22/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	57
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWINGS
SHEET 184 OF 267

ENGLISH

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
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FOR
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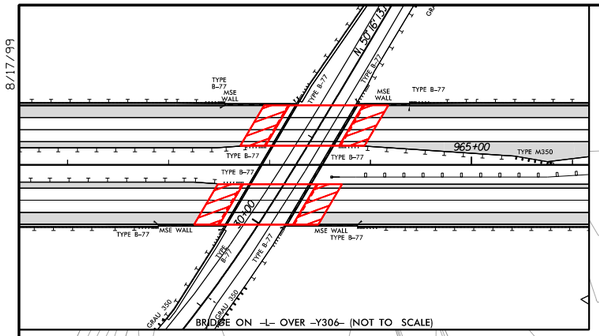
TURNPIKE AUTHORITY



GRAPHIC SCALE
100' 0' 100' 200' 300'

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

NAD 83

MATCHLINE -L- STA. 954+00 SEE SHEET 56

MATCHLINE -L- STA. 968+00 SEE SHEET 58

MATCHLINE -Y318- STA. 19+00 SEE SHEET 58

RAYS FORK CREEK

BANK STABILIZATION

SITE 48

SITE 47

-L- S 70° 33' 38.8" E

-Y306- +48.90
50.00'

-Y306- +08.81
45.00'

+50.00
50.00'

+60.00
26.21'

35+00

-Y318-
N 65° 14' 05.4" W

N 50° 16' 13.2" E

N 74° 51' 13.2" E

N 30° 23' 14.3" W

MONROE ANSONVILLE RD
-Y306-

BOB WHITE CIRCLE
-Y318-

S 114a
(INTERMITTENT)

S 112
(PERENNIAL)

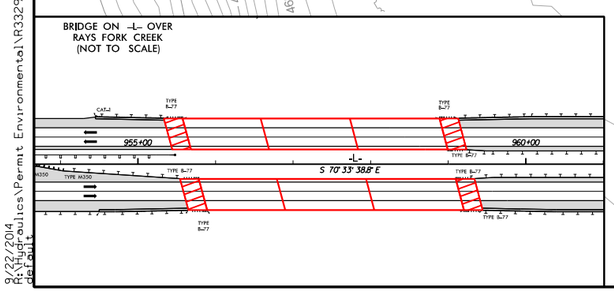
W 138

Q10 = 49.0cfs
V10 = 1.8fps

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.150
FOR -Y306- PROFILE SEE SHT.225
FOR -318- PROFILE SEE SHT.225

LATERAL BASE DITCH SEE DETAIL E
3 TONS CL B RIPRAP W/10 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL D
STANDARD BASE DITCH SEE DETAIL K
RIP RAP AT EMBANKMENT SEE DETAIL AG
2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL V DITCH SEE DETAIL B
TOE PROTECTION SEE DETAIL HS
18" CAAP W/2 ELBOWS ROD & LUG
15" CAAP W/2 ELBOWS ROD & LUG
40 TONS CL B RIPRAP W/75 SY FIL FAB
PROP. 48" WW FENCE
MSE WALL
15" RCP-III
18" RCP-III
60" RCP-IV
2GI
FS
HW
TBDI



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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	150
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 185 OF 267

-L-

ENGLISH

SITE 46

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 17,000 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 465.9 FT
BASE DISCHARGE	= 18,000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 466.4 FT
OVERTOPPING DISCHARGE	= 70,500+CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 480.0 FT
DATE OF SURVEY	= 03/2012
W.S.ELEVATION AT DATE OF SURVEY	= 445.6 FT

PIPE HYDRAULIC DATA
-L- Sta. 947+29.00

DRAINAGE AREA	= 7.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 33.5	CFS
DESIGN HW ELEVATION	= 471.2	FT
100 YEAR DISCHARGE	= 36.5	CFS
100 YEAR HW ELEVATION	= 471.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 92	CFS
OVERTOPPING ELEVATION	= 476.1	FT

PI = 947+50.00
EL = 476.00'
VC = 1,200'
K = 438
DS = 80+ MPH

RICHARDSON CREEK

PROPOSED GRADE

EXISTING GROUND

(−) 4.4267%
(−) 10.5161%
(−) 4.9364%
(−) 10.4444%
(−) 4.5455%
(−) 4.5714%
(−) 3.0000%
(−)1.6170%
(+)1.1228%
(+) 0.5000%
(+) 6.6667%
(+) 19.0000%

BEGIN LAT. DITCH RT. STA.941+05.00 EL = 456.70'
END LAT. BASE DITCH RT. BEGIN STD. BASE DITCH RT. STA.941+00.00 EL = 461.83'
STA.941+50.00 EL = 452.00'
END STD. BASE DITCH RT. STA.942+38.00 EL = 448.00'
END LAT. BASE DITCH LT. BEGIN STD. BASE DITCH LT. STA.942+10.00 EL = 456.40'
STA.943+50.00 EL = 450.00'
END STAND. BASE DITCH LT. STA.944+04.00 EL = 448.38'
BEGIN LAT. BASE DITCH LT. STA.946+35.00 EL = 457.00'
STA.946+50.00 EL = 458.00'
END LAT. BASE DITCH LT. STA.947+20.00 EL = 471.30'
BEGIN SP. GRADE LT. STA.947+50.00 EL = 475.06'
END SP. GRADE LT. STA.948+50.00 EL = 475.56'

940+00 941+00 942+00 943+00 944+00 945+00 946+00 947+00 948+00 949+00 950+00 951+00 952+00 953+00 954+00

520 510 500 490 480 470 460 450 440 430

SITE 47

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5,700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 460.8 FT
BASE DISCHARGE	= 6,100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 461.2 FT
OVERTOPPING DISCHARGE	= 51,000+CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 483.8 FT
DATE OF SURVEY	= 03/2012
W.S.ELEVATION AT DATE OF SURVEY	= 443.7 FT

PIPE HYDRAULIC DATA
-L- Sta. 965+09.00

DRAINAGE AREA	= 26.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 117	CFS
DESIGN HW ELEVATION	= 472.8	FT
100 YEAR DISCHARGE	= 136	CFS
100 YEAR HW ELEVATION	= 473.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 230	CFS
OVERTOPPING ELEVATION	= 477.7	FT

MONROE ANSONVILLE ROAD
-L- STA.963+26.07' =
-Y306- STA.30+68.40

PROPOSED GRADE

RAYS FORK CREEK

EXISTING GROUND

(+)1.1228%
(+)10.5037%
(−) 2.0000%
(−) 2.0000%
(−) 2.0000%
(−) 3.1250%
(+) 2.6527%
(+) 1.0000%
(+) 3.0000%
(+) 11.0000%
(+) 3.0000%
(+) 2.6000%
(+) 0.5000%
(+) 1.0000%
(+)2.6000%
(+)11.2000%
(+) 3.9216%
(+) 10.0000%
(−) 5.1282%

PI = 967+70.00
EL = 498.68'
VC = 300'
K = 485
DS = 80+ MPH

BEGIN LAT. DITCH LT. STA.954+70.00 EL = 453.60'
STA.955+00.00 EL = 453.00'
END LAT. BASE DITCH LT. BEGIN STD. BASE DITCH LT. STA.955+50.00 EL = 452.00'
STA.956+50.00 EL = 450.00'
END STAND. BASE DITCH LT. STA.956+82.00 EL = 449.00'
BEGIN STD. BASE DITCH RT. STA.957+50.00 EL = 449.50'
BEGIN STD. BASE DITCH LT. STA.957+13.00 EL = 449.55'
STA.958+00.00 EL = 450.00'
END STD. BASE DITCH LT. BEGIN LAT. BASE DITCH LT. STA.958+80.00 EL = 453.98'
STA.958+50.00 EL = 451.50'
STA.959+00.00 EL = 454.50'
END STD. BASE DITCH RT. BEGIN LAT. BASE DITCH RT. STA.959+50.00 EL = 452.00'
STA.960+00.00 EL = 465.50'
STA.960+50.00 EL = 453.00'
STA.961+00.00 EL = 454.30'
END LAT. BASE DITCH RT. STA.961+50.00 EL = 454.90'
END LAT. BASE DITCH LT. STA.962+20.00 EL = 472.10'
BEGIN LAT. BASE DITCH RT. STA.963+11.00 EL = 459.90'
STA.964+64.00 EL = 465.90'
BEGIN LAT. "Y" DITCH LT. STA.965+00.00 EL = 470.00'
END LAT. BASE DITCH RT. STA.965+39.00 EL = 468.00'
END LAT. BASE DITCH RT. STA.966+25.00 EL = 482.00'

954+00 955+00 956+00 957+00 958+00 959+00 960+00 961+00 962+00 963+00 964+00 965+00 966+00 967+00 968+00

520 510 500 490 480 470 460 450 440 430

FOR -L- PLAN SEE SHTS.56 & 57

PLANS PREPARED BY :
MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
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WWW.MULKEYINC.COM

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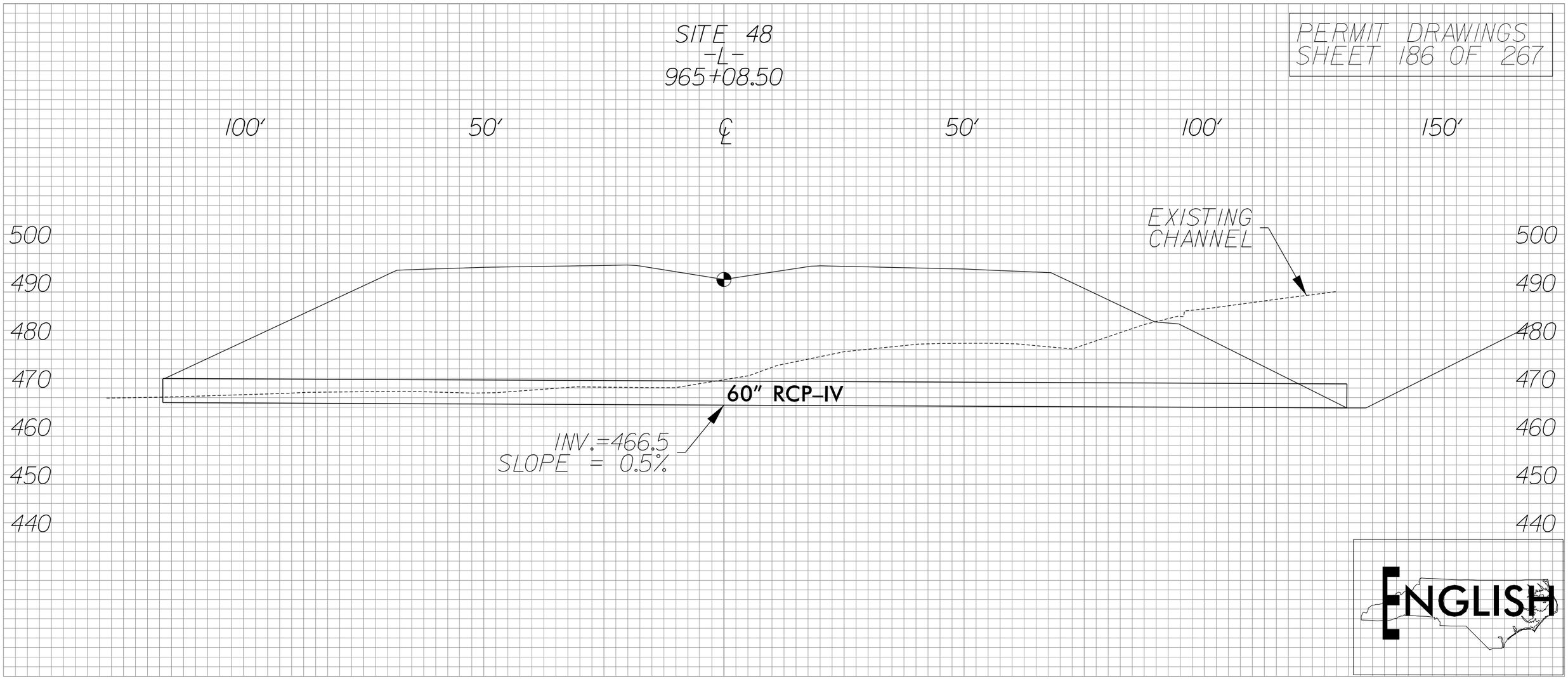
PERMIT DRAWINGS
SHEET 186 OF 267

SITE 48
-L-
965+08.50



ENGLISH

5/28/99

MONROE-ANSONVILLE ROAD -Y306-

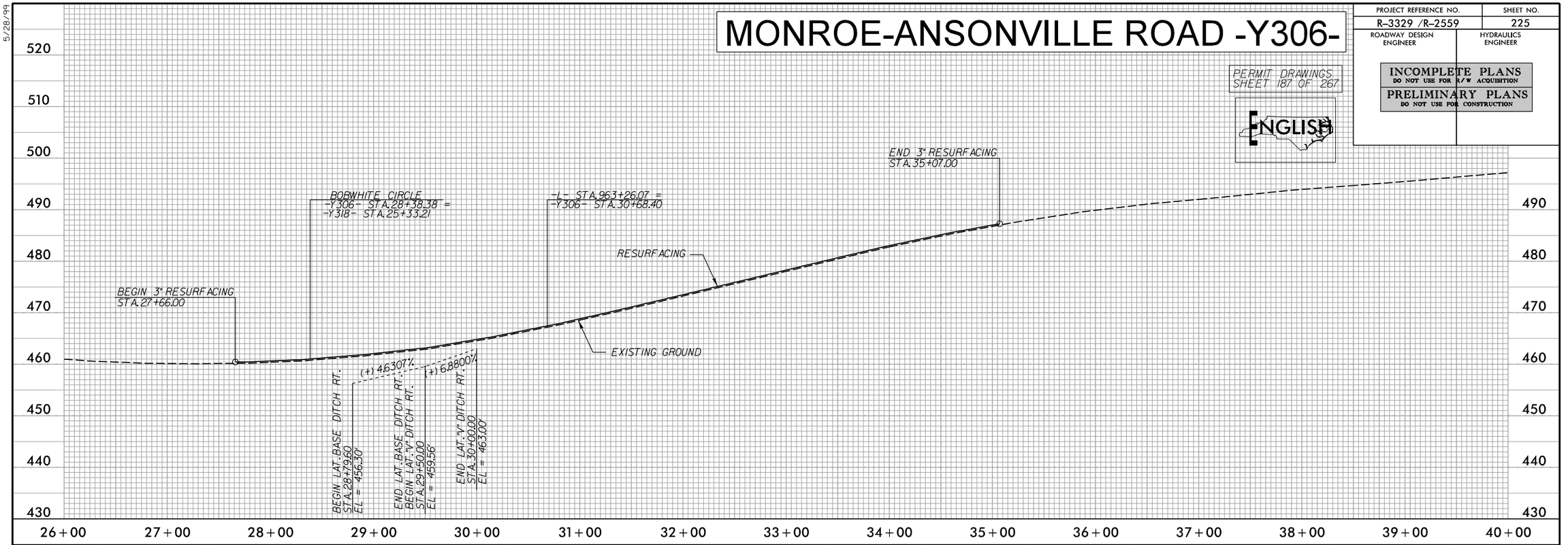
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	225
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

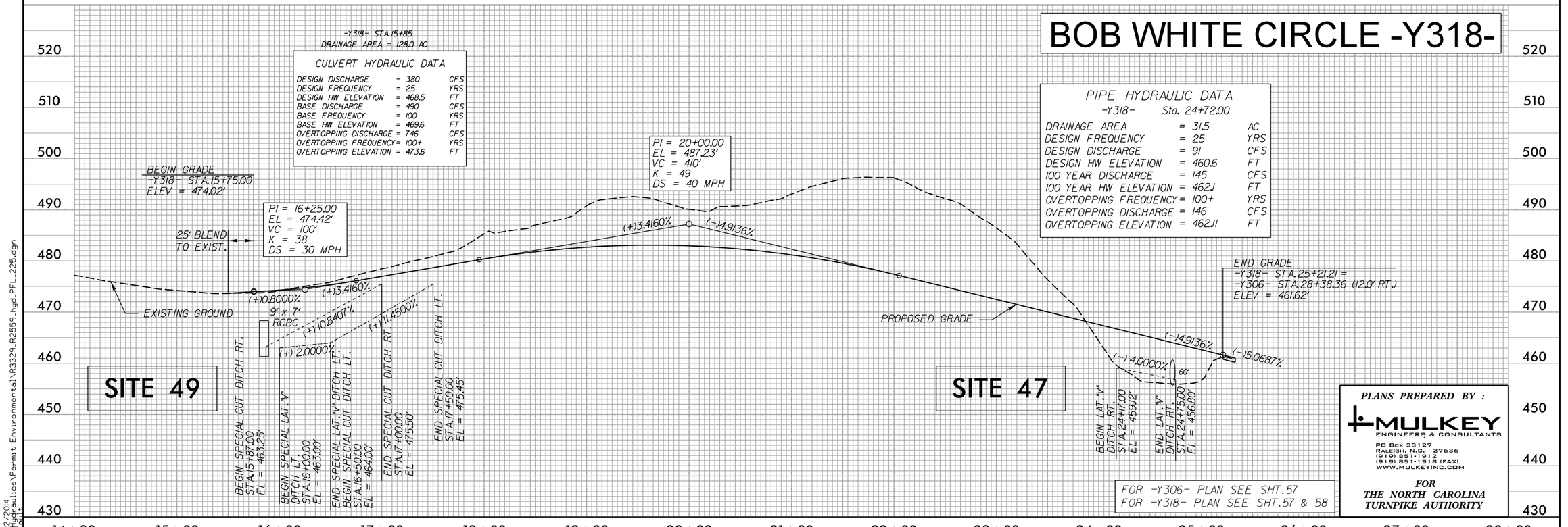
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 187 OF 267

ENGLISH



BOB WHITE CIRCLE -Y318-



FOR -Y306- PLAN SEE SHT.57
FOR -Y318- PLAN SEE SHT.57 & 58

PLANS PREPARED BY :

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FOR
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TURNPIKE AUTHORITY

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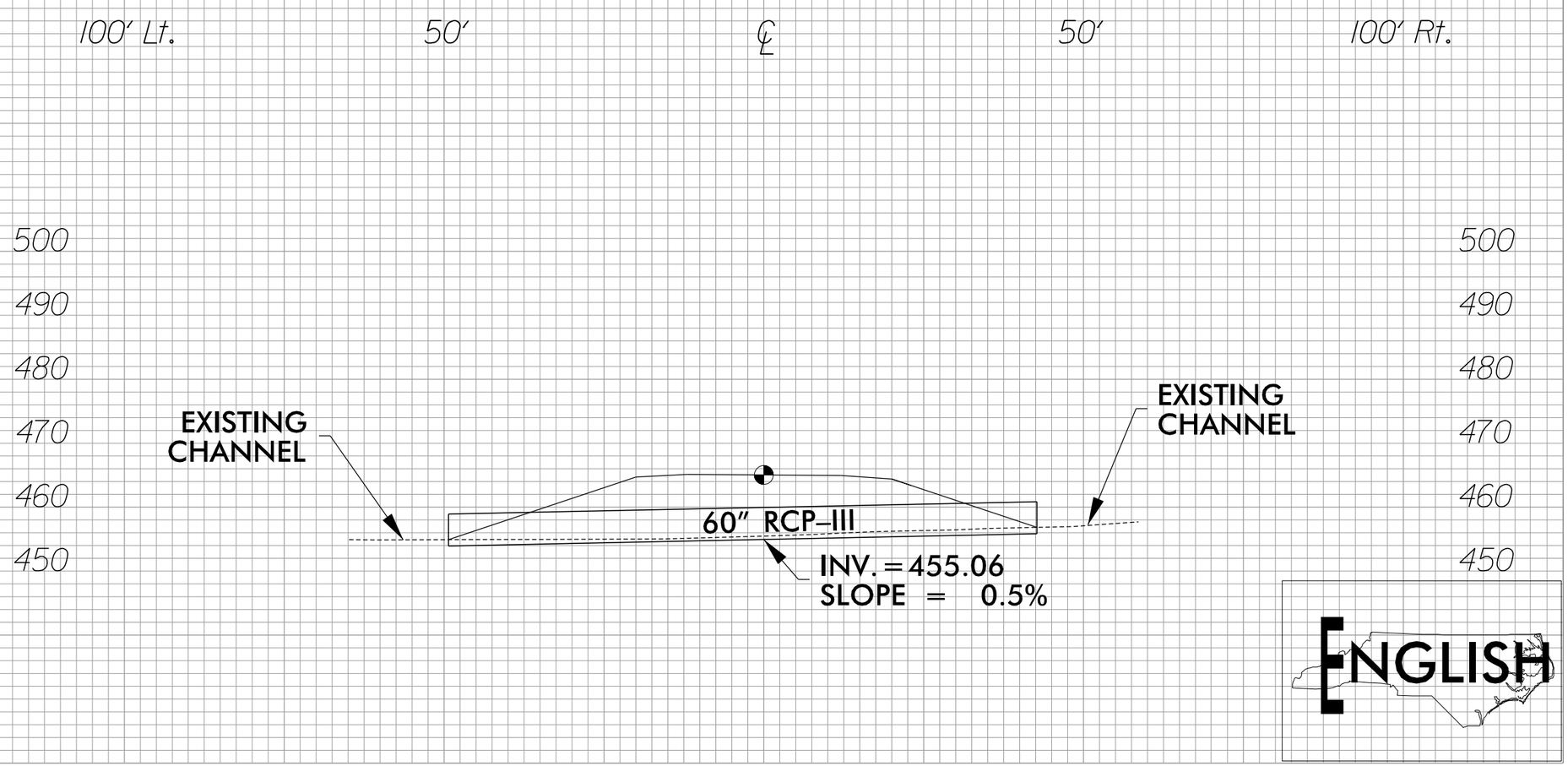
PERMIT DRAWINGS
SHEET 188 OF 267

SITE 47
-Y318-
24+71.56

100' Lt. 50' ℄ 50' 100' Rt.



ENGLISH

8/23/99

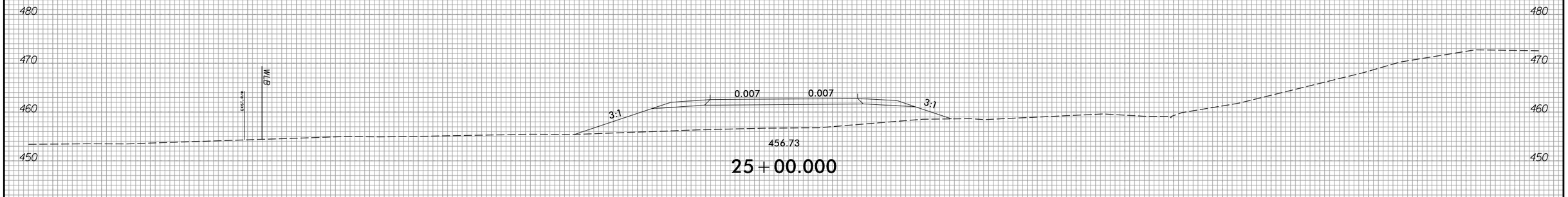
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329/R-2559	3A-X128

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

WETLAND CROSS SECTION
SITE 47

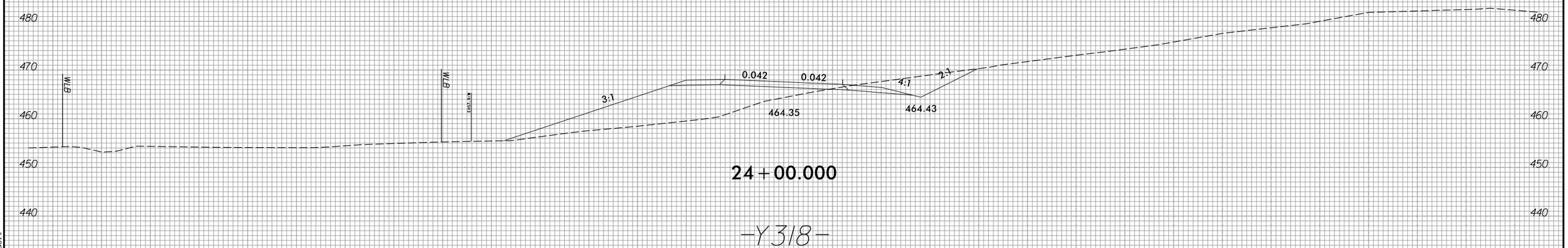
PERMIT DRAWINGS
SHEET 189 OF 267

ENGLISH



25+00.000

24+50.000



24+00.000

-Y318-

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	58
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 50

MATCHLINE -L- STA. 968+00 SEE SHEET 57

MATCHLINE -L- STA. 982+00 SEE SHEET 59

MATCHLINE -Y318- STA. 19+00 SEE SHEET 57

WOODS

662 ED WILLIAMS MCLEAN, ET ALS

PROP. 48" WW FENCE

R=5561.01'

Q10 = 43.78cfs
V10 = 4.79fps

WX812

8 TONS CL B RIPRAP W/21 SY FIL FAB
LATERAL BASE DITCH
SEE DETAIL E

W 140

2 TONS CL B RIPRAP W/7 SY FIL FAB

SEE CULVERT INLET DETAIL -L- STA. 975+83

LATERAL V DITCH SEE DETAIL B

PREFORMED SCOUR HOLE SEE DETAIL N

FILL

15" CAAP W/2 ELBOWS ROD & LUG

PSH

2GI

15" RCP-III

FS

LATERAL V DITCH SEE DETAIL W

SPECIAL CUT DITCH SEE DETAIL A

HW

42" RCP-IV

30" RCP-IV

970+00

975+00

980+00

-L-

S 70° 33' 38.8" E

W 139

S 140f
(PERENNIAL)

9'x7' RCBC

LATERAL BASE DITCH SEE DETAIL E

8 TONS CL B RIPRAP W/21 SY FIL FAB

SEE CULVERT OUTLET DETAIL -L- STA. 975+83

R=5921.90'

PROP. 48" WW FENCE

664 RACHEL WILLIAMS MCLEAN HEIRS

WOODS

SITE 49

BOB WHITE CIRCLE -Y318-

EXISTING R/W

R=590.55'

SPECIAL CUT DITCH SEE DETAIL AH

SEE CULVERT INLET DETAIL -Y318- STA. 15+85

9'x7' RCBC

SPECIAL CUT DITCH SEE DETAIL AH

R=459.32'

LATERAL V DITCH SEE DETAIL B

15+00

664 RACHEL WILLIAMS MCLEAN HEIRS

SEE CULVERT OUTLET DETAIL -Y318- STA. 15+85

JS

F/F DENOTES FILL IN WETLAND

S/S DENOTES IMPACTS IN SURFACE WATER

TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'

GRAPHIC SCALE

PERMIT DRAWINGS
SHEET 190 OF 267

ENGLISH

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.151
FOR -Y318- PROFILE SEE SHT.225

PLANS PREPARED BY :

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FOR
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TURNPIKE AUTHORITY

9/24/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	58
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 50

MATCHLINE -L- STA. 968+00 SEE SHEET 57

MATCHLINE -L- STA. 982+00 SEE SHEET 59

MATCHLINE -Y318- STA. 19+00 SEE SHEET 57

Q10 = 43.78cfs
V10 = 4.79fps

WX812

W 140

W 139

S 140f
(PERENNIAL)

S 70° 33' 38.8" E

-L- 970+00

-L- 975+00

-L- 980+00

-L- 985+00

-Y318- 15+00

PROP. 48" WW FENCE

ED WILLIAMS MCLEAN, ET ALS

RACHEL WILLIAMS MCLEAN HEIRS

WOODS

8 TONS CL B RIPRAP W/21 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL E

LATERAL V DITCH SEE DETAIL W

LATERAL V DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL AH

SEE CULVERT INLET DETAIL -L- STA. 975+83

SEE CULVERT OUTLET DETAIL -L- STA. 975+83

SEE CULVERT INLET DETAIL -Y318- STA. 15+85

SEE CULVERT OUTLET DETAIL -Y318- STA. 15+85

PREFORMED SCOUR HOLE SEE DETAIL N

FILL

15" CAAP W/2 ELBOWS ROD & LUG

15" RCP-III

30" RCP-IV

42" RCP-IV

PSH

2GI

FS

JS

HW

SITE 49

BOB WHITE CIRCLE -Y318-

PERMIT DRAWINGS SHEET 191 OF 267

ENGLISH

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.151
FOR -Y318- PROFILE SEE SHT.225

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

GRAPHIC SCALE 100' 0' 100' 200' 300'

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

8/24/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	59
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 192 OF 267

ENGLISH

100' 0' 100' 200' 300'
GRAPHIC SCALE

NAD 83

F F DENOTES FILL IN WETLAND

SITE 50

WOODS

662
ED WILLIAMS MCLEAN, ET ALS

WOODS

WOODS

R=5561.01'

PROP. 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL E

WX812

LATERAL BASE DITCH SEE DETAIL D

30" RCP-III

JB w/MH

15" RCP-III

FS

2GI

LATERAL BASE DITCH SEE DETAIL D

GRAU 350

15" RCP-III

2GI

985+00

-L-

990+00

S 87° 42' 47.2" E

18" RCP-III

FS

2GI

15" RCP-III

FS

2GI

SPECIAL CUT DITCH SEE DETAIL A

MATCHLINE -L- STA. 982+00 SEE SHEET 58

MATCHLINE -L- STA. 993+00 SEE SHEET 60

PROP. 48" WW FENCE

WOODS

WOODS

664
RACHEL WILLIAMS MCLEAN HEIRS

669
DAVID N. TUCKER

S 20°30'09" W
482.25'

FOR -L- PROFILE SEE SHT.151

PLANS PREPARED BY :
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Raleigh, N.C. 27636
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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/22/2004
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	59
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 193 OF 267

ENGLISH

100' 0' 100' 200' 300'
GRAPHIC SCALE

NAD 83

F F DENOTES FILL IN WETLAND

SITE 50

MATCHLINE -L- STA. 982+00 SEE SHEET 58

MATCHLINE -L- STA. 993+00 SEE SHEET 60

WX812

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL D

30" RCP-III

15" RCP-III

18" RCP-III

JB w/MH

FS

2GI

GRAU 350

985+00

990+00

-L-

S 87° 42' 47.2" E

SPECIAL CUT DITCH SEE DETAIL A

PROP. 48" WW FENCE

PROP. 48" WW FENCE

ED WILLIAMS MCLEAN, ET ALS

RACHEL WILLIAMS MCLEAN HEIRS

DAVID N. TUCKER

WOODS

FOR -L- PROFILE SEE SHT.151

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FOR
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TURNPIKE AUTHORITY

9/22/2004
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	151
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PERMIT DRAWINGS
SHEET 194 OF 267

ENGLISH

PIPE HYDRAULIC DATA
-L- Sta. 972+26.00

DRAINAGE AREA	= 4.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21.7	CFS
DESIGN HW ELEVATION	= 488.3	FT
100 YEAR DISCHARGE	= 23.6	CFS
100 YEAR HW ELEVATION	= 488.4	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 75	CFS
OVERTOPPING ELEVATION	= 494.7	FT

PIPE HYDRAULIC DATA
-L- Sta. 975+53.00

DRAINAGE AREA	= 7.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 35.7	CFS
DESIGN HW ELEVATION	= 489.4	FT
100 YEAR DISCHARGE	= 38.9	CFS
100 YEAR HW ELEVATION	= 489.5	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 123	CFS
OVERTOPPING ELEVATION	= 497.0	FT

CULVERT HYDRAULIC DATA
-L- Sta. 975+83.00

DRAINAGE AREA	= 102	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 380	CFS
DESIGN HW ELEVATION	= 487.8	FT
100 YEAR DISCHARGE	= 430	CFS
100 YEAR HW ELEVATION	= 488.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 890	CFS
OVERTOPPING ELEVATION	= 495.0	FT

PI = 967+70.00
EL = 498.68'
VC = 300'
K = 485
DS = 80+ MPH

PROPOSED GRADE

EXISTING GROUND

(+)0.5037%

(-)7.0400%

(-)7.0481%

(+)5.4795%

(+)1.6667%

(+)7.1367%

(-)10.0000%

(+)2.0000%

(+)2.5800%

(+)7.0000%

END SP.CUT DITCH LT.
BEGIN "V" DITCH W/ REINF. MATTING LT.
STA.974+50.00
EL = 493.33'

BEGIN SP.CUT DITCH LT.
STA.973+75.00
EL = 498.61'

END "V" DITCH W/ REINF. MATTING LT.
BEGIN LAT.BASE DITCH LT.
STA.975+54.00
EL = 486.00'

STA.977+00.00
EL = 494.00'

END LAT.BASE DITCH LT.
STA.977+30.00
EL = 494.50'

30"

42"

9' x 7' RCBC

BEGIN LAT.BASE DITCH RT.
STA.974+00.00
EL = 472.30'

STA.975+50.00
EL = 475.30'

STA.976+00.00
EL = 476.59'

BEGIN LAT."V" DITCH LT.
STA.977+75.00
EL = 486.00'

END LAT."V" DITCH LT.
STA.978+20.00
EL = 481.50'

END LAT.BASE DITCH RT.
STA.979+00.00
EL = 498.00'

BEGIN LAT.BASE DITCH LT.
STA.981+44.00
EL = 490.08'

SITE 50

968+00 969+00 970+00 971+00 972+00 973+00 974+00 975+00 976+00 977+00 978+00 979+00 980+00 981+00 982+00

540 530 520 510 500 490 480 470 460 450

PI = 982+45.00
EL = 506.31'
VC = 580'
K = 184
DS = 70 MPH

PROPOSED GRADE

EXISTING GROUND

(+)0.5037%

(+)3.6534%

(+)4.0000%

(-)0.3538%

(+)0.6600%

(+)5.1800%

(+)0.5238%

(-)2.8844%

(+)0.6285%

(+)1.8621%

(+)6.0000%

(+)9.2000%

STA.982+00.00
EL = 494.00'

END LAT.BASE DITCH LT.
STA.982+50.00
EL = 501.00'

BEGIN LAT.BASE DITCH LT.
STA.985+50.00
EL = 510.28'

END LAT.BASE DITCH LT.
STA.986+30.00
EL = 510.00'

BEGIN SPEC.CUT DITCH RT.
STA.986+50.00
EL = 518.47'

STA.987+00.00
EL = 518.80'

END SPEC.CUT DITCH RT.
STA.987+50.00
EL = 521.39'

PI = 990+50.00
EL = 535.52'
VC = 780'
K = 249
DS = 70 MPH

END LAT.BASE DITCH LT.
BEGIN LAT.BASE DITCH LT.
STA.993+97.00
EL = 522.70'

BEGIN LAT.BASE DITCH LT.
STA.992+50.00
EL = 526.94'

BEGIN LAT.BASE DITCH RT.
STA.993+55.00
EL = 517.20'

42"

STA.995+00.00
EL = 519.90'

STA.995+50.00
EL = 524.50'

PIPE HYDRAULIC DATA
-L- Sta. 993+77.00

DRAINAGE AREA	= 11.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 51.8	CFS
DESIGN HW ELEVATION	= 526.0	FT
100 YEAR DISCHARGE	= 60.2	CFS
100 YEAR HW ELEVATION	= 526.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 130	CFS
OVERTOPPING ELEVATION	= 531.0	FT

FOR -L- PLAN SEE SHTS.58,59 & 60

982+00 983+00 984+00 985+00 986+00 987+00 988+00 989+00 990+00 991+00 992+00 993+00 994+00 995+00 996+00

560 550 540 530 520 510 500 490 480 470

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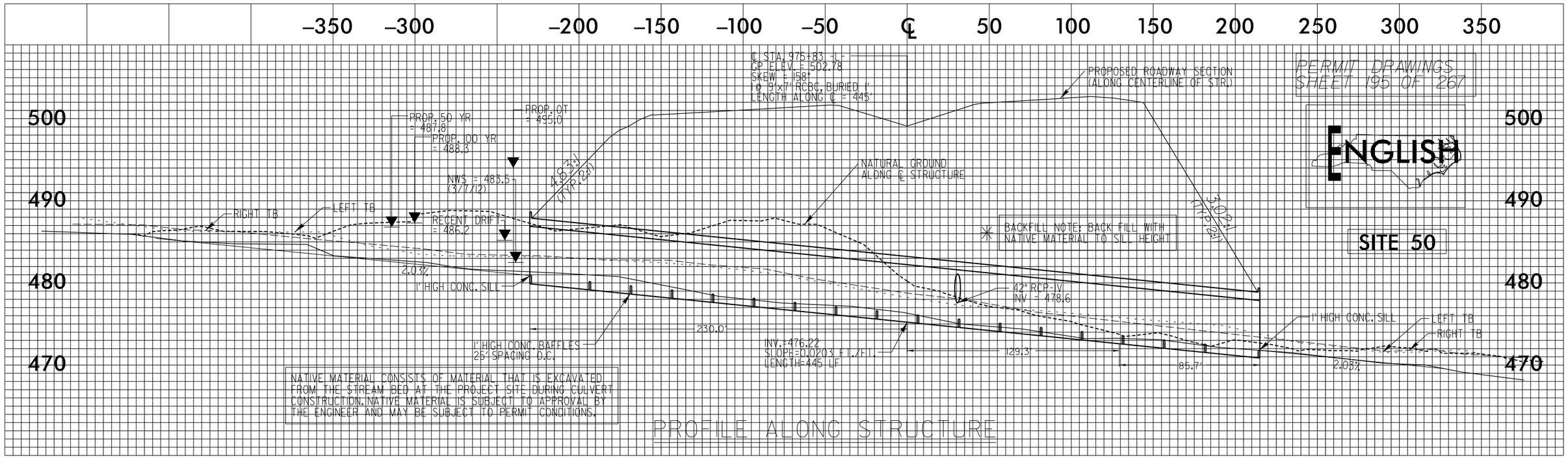
ENGLISH

SITE 50



NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

PROFILE ALONG STRUCTURE

5/28/99

MONROE-ANSONVILLE ROAD -Y306-

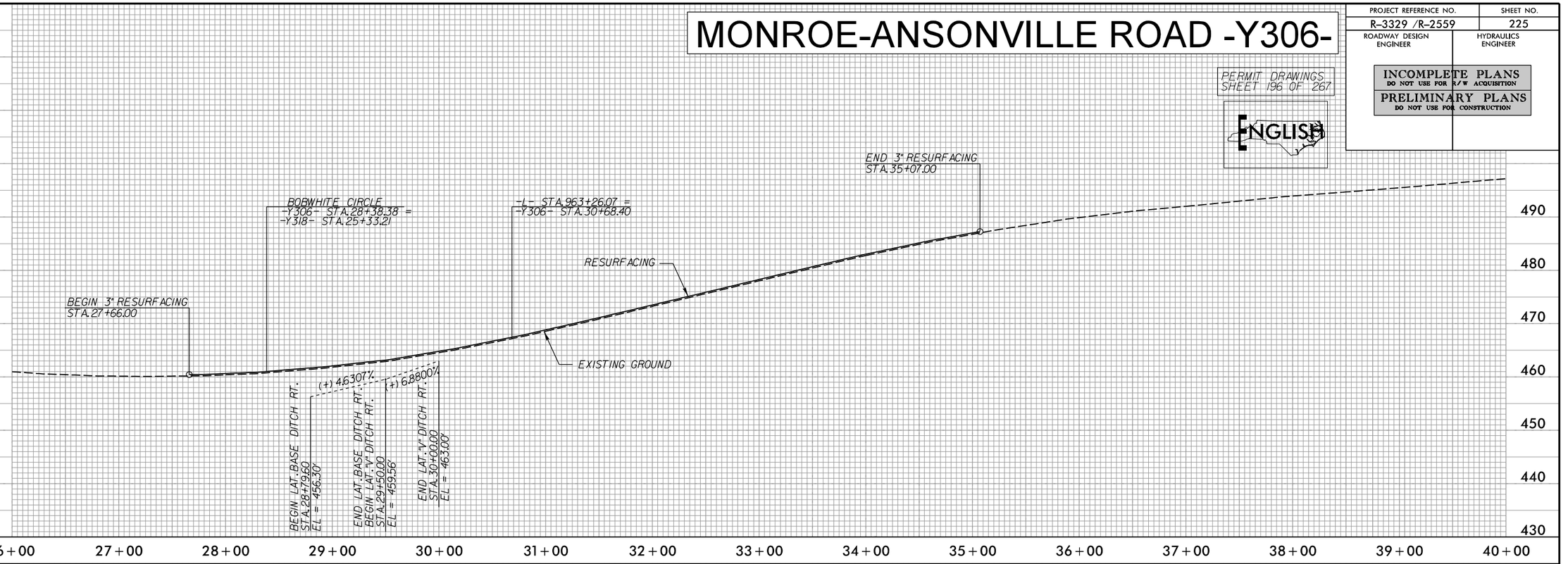
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	225
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

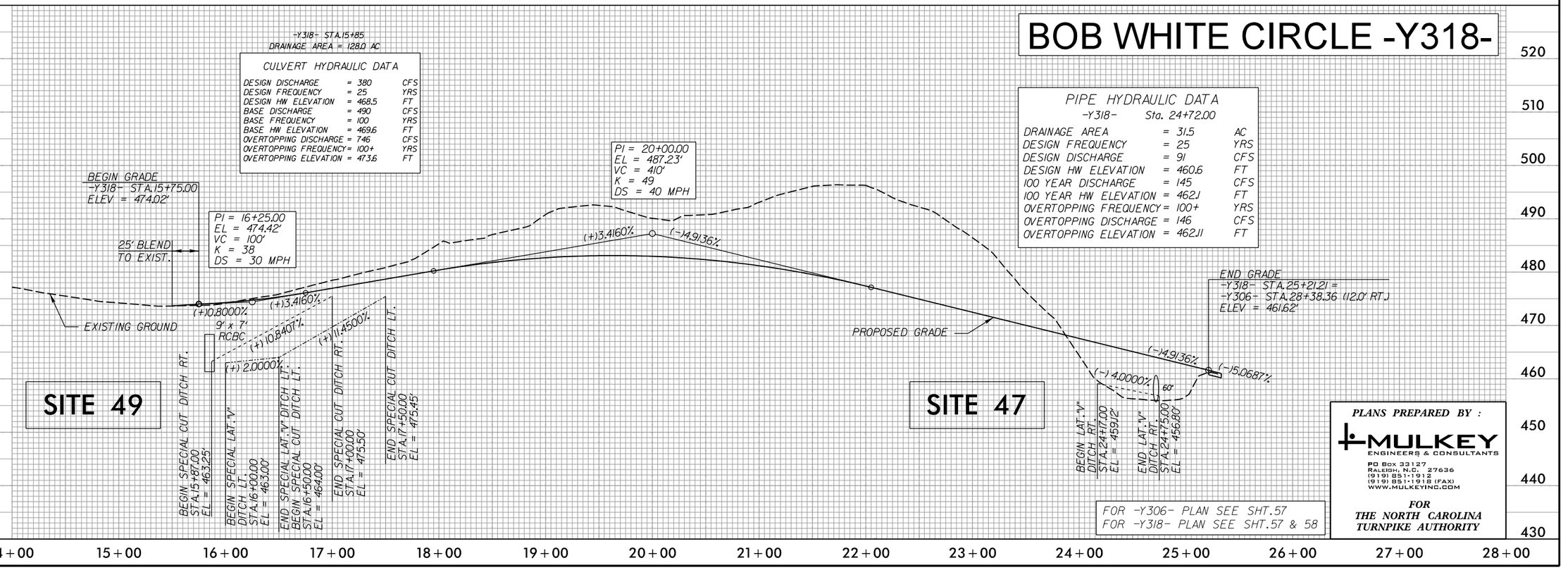
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 196 OF 267

ENGLISH





BOB WHITE CIRCLE -Y318-

FOR -Y306- PLAN SEE SHT.57
FOR -Y318- PLAN SEE SHT.57 & 58

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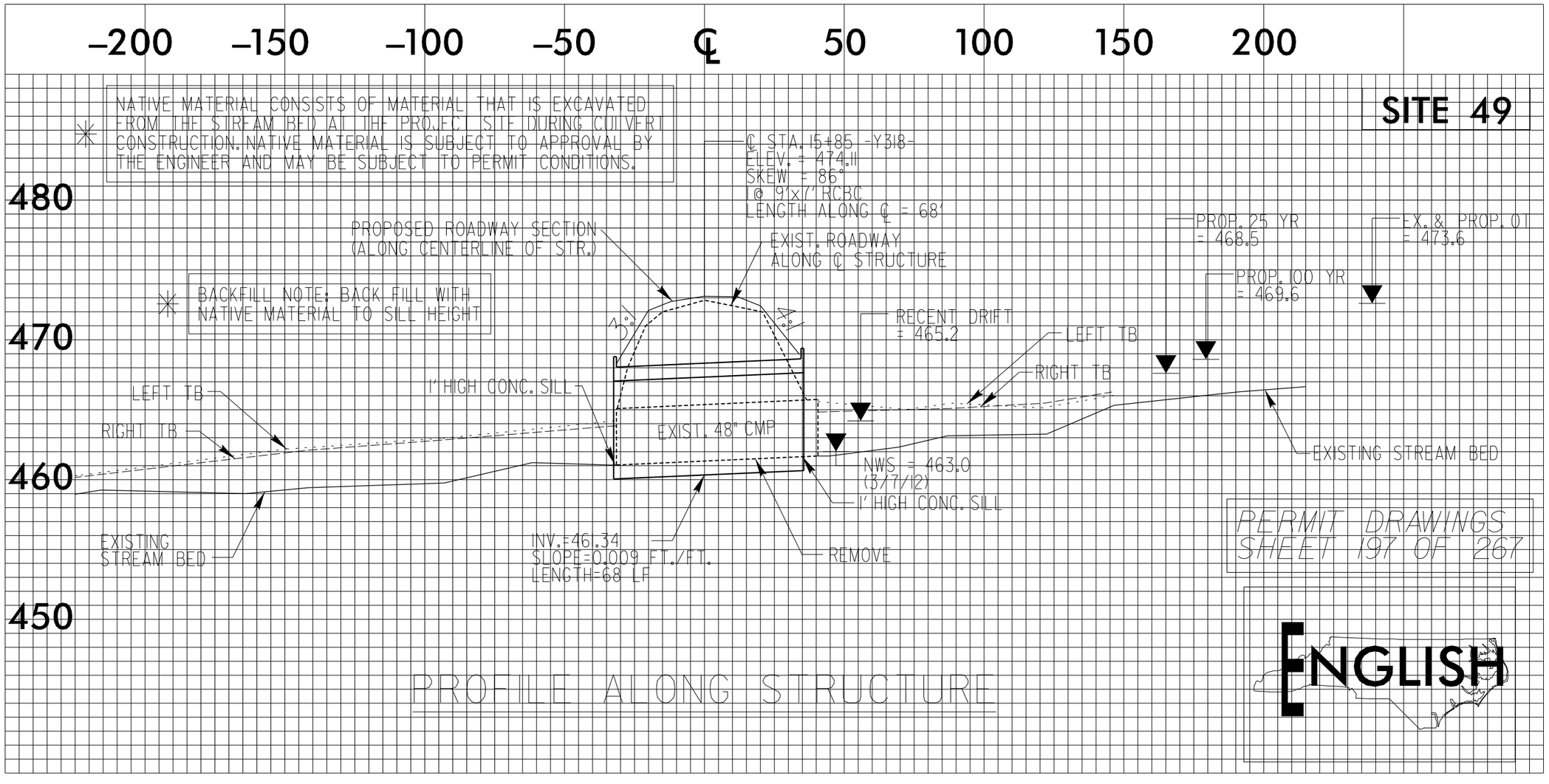

-200
-150
-100
-50
℄
50
100
150
200
SITE 49
NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
℄ STA. 15+85 -Y318-
ELEV. = 474.11
SKEW = 86°
1@ 9'x7'RCBC
LENGTH ALONG ℄ = 68'
480
PROPOSED ROADWAY SECTION (ALONG CENTERLINE OF STR.)
EXIST. ROADWAY ALONG ℄ STRUCTURE
BACKFILL NOTE: BACK FILL WITH NATIVE MATERIAL TO SILL HEIGHT
PROP. 25 YR = 468.5
EX. & PROP. 01 = 473.6
PROP. 100 YR = 469.6
RECENT DRIFT = 465.2
470
LEFT TB
RIGHT TB
1' HIGH CONC. SILL
EXIST. 48" CMP
NWS = 463.0 (3/7/12)
1' HIGH CONC. SILL
460
EXISTING STREAM BED
INV. = 46.34
SLOPE = 0.009 FT./FT.
LENGTH = 68 LF
REMOVE
EXISTING STREAM BED
450
PERMIT DRAWINGS
SHEET 197 OF 267
PROFILE ALONG STRUCTURE
ENGLISH

8/23/99

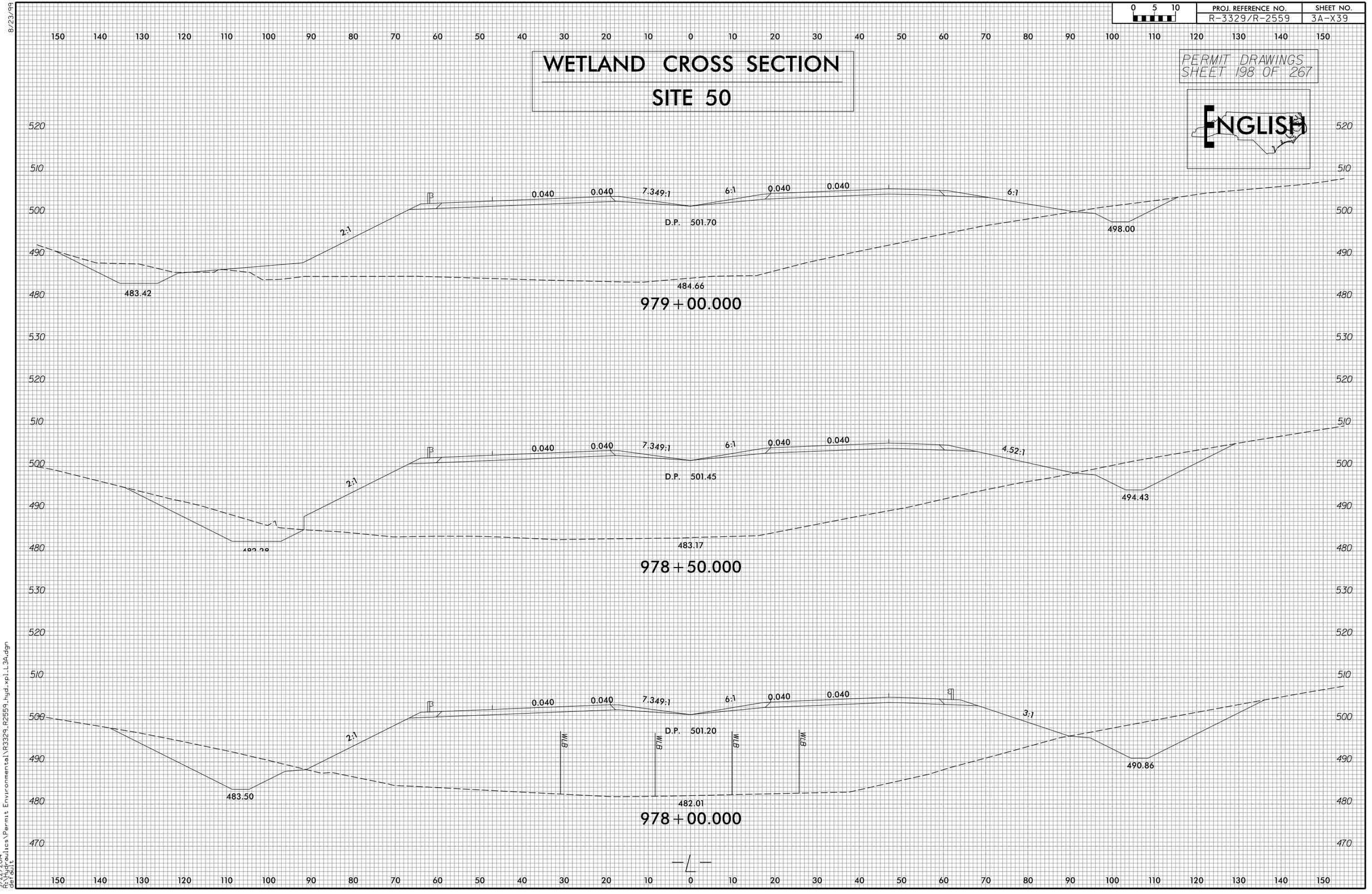
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329/R-2559	3A-X39

WETLAND CROSS SECTION

SITE 50

PERMIT DRAWINGS
SHEET 198 OF 267

ENGLISH



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8/23/99

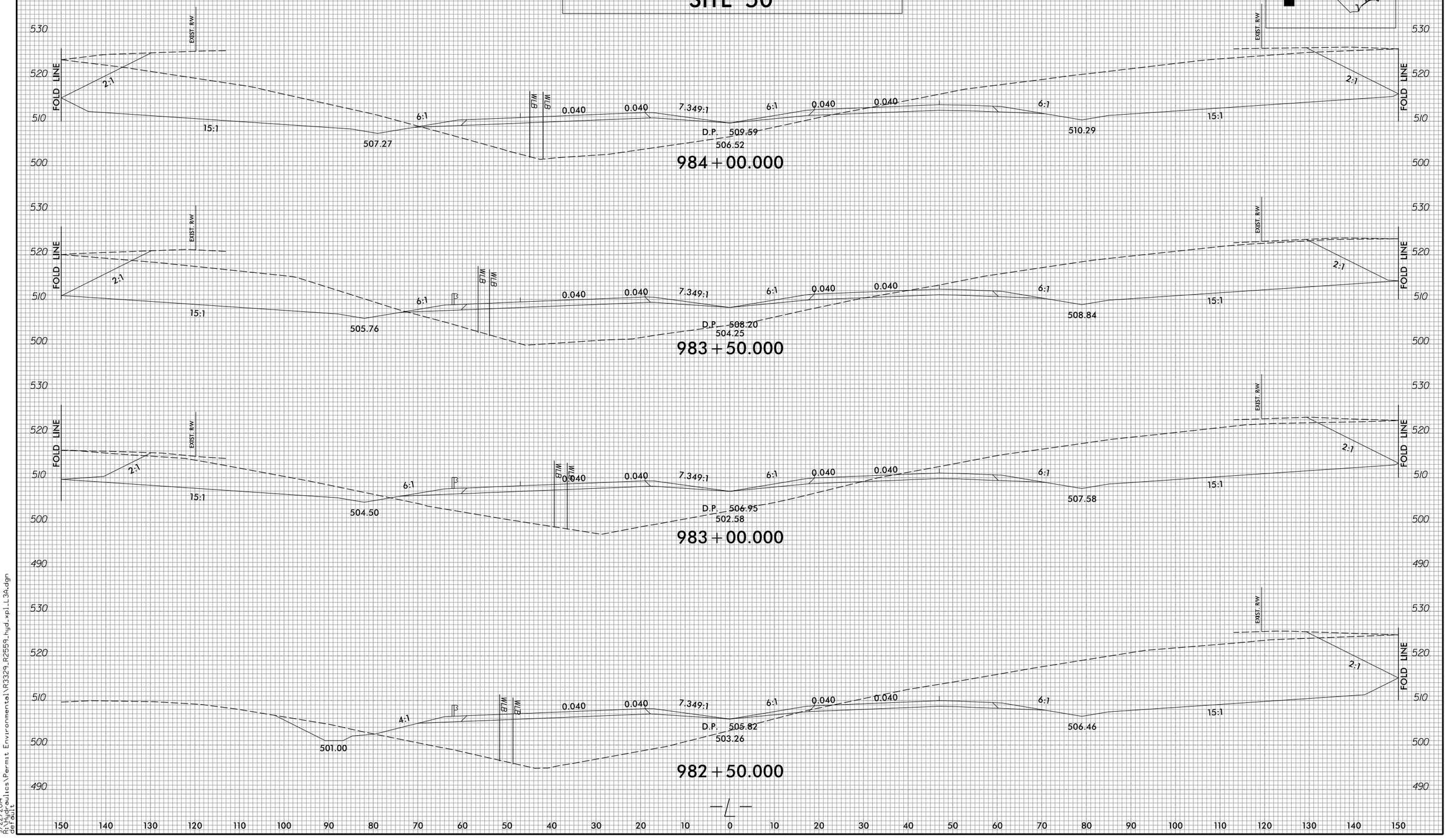
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329/R-2559	3A-X42

WETLAND CROSS SECTION

SITE 50

PERMIT DRAWINGS
SHEET 199 OF 267

ENGLISH



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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	60
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 200 OF 267

ENGLISH

100' 0' 100' 200' 300'
GRAPHIC SCALE

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

SITE 51

OLD WILLIAMS RD -Y307-

MATCHLINE -L- STA. 993+00 SEE SHEET 59

MATCHLINE -L- STA. 1007+00 SEE SHEET 61

995+00 1000+00 -L- 1005+00

S 87° 42' 47.2" E

N 35° 09' 19.4" W

S 20° 30' 05" W 302.9'

S 43° 40' 52.8" E

N 59° 45' 43.6" E

N 23° 49' 05.3" W

30+00 25+00 20+00

DAVID N. TUCKER 669

BILLY A. WILLIAMS DONALD RAY WILLIAMS 675

BILLY A. WILLIAMS DONALD RAY WILLIAMS 673

WOODS

ABAND

ISFD

HWL

PROP. 48" WW FENCE

NO FENCE

S X145 (INTERMITTENT)

-DR1-

BANK STABILIZATION

SPECIAL CUT DITCH SEE DETAIL AJ

SPECIAL CUT DITCH SEE DETAIL AJ

STANDARD BASE DITCH SEE DETAIL U

STANDARD BASE DITCH SEE DETAIL AE

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL W

LATERAL V DITCH SEE DETAIL B

REMOVE

20 TONS CL I RIPRAP W/39 SY FIL FAB

10 TONS CL B RIPRAP W/13 SY FIL FAB

12 TONS CL B RIPRAP W/7 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

32 TONS CL I RIPRAP W/67 SY FIL FAB ON BANKS ONLY

5 TONS CL B RIPRAP W/14 SY FIL FAB

15" RCP-III

42" RCP-III

24" RCP-III

18" RCP-III

2GI

2GI-A

FS

HW

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.151 & 152

PLANS PREPARED BY :

MULKEY ENGINEERS & CONSULTANTS

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	60
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 201 OF 267

ENGLISH

100' 0' 100' 200' 300'
GRAPHIC SCALE

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83

SITE 51

MATCHLINE -L- STA. 993+00 SEE SHEET 59

MATCHLINE -L- STA. 1007+00 SEE SHEET 61

OLD WILLIAMS RD -Y307-

N 35° 09' 19.4" W

30+00

25+00

20+00

-L-

S 87° 42' 47.2" E

S 43° 40' 52.8" E

N 59° 45' 43.6" E

N 23° 49' 05.3" W

-DR1-

S X145
(INTERMITTENT)

BANK STABILIZATION

669 DAVID N. TUCKER

675 BILLY A. WILLIAMS
DONALD RAY WILLIAMS

673 BILLY A. WILLIAMS
DONALD RAY WILLIAMS

WOODS

PROP. 48" WW FENCE

SPECIAL CUT DITCH SEE DETAIL AJ

SPECIAL CUT DITCH SEE DETAIL AJ

STANDARD BASE DITCH SEE DETAIL U

STANDARD BASE DITCH SEE DETAIL AE

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL V DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL W

REMOVE

10 TONS CL B RIPRAP W/13 SY FIL FAB

12 TONS CL B RIPRAP W/7 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

20 TONS CL I RIPRAP W/39 SY FIL FAB

32 TONS CL I RIPRAP W/67 SY FIL FAB ON BANKS ONLY

5 TONS CL B RIPRAP W/14 SY FIL FAB

15" RCP-III

42" RCP-III

24" RCP-III

18" RCP-III

2GI

2GI-A

FS

HW

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.151 & 152

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THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/22/2014
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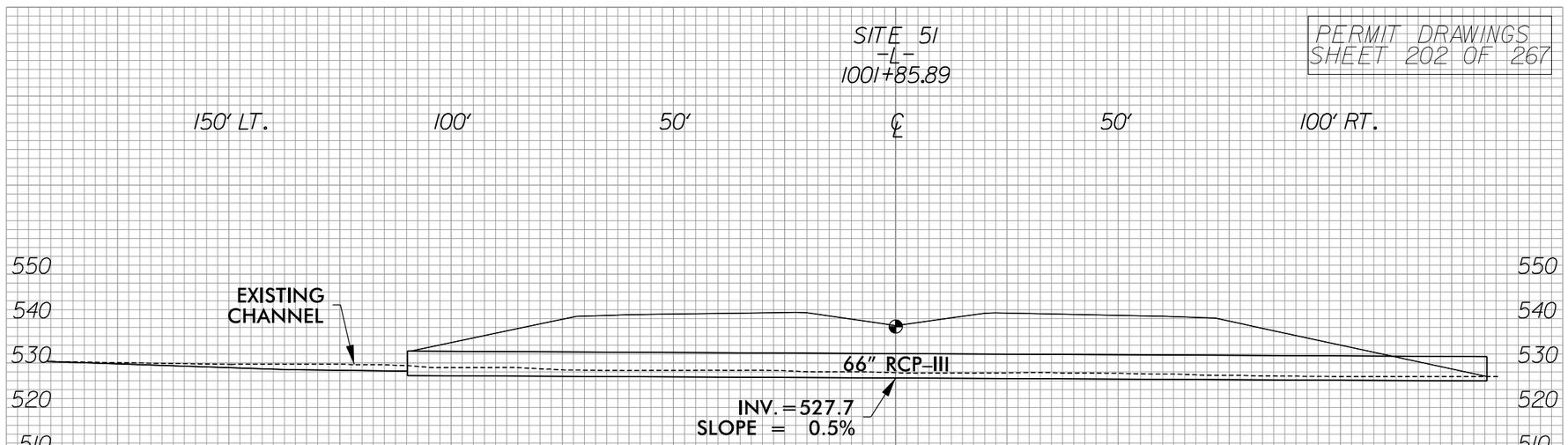
default

SITE 51
-L-
1001+85.89



ENGLISH

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	62A
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 203 OF 267

100' 0' 100' 200' 300'
GRAPHIC SCALE

P P DENOTES IMPACTS IN SURFACE WATER (POND)

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
INFORMATION PROVIDE ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 62

SITE 52

NAD 83

MATCHLINE -L- STA. 993+00 SEE SHEET 59

MATCHLINE -Y308- STA. 36+00 SEE SHEET 111

MATCHLINE -L- STA. 1007+00 SEE SHEET 61

-VRB- -VLB- -VRC- -VLC- -L-

P60a P60b S157a

B C

CARY D. THOMAS AND WIFE, KAREN C. THOMAS (683)

CARY D. THOMAS AND WIFE, KAREN C. THOMAS (687)

VIVIAN A. CHANEY (682)

VIVIAN A. CHANEY (685)

NCDOT (686)

PROP. 48" WW FENCE

SPECIAL CUT BASE DITCH SEE DETAIL F

2 TONS CL B RIPRAP W/7 SY FIL FAB

STANDARD BASE DITCH SEE DETAIL KE

26 TONS CL I RIPRAP W/50 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

TOE PROTECTION SEE DETAIL H

LATERAL V DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL AJ

18" CAAP W/ 2 ELBOWS ROD & LUG

15" CAAP W/2 ELBOWS ROD & LUG

18" CAAP W/2 ELBOWS ROD & LUG

SPECIAL 40TCB

SPECIAL CB

RETAIN EX. DITCH

BERM DITCH SEE DETAIL M

36" RCP-III 15" RCP-III 42" RCP-III 42" RCP-V 18" RCP-III 15" RCP-I

2GI 2GI-A FS BDO CB HW TBD

1030+00 1035+00 S 87° 42' 47.2" E

PLANS PREPARED BY :

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(919) 851-1918 (FAX)
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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

9/22/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	62A
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 204 OF 267

GRAPHIC SCALE 100' 0' 100' 200' 300'

DENOTES IMPACTS IN SURFACE WATER (POND)

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 62
SEE PERMIT SHEET 150

SITE 52

NAD 83

MATCHLINE -L- STA. 993+00 SEE SHEET 59

MATCHLINE -Y308- STA. 36+00 SEE SHEET 111

MATCHLINE -L- STA. 1007+00 SEE SHEET 61

-VRB- -VLB- -VRC- -VLC- -L-

P60a P60b S157a

B C

ENGLISH

PROP. 48" WW FENCE

CARY D. THOMAS AND WIFE, KAREN C. THOMAS

VIVIAN A. CHANEY

NCDOT

LATERAL V DITCH SEE DETAIL A1

LATERAL V DITCH SEE DETAIL B

SPECIAL CUT BASE DITCH SEE DETAIL F

STANDARD BASE DITCH SEE DETAIL K

TOE PROTECTION SEE DETAIL H

BERM DITCH SEE DETAIL M

RETAIN EX. DITCH

2 TONS CL B RIPRAP W/7 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

26 TONS CL I RIPRAP W/50 SY FIL FAB

18" CAAP W/ 2 ELBOWS ROD & LUG

15" CAAP W/2 ELBOWS ROD & LUG

SPECIAL 4QTCB

SPECIAL CB

S 87° 42' 47.2" E

N 74° 24' 42.5" E

N 24° 41' 24.9" W

N 65° 18' 35.5" E

N 18° 35' E

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/22/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	62B
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

BANK STABILIZATION

SEE CULVERT INLET DETAIL -VRC- STA. 28+46

S156a

-VRC-

-VLC-

20+00

SPECIAL CUT V DITCH SEE DETAIL AJ

15" CAAP W/2 ELBOWS ROD & LUG

2 TONS CL B RIPRAP W/7 SY FIL FAB

SEE CULVERT OUTLET DETAIL -VRC- STA. 28+46

NAD 83

RIP RAP AT EMBANKMENT SEE DETAIL AG

LATERAL BASE DITCH SEE DETAIL E

2@10'x6' RCBC

15" RCP-III

2GI

FS

TBD

TYPE B-77 MSE WALL

ATTENUATOR TYPE B-77

24 TONS CL B RIPRAP W/30 SY FIL FAB

STANDARD V DITCH SEE DETAIL J

STANDARD BASE DITCH SEE DETAIL AE

RETAIN EX DITCH

2 TONS CL B RIPRAP W/7 SY FIL FAB

FILL

SEE CULVERT INLET DETAIL -L- STA. 1041+25

30+00

25+00

10+00

10+50

N 66° 12' 37.2" E

N 29° 22' 55.5" W

AUSTIN CHANEY RD

-Y308-

-L-

42" RCP-III

18" RCP-III

18" CAAP W/2 ELBOWS ROD & LUG

SPECIAL 40TCB

REMOVE

FSH DETAIL N

SEE CULVERT OUTLET DETAIL -L- STA. 1041+25

3 TONS CL B RIPRAP W/10 SY FIL FAB

S156b

BANK STABILIZATION

PROP. 48" WW FENCE

EX. 48" WW FENCE

BARBARA GRACE WATSON FURR AND ANNE MARIE WATSON FUTRELL

THOMAS NORMAN BARBEE, JR.

PUE

MATCHLINE -Y308- STA. 20+00
SEE SHEET 110

SITE 53

PERMIT DRAWINGS
SHEET 205 OF 267

ENGLISH

100' 0' 100' 200' 300'
GRAPHIC SCALE

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
INFORMATION PROVIDE ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 62

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	62B
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

BANK STABILIZATION

S156a

S156b

SITE 53

NAD 83

MATCHLINE –Y308– STA. 20+00
SEE SHEET 110

AUSTIN CHANEY RD
-Y308-

-VRC-

-VLC-

-L-

PROP. 48" WW FENCE

PUE

PERMIT DRAWINGS
SHEET 206 OF 267

ENGLISH

GRAPHIC SCALE
100' 0' 100' 200' 300'

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE:
INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 62
SEE PERMIT SHEET 150

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8/17/2014
9/24/2014
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dsmith

REVISIONS

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

-Y308- POT Sta. 26+47.24
BEGIN APPROACH SLAB

-Y308- POT Sta. 26+71.06
BEGIN BRIDGE

-Y308- POT Sta. 28+41.06
END BRIDGE

-Y308- POT Sta. 28+64.89
END APPROACH SLAB

PROP. SBG

TYPE B-77

MSE WALL

TYPE III

-Y308-

N 29° 22' 55.6" W

△ = 121° 40' 08"

BRIDGE ON -Y308- OVER -L-
(NOT TO SCALE)

MATCHLINE -L- STA. 1021+00 SEE SHEET 61

MATCHLINE -L- STA. 1050+00 SEE SHEET 63

MATCHLINE -Y308- STA. 36+00 SEE SHEET 111

MATCHLINE -Y308- STA. 20+00 SEE SHEET 110

MATCHLINE -Y319- STA. 14+80 SEE SHEET 110

MATCHLINE -VLB- STA. 17+00 SEE SHEET 65

B

C

-L-

-VRB-

-VLB-

-VRC-

-VLC-

-Y308-

-Y319-

AUSTIN CHANEY RD

MCINTYRE RD

S 84° 42' 41.2" E

S 87° 42' 17.2" E

N 66° 12' 37.2" E

PROJECT REFERENCE NO. R-3329 / R-2559
SHEET NO. 62A
THOMAS NORMAN BARBEE, JR.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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PERMIT DRAWINGS
SHEET 203 OF 287

PERMIT DRAWINGS
SHEET 204 OF 287

PERMIT DRAWINGS
SHEET 207 OF 287

FOR ROUNDABOUT DETAILS, SEE SHEETS 3A-21 & 3A-22

FOR -L- PROFILE SEE SHT. 152 & 153
FOR -Y308- PROFILE SEE SHT. 221
FOR -VLB- PROFILE SEE SHT. 223
FOR -VRB- PROFILE SEE SHT. 222
FOR -VLC- PROFILE SEE SHT. 224
FOR -VRC- PROFILE SEE SHT. 223 & 224

PAVEMENT REMOVAL

GRAPHIC SCALE
50 25 0 50 100
PLANS

NAD 83

8/17/99

8/24/2004
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REVISIONS

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

-Y308- POT Sta. 26+47.24
BEGIN APPROACH SLAB

-Y308- POT Sta. 26+71.06
BEGIN BRIDGE

-Y308- POT Sta. 28+41.06
END BRIDGE

PROP. SBG

TYPE B-77

MSE WALL

TYPE III

-Y308-

N 29° 22' 55.6" W

Δ = 121° 40' 08"

-Y308- POT Sta. 28+64.89
END APPROACH SLAB

BRIDGE ON -Y308- OVER -L-
(NOT TO SCALE)

MATCHLINE -L- STA. 36+00
-Y308- STA. 36+00
SEE SHEET 111

PROJECT REFERENCE NO. R-3329 / R-2559
SHEET NO. 62
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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PERMIT DRAWINGS
SHEET 203 OF 267

NAD 83

B

C

-VRB-

-VLB-

-VRC-

-VLC-

-Y308-
AUSTIN CHANEY RD

-Y319-
MCINTYRE RD

MATCHLINE -L- STA. 10+21.00 SEE SHEET 61

MATCHLINE -L- STA. 10+50.00 SEE SHEET 63

MATCHLINE -Y308- STA. 20+00
SEE SHEET 110

MATCHLINE -Y319-
STA. 14+80.00
SEE SHEET 110

PERMIT DRAWINGS
SHEET 208 OF 267

FOR ROUNDABOUT DETAILS, SEE SHEETS 3A-2I & 3A-2J

FOR -L- PROFILE SEE SHT. 152 & 153
FOR -Y308- PROFILE SEE SHT. 221
FOR -VLB- PROFILE SEE SHT. 223
FOR -VRB- PROFILE SEE SHT. 222
FOR -VLC- PROFILE SEE SHT. 224
FOR -VRC- PROFILE SEE SHT. 223 & 224

PAVEMENT REMOVAL

GRAPHIC SCALE
50 25 0 50 100
PLANS

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	153
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 209 OF 267

-L-

ENGLISH

PI = 1024+78.00
EL = 565.00'
VC = 1,200'
K = 253
DS = 70 MPH

(+)1.2361%

(-)3.5115%

EXISTING GROUND

PROPOSED GRADE

PI = 1037+88.00
EL = 519.00'
VC = 970'
K = 181
DS = 70 MPH

(-)3.5115%

580 570 560 550 540 530 520 510 500 490

1024+00 1025+00 1026+00 1027+00 1028+00 1029+00 1030+00 1031+00 1032+00 1033+00 1034+00 1035+00 1036+00 1037+00 1038+00

CULVERT HYDRAULIC DATA
-L- Sta. 1041+25.00

DRAINAGE AREA	= 243.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 700	CFS
DESIGN HW ELEVATION	= 519	FT
100 YEAR DISCHARGE	= 750	CFS
100 YEAR HW ELEVATION	= 519.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 1260	CFS
OVERTOPPING ELEVATION	= 525.60	FT

AUSTIN-CHANEY ROAD
-L- STA.1039+86.06 =
-Y308- STA.27+56.06

PI = 1037+88.00
EL = 519.00'
VC = 970'
K = 181
DS = 70 MPH

BEGIN LAT."V" DITCH RT.
STA.1042+20.00
EL = 518.60'

STA.1043+00.00
EL = 521.50'

END LAT."V" DITCH RT.
STA.1043+50.00
EL = 524.51'

PROPOSED GRADE

PI = 1053+00.00
EL = 546.84'
VC = 630'
K = 250
DS = 70 MPH

(+)1.8413%

(+)1.8413%

2 @ 10' x 6' RCBC

(+) 3.6250%

(+) 6.0200%

EXISTING GROUND

(-) 3.2000%

END LAT.V DITCH LT.
STA.1052+00.00
EL = 524.00'

BEGIN LAT."V" DITCH LT.
STA.1049+50.00
EL = 532.00'

(+) 1.4286%

(+) 6.0000%

(+) 8.0000%

BEGIN LAT. DITCH LT.
STA.1041+65.00
EL = 512.50'

STA.1042+00.00
EL = 513.00'

STA.1042+50.00
EL = 516.00'

END LAT. DITCH LT.
STA.1043+00.00
EL = 520.00'

SITE 53

FOR -L- PLAN SEE SHTS.62 & 63

570 560 550 540 530 520 510 500 490 480

1038+00 1039+00 1040+00 1041+00 1042+00 1043+00 1044+00 1045+00 1046+00 1047+00 1048+00 1049+00 1050+00 1051+00 1052+00

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5/28/99

PERMIT DRAWINGS
SHEET 210 OF 267

ENGLISH

AUSTIN CHANEY ROAD -Y308-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	221
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

590 580 570 560 550 540 530 520 510 500

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

BEGIN GRADE
STA.10+50.82
ELEV = 544.70'

50' BLEND TO EXIST.

(+)3.2000%

N.CAMDEN ROAD
-Y320- STA.15+51.45 =
-Y308- STA.11+48.99

PI = 14+40.00
EL = 560.00'
VC = 486'
K = 84
DS = 50 MPH

(+)3.9313%

(-)11.8843%

L=10.8800%

(-)4.5000%

(-)6.0000%

(-) 2.0020%

BEGIN SPEC.CUT DITCH LT.
STA.14+50
EL = 553.12'

STA.15+00
EL = 552.68'

STA.15+50
EL = 550.43'

STA.16+00.00
EL = 547.43'

END SPEC.CUT DITCH LT.
STA.16+49.00
EL = 546.44'

McINTYRE ROAD
-Y319- STA.10+00.00 =
-Y308- STA.16+50.25

PROPOSED GRADE

EXISTING GROUND

BEGIN SP.LAT."V" DITCH RT.
STA.20+50.00
EL = 546.94'

-VRC- STA.32+55.94 =
-Y308- STA.22+27.81

-Y308SRAB- STA.10+00.00 AH =
-Y308SRAB- STA.13+00.02 BK
-Y308- STA.21+91.11
EL.= 551.855'

END SP.LAT."V" DITCH RT.
BEGIN LAT.BASE DITCH RT.
STA.21+50.00
EL = 540.00'

PI = 21+73.86
EL = 551.51'

-VLC- STA.24+09.53 =
-Y308- STA.22+49.92

-Y308SRAB-STA.11+50.01
-Y308-STA.22+86.61
EL.= 551.855'

PI = 23+02.86
EL = 551.53'

(-)11.8843%

(+)10.5003%

(+)2.0000%

(-)2.0000%

-Y308SRAB-
ROUNDABOUT

PI = 19+50.00
EL = 550.39'
VC = 230'
K = 96
DS = 50 MPH

(-)6.9400%

(-)10.0000%

(-)15.0000%

(-)9.0000%

BEGIN LAT.BASE DITCH LT.
STA.20+50.00
EL = 546.48'

STA.21+50.00
EL = 536.48'

END LAT.BASE DITCH LT.
STA.21+65.00
EL = 532.00'

STA.24+00.00
EL = 517.50'

-Y308- STA.25+90
DRAINAGE AREA = 243.20 AC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 700	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 519.00	FT
BASE DISCHARGE	= 750	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 519.30	FT
OVERTOPPING DISCHARGE	= 1260	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 525.60	FT

-L- STA.1039+86.06 =
-Y308- STA.27+56.06

PIPE HYDRAULIC DATA
-Y308- Sta. 32+52.00

DRAINAGE AREA	= 24.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 104	CFS
DESIGN HW ELEVATION	= 522.6	FT
100 YEAR DISCHARGE	= 120	CFS
100 YEAR HW ELEVATION	= 523.0	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 295	CFS
OVERTOPPING ELEVATION	= 531.5	FT

-Y308NRAB- STA.10+00.00 AH =
-Y308NRAB- STA.13+00.02 BK
-Y308- STA.33+75.47
EL.= 544.945'

PI = 33+58.22
EL = 544.60'

PI = 32+40.00
EL = 543.09'
VC = 220'
K = 97
DS = 50 MPH

-VLB- STA.19+15.14 =
-Y308- STA.34+12.15

-VRB- STA.27+06.62 =
-Y308- STA.34+34.15

-Y308NRAB- STA.11+50.01
-Y308- STA.34+70.97
EL.= 547.395'

PI = 34+88.22
EL = 547.05'

(-)0.5023%

(-)1.0000%

(-)1.0000%

(+)1.2773%

(+)12.0000%

(-)12.0000%

(+)11.8602%

(+) 4.9467%

(+) 10.4409%

-Y308NRAB-
ROUNDABOUT

(+) 1.0000%

(+) 5.3333%

54"

(-) 1.4963%

(+) 0.2909%

(+) 3.5400%

2 @ 10' x 6'
RCBC

STA.24+00.00
EL = 517.50'

END LAT.BASE DITCH RT.
STA.25+35.00
EL = 515.48'

BEGIN LAT.BASE DITCH LT.
STA.25+45.00
EL = 515.34'

STA.26+00.00
EL = 515.50'

END LAT.BASE DITCH LT.
STA.20+50.00
EL = 517.27'

BEGIN LAT."Y" DITCH LT.
STA.30+25.00
EL = 530.00'

END LAT."Y" DITCH LT.
STA.31+75.00
EL = 531.50'

BEGIN SPEC.CUT DITCH RT.
STA.33+50.00
EL = 525.80'

END SPEC.CUT DITCH RT.
STA.35+00.00
EL = 533.80'

BEGIN SP.CUT BASE DITCH LT.
STA.35+00.00
EL = 540.00'

END SP.CUT BASE DITCH LT.
STA.36+50.00
EL = 547.42'

BEGIN SPEC.CUT DITCH RT.
STA.37+00.00
EL = 544.00'

END SPEC.CUT DITCH RT.
STA.37+50.00
EL = 549.22'

SITE 53

FOR -Y308- PLAN SEE SHT.62,110 & 111

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24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

490 500 510 520 530 540 550 560 570 580

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	224
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 211 OF 267

ENGLISH

-VRC-

-VRC- STA.28+46
DRAINAGE AREA = 224.0 AC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 521.3	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 521.7	FT
OVERTOPPING DISCHARGE	= 1720	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 537.0	FT

END GRADE
-VRC- STA.31+90.80 =
-Y308SRAB- STA.12+28.48 (17.25' RT.)
ELEV.= 552.30'

PI = 23+88.00
EL = 535.79'
VC = 460'
K = 117
DS = 55 MPH

PROPOSED GRADE
EXISTING GROUND
(+)2.0566%
(+)2.1035%
(+)2.0566%
(+) 4.0000%
(+) 8.0000%
(+)1.5200%
(+)1.5200%
2 @ 10' x 6' RCBC
BEGIN LAT. BASE DITCH RT. STA.28+34.00 EL = 516.00'
STA.28+50.00 EL = 516.24'
STA.29+00.00 EL = 517.00'
STA.30+00.00 EL = 525.00'
END LAT. BASE DITCH RT. STA.31+75.00 EL = 532.00'

SITE 53

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00

-VLC-

-VLC- STA.20+28
DRAINAGE AREA = 224.0 AC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 521.3	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 521.7	FT
OVERTOPPING DISCHARGE	= 1720	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 537.0	FT

END GRADE
-VLC- STA.23+46.54 =
-Y308SRAB- STA.12+12.24 (17.25' RT.)
ELEV.= 552.14'

BEGIN GRADE
-VLC- STA.10+00.00 =
-L- STA.1037+54.08 (47.0' RT.)
ELEV.= 525.09'

PI = 11+00.00
EL = 526.22'
VC = 100'
K = 149
DS = 55 MPH

PI = 12+70.00
EL = 527.00'
VC = 120'
K = 64
DS = 40 MPH

EXISTING GROUND
PROPOSED GRADE
(+)1.1300%
(+)0.4588%
(+)0.4588%
(+)2.3353%
(+)2.3353%
(+)1.7614%
(-) 6.0000%
(-) 9.6296%
(+)1.2121%
2 @ 10' x 6' RCBC
BEGIN SPEC. CUT DITCH LT. STA.18+00.00 EL = 534.00'
STA.19+00.00 EL = 528.00'
END SPEC. CUT DITCH LT. STA.20+35.00 EL = 515.00'
BEGIN LAT. BASE DITCH LT. STA.20+75.00 EL = 515.00'
END LAT. BASE DITCH LT. STA.22+40.00 EL = 517.00'

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

FOR -VRC- PLAN SEE SHT.62
FOR -VLC- PLAN SEE SHT.62

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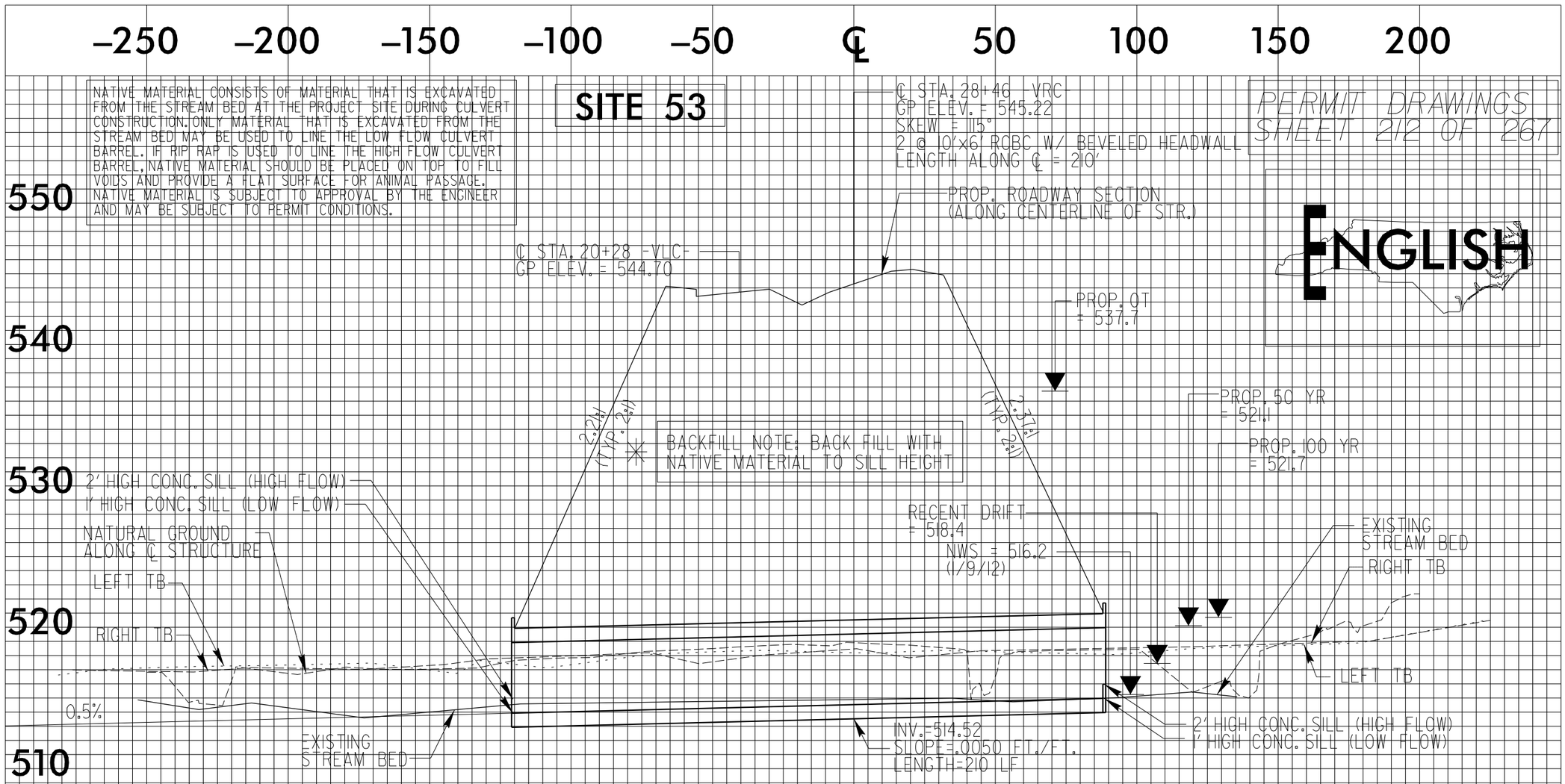
ENGLISH

SITE 53

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.



PROFILE ALONG STRUCTURE

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 213 OF 267

ENGLISH

NAD 83

-L- POT Sta. 1052+46.72
BEGIN APPROACH SLAB

-L- POT Sta. 1052+70.68
BEGIN BRIDGE

-L- POT Sta. 1059+99.00
END APPROACH SLAB

-L- POT Sta. 1059+75.00
END BRIDGE

-Y319-

PROP. SBG

TYPE B-77

TYPE M350

-L-
S 87° 42' 47.2" E

△ = 105° 53' 59"

-L- POT Sta. 1052+57.49
BEGIN BRIDGE

-L- POT Sta. 1052+33.53
BEGIN APPROACH SLAB

-L- POT Sta. 1059+75.00
END BRIDGE

-L- POT Sta. 1059+99.00
END APPROACH SLAB

BRIDGE ON -L- OVER -Y319- AND MEADOW BRANCH (NOT TO SCALE)

SCALE: 1"= 100'

100' 0' 100' 200' 300'

MATCHLINE -L- STA. 1050+00 SEE SHEET 62

MATCHLINE -L- STA. 1064+00 SEE SHEET 64

MATCHLINE -Y319- STA. 17+00 SEE SHEET 62

GRACE C. WATSON

NCDOT
DB 1862 PG 809

BARBARA GRACE WATSON FURR
AND
ANNE MARIE WATSON FUTRELL

UNION COUNTY
WINGATE TOWN LIMITS

WOODS

MCINTYRE RD
-Y319-

MEADOW BRANCH

S 152
(PERENNIAL)

SITE 54

W 167

W 170

PROP. 48" WW FENCE

±25.00
50.00'

±12.04
50.00'

25.00'

20.00'

TEMPORARY MATTING

STANDARD BASE DITCH
SEE DETAIL AC

Q10= 52.7 CFS
V10= 1.8 FPS

LATERAL BASE DITCH
SEE DETAIL E

SPECIAL CUT DITCH
SEE DETAIL A

LATERAL V DITCH
SEE DETAIL B

LATERAL V DITCH
SEE DETAIL W

15"CAAP W/2 ELBOWS
ROD & LUG

15" CAAP W/2 ELBOWS
ROD & LUG

18" CAAP W/2 ELBOWS
ROD & LUG

TOE PROTECTION
SEE DETAIL H

PREFORMED SCOUR HOLE
SEE DETAIL N

STANDARD BASE DITCH
SEE DETAIL K

STANDARD BASE DITCH
SEE DETAIL Y

Q10= 13.4 CFS
V10= 2.9 FPS

Q10= 7.6 CFS
V10= 1.8 FPS

16" U.V. RESISTANT PVC

MSE WALL

COLLAR

15" RCP-III

18" RCP-III

24" RCP-III

36" RCP-III

1060+00

1055+00

FOR -L- PROFILE SEE SHT.153 & 154
FOR -Y319- PROFILE SEE SHT.226

HC HC DENOTES HAND CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

PLANS PREPARED BY :

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/24/2014
R:\Hydraulics\Permit Environmental\R3329_R2559_Hyd_Wet_PSH_063.dgn
default

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 214 OF 267

ENGLISH

NAD 83

8/17/99

SITE 54

MATCHLINE –L– STA. 1050+00 SEE SHEET 62

MATCHLINE –L– STA. 1064+00 SEE SHEET 64

MATCHLINE –Y319– STA. 17+00 SEE SHEET 62

MCINTYRE RD -Y319-

MEADOW BRANCH

-L- POT Sta. 1052+46.72
BEGIN APPROACH SLAB

-L- POT Sta. 1052+70.68
BEGIN BRIDGE

-L- POT Sta. 1059+99.00
END APPROACH SLAB

-L- POT Sta. 1059+75.00
END BRIDGE

-L- POT Sta. 1052+57.49
BEGIN BRIDGE

-L- POT Sta. 1052+33.53
BEGIN APPROACH SLAB

△ = 105° 53' 59"

S 87° 42' 47.2" E

TYPE B-77

TYPE M350

PROP. SBG

BRIDGE ON –L– OVER –Y319– AND MEADOW BRANCH (NOT TO SCALE)

SCALE: 1"= 100'

S 152
(PERENNIAL)
PREFORMED SCOUR HOLE
SEE DETAIL N

W 167
STANDARD BASE DITCH
SEE DETAIL AC

Q10= 52.7 CFS
V10= 1.8 FPS

W 170

Q10= 13.4 CFS
V10= 2.9 FPS
STANDARD BASE DITCH
SEE DETAIL Y

Q10= 7.6 CFS
V10= 1.8 FPS
STANDARD BASE DITCH
SEE DETAIL Y

W 167

TEMPORARY MATTING

TEMPORARY MATTING

LATERAL V DITCH
SEE DETAIL B

TOE PROTECTION
SEE DETAIL H

LATERAL BASE DITCH
SEE DETAIL E

SPECIAL CUT DITCH
SEE DETAIL A

LATERAL V DITCH
SEE DETAIL W

15" RCP-III

18" RCP-III

24" RCP-III

36" RCP-III

15" CAAP W/2 ELBOWS
ROD & LUG

16" U.V. RESISTANT PVC

MSE WALL

COLLAR

HC HC DENOTES HAND CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

FOR –L– PROFILE SEE SHT.153 & 154
FOR –Y319– PROFILE SEE SHT.226

PROP. 48" WW FENCE

GRACE C. WATSON

NCDOT
DB 1862 PG 809

BARBARA GRACE WATSON FURR
AND
ANNE MARIE WATSON FUTRELL

UNION COUNTY
WINGATE TOWN LIMITS

WOODS

PLANS PREPARED BY :

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/24/2014
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	154
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PERMIT DRAWINGS
SHEET 215 OF 267

ENGLISH

BRIDGE HYDRAULIC DATA

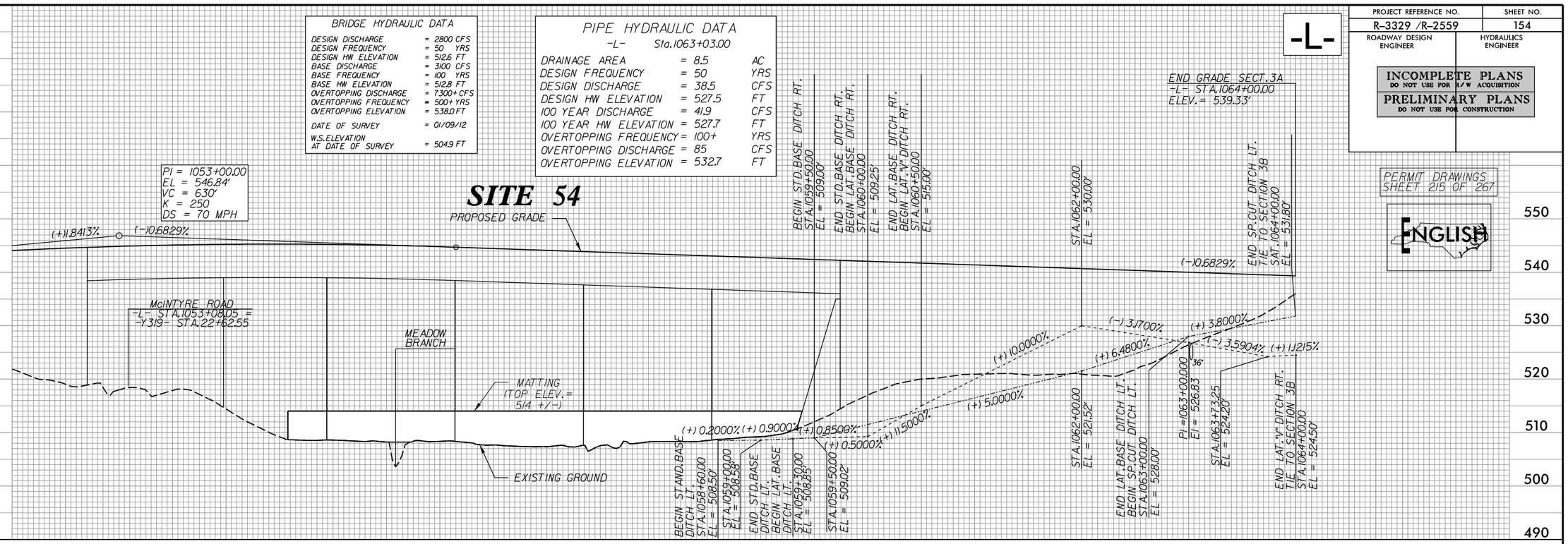
DESIGN DISCHARGE	= 2800 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 512.6 FT
BASE DISCHARGE	= 3100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 512.8 FT
OVERTOPPING DISCHARGE	= 7300+ CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 538.0 FT
DATE OF SURVEY	= 01/09/12
W.S.ELEVATION AT DATE OF SURVEY	= 504.9 FT

PIPE HYDRAULIC DATA

-L- Sta.1063+03.00

DRAINAGE AREA	= 8.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 38.5	CFS
DESIGN HW ELEVATION	= 527.5	FT
100 YEAR DISCHARGE	= 41.9	CFS
100 YEAR HW ELEVATION	= 527.7	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 85	CFS
OVERTOPPING ELEVATION	= 532.7	FT

SITE 54



FOR -L- PLAN SEE SHT.63

PLANS PREPARED BY :

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
www.mulkeyinc.com

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/22/2014
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329/R-2559	3A-X78

PERMIT DRAWINGS
SHEET 216 OF 267

SITE 54

ENGLISH

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

550
540
530
520
510
500

0.020 0.020

WLB OUTSIDE OF CROSS SECTION
SHOWN LEFT AND RIGHT OF -L-

507.59

1057+50.000

0.020 0.020

WLB OUTSIDE OF CROSS SECTION
SHOWN LEFT AND RIGHT OF -L-

507.37

1057+00.000

0.020 0.020

WLB

507.70

1056+50.000

-L-

9/22/2004
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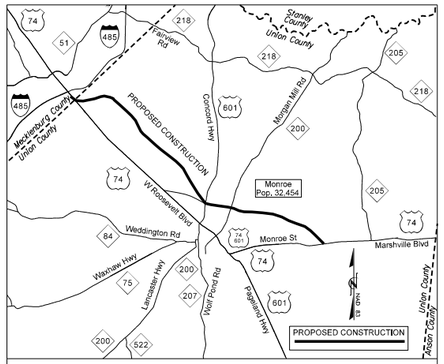
default

09/08/99

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

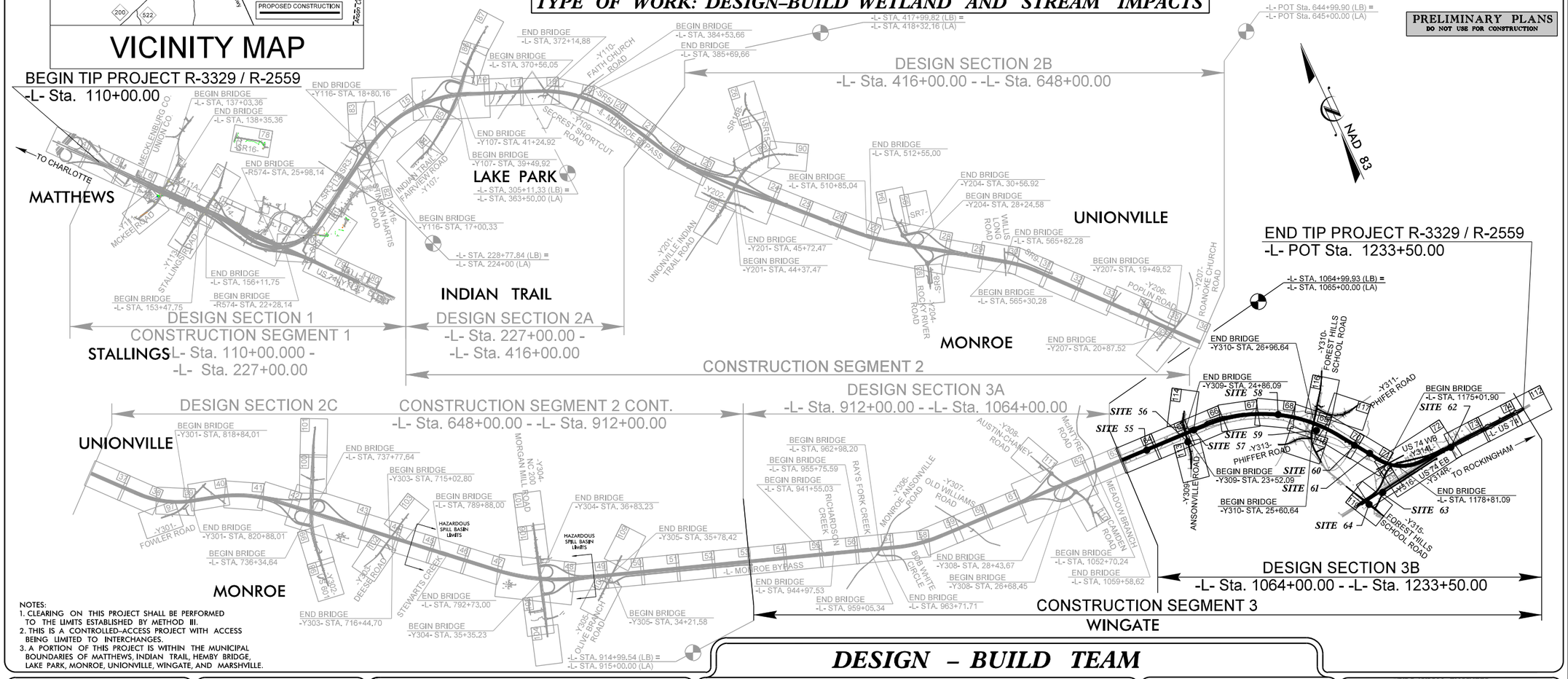
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

PERMIT DRAWING SHEET 217 OF 267

LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD WETLAND AND STREAM IMPACTS

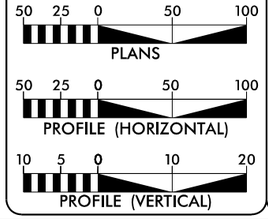
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

DESIGN - BUILD TEAM

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

9/29/2014
R:\Hydraulics\PERMITS_Environmental\Drawings\Section3B\R3329_R2559_HYD_PRM_WET_SEC03B_TSH.dgn
Fkeys

8/17/99

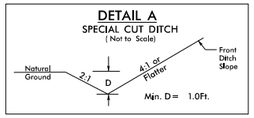
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

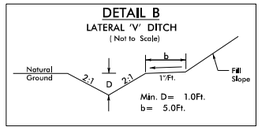
PERMIT DRAWING
SHEET 218 OF 267

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



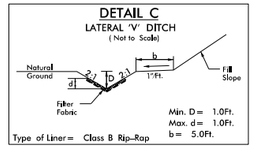
–L– STA. 1064+00 TO STA. 1071+50 LT
–L– STA. 1065+00 TO STA. 1066+50 RT
–L– STA. 1091+50 TO STA. 1095+00 LT
–L– STA. 1102+50 TO STA. 1106+50 RT
–L– STA. 1104+00 TO STA. 1107+00 LT
–L– STA. 1125+00 TO STA. 1131+00 LT
–L– STA. 1128+00 TO STA. 1134+50 RT
–L– STA. 1156+50 TO STA. 1158+50 LT
–Y309– STA. 12+50 TO STA. 13+50 RT
–Y309– STA. 28+00 TO STA. 29+50 RT
–Y309– STA. 30+50 TO STA. 32+00 RT
–Y310– STA. 13+18 TO STA. 14+50 LT
–Y310– STA. 33+00 TO STA. 35+00 LT
–Y310– STA. 39+00 TO STA. 39+92 LT
–Y310– STA. 38+50 TO STA. 40+50 RT
–Y313– STA. 14+74 TO STA. 15+50 LT
–Y313– STA. 14+91 TO STA. 15+50 RT
–Y314L– STA. 29+50 TO STA. 38+00 RT
–Y314L– STA. 30+50 TO STA. 31+00 LT
–Y314L– STA. 37+50 TO STA. 41+00 LT
–Y314R– STA. 16+50 TO STA. 18+00 LT
–Y315– STA. 11+92 TO STA. 14+50 RT
–Y314R– STA. 18+50 TO STA. 27+00 RT
–Y314R– STA. 23+50 TO STA. 25+85 LT
–Y314R– STA. 29+50 TO STA. 32+60 RT
–Y314R– STA. 33+00 TO STA. 37+50 RT
–Y316– STA. 17+00 TO STA. 20+50 RT
–Y316– STA. 13+00 TO STA. 15+00 RT
–Y316– STA. 24+20 TO STA. 25+50 RT
–DR2– STA. 10+25 TO STA. 10+50 RT
–DR2– STA. 10+25 TO STA. 10+50 LT

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



–L– STA. 1064+00 TO STA. 1065+00 RT
–L– STA. 1072+50 TO STA. 1073+50 LT
–L– STA. 1110+30 TO STA. 1112+00 LT
–L– STA. 1158+00 TO STA. 1159+51 RT
–Y309– STA. 15+82 TO STA. 16+70 RT
–Y309– STA. 16+63 TO STA. 17+19 LT
–Y309– STA. 25+35 TO STA. 28+00 RT
–Y310– STA. 22+80 TO STA. 24+50 RT
–Y310– STA. 29+00 TO STA. 33+00 LT
–Y311– STA. 21+00 TO STA. 26+82 RT
–Y314R– STA. 15+50 TO STA. 16+50 LT
–Y315– STA. 15+01 TO STA. 16+50 LT
–Y316– STA. 11+50 TO STA. 13+00 RT
–Y316– STA. 20+50 TO STA. 21+20 RT
–Y316– STA. 25+50 TO STA. 29+00 RT

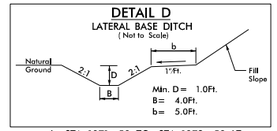
DETAIL C
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

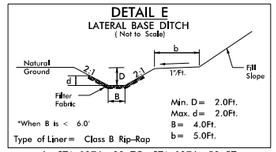
–L– STA. 1137+00 TO STA. 1137+50 LT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



–L– STA. 1071+50 TO STA. 1072+50 LT
–L– STA. 1072+50 TO STA. 1073+95 RT
–L– STA. 1074+00 TO STA. 1076+00 RT
–L– STA. 1095+30 TO STA. 1096+50 RT
–L– STA. 1097+00 TO STA. 1097+94 LT
–L– STA. 1106+50 TO STA. 1111+50 RT
–L– STA. 1108+00 TO STA. 1110+30 LT
–L– STA. 1140+00 TO STA. 1141+50 RT
–L– STA. 1159+00 TO STA. 1162+70 LT
–L– STA. 1161+80 TO STA. 1164+00 RT
–L– STA. 1198+50 TO STA. 1200+00 RT
–L– STA. 1201+41 TO STA. 1205+50 LT
–Y309– STA. 17+00 TO STA. 18+50 RT
–Y309– STA. 20+00 TO STA. 21+00 RT
–Y309– STA. 22+00 TO STA. 23+49 RT
–Y310– STA. 16+50 TO STA. 19+68 LT
–Y310– STA. 21+00 TO STA. 25+60 LT
–Y310– STA. 27+30 TO STA. 29+00 LT
–Y310– STA. 27+50 TO STA. 31+25 RT
–Y311– STA. 10+50 TO STA. 18+50 LT
–Y311– STA. 23+00 TO STA. 24+38 LT
–Y311– STA. 11+00 TO STA. 17+65 RT
–Y313– STA. 17+00 TO STA. 22+50 LT
–Y313– STA. 18+50 TO STA. 22+77 RT
–Y315– STA. 16+50 TO STA. 18+66 LT
–Y316– STA. 29+00 TO STA. 29+72 RT

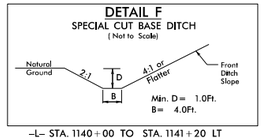
DETAIL E
LATERAL BASE DITCH
(Not to Scale)



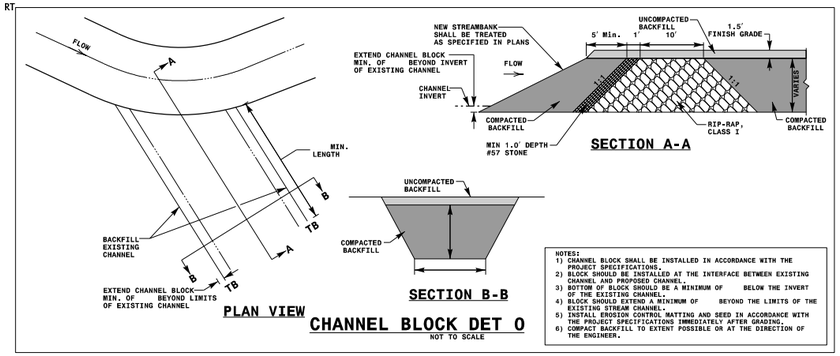
Type of Liner= Class B Rip-Rap

–L– STA. 1076+00 TO STA. 1076+50 RT
–L– STA. 1159+51 TO STA. 1161+80 RT
–L– STA. 1164+00 TO STA. 1165+00 RT
–L– STA. 1201+93 TO STA. 1206+00 RT
–Y309– STA. 18+50 TO STA. 20+00 RT
–Y309– STA. 21+00 TO STA. 22+00 RT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



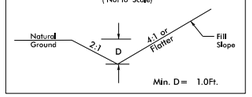
–L– STA. 1140+00 TO STA. 1141+20 LT
–L– STA. 1194+50 TO STA. 1198+50 RT
–Y311– STA. 24+38 TO STA. 27+00 LT



CHANNEL BLOCK DET O
NOT TO SCALE

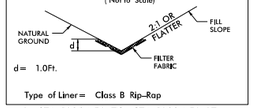
DETAIL O NOT USED IN SECTION 3B

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



DETAIL G NOT USED IN SECTION 3B

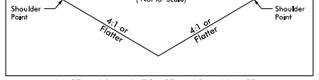
DETAIL H
TOE PROTECTION
(Not to Scale)



Type of Liner= Class B Rip-Rap

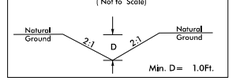
–L– STA. 1096+50 TO STA. 1098+50 LT
–L– STA. 1201+00 TO STA. 1201+78 RT
–L– STA. 1166+00 TO STA. 1167+65 RT
–Y314L– STA. 24+85 TO STA. 28+00 RT
–Y31R– STA. 11+00 TO STA. 12+50 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



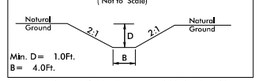
–L– STA. 1091+50 TO STA. 1094+00 MED
–L– STA. 1104+50 TO STA. 1106+50 MED
–L– STA. 1130+00 TO STA. 1135+50 MED
–L– STA. 1157+50 TO STA. 1159+50 MED
–L– STA. 1201+50 TO STA. 1203+00 MED
–L– STA. 1219+50 TO STA. 1223+00 MED

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



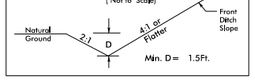
–L– STA. 1092+50 TO STA. 1094+50 LT
–L– STA. 1127+50 LT; L=85', S=0.47%
BEG EL=590.40, END EL. 590.0
–L– STA. 1149+50 LT; L=120', S=0.79%
BEG EL=579.65, END EL. 578.7
–L– STA. 1186+11 TO STA. 1188+00 RT

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



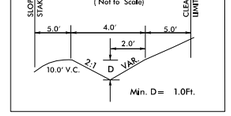
–L– STA. 1067+50 RT; L=182', S=0.55%
BEG EL=531.0, END EL. 530.0
–L– STA. 1068+00 LT; L=101', S=9.85%
BEG EL=543.2, END EL. 532.6
–L– STA. 1071+23 RT; L=89', S=0.90%
BEG EL=533.8, END EL. 533.0
–L– STA. 1072+50 LT; L=82', S=10.00%
BEG EL=543.2, END EL. 535.0
–L– STA. 1094+50 TO STA. 1096+50 LT
–L– STA. 1094+50 RT; L=20', S=0.55%
BEG EL=555.4, END EL. 555.3
–L– STA. 1095+30 RT; L=24', S=0.50%
BEG EL=554.9, END EL. 554.8
–L– STA. 1103+35 TO STA. 1108+00 LT
–L– STA. 1131+00 LT; L=150', S=1.09%
BEG EL=584.4, END EL. 582.8
–L– STA. 1137+50 LT; L=320', S=0.60%
BEG EL=585.4, END EL. 583.5
–L– STA. 1147+54 TO STA. 1148+57 RT
–L– STA. 1194+50 TO STA. 1197+00 RT
–L– STA. 1198+42 LT; L=41', S=4.63%
BEG EL=519.5, END EL. 517.6
–L– STA. 1211+80 LT; L=40', S=1.03%
BEG EL=537.1, END EL. 536.7
–L– STA. 1216+57 LT; L=40', S=0.30%
BEG EL= 541.1, END EL. 540.9
–Y310– STA. 19+56 TO STA. 19+68 LT
–Y310– STA. 24+30 LT; L=150', S=3.03%
BEG EL=585.95, END EL. 581.4
–Y311– STA. 18+75 TO STA. 19+00 RT
–Y314L– STA. 31+00 LT; L=305', S=0.75%
BEG EL=563.5, END EL. 561.2
–Y314R– STA. 25+85 LT; L=279', S=0.36%
BEG EL=565.1, END EL. 564.1
–Y314R– STA. 30+00 TO STA. 31+31 LT
–Y314R– STA. 33+00 TO STA. 34+35 LT

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



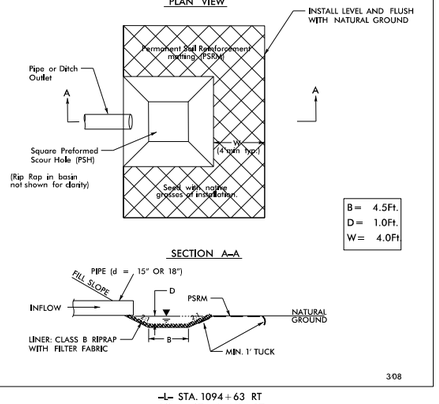
DETAIL L NOT USED IN SECTION 3B

DETAIL M
BERM DITCH
(Not to Scale)



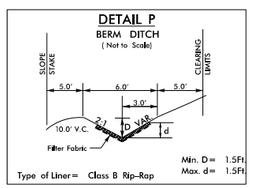
–L– STA. 1120+50 TO STA. 1124+50 RT

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE



–L– STA. 1094+63 RT
–Y310– STA. 21+60 RT
–L– STA. 1171+50 LT
–L– STA. 1195+50 LT

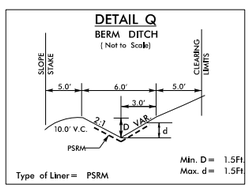
DETAIL P
BERM DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

DETAIL P NOT USED IN SECTION 3B

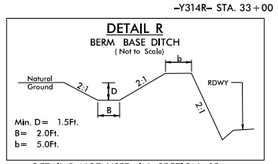
DETAIL Q
BERM DITCH
(Not to Scale)



Type of Liner= PSRM

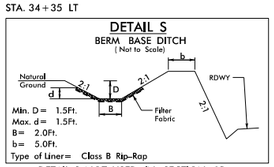
DETAIL Q NOT USED IN SECTION 3B

DETAIL R
BERM BASE DITCH
(Not to Scale)



DETAIL R NOT USED IN SECTION 3B

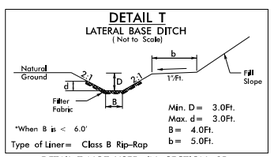
DETAIL S
BERM BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

DETAIL S NOT USED IN SECTION 3B

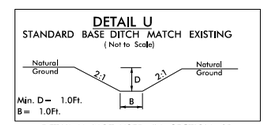
DETAIL T
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

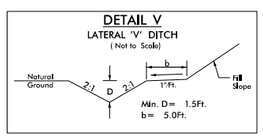
DETAIL T NOT USED IN SECTION 3B

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



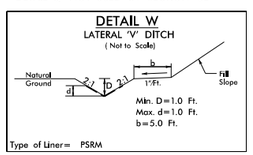
DETAIL U NOT USED IN SECTION 3B

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



DETAIL V NOT USED IN SECTION 3B

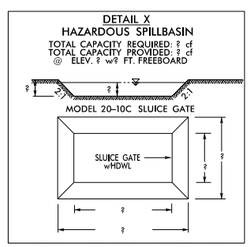
DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= PSRM

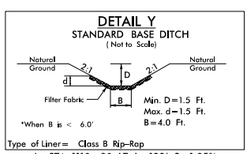
–Y309– STA. 13+50 TO STA. 15+82 RT

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



DETAIL X NOT USED IN SECTION 3B

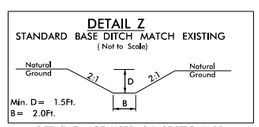
DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap

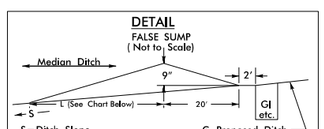
–L– STA. 1110+30 LT; L=122', S=1.95%
BEG EL=572.0, END EL. 569.6
–Y314R– STA. 30+50 LT; L=40', S=3.13%
BEG EL=561.00, END EL. 559.75

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



DETAIL Z NOT USED IN SECTION 3B

DETAIL
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'

8/29/2014
8:21:16 AM
Flatus

C:\Hydraulics\PERMITS_Environmental\Drawings\Section3B\R3329_R2559_HYD_PRM_DitchDet_Sec03B.dgn

8/17/99

ENGLISH

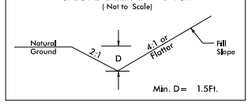
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

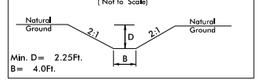
PERMIT DRAWING
SHEET 219 OF 267

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



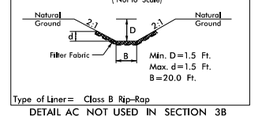
DETAIL AA NOT USED IN SECTION 3B

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



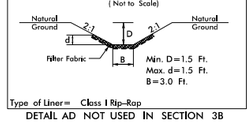
DETAIL BB NOT USED IN SECTION 3B

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



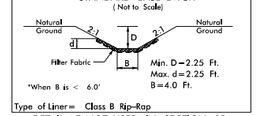
DETAIL AC NOT USED IN SECTION 3B

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



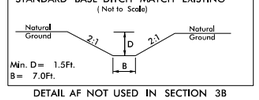
DETAIL AD NOT USED IN SECTION 3B

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



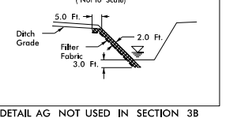
DETAIL AE NOT USED IN SECTION 3B

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



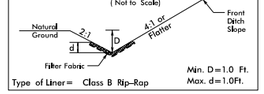
DETAIL AF NOT USED IN SECTION 3B

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



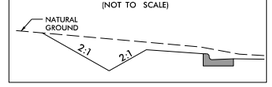
DETAIL AG NOT USED IN SECTION 3B

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



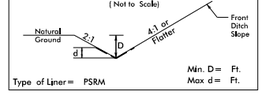
DETAIL AH NOT USED IN SECTION 3B

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



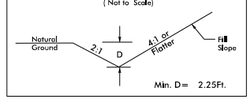
DETAIL AI NOT USED IN SECTION 3B

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



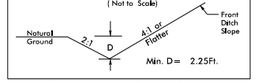
DETAIL AJ NOT USED IN SECTION 3B

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



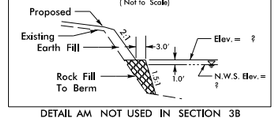
DETAIL AK NOT USED IN SECTION 3B

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



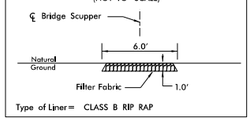
DETAIL AL NOT USED IN SECTION 3B

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



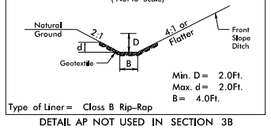
DETAIL AM NOT USED IN SECTION 3B

DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)



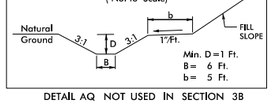
DETAIL AO NOT USED IN SECTION 3B

DETAIL AP
SPECIAL CUT BASE DITCH
(Not to Scale)



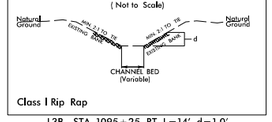
DETAIL AP NOT USED IN SECTION 3B

DETAIL AQ
LATERAL GRASSED SWALE
(Not to Scale)



DETAIL AQ NOT USED IN SECTION 3B

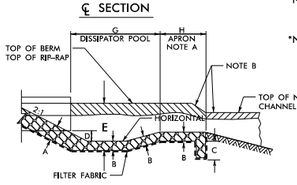
DETAIL AR
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)



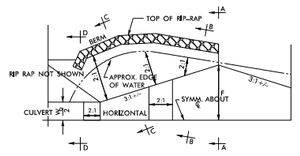
–L3B– STA. 1095+25 RT, L=14', d=1.0'
–Y309– STA. 19+08 LT, L=16', d=0.8'
–Y310– STA. 22+83 RT, L=12', d=1.2'
–Y316– STA. 11+98 RT, L=16', d=1.5'

DETAIL AN
RIP-RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

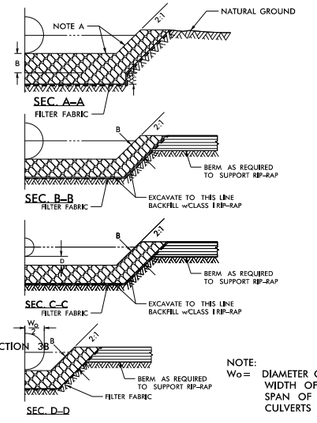


HALF PLAN



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP-RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
5	
6	
7	
8	

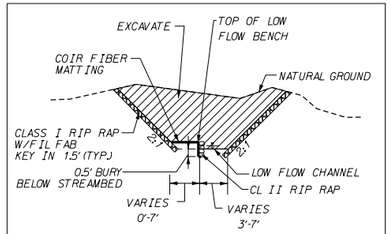
NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE-ARCH CULVERTS

*ALL DIMENSIONS APPROXIMATE IN FEET

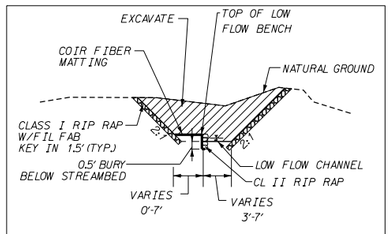
5/05

DETAIL AN NOT USED IN SECTION 3B

UT TO MEADOW BRANCH
–L– STA. 1074+23

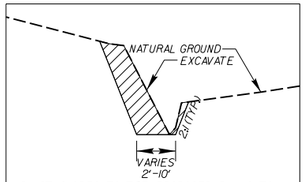


CULVERT INLET DETAIL (NTS)
LENGTH = 39'



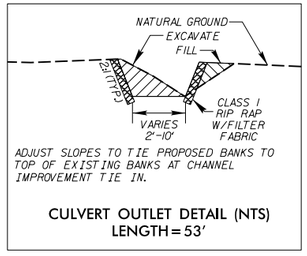
CULVERT OUTLET DETAIL (NTS)
LENGTH = 36'

UT TO SALEM CREEK
–L– STA. 1162+27



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

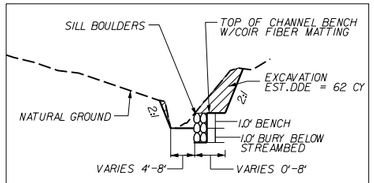
CULVERT INLET DETAIL (NTS)
LENGTH = 33'



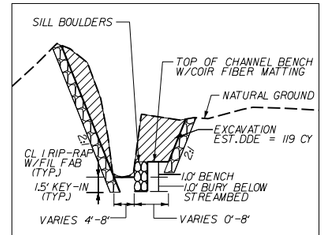
ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH = 53'

SALEM CREEK
–L– STA. 1201+62



CULVERT INLET DETAIL (NTS)
LENGTH = 47'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 52'

9/29/2014
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Ekeus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	64
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 DRAWING
SHEET 220OF 267

TS FS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

ENGLISH

NAD 83

709 NCDOT

-L- Sta 1064+99.93 BK =
-L- Sta 1065+00.00 AH

MATCHLINE -L- STA. 1064+00 SEE SHEET 63

MATCHLINE -L- STA. 1078+00 SEE SHEET 65

1065+00 1070+00 S 87° 42' 47.2" E -L- 1075+00

EXISTING R/W

WOODS

SPECIAL CUT DITCH SEE DETAIL A

STANDARD BASE DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

SEE CULVERT INLET DETAIL STA. 1074+23

SEE CULVERT OUTLET DETAIL STA. 1074+23

15 TONS CL I RIPRAP W/30 SY FIL FAB

15" RCP-III 24" RCP-III 30" RCP-III 71"x47" RCP

2GI 2GI-A FS

710 NCDOT 98-CVS-1802

359 NCDOT 02-CVS-1830

711 CHARLES C. BIVENS

712 TIMOTHY L. BANNISTER AND WIFE, KIMBERLY BANNISTER

713 DOROTHY E. EDWARDS

S 87°42'47" E 258.73'

S 87°42'47" E 1200.94'

S 87°42'47" E 2124.71'

N 82°32'20" E 108.52'

N 82°33'06" E 138.01'

S 20°17'45" E 74.50'

S 20°24'43" E 83.25'

4' WW FENCE

S 158 (INTERMITTENT)

SITE 55

GR CONC PILE G

EIP

30' NON-EXCLUSIVE R/W FOR INGRESS AND EGRESS

UNION COUNTY
WINGATE TOWN LIMITS

PINE KNOT

FOR -L- PROFILE SEE SHT. 155

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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FOR
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	64
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 DRAWING SHEET 221 OF 267

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

ENGLISH

NAD 83

709 NCDOT

MATCHLINE –L– STA. 1064+00 SEE SHEET 63

MATCHLINE –L– STA. 1078+00 SEE SHEET 65

–L– Sta 1064+99.93 BK =
–L– Sta 1065+00.00 AH

1065+00 1070+00 S 87° 42' 47.2" E –L– 1075+00

PROP 48" WW FENCE

STANDARD BASE DITCH SEE DETAIL K

SPECIAL CUT DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

SEE CULVERT INLET DETAIL STA. 1074+23

SEE CULVERT OUTLET DETAIL STA. 1074+23

15 TONS CL I RIPRAP W/30 SY FIL FAB

15" RCP-III 24" RCP-III 30" RCP-III

2GI 2GI-A FS JS

359 NCDOT 02-CVS-1830

710 NCDOT 98-CVS-1802

711 CHARLES C. BIVENS

712 TIMOTHY L. BANNISTER AND WIFE, KIMBERLY BANNISTER

713 DOROTHY E. EDWARDS

S 158 (INTERMITTENT)

SITE 55

WOODS

4" WW FENCE

30' NON-EXCLUSIVE R/W FOR INGRESS AND EGRESS

UNION COUNTY
WINGATE TOWN LIMITS

PINE KNOT

FOR –L– PROFILE SEE SHT. 155

PLANS PREPARED BY :

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	155
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 222OF 267

ENGLISH

-L-

SITE 55

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 370	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 543.0	FT
BASE DISCHARGE	= 420	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 544.0	FT
OVERTOPPING DISCHARGE	= 634	CFS
OVERTOPPING FREQUENCY	= 500+/-	YRS
OVERTOPPING ELEVATION	= 547.7	FT

BEGIN GRADE
-L3B- STA 1064+00.00
ELEV.= 539.33'

-L- Sta 1064+99.93 LB =
-L- Sta 1065+00.00 LA

BEGIN SP.CUT DITCH LT.
BEGIN LAT.V DITCH RT.
-L- STA.1064+00.00
EI = 531.80 LT.
EI = 524.50 RT.

PI = 1065+80.00
EL = 538.10'
VC = 350'
K = 192
DS = 72mph

PI = 1066+50.00
EI = 534.91

PROPOSED GRADE

(-)0.6829%

(+)1.1434%

(+) 2.1293%

(+) 0.5004%

(+) 2.0000%

(+) 5.5000%

(-) 1.5400%

24" RCP

EXISTING GROUND

(+) 3.6333%

PI = 1065+35.880
EI = 532.48

END SP.CUT DITCH RT.
-L- STA.1066+50.00
EI = 533.00 RT

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA.1065+00.00
EI = 530.00

PI = 1066+00.00
EI = 532.60

PI = 1069+50.00
EI = 538.05

BEGIN LAT.BASE DITCH RT.
-L- STA.1072+50.00
EI = 537.34

(-) 1.0167%

END SP.CUT DITCH
BEGIN LAT.BASE DITCH LT.
-L- STA.1071+50.00
EI = 536.02

24" RCP

END LAT.BASE DITCH LT.
BEGIN LAT.V DITCH
PI = 1072+50.00
EI = 535.00

(+) 5.0000%

(-) 3.4966%

7'X7' RCBC

(+) 2.1150%

END LAT.V DITCH LT.
-L- STA.1073+00.00
EI = 540.00

BEGIN LAT.BASE DITCH RT.
-L- STA.1074+00.00
EI = 532.27

END LAT.BASE DITCH RT.
-L- STA.1073+95.00
EI = 532.27

PI = 1076+00.00
EI = 536.50

(+) 7.0000%

END LAT.BASE DITCH RT.
-L- STA.1076+50.00
EI = 540.00

1064+00 1065+00 1066+00 1067+00 1068+00 1069+00 1070+00 1071+00 1072+00 1073+00 1074+00 1075+00 1076+00 1077+00 1078+00

510 520 530 540 550 560 570 580 590 600

PI = 1086+50.00
EL = 561.77'
VC = 500'
K = 593
DS = > 80mph

EXISTING GROUND

PROPOSED GRADE

(+)1.1434%

(+)0.3000%

BEGIN MED.V DITCH
-L- STA.1091+50.00
EI = 562.32

(-) 0.3160%

(-) 0.4720%

-L- STA.1090+82.01 =
-Y309- STA.24+19.09
ELEV.= 569.57'
ANSONVILLE RD.

BEGIN SP.CUT DITCH LT.
-L- STA.1091+50.00
EI = 561.85

FOR -L- PLAN SEE SHT.64 & 65

1078+00 1079+00 1080+00 1081+00 1082+00 1083+00 1084+00 1085+00 1086+00 1087+00 1088+00 1089+00 1090+00 1091+00 1092+00

510 520 530 540 550 560 570 580 590 600

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NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

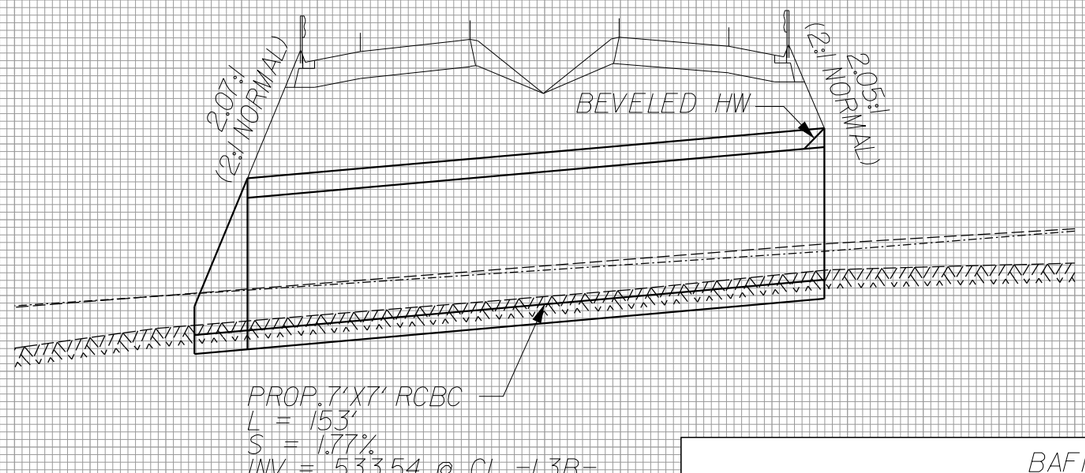
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 223OF 267

ENGLISH

SITE 55
–L– STA. 1074+23

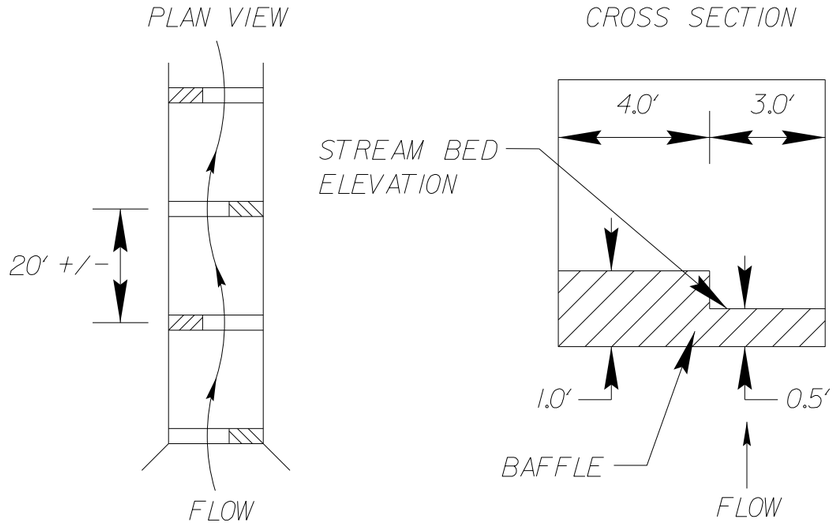


PROPOSED 7'X7' RCBC WITH BAFFLES

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

BAFFLE DETAILS



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8/17/99

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

ENGLISH

NAD 83

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TURNPIKE AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	65
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 DRAWING
SHEET 224 OF 267

MATCHLINE –Y309– STA. 27+00
SEE SHEET 114

MATCHLINE –L– STA. 1078+00 SEE SHEET 64

MATCHLINE –L– STA. 1092+00 SEE SHEET 66

709 NCDOT

WOODS

713 DOROTHY E. EDWARDS DB 96 PG 071

EXISTING R/W

710 NCDOT 98-CVS-1802

S 87°42'47" E 313.60'

S 87°42'47" E 269.64'

N 56°44'40" E 493.35'

S 87°42'47" E 165.87'

PUE

24" RCP-IV REMOVE

LATERAL V DITCH SEE DETAIL B

15" CAAP 2 ELBOWS ROD & LUG

2GI

15" RCP-III

25+00

MSE WALL

SPECIAL CUT DITCH SEE DETAIL A

1080+00

1085+00

1090+00

-L- S 87° 42' 47.2" E

30" RCP-III

24" RCP-III

2GI-A

FS

15" RCP-III

MEDIAN V DITCH SEE DETAIL I

20+00

N 86°50'45" W 223.31'

LATERAL BASE DITCH SEE DETAIL D

714 NCDOT 2003-CVS-0233

S 87°42'47" E 885.59'

N 9°00'27" W 227.74'

715 NCDOT DB 1152 PG 546

LATERAL BASE DITCH SEE DETAIL E

W173

16" ENCASEMENT

HW

LATERAL V DITCH SEE DETAIL D

SITE 56

NOTES:

INSTALL ONE 48" RCP AT –Y309– STA. 19+77 BURIED 0.8' BELOW WETLAND ELEVATION INSTALL SECOND 48" RCP 1.0' ABOVE WETLAND ELEVATION.

MATCHLINE –Y309– STA. 20+00
SEE SHEET 113

25+00

MSE WALL

Δ = 83° 16' 45"

BRIDGE ON –Y309– OVER –L– (NOT TO SCALE)

FOR –L– PROFILE SEE SHT. 155
FOR –Y309– PROFILE SEE SHT. 227

9/29/2014
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8/17/99

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

E E DENOTES EXCAVATION IN WETLAND

ENGLISH

NAD 83

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	65
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 DRAWING
SHEET 225 OF 267

MATCHLINE –Y309– STA. 27+00 SEE SHEET 114

MATCHLINE –L– STA. 1078+00 SEE SHEET 64

MATCHLINE –L– STA. 1092+00 SEE SHEET 66

MATCHLINE –Y309– STA. 20+00 SEE SHEET 113

709 NCDOT

710 NCDOT 98-CVS-1802

713 DOROTHY E. EDWARDS DB 96 PG 071

714 NCDOT 2003-CVS-0233

715 NCDOT DB 1152 PG 546

1080+00 –L– S 87° 42' 47.2" E 1085+00 1090+00

30" RCP-III 24" RCP-III

2GI 2GI-A 15" RCP-III FS

25+00 –Y309– 20+00

24" RCP-IV REMOVE

15" CAAP 2 ELBOWS ROD & LUG

LATERAL A DITCH SEE DETAIL B

MSE WALL

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL V DITCH SEE DETAIL D

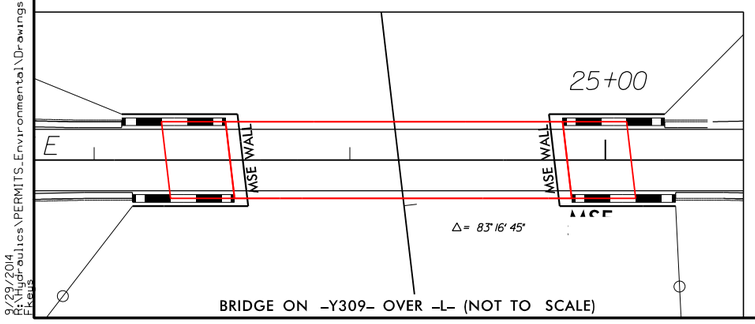
W173

PUE

SITE 56

NOTES:

INSTALL ONE 48" RCP AT –Y309– STA. 19+77 BURIED 0.8' BELOW WETLAND ELEVATION INSTALL SECOND 48" RCP 1.0' ABOVE WETLAND ELEVATION.



BRIDGE ON –Y309– OVER –L– (NOT TO SCALE)

FOR –L– PROFILE SEE SHT. 155
FOR –Y309– PROFILE SEE SHT. 227

9/29/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	113
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 DRAWING
SHEET 226OF 267

ENGLISH

NAD 83

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

NOTES:

INSTALL ONE 48" RCP AT –Y309– STA. 19+77 BURIED 0.8' BELOW WETLAND ELEVATION INSTALL SECOND 48" RCP 1.0' ABOVE WETLAND ELEVATION.

SITE 56

720 RUTH B. TRULL
DB 200 PG 303

720A TOMMY N. EDWARDS AND WIFE, LINDA A. EDWARDS
DB 5509 PG 514

719 JAVADI ENTERPRISES, INC.
DB 3053 PG 63

713 DOROTHY E. EDWARDS
DB 96 PG 071

721 DOROTHY E. EDWARDS
DB 96 PG 071

722 ALLEN SCOTT EDWARDS
DB 5466 PG 405

723 TOMMY N. EDWARDS AND WIFE, LINDA EDWARDS
DB 472 PG 122
DB 1253 PG 028

W172b

W172a

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

Q10=80.0 CFS
V10= 1.7 FT\S

LATERAL V DITCH SEE DETAIL B

15" CAAP
2 ELBOWS
ROD & LUG

2GI

15" RCP III

24" RCP III

REMOVE

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL W

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

N 26°08'09"E

SR 1002 ANSONVILLE RD 22' BST

15+00

20+00

–Y309–

MATCHLINE –Y309– STA. 20+00
SEE SHEET 65

POND

PX 74

PERMANENT SEPTIC DRAINFIELD EASEMENT

ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y309– PROFILE SEE SHT. 227

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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ESHEA

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	113
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 DRAWING
SHEET 227 OF 267

ENGLISH

NAD 83

F / F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

T / T DENOTES TEMPORARY FILL IN WETLAND

NOTES:

INSTALL ONE 48" RCP AT –Y309– STA. 19+77 BURIED 0.8' BELOW WETLAND ELEVATION INSTALL SECOND 48" RCP 1.0' ABOVE WETLAND ELEVATION.

SITE 56

720 RUTH B. TRULL DB 200 PG 303

720A TOMMY N. EDWARDS AND WIFE, LINDA A. EDWARDS DB 5509 PG 514

719 JAVADI ENTERPRISES, INC. DB 3053 PG 63

713 DOROTHY E. EDWARDS DB 96 PG 071

721 DOROTHY E. EDWARDS DB 96 PG 071

722 ALLEN SCOTT EDWARDS DB 5466 PG 405

723 TOMMY N. EDWARDS AND WIFE, LINDA EDWARDS DB 472 PG 122 DB 1253 PG 028

W172b

W172a

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

Q10=80.0 CFS
V10= 1.7 FT/S

LATERAL V DITCH SEE DETAIL B

15" CAAP 2 ELBOWS ROD & LUG

15" RCP III

2.4 RCP III

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL W

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

REMOVE

N 26°08'09"E

15+00

20+00

–Y309–

MATCHLINE –Y309– STA. 20+00
SEE SHEET 65

POND

PX 74

PERMANENT SEPTIC DRAINFIELD EASEMENT

ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y309– PROFILE SEE SHT. 227

PLANS PREPARED BY :

RK&K

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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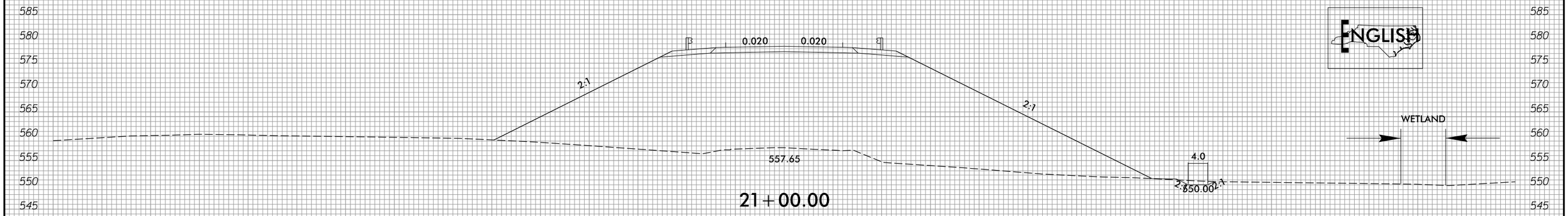
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X69

PERMIT DRAWING
SHEET 228OF 267

ENGLISH



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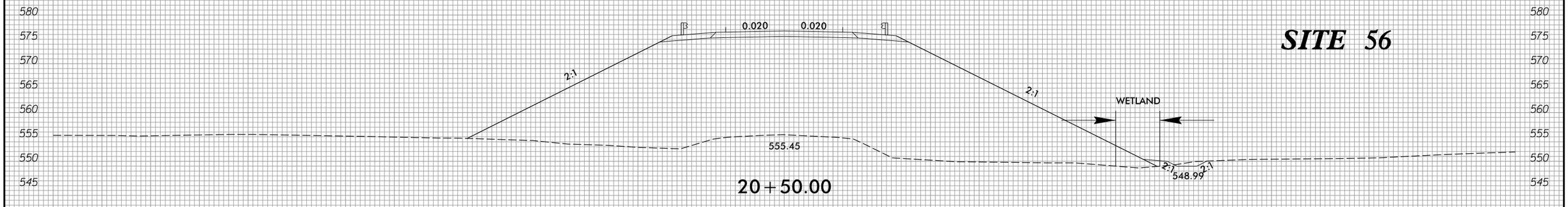

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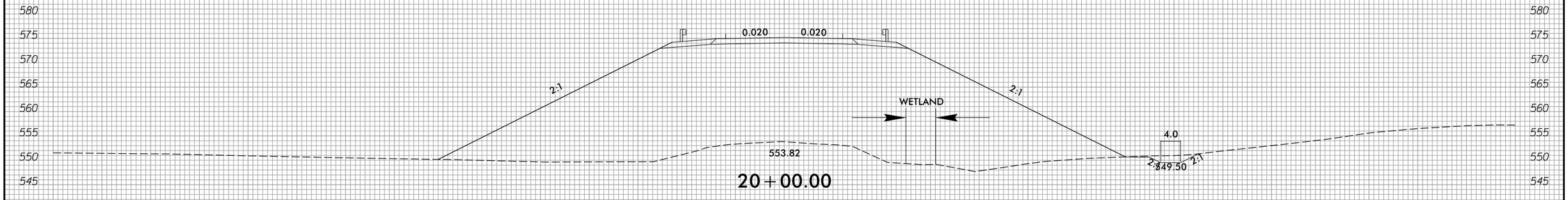
SITE 56



20+00.00

19+50.00

-Y309-

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	66
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 DRAWING
SHEET 229OF 267

ENGLISH

NAD 83

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

NOTES:

INSTALL BOTH 42" RCPS AT –L– STA. 1096+08 AT EXIST. WETLAND ELEVATION DO NOT BURY

MATCHLINE –L– STA. 1092+00 SEE SHEET 65

MATCHLINE –L– STA. 1106+00 SEE SHEET 67

W 173

W173

SITE 57

STANDARD V DITCH SEE DETAIL J

SPECIAL CUT DITCH SEE DETAIL A

STANDARD BASE DITCH SEE DETAIL K

FALSE SUMP ELEV. 564.00

LATERAL BASE DITCH SEE DETAIL D

TOE PROTECTION SEE DETAIL H

MEDIAN V DITCH SEE DETAIL I

15" RCP–III

24" RCP–III

2GI

FS

1095+00

1100+00

1105+00

–L–

S 87°42'47" E 635.33'

S 87°42'40" E 203.24'

S 87°42'47" E 647.35'

S 87°22'59" E 196.98'

S 78°45'18" E 654.88'

Q10= 7.3 CFS
V10= 1.3 FT\S

Q10= 49.0 CFS
V10= 1.5 FT\S

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

PSH

SSMH

WOODS

EXISTING R/W

APPROXIMATE LOCATION

726 MARTHA G. COLEY DB 1088 PG 495

725 NCDOT DB 1691 PG 798

714 NCDOT 2003-CVS-0233

721 DOROTHY E. EDWARDS DB 96 PG 071

FOR –L– PROFILE SEE SHT. 156

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	66
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 DRAWING
SHEET 230OF 267

ENGLISH

NAD 83

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

NOTES:
INSTALL BOTH 42" RCPS AT –L– STA. 1096+08 AT EXIST. WETLAND ELEVATION DO NOT BURY

MATCHLINE –L– STA. 1092+00 SEE SHEET 65

MATCHLINE –L– STA. 1106+00 SEE SHEET 67

W 173

W173

STANDARD V DITCH SEE DETAIL J

STANDARD BASE DITCH SEE DETAIL K

FALSE SUMP ELEV. 564.00

LATERAL BASE DITCH SEE DETAIL D

TOE PROTECTION SEE DETAIL H

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

15" RCP-III

24" RCP-III

2GI

FS

1095+00

1100+00

1105+00

-L-

PSH

Q10= 7.3 CFS
V10= 1.3 FT\S

Q10= 49.0 CFS
V10= 1.5 FT\S

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

SITE 57

S 87°42'47" E 635.33'

S 87°42'40" E 203.24'

S 87°42'47" E 647.35'

S 87°22'59" E 196.98'

S 78°45'18" E 654.88'

APPROXIMATE LOCATION

WOODS

SSMH

EXISTING R/W

NCDOT 2003-CVS-0233

MARTHA G. COLEY DB 1088 PG 495

NCDOT DB 1691 PG 798

DOROTHY E. EDWARDS DB 96 PG 071

FOR –L– PROFILE SEE SHT. 156

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
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THE NORTH CAROLINA TURNPIKE AUTHORITY

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Kevin

8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X13

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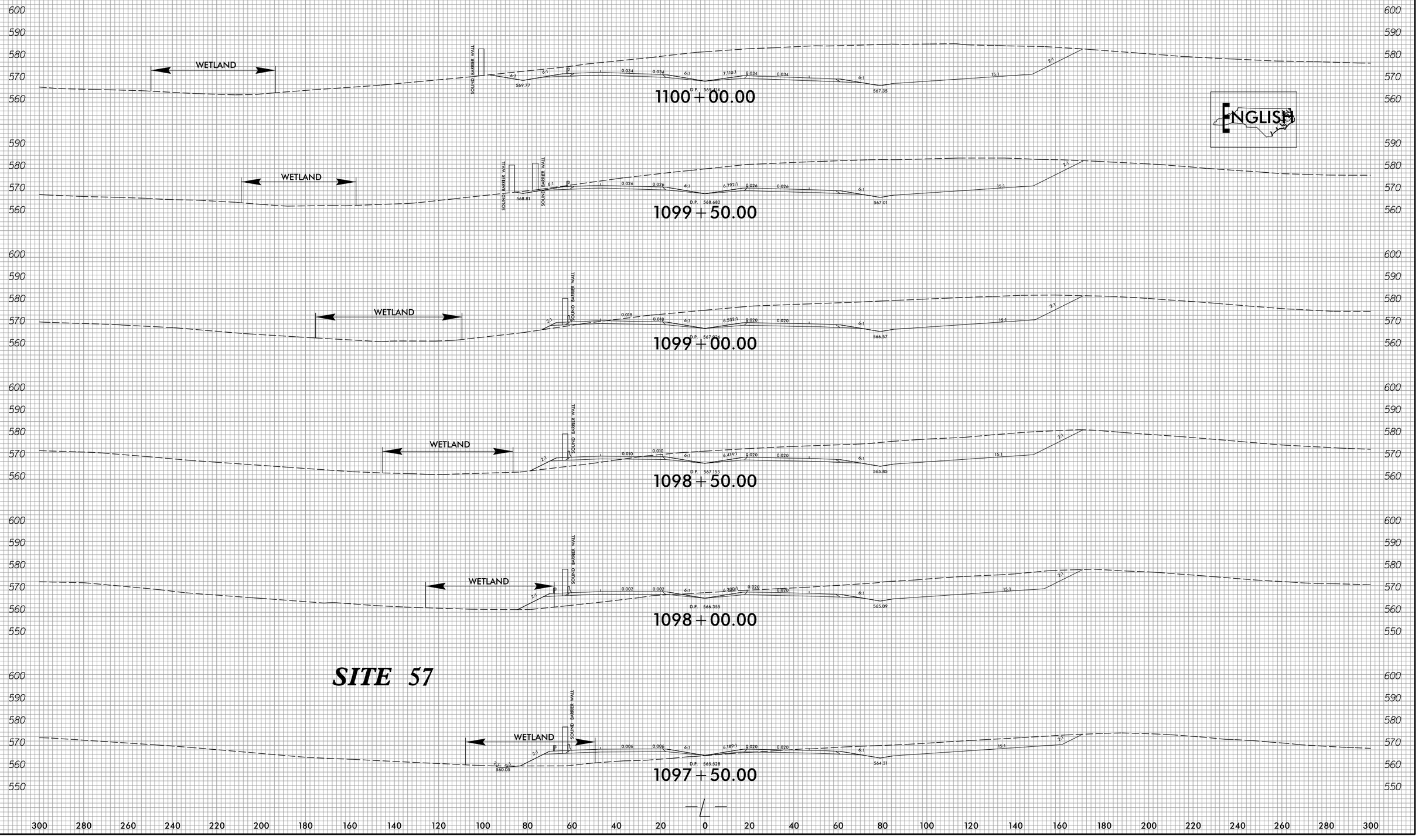
PERMIT DRAWING
SHEET 231OF 267



SITE 57

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

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Fkeys

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	68
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 DRAWING
SHEET 232OF 267

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

NAD 83

W 174

SITE 58

MATCHLINE –L– STA. 1120+00 SEE SHEET 67

MATCHLINE –L– STA. 1134+00 SEE SHEET 69

APPROXIMATE LOCATION

1125+00

1130+00

–L–

741
NELSON REID PHIFER
DB 391 PG 668

742
NELSON REID PHIFER
DB 391 PG 668

336
NCDOT

N 58°21'30" W EXISTING R/W
393.65'

N 54°19'45" W
202.37'

S 66°26'18" E
55.28'

S 53°36'06" E
65.66'

S 56°41'26" E
EXISTING R/W
210.00'

STANDARD V DITCH
SEE DETAIL J

STANDARD BASE DITCH
SEE DETAIL K

SPECIAL CUT DITCH
SEE DETAIL A

MEDIAN V DITCH
SEE DETAIL I

18" RCP-III

30" RCP-III

15" CAAP
2 ELBOWS
ROD & LUG

2GI

2GI-A

FS

BDO

BERM DITCH
SEE DETAIL M

PUE

FUEL TANK

CONC PADS

749
WRISTON ARTHUR DAVIS
AND WIFE,
CLARA BELLE DAVIS
DB 3850 PG 578

750
DONALD R. GOODMAN
AND WIFE,
KAREN H. GOODMAN
DB 751 PG 626

751
NCDOT
DB 1867 PG 261

342
NCDOT
DB 1907 PG 452

757
NCDOT
DB 1506 PG 831

756
GARY VAN PHIFER
AND WIFE,
KATHRYN L. PHIFER
DB 453 PG 243

755
GARY VAN PHIFER
AND WIFE,
KATHRYN L. PHIFER
DB 1542 PG 854

WOODS

EIP

FOR –L– PROFILE SEE SHT. 157

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	68
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 DRAWING
SHEET 233OF 267

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

NAD 83

MATCHLINE –L– STA. 1120+00 SEE SHEET 67

MATCHLINE –L– STA. 1134+00 SEE SHEET 69

SITE 58

W 174

1125+00

1130+00

–L–

741
NELSON REID PHIFER
DB 391 PG 668

742
NELSON REID PHIFER
DB 391 PG 668

336
NCDOT

751
NCDOT
DB 1867 PG 261

342
NCDOT
DB 1907 PG 452

757
NCDOT
DB 1506 PG 831

749
WRISTON ARTHUR DAVIS
AND WIFE,
CLARA BELLE DAVIS
DB 3850 PG 578

750
DONALD R. GOODMAN
AND WIFE,
KAREN H. GOODMAN
DB 751 PG 626

756
GARY VAN PHIFER
AND WIFE,
KATHRYN L. PHIFER
DB 453 PG 243

755
GARY VAN PHIFER
AND WIFE,
KATHRYN L. PHIFER
DB 1542 PG 854

N 58°21'30" W 393.68'

N 54°19'45" W 202.37'

S 66°26'18" E 55.28'

S 53°36'06" E 65.66'

S 56°41'26" E 200.00'

STANDARD V DITCH
SEE DETAIL J

STANDARD BASE DITCH
SEE DETAIL K

SPECIAL CUT DITCH
SEE DETAIL A

MEDIAN V DITCH
SEE DETAIL I

BERM DITCH
SEE DETAIL M

18" RCP-III

30" RCP-III

15" CAAP
2 ELBOWS
ROD & LUG

2GI

2GI-A

FS

BDO

PUE

FUEL TANK

CONC PADS

WOODS

EIP

EXISTING R/W

TDE

FOR –L– PROFILE SEE SHT. 157

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
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8/23/99

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X24

PERMIT DRAWING
SHEET 234OF 267

ENGLISH

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

610 600 590 580

15:1 6:1 0.040 0.040 6:1 7.349:1 0.040 0.040 6:1 15:1

590.85 O.P. 590.187 587.86

1126+00.00

591.00 O.P. 589.687 587.26

1125+50.00

2:1 589.78 O.P. 588.687 586.66

1125+00.00

2:1 589.02 O.P. 588.187 586.06

1124+50.00

588.42 O.P. 587.687 585.46

1124+00.00

5.40:1 587.82 O.P. 587.187 584.86

1123+50.00

WETLAND

584.26

1123+00.00

SITE 58

WETLAND

583.66

1122+50.00

610 600 590 580 570

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

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ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	69
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 DRAWING SHEET 235OF 267

MATCHLINE –Y310– STA. 30+50 SEE SHEET 116

MATCHLINE –L– STA. 1134+00 SEE SHEET 68

MATCHLINE –L– STA. 1148+00 SEE SHEET 70

MATCHLINE –Y310– STA. 21+50 SEE SHEET 115

NAD 83

N. 36° 32' 18.5" E.

742 NELSON REID PHIFER DB 391 PG 668

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

341 NCDOT 2001-CVS-1504

342 NCDOT DB 1907 PG 452

337 NCDOT DB 1907 PG 456

804 THOMAS E. TRAYWICK, JR. DB 138 PG 478

PROP 48" WW FENCE

EXISTING R/W

LATERAL BASE DITCH SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL K

REMOVE

GRADE TO DRAIN

2 TONS CL B RIPRAP W/7 SY FIL FAB

15" CAAP 2 ELBOWS ROD & LUG 2GI

15" RCP

2GI

3 TONS CL B RIPRAP W/10 SY FIL FAB

LATERAL V DITCH SEE DETAIL C

SPECIAL CUT BASE DITCH SEE DETAIL F

18" RCP-III

24" RCP-III

FS

2GID

MSE WALL

1135+00

1140+00

1145+00

-L-

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL A

2-6" SCUPPERS EACH SIDE

5 TONS CL B RIPRAP W/14 SY FIL FAB

-Y310-

2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL 'V' DITCH SEE DETAIL B

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

15 TONS CL I RIPRAP W/30 SY FIL FAB ON BANKS ONLY

15" CSP 2 ELBOWS ROD & LUG

35" RCP-IV

HW

SITE 59

S 161a

(INTERMITTENT)

PROP 48" WW FENCE

BRIDGE ON –Y310– OVER –L– (NOT TO SCALE)

△ = 98° 59' 15"

OBLITERATE

FOR –L– PROFILE SEE SHT. 157
FOR –Y310– PROFILE SEE SHT. 228

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/17/99

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	69
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 DRAWING SHEET 236OF 267

MATCHLINE –Y310– STA. 30+50 SEE SHEET 116

MATCHLINE –L– STA. 1134+00 SEE SHEET 68

MATCHLINE –L– STA. 1148+00 SEE SHEET 70

MATCHLINE –Y310– STA. 21+50 SEE SHEET 115

NAD 83

PROP 48" WW FENCE

EXISTING R/W

EXISTING EOP

EXISTING CENTERLINE

742 NELSON REID PHIFER DB 391/PG 668

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

342 NCDOT 2001-CVS-1504

342 NCDOT DB 1907 PG 452

337 NCDOT DB 1907 PG 456

804 THOMAS E. TRAYWICK, JR. DB 138 PG 478

LATERAL BASE DITCH SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL K

REMOVE

GRADE TO DRAIN

2 TONS CL B RIPRAP W/7 SY FIL FAB

15" CAAP 2 ELBOWS ROD & LUG 2GI

15" RCP-III 2GI

MSE WALL

3 TONS CL B RIPRAP W/10 SY FIL FAB

LATERAL V DITCH SEE DETAIL C

SPECIAL CUT BASE DITCH SEE DETAIL F

18" RCP-III

24" RCP-III

2GI FS

1135+00

1140+00

1145+00

-L-

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL A

5 TONS CL B RIPRAP W/14 SY FIL FAB

-Y310-

20+00

25+00

30+00

N 36° 32' 18.5" E

2GID

18" RCP-III

5 TONS CL B RIPRAP W/14 SY FIL FAB

LATERAL 'V' DITCH SEE DETAIL B

GRADE TO DRAIN

36" RCP-IV

HW

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

15 TONS CL I RIPRAP W/30 SY FIL FAB ON BANKS ONLY

15" CSP 2 ELBOWS ROD & LUG

PSH SEE DETAIL N

S 161a

(INTERMITTENT)

SITE 59

OBLITERATE

FOR –L– PROFILE SEE SHT. 157
FOR –Y310– PROFILE SEE SHT. 228

BRIDGE ON –Y310– OVER –L– (NOT TO SCALE)

MSE WALL

MSE WALL

–Y310–

Δ = 98° 59' 15"

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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Ekeus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	70
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 DRAWING
SHEET 237OF 267

NAD 83

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

MATCHLINE –L– STA. 1148+00
SEE SHEET 69

MATCHLINE –L– STA. 1161+00
SEE SHEET 71

796
THOMAS E. TRAYWICK, JR.
DB 138 PG 478

795
THOMAS E. TRAYWICK, JR.
AND
SARAH H. TRAYWICK
PC E FILE 988

796
THOMAS E. TRAYWICK, JR.
DB 138 PG 478

343
NCDOT
2001-CVS-1504

804
THOMAS E. TRAYWICK, JR.
DB 138 PG 478

GRADE TO DRAIN

REMOVE 15" RCP

EXISTING R/W

S 21°22' E EXISTING R/W 157.82'

N 33°46'03" W EXISTING R/W 202.17'

N 33°38'02" W 147.84'

S 33°52'54" E EXISTING R/W 517.53'

STANDARD V DITCH
SEE DETAIL J

STANDARD BASE DITCH
SEE DETAIL K

SPECIAL CUT DITCH
SEE DETAIL A

LATERAL BASE DITCH
SEE DETAIL D

LATERAL V DITCH
SEE DETAIL B

LATERAL BASE DITCH
SEE DETAIL E

MEDIAN V DITCH
SEE DETAIL I

8 TONS CL B RIP RAP
W/21 SY FIL FAB

2 TONS CL B RIP RAP
W/7 SY FIL FAB

2 TONS CL B RIP RAP
W/7 SY FIL FAB

24" RCP-III
30" RCP-III
15" CSP
2 ELBOWS
ROD & LUG
15" CAAP
2 ELBOWS
ROD & LUG
15" RCP-III
18" RCP-III
24" RCP-III
30" RCP-III
15" RCP-III
18" RCP-III
15" RCP-III
15" RCP-III
15" RCP-III
2GI
FS
F
HW

1150+00
1155+00
1160+00
-L-
S 33° 52' 54.3" E

PIPES
DO NOT
INTERSECT

GRADE TO DRAIN

W 176

N 20°59'41" W 104.06' EXISTING R/W

N 19°41'00" W 193.36'

EXISTING R/W

S 15°41'46" W 115.80'

3.3' WM & G ELEC

MTL S

SITE 60

S 161b
(INTERMITTENT)

S 162
(INTERMITTENT)

30'

TOE

LOX CMP

OBLITERATE

FOR –L– PROFILE SEE SHT. 158

FOR AET SITE DETAIL SEE SHT. AET-8

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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Ekaus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	70
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 DRAWING SHEET 238 OF 267

NAD 83

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

MATCHLINE –L– STA. 1148+00
SEE SHEET 69

MATCHLINE –L– STA. 1161+00
SEE SHEET 71

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

795 THOMAS E. TRAYWICK, JR. AND SARAH H. TRAYWICK PC E FILE 988

343 NCDOT 2001.CVS-1504

804 THOMAS E. TRAYWICK, JR. DB 138 PG 478

REMOVE 15" RCP

GRADE TO DRAIN

STANDARD V DITCH SEE DETAIL J

STANDARD BASE DITCH SEE DETAIL K

SPECIAL CUT DITCH SEE DETAIL A

8 TONS CL B RIP RAP W/21 SY FIL FAB

2 TONS CL B RIP RAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL D

MEDIAN V DITCH SEE DETAIL I

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL E

PIPES DO NOT INTERSECT

W 176

1150+00 1155+00 1160+00 –L–

S 33°52'54.3" E

24" RCP-III 30" RCP-III 15" CSP 2 ELBOWS ROD & LUG 15" CAAP 2 ELBOWS ROD & LUG 15" RCP-III 18" RCP-III 15" RCP-III 2GI FS

SITE 60

S 161b (INTERMITTENT)

S 162 (INTERMITTENT)

OBLITERATE

FOR –L– PROFILE SEE SHT. 158

FOR AET SITE DETAIL SEE SHT. AET-8

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	71
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 DRAWING
SHEET 239OF 267

ENGLISH

NAD 83

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

NOTES:

INSTALL 72" RCP AND 10'X6' RCBC AT –L– STA. 1162+00 BURIED 1.0' BELOW WETLAND ELEVATION. DO NOT BURY 42" RCP PIPE.

NOTES:

INSTALL 48" RCP AT –L– STA. 1167+23 AT EXIST WETLAND ELEVATION (DO NOT BURY).

SITE 60

SITE 61

MATCHLINE –L– STA. 1161+00 SEE SHEET 70

MATCHLINE –L– STA. 1174+00 SEE SHEET 72

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

BRUCE C. PHIFER (HEIRS) DB 110 PG 231

797 NCDOT DB 1840 PG 681

343 NCDOT 2001-CVS-1504

845 NCDOT DB 1886 PG 511

W176

W177

SEE CULVERT OUTLET DETAIL STA. 1162+27

SEE CULVERT INLET DETAIL STA. 1162+27

13 TONS CL I RIP RAP W/30 SY FIL FAB

Q10=270 CFS
V10= 1.9 FT\S

CLASS 'II' RIP RAP EST. 28 TONS

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL E

3 TONS CL B RIP RAP W/10 SY FIL FAB

Q10=44.4 CFS
V10= 1.4 FT\S

26 TONS CL I RIP RAP W/50 SY FIL FAB

TOE PROTECTION SEE DETAIL H

2GI

15" RCP III

18" CSP 2 ELBOWS ROD & LUG

PSH

15" CAAP 2 ELBOWS ROD & LUG

1165+00

1170+00

10+00

–L–

S 33°52'54" E 938.89'

S 23°27'09" E 63.40'

S 49°48'03" E 48.11'

S 49°48'03" E 959.79'

EXISTING R/W

WOODS

CSX R/R

FOR –L– PROFILE SEE SHT. 158

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	71
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 DRAWING
SHEET 240OF 267

ENGLISH

NAD 83

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

NOTES:

INSTALL 72" RCP AND 10'X6' RCBC AT –L– STA. 1162+00 BURIED 1.0' BELOW WETLAND ELEVATION. DO NOT BURY 42" RCP PIPE.

NOTES:

INSTALL 48" RCP AT –L– STA. 1167+23 AT EXIST WETLAND ELEVATION (DO NOT BURY).

SITE 60

SITE 61

MATCHLINE –L– STA. 1161+00 SEE SHEET 70

MATCHLINE –L– STA. 1174+00 SEE SHEET 72

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

BRUCE C. PHIFER (HEIRS) DB 110 PG 231

797 NCDOT DB 1840 PG 681

845 NCDOT DB 1886 PG 511

343 NCDOT 2001-CVS-1504

W176

W177

SEE CULVERT OUTLET DETAIL STA. 1162+27

13 TONS CL I RIP RAP W/30 SY FIL FAB

Q10=270 CFS
V10= 1.9 FT\S

CLASS 'II' RIP RAP EST. 28 TONS

LATERAL BASE DITCH SEE DETAIL D

Q10=44.4 CFS
V10= 1.4 FT\S

26 TONS CL I RIP RAP W/50 SY FIL FAB

PSH
15" CAAP
2 ELBOWS
ROD & LUG

2GI

15" RCP III

1165+00

1170+00

-L-

FS

18" CSP
2 ELBOWS
ROD & LUG

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

3 TONS CL B RIP RAP W/10 SY FIL FAB

TOE PROTECTION SEE DETAIL H

SEE CULVERT INLET DETAIL STA. 1162+27

S 33°52'54.3" E

S 33°52'54"E 338.89'

S 23°27'09" E 63.40'

S 23°27'09" E 106.44'

N 23°27'09" W 106.87'

S 77°48'03" E 175.54'

S 49°48'03" E 49.11'

S 49°48'03" E 49.19'

N 77°48'03" W 168.54'

EXISTING R/W

WOODS

MTL S

6' CAST IRON

6' STEEL

ENCASEMENT VENT PIPE

CSX R/R

10+00

FOR –L– PROFILE SEE SHT. 158

PLANS PREPARED BY :

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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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FOR
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3/29/2014
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Ekeu

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	158
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 241 OF 267

ENGLISH

-L-

SITE 60

PI = 1151+80.00
EL = 579.27'
VC = 640'
K = 785
DS = > 80mph

EXISTING GROUND

PROPOSED GRADE

(-)11.0500%

(-)11.8650%

℄ TOLL ZONE 8J & 8J
-L- STA.1157+00.00

BEGIN SP.CUT DITCH LT.
-L- STA.1156+50.00
EI = 566.20

(-) 0.5000%

BEGIN MED.V DITCH
-L- STA.1157+50.00
EI = 567.93

(-) 0.8600%

(-) 2.4706%

BEGIN LAT.V DITCH RT.
-L- STA.1158+00.00
EI = 558.00

PI = 1158+50.00
EI = 567.07

END SP.CUT DITCH LT.
-L- STA.1158+50.00
EI = 565.20

(+) 0.3000%

BEGIN LAT.BASE DITCH LT.
-L- STA.1159+00.00
EI = 559.80

END MED.V DITCH
-L- STA.1159+50.00
EI = 567.37

PI = 1160+00.00
EL = 563.98'
VC = 1,000'
K = 183
DS = 70mph

(-)11.8650%

(+)3.6000%

PI= 1159+70.00
EI= 553.80

(-) 2.3667%

(+) 4.0000%

(-) 2.5692%

(-) 2.5000%

(-) 1.7647%

(+) 2.4273%

72" RCP

PI = 1160+50.00 LT
EI = 556.25

PI= 1160+50.00 RT
EI= 557.00

PI = 1161+00.00
EI = 555.00

PI = 1161+80.00
EI = 553.66

1148+00 1149+00 1150+00 1151+00 1152+00 1153+00 1154+00 1155+00 1156+00 1157+00 1158+00 1159+00 1160+00 1161+00 1162+00

620 610 600 590 580 570 560 550 540 530

PI = 1174+50.00
EL = 616.18'
VC = 1,500'
K = 197
DS = 65mph

-L- STA.1175+45.79 =
-CSXRR- STA.15+00.00
ELEV.= 568.11
CSX R/R

(+)3.6000%

(-)4.0000%

PIPE HYDRAULIC DATA
STR 7108 Sta.1167+23

DRAINAGE AREA	= 23.1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 82.1	CFS
DESIGN HW ELEVATION	= 563.5	FT
100 YEAR DISCHARGE	= 95.5	CFS
100 YEAR HW ELEVATION	= 563.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 371.9	CFS
OVERTOPPING ELEVATION	= 590.0	FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 460	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 558.7	FT
BASE DISCHARGE	= 500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 558.9	FT
OVERTOPPING DISCHARGE	= 1280	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 570.4	FT

FOR 72" RCP, 10'X6' RCBC & 42" RCP COMBINATION

SITE 60

(+)3.6000%

EXISTING GROUND

PROPOSED GRADE

10'X6' RCBC

(+) 2.4273%

(+) 6.5000%

(-) 1.7647%

42" RCP

48" RCP

PI = 1164+00.00
EI = 559.00

END LAT.BASE DITCH RT.
-L- STA.1165+00.00
EI = 565.50

END LAT.BASE DITCH LT.
-L- STA.1162+70.00
EI = 552.00

SITE 61

FOR -L- PLAN SEE SHTS.70,71 & 72

1162+00 1163+00 1164+00 1165+00 1166+00 1167+00 1168+00 1169+00 1170+00 1171+00 1172+00 1173+00 1174+00 1175+00 1176+00

620 610 600 590 580 570 560 550 540 530

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

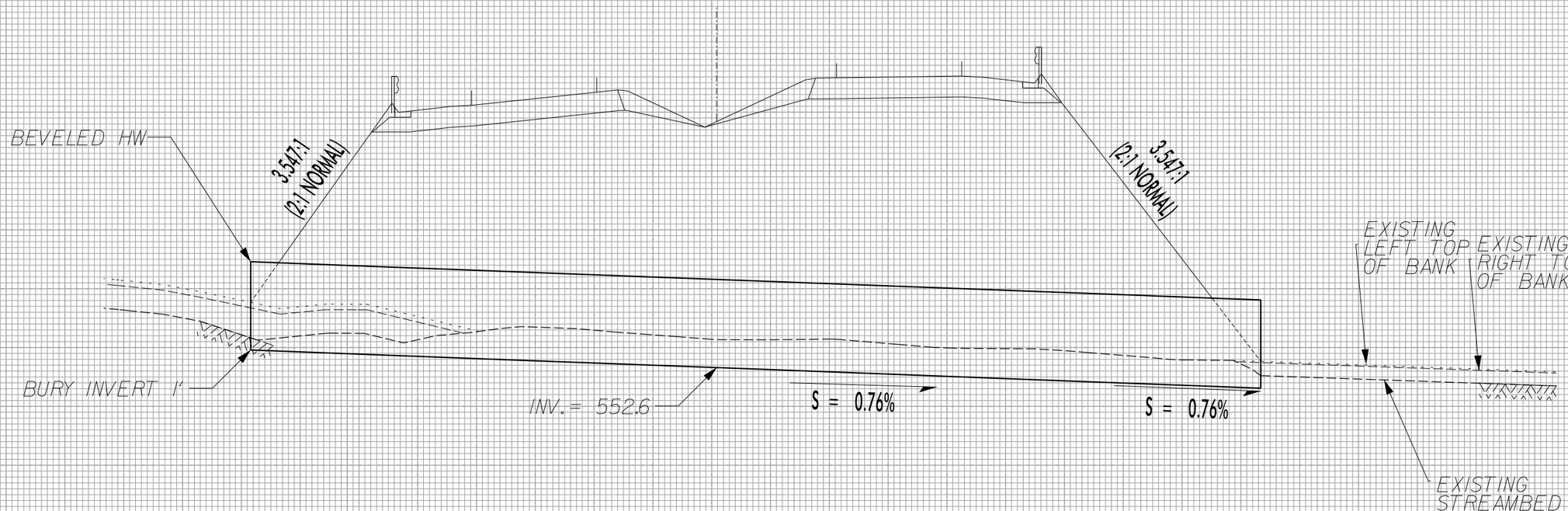
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 242OF 267

ENGLISH

SITE 60
–L– STA. 1161+05



PROPOSED 72" RCP
BURIED 1.0'

8/28/2014
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Ekang

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

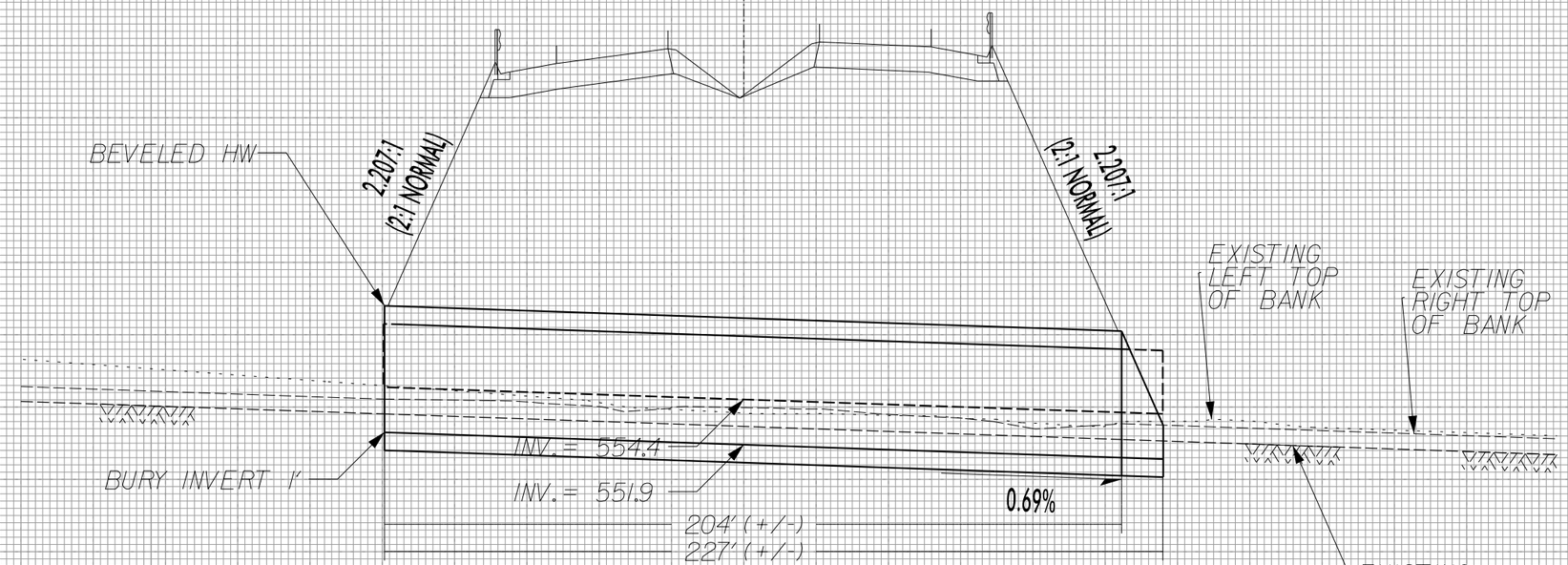
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 243OF 267

ENGLISH

SITE 60
–L– STA. 1162+27



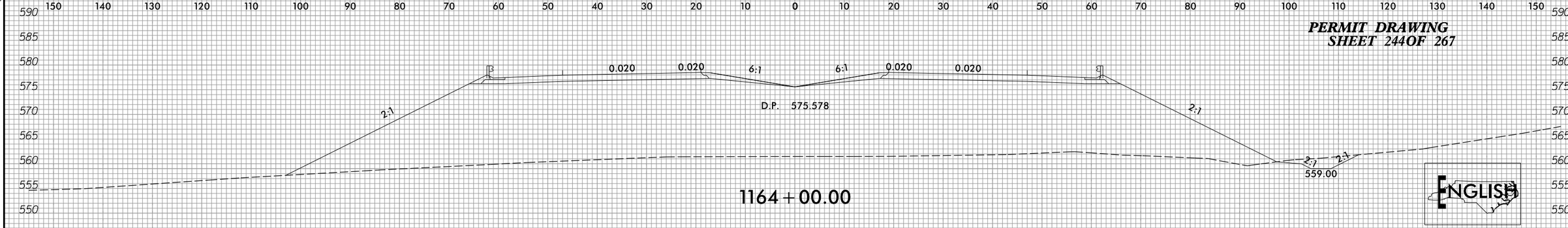
PROPOSED 10'X6' RCBC
BURIED 1.0'
AND
FLOOD PLAIN PIPE

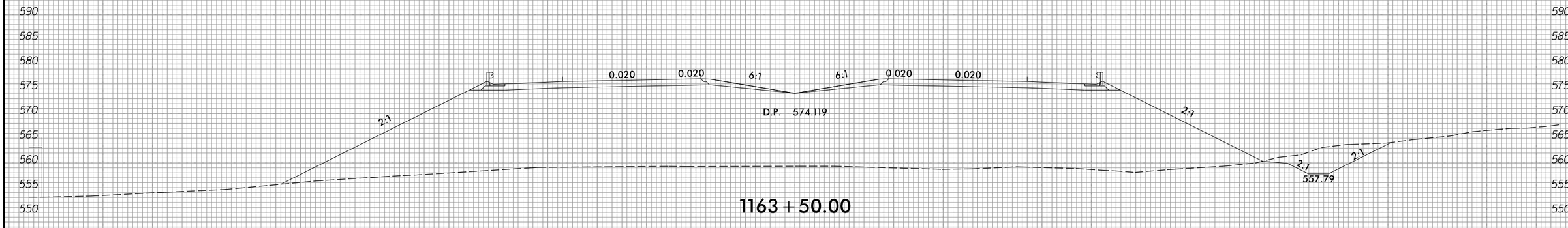
9/29/2014
R:\Hydraulics\PERMITS_Environmental\Drawings\Section3B\R3329_R2559_HDY_PRM_WET_PFL384.dgn
Elkins

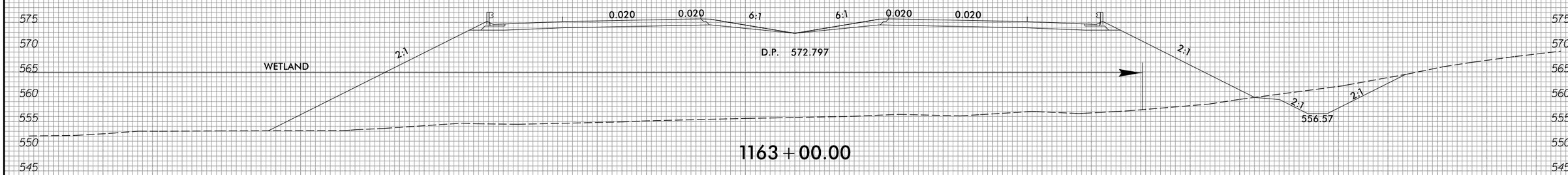
8/23/99

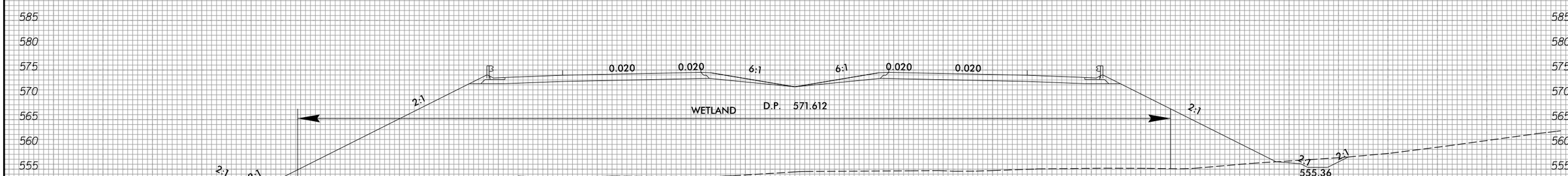
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X36

PERMIT DRAWING
SHEET 244OF 267









SITE 60

9/29/2014
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X38

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

PERMIT DRAWING
SHEET 245OF 267

ENGLISH

600 595 590 585 580 575 570 565 560 555

0.020 0.020 6:1 6:1 0.020 0.020

D.P. 587.539

2:1 2:1

1167+50.00

SITE 61

0.020 0.020 6:1 6:1 0.020 0.020

D.P. 585.966

2:1 2:1

WETLAND

1167+00.00

0.020 0.020 6:1 6:1 0.020 0.020

D.P. 584.285

2:1 2:1

WETLAND

1166+50.00

9/29/2014
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REVISIONS
1 6/26/2014: ADDED R/W TAKE TO PARCEL 829.

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	72
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 DRAWING
SHEET 246OF 267

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

MATCHLINE –L– STA. 1174+00 SEE SHEET 71

MATCHLINE –Y314L– STA. 32+50 SEE SHEET 118

MATCHLINE –Y314R– STA. 28+00 SEE SHEET 118

MATCHLINE –L– STA. 1202+00 SEE SHEET 73

NAD 83

CSX R/R

W 205 | W 190 | W 188 | W 189 | W 192 | W 199 | W 201

S 172a (INTERMITTENT) | S 172b (INTERMITTENT) | S 172c (INTERMITTENT) | S 172d (PERENNIAL) | S 169b (PERENNIAL) | S 169a (INTERMITTENT)

SHEET 72A

SITE 62

SITE 62

MSE WALL

Δ= 137° 24' 53"

BRIDGE ON –L– OVER –Y314L– & CSX RR (NOT TO SCALE)

WATER LINE UNDER STREAM WITHIN LIMITS OF CULVERT INSTALLATION IMPACTS. NO ADDITIONAL IMPACTS TABULATED FOR UTILITIES.

OBLITERATE

FOR –L– PROFILE SEE SHTS. 158 & 159
FOR –Y314L– PROFILE SEE SHT. 232
FOR –Y314R– PROFILE SEE SHTS. 230 & 231
FOR –Y316– PROFILE SEE SHTS. 234 & 235

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY :
RKK
RUMMEL, KLEPPER & KAHL, LLP
900 ROSEDALE DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3968
NC LICENSE NO. F-0672 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

PLOT DATE: 6/26/2014
FILE NAME: c:\projects\R2559\15.Environmental\Drawings\Structure\3R-3329_R2559_HDY_PRK_SET_PSHEET2.dgn

REVISIONS
1 6/26/2014: ADDED R/W TAKE TO PARCEL 829.

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	72
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 DRAWING
SHEET 247OF 267

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

MATCHLINE –L– STA. 1174+00 SEE SHEET 71

MATCHLINE –Y314L– STA. 32+50 SEE SHEET 118

MATCHLINE –Y314R– STA. 28+00 SEE SHEET 118

MATCHLINE –L– STA. 1202+00 SEE SHEET 73

SHEET 72A

W 205 · W 190 · S 172a (INTERMITTENT) · W 192 · W 188 · W 189 · S 172b (INTERMITTENT) · S 172c (INTERMITTENT) · S 172d (PERENNIAL) · S 169b (PERENNIAL) · W 199 · W 201 · S 169a (INTERMITTENT)

SITE 62

SITE 62

WATER LINE UNDER STREAM WITHIN LIMITS OF CULVERT INSTALLATION IMPACTS, NO ADDITIONAL IMPACTS TABULATED FOR UTILITIES.

BRIDGE ON –L– OVER –Y314L– & CSX RR (NOT TO SCALE)

MSE WALL

△= 137° 24' 53"

OBLITERATE

FOR –L– PROFILE SEE SHTS. 158 & 159
FOR –Y314L– PROFILE SEE SHT. 232
FOR –Y314R– PROFILE SEE SHTS. 230 & 231
FOR –Y316– PROFILE SEE SHTS. 234 & 235.

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 ROSEDALE DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3968
NC LICENSE NO. F-0672 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

PLOT DATE: 6/26/2014
FILE NAME: c:\projects\R2559\Environmental\Drawings\Structure\R-3329_R2559_HDY_PRK_RET_PSHEET2_corridor.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	72A
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 DRAWING
SHEET 248 OF 267

T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

ENGLISH

S 172d
(PERENNIAL)

S 169b
(PERENNIAL)

SITE 62

SHEET 72
SHEET 73

815
NCDOT

817
NCDOT
DB 1258 PG 233

834
RONNIE MOORE
AND WIFE,
DENISE MOORE
DB 3719 PG 485

STANDARD BASE DITCH
SEE DETAIL K

3 TONS CL B RIP RAP
W/10 SY FIL FAB

SEE CULVERT OUTLET
DETAIL STA. 1201+62

2@8'x8' RCBC

LATERAL BASE DITCH
SEE DETAIL D

15" CAAP
2 ELBOWS
ROD & LUG

**NOTE: NE BARREL HEAVY

PSH

JB W/SLAB LID

18" RCP-III

15" RCP-IV

1195+00

2GID

FS

REMOVE

REMOVE 38'

15" RCP-III

TB 2GI

45+00

2GI

1200+00

N 87° 51' 06.7" E

50+00

-Y314R-

-L-

ADJ 2GI

MEDIAN V DITCH
SEE DETAIL I

1205+00

PLUG AND FILL
W/FLOWABLE FILL

SPECIAL CUT BASE DITCH
SEE DETAIL F

DI CONC

RFH

18"

PROP 48" WW FENCE

TOE PROTECTION
SEE DETAIL H

SEE CULVERT INLET
DETAIL STA. 1201+62

LATERAL BASE DITCH
SEE DETAIL E

TIE TO DITCH

EXISTING R/W

W 199

W 201

S 169a
(INTERMITTENT)

SITE 62

WATER LINE UNDER STREAM WITHIN LIMITS OF CULVERT INSTALLATION IMPACTS. NO ADDITIONAL IMPACTS TABULATED FOR UTILITIES.

FOR -L- PROFILE SEE SHT. 158

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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Flair

8/17/99

T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

S S DENOTES IMPACTS IN SURFACE WATER

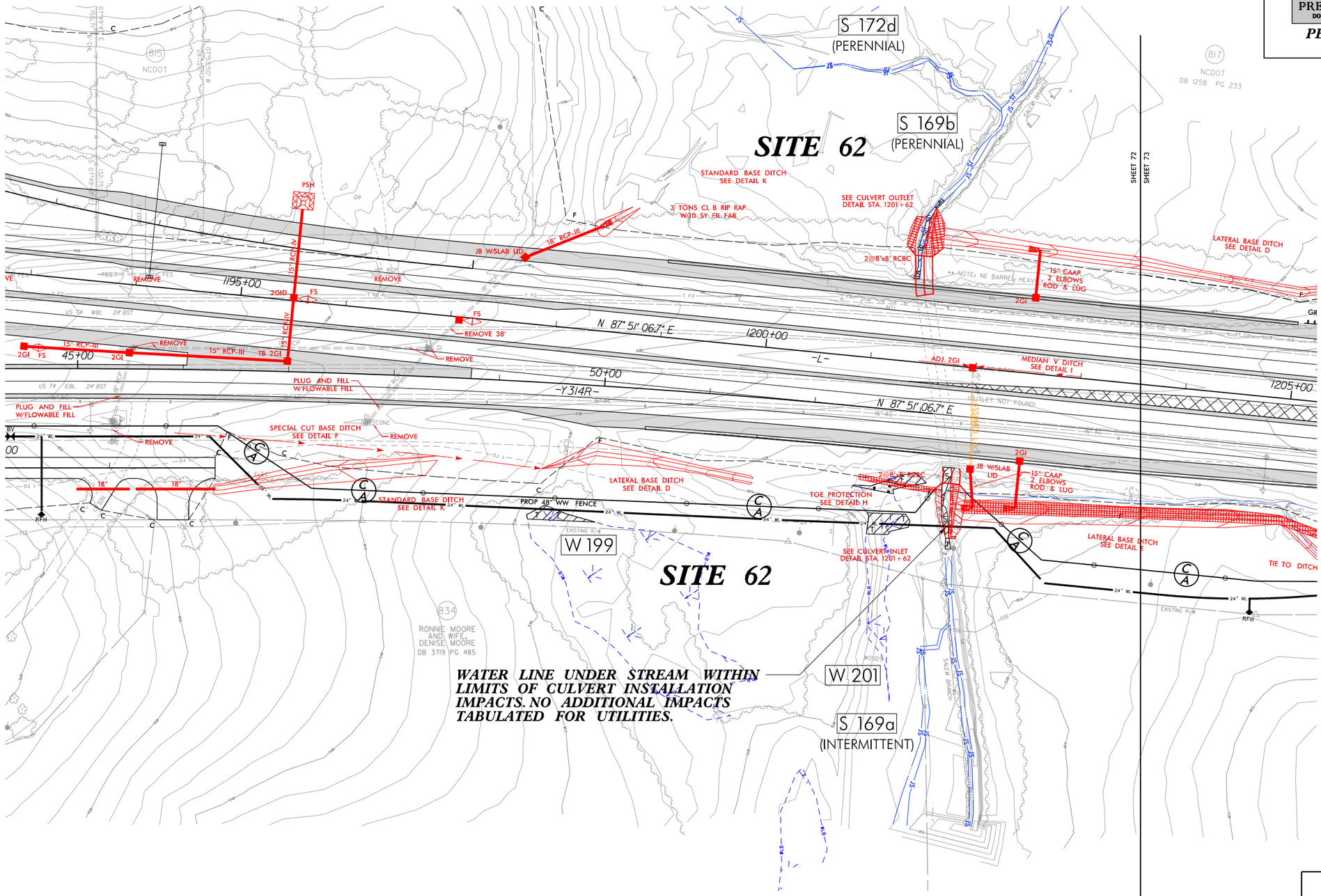
ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	72A
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 DRAWING
SHEET 249OF 267



FOR -L- PROFILE SEE SHT. 158

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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Filename

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	159
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENGLISH

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 250OF 267

-L- STA.1177+67.62 =
-Y314L- STA.29+01.59
ELEV. = 598.74
US 74 WB

PROPOSED GRADE

EXISTING GROUND

BEGIN STD.V DITCH RT.
-L- STA.1186+11.00
EI = 556.89

END STD.V DITCH RT.
-L- STA.1188+00.00
EI = 555.02

PI = 1189+35.00
EL = 556.78'
VC = 300'
K = 184
DS = 73mph

(-) 0.9894%

(-)14.0000%

(-)12.3655%

PI = 1195+50.00
EL = 542.23'
VC = 120'
K = 446
DS > 80mph

BEGIN STD.BASE DITCH RT.
-L- STA.1194+50.00
EI = 544.58

(-)12.3655%

(-)12.6345%

(-) 6.0680%

(-) 3.7018%

END STD.BASE DITCH RT.
-L- STA.1197+00.00
EI = 529.41

BEGIN SP.CUT BASE DITCH RT.
-L- STA.1194+50.00
EI = 538.66

END SP.CUT BASE DITCH RT.
BEGIN LAT.BASE DITCH
-L- STA.1198+50.00
EI = 523.85

PI = 1198+25.00
EL = 534.99'
VC = 120'
K = 240
DS > 80mph

(-)12.6345%

(-)12.1341%

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1,300	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 527.5	FT
BASE DISCHARGE	= 1,500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 529.9	FT
OVERTOPPING DISCHARGE	= 1,450	CFS
OVERTOPPING FREQUENCY	= 100+/-	YRS
OVERTOPPING ELEVATION	= 529.3	FT

PI = 1202+25.79
EL = 526.43'
VC = 600'
K = 152
DS = 63mph

PROPOSED GRADE

EXISTING GROUND

(-)12.1341%

(+)1.8100%

(+) 0.3010%

(-) 0.6809%

PI =1201+97.000
EI = 526.310

BEGIN V DITCH MED.
-L- STA.1201+50.00
EI = 526.63

END V DITCH MED.
-L- STA.1203+00.00
EI = 526.62

EXIST. 2@8'X7' RCBC

(+) 3.8550%

(+) 5.2400%

(+) 1.8230%

PI =1203+50.000
EI = 512.34

END LAT.BASE DITCH RT.
-L- STA.1200+00.00
EI = 518.30

BEGIN LAT.BASE DITCH LT.
-L- STA.1201+44.00
EI = 508.53

BEGIN LAT.BASE DITCH RT.
-L- STA.1201+93.00
EI = 508.33

SITE 62

FOR -L- PLAN SEE SHTS.72 & 73

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

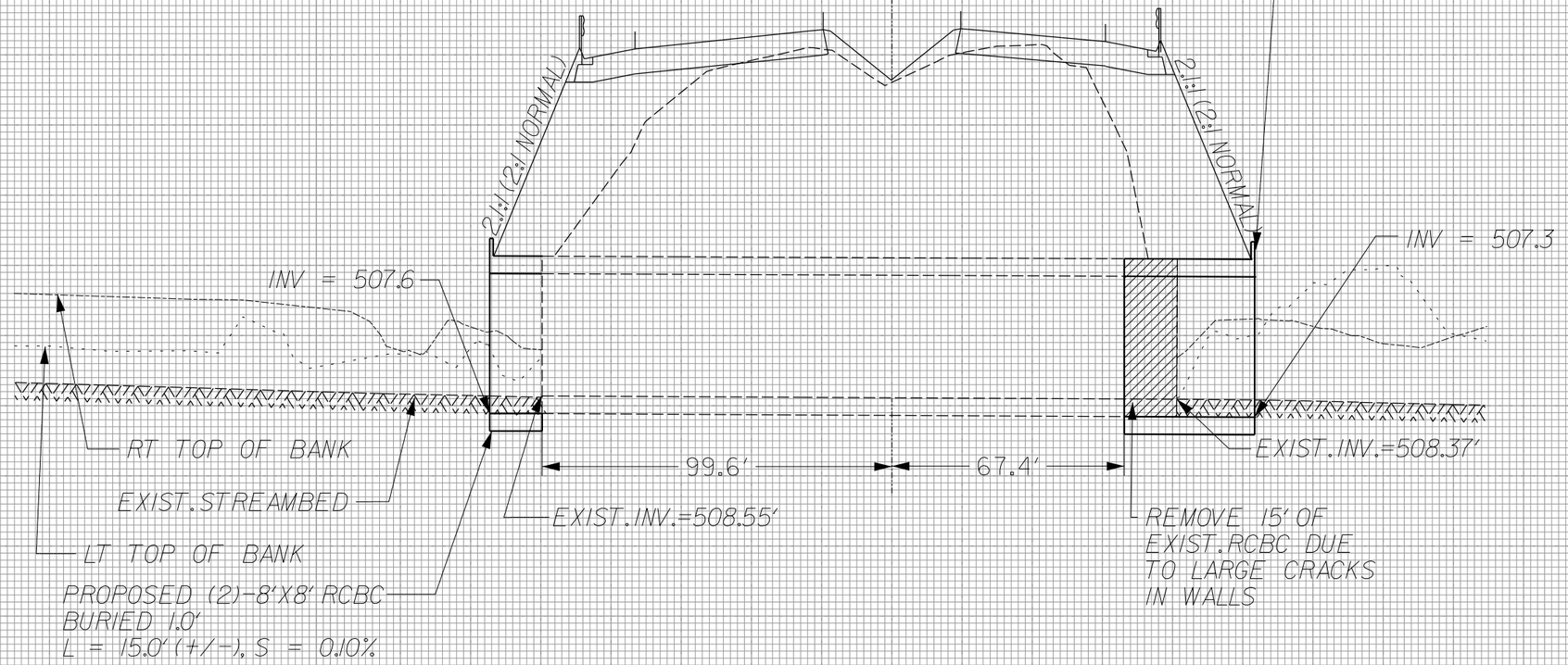
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING
SHEET 251 OF 267

ENGLISH

SITE 62
-L- STA. 1201+62



PROPOSED: EXTEND EXIST 2@8'X7'
(EXT 2@8'X8')
BURIED 1.0'

8/28/2014
8:31:50 AM
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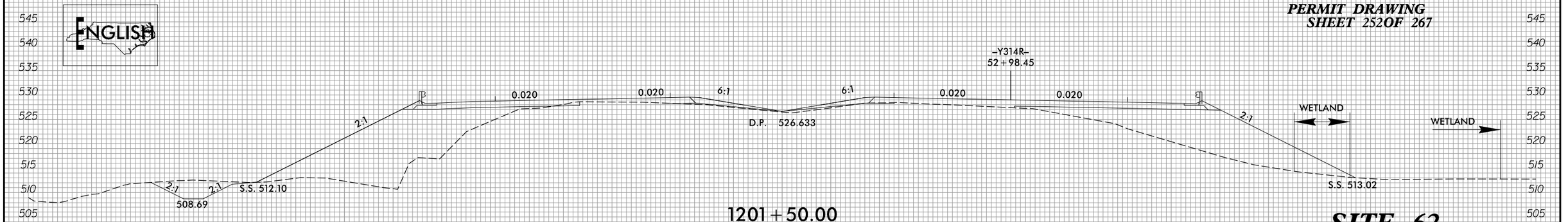
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X54

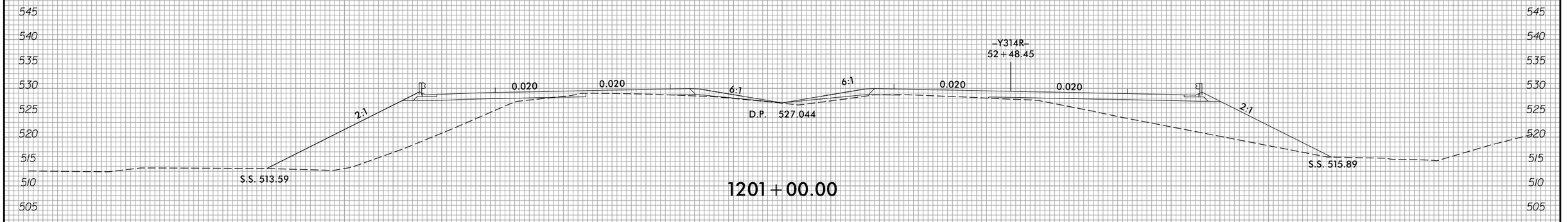
PERMIT DRAWING
SHEET 252OF 267

ENGLISH



1201+50.00

SITE 62



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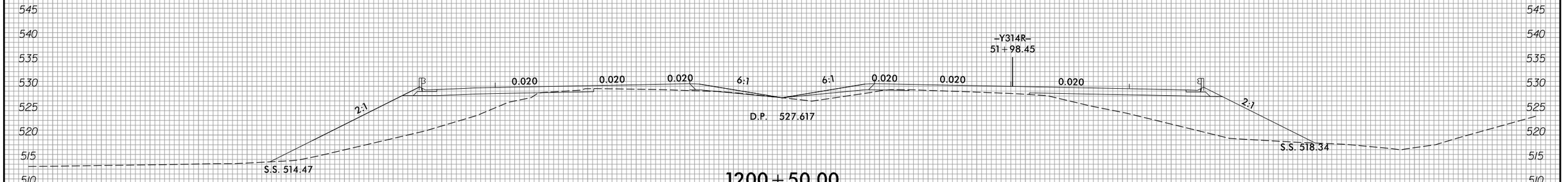

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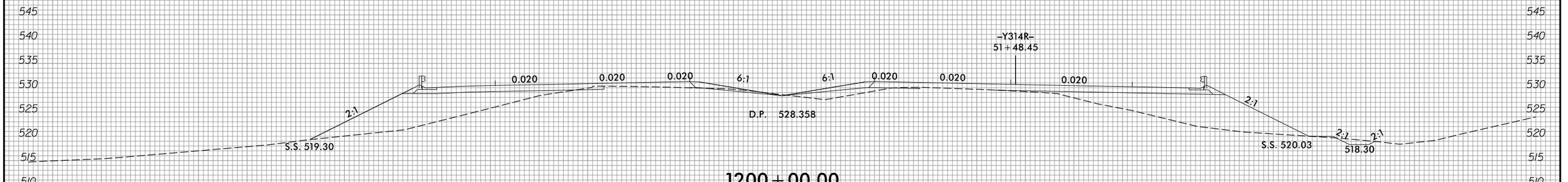

1200+00.00

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	118
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 DRAWING
SHEET 253 OF 267

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

NAD 83

MATCHLINE –Y314L– STA. 32+50
SEE SHEET 72

MATCHLINE –Y314L– STA. 44+80
SEE SHEET 119

MATCHLINE –Y314R– STA. 16+00
SEE SHEET 119

MATCHLINE –Y314R– STA. 28+00
SEE SHEET 72

MATCHLINE –Y316– STA. 15+00
SEE SHEET 119

801 MORGAN LUMBER COMPANY
DB 1160 PG 268

802 NCDOT
DB 1106 PG 263

803 NCDOT
DB 981 PG 520

805 NCDOT
DB 1215 PG 494

827 LARRY E HAIGLER, ET ALS
DB 4385 PG 65

–Y314L– 40+00

–Y314R– 20+00

–Y316– 20+00

S 46°04'27.0" W 35.00'

N 82°12'28.9" E

N 82°11'19.7" E

S 82°14'40" W 278.36'

N 16°55'24" E 279.96'

N 16°55'25" E 265.44'

N 88°47'29" E 145.44'

S 04°48'44" E 89.91'

N 04°08'58" E 120'

N 04°08'58" E 207.68'

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

FALSE SUMP ELEV. 572.0

FALSE SUMP ELEV. 568.70

2GI-D

FS

5 TONS CL B RIP RAP W/14 SY FIL FAB

GRADE TO DRAIN

STANDARD BASE DITCH SEE DETAIL K

REMOVE

18" RCP

24" RCP

FES

CONC DITCH

PLUG AND FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 30" WELDED STEEL

PFH

LANDSCAPE TIMBERS

CONC PAD

GUY

EXISTING R/W

SITE 63

Q10=19.7 CFS
V10= 1.0 FT/S

W 196

FOR –Y314L– PROFILE SEE SHTS. 232 & 233
FOR –Y314R– PROFILE SEE SHT. 230
FOR –Y316– PROFILE SEE SHT. 234

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	118
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 DRAWING
SHEET 254OF 267

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ENGLISH

NAD 83

MATCHLINE –Y314L– STA. 32+50 SEE SHEET 72

MATCHLINE –Y314L– STA. 44+80 SEE SHEET 119

MATCHLINE –Y314R– STA. 16+00 SEE SHEET 119

MATCHLINE –Y316– STA. 15+00 SEE SHEET 119

MATCHLINE –Y314R– STA. 28+00 SEE SHEET 72

801 MORGAN LUMBER COMPANY DB 1160 PG 268

802 NCDOT DB 806 PG 263

803 NCDOT DB 981 PG 520

805 NCDOT DB 1215 PG 494

827 LARRY E HAIGLER, ET ALS DB 4385 PG 65

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

FALSE SUMP ELEV. 572.0

FALSE SUMP ELEV. 568.70

GRADE TO DRAIN

STANDARD BASE DITCH SEE DETAIL K

PLUG AND FILL W/FLOWABLE FILL

TRENCHLESS INSTALLATION 32" WELDED STEEL

2GI-D

FS

REMOVE

-Y314L-

-Y314R-

-Y316-

S 46°04'27.0" W 35.00

N 82°12'28.9" E

N 82°11'19.7" E

N 88°47'29"E 145.44'

S 04°48'44"E 89.91'

N 04°08'58"E 120'

N 16°55'24"E 271.9'

S 82°14'40" W 276.36'

N 16°55'24"E 56.54'

N 16°55'24"E 265.44'

EXISTING R/W

6" CAST IRON

CONC

CONC PAD

LANDSCAPE TIMBERS

24" RCP

FES

EOT

CONC DITCH

GUY

Q10=19.7 CFS
V10= 1.0 FT/S

W 196

FOR –Y314L– PROFILE SEE SHTS. 232 & 233
FOR –Y314R– PROFILE SEE SHT. 230
FOR –Y316– PROFILE SEE SHT. 234

SITE 63

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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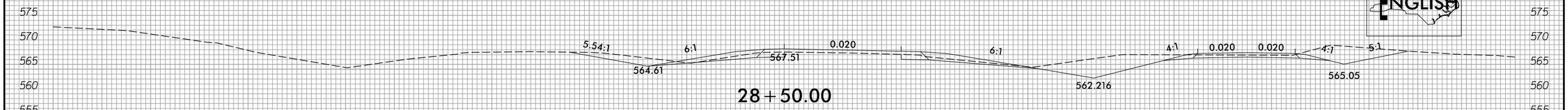
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X99

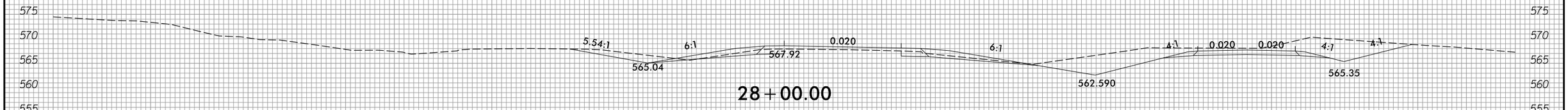
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PERMIT DRAWING
SHEET 255OF 267

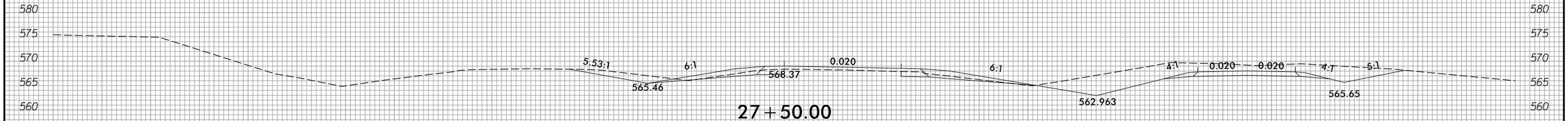
ENGLISH



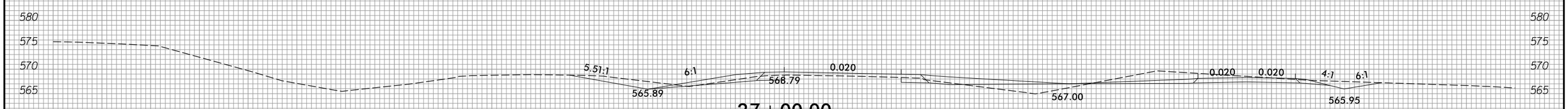
28+50.00



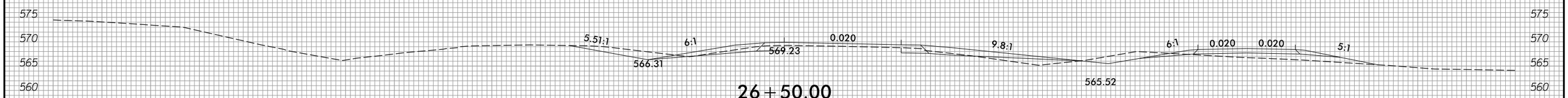
28+00.00



27+50.00

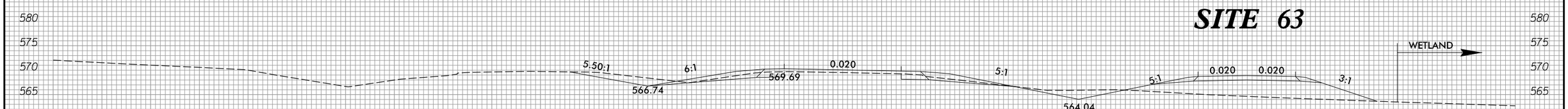


27+00.00



26+50.00

SITE 63



26+00.00

-Y314R-

9/29/2014
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8/17/99

ADT 2013
ADT 2035

TRAFFIC DIAGRAM

	–Y314– BUSINESS US 74 16,800 / 25,200	
–Y315– FOREST HILLS SCHOOL ROAD 1,700 / 2,800		–Y315– FOREST HILLS SCHOOL ROAD 500 / 2,500
2,300 / 4,300		700 / 3,600
400 / 600		000 / 200
–Y314– BUSINESS US 74 15,000 / 20,700		

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

ENGLISH

NOTES:

INSTALL ONE 48" RCP AT –Y316– STA. 11+76 BURIED 0.8' BELOW EXIST. WETLAND ELEVATION. INSTALL SECOND 48" RCP 1.0' ABOVE BURIED PIPE.

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	119
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 DRAWING SHEET 256 OF 267

NAD 83

SITE 64

WX805

SITE 64

WX811

778 UNION COUNTY BOARD OF EDUCATION DB 5305 PG 13

771 COMMERCIAL PIPING & FABRICATING, INC. DB 329 PG 604

826 PATTIE HELMS HEIRS DB 341 PG 804

801 MORGAN LUMBER COMPANY DB 1160 PG 268

TRENCHLESS INSTALLATION 30" WELDED STEEL

16 TONS CL B RIP RAP W/42 SY FIL FAB

LATERAL Y DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

RETAIN

PIPES DO NOT INTERSECT

15" RCP

2GI FS

S 82° 52.4" W

10+00

50+00

15+00

20+00

25+00

N 26° 39' 54.2" W

N 58° 20' 05.8" E

–Y315–

–Y314R–

–Y314L–

–Y316–

48" RCP-III REMOVE

GRAU 350

26 TONS CL I RIP RAP W/50 SY FIL FAB

PLUG AND FILL W/FLOWABLE FILL

SPECIAL CUT DITCH SEE DETAIL A

2GI FS 30" RCP-III

8 TONS CL B RIP RAP W/7 SY FIL FAB

15 TONS CL I RIP RAP W/30 SY FIL FAB

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

26 TONS CL I RIP RAP W/50 SY FIL FAB ON BANKS ONLY

Q10 = 72 CFS
V10 = 1.6 FT\S

LATERAL V DITCH SEE DETAIL B

TOE PROTECTION SEE DETAIL A

2 TONS CL B RIP RAP W/7 SY FIL FAB AT PIPE OUTLET

GRADE TO DRAIN

PROP 48" WW FENCE

EXIST 48" WW FENCE

+3000 55.0' RT

MATCHLINE –Y314R– STA. 16+00 –Y314L– STA. 44+80 SEE SHEET 118

MATCHLINE –Y316– STA. 15+00 SEE SHEET 118

FOR –Y314R– PROFILE SEE SHT. 230
FOR –Y314L– PROFILE SEE SHT. 233
FOR –Y315– PROFILE SEE SHT. 233
FOR –Y316– PROFILE SEE SHT. 234

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	119
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 DRAWING SHEET 257 OF 267

ADT 2013
ADT 2035

TRAFFIC DIAGRAM

	–Y314– BUSINESS US 74 16,800 / 25,200	
–Y315– FOREST HILLS SCHOOL ROAD 1,700 / 2,800	500 / 2,500	–Y315– FOREST HILLS SCHOOL ROAD
2,300 / 4,300	400 / 600	000 / 200 — 700 / 3,600
	–Y314– BUSINESS US 74 15,000 / 20,700	

F/F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

T/T DENOTES TEMPORARY FILL IN WETLAND

ENGLISH

NOTES:

INSTALL ONE 48" RCP AT –Y316– STA. 11+76 BURIED 0.8' BELOW EXIST. WETLAND ELEVATION. INSTALL SECOND 48" RCP 1.0' ABOVE BURIED PIPE.

NAD 83

778
UNION COUNTY BOARD OF EDUCATION
DB 5305 PG 13

771
COMMERCIAL PIPING & FABRICATING, INC.
DB 329 PG 604

826
PATTIE HELMS HEIRS
DB 341 PG 804

801
MORGAN LUMBER COMPANY
DB 1160 PG 268

SITE 64

WX805

WX811

TRENCHLESS INSTALLATION 30" WELDED STEEL

16 TONS CL B RIP RAP W/42 SY FIL FAB

LATERAL Y DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

RETAIN

15+00

20+00

10+00

50+00

25+00

S 82° 52.4" W

15" RCP

2GI

FS

PIPES DO NOT INTERSECT

ADJ 2GI

N 26° 39' 54.2" W

N 58° 20' 05.8" E

–Y315–

–Y314R–

–Y314L–

–Y316–

48" RCP-III

REMOVE

PLUG AND FILL W/FLOWABLE FILL

GRAU 350

26 TONS CL I RIP RAP W/50 SY FIL FAB

SPECIAL CUT DITCH SEE DETAIL A

36" RCP-III

8 TONS CL B RIP RAP W/7 SY FIL FAB

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

26 TONS CL I RIP RAP W/50 SY FIL FAB ON BANKS ONLY

Q10 = 72 CFS
V10 = 1.6 FT/S

LATERAL V DITCH SEE DETAIL B

TOE PROTECTION SEE DETAIL A

2 TONS CL B RIP RAP W/7 SY FIL FAB AT PIPE OUTLET

GRADE TO DRAIN

PROP 48" WW FENCE

+3000 55.0' RT

N 49° 37' 54.7" E

15 TONS CL I RIP RAP W/30 SY FIL FAB

EXISTING R/W

MATCHLINE –Y314R– STA. 16+00 SEE SHEET 118

MATCHLINE –Y314L– STA. 44+80 SEE SHEET 118

MATCHLINE –Y316– STA. 15+00 SEE SHEET 118

FOR –Y314R– PROFILE SEE SHT. 230
FOR –Y314L– PROFILE SEE SHT. 233
FOR –Y315– PROFILE SEE SHT. 233
FOR –Y316– PROFILE SEE SHT. 234

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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PERMIT DRAWING
SHEET 258OF 267

ENGLISH

595 590 585 580 575 570 565 560

WETLAND

6:1 0.020 0.020 2:1

574.42

2:1 567.94 2:1

17+00.00

595 590 585 580 575 570 565 560

WETLAND WETLAND WETLAND

6:1 0.020 0.020 2:1

573.64

2:1 567.47 2:1

16+50.00

595 590 585 580 575 570 565 560

SITE 64

WETLAND WETLAND

6:1 0.020 0.020 2:1

573.43

2:1 2:1 568.46

16+00.00

590 585 580 575 570 565 560

WETLAND

6:1 0.020 0.020 5.64:1

573.42

2:1 2:1 569.44

15+50.00

-Y315-

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9/29/2014
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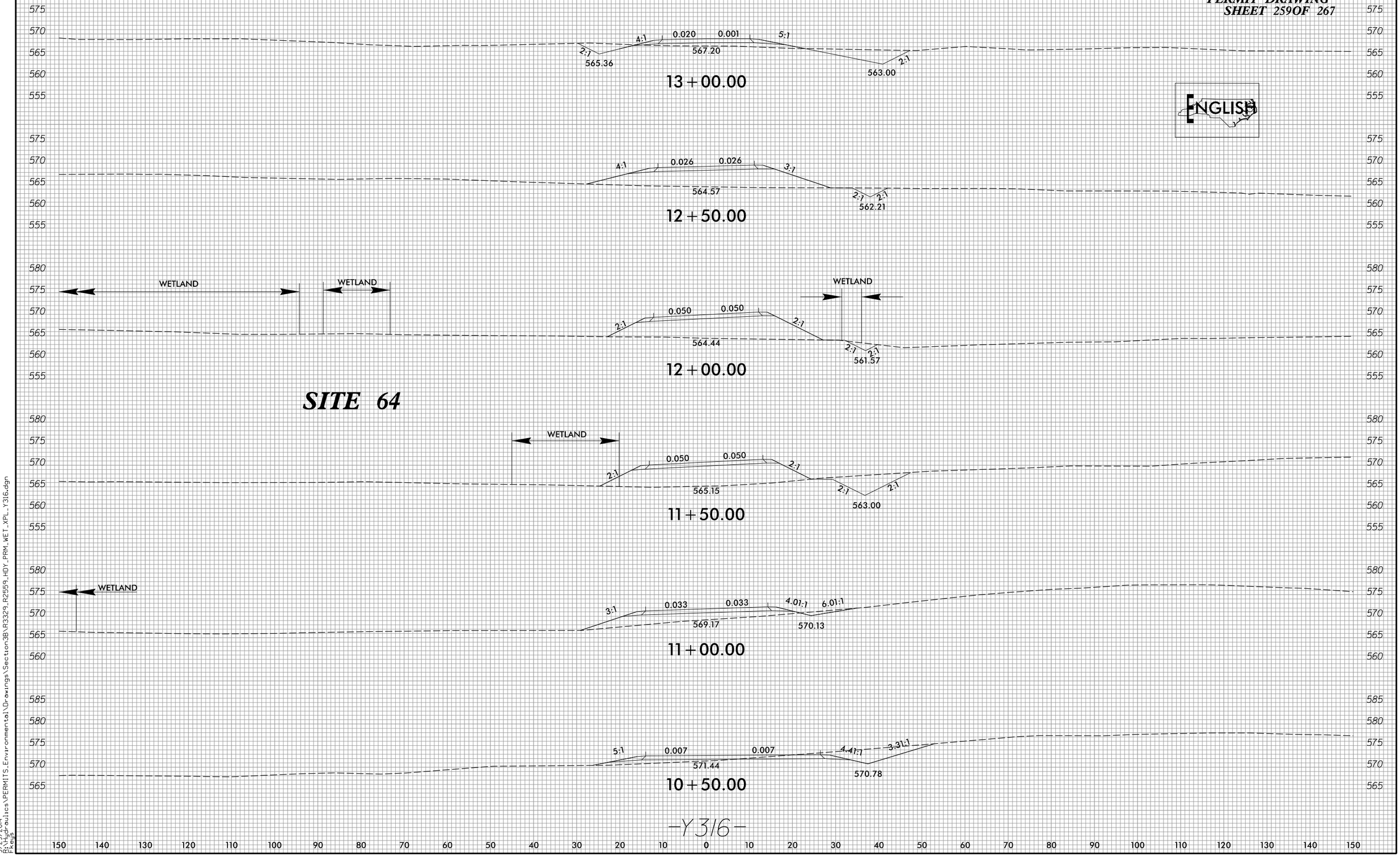
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X114

PERMIT DRAWING
SHEET 259OF 267



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-Y316-

9/29/2014
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-3329 / R-2559	3B-X95

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PERMIT DRAWING
SHEET 260OF 267

ENGLISH

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WETLAND

16+00.00

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WETLAND

15+50.00

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15+00.00

SITE 64

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14+50.00

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582.79
580.76

13+50.00

-Y314R-

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9/29/2014
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Fkeys

WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 1

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-DR1- 11+55 -Y111- 21+50 -L- 140+00	(2) 84" RCP-III 10'X8' RCBC						0.09		621		
		BANK STABILIZATION						0.01	<0.01	164	21	
2	-Y111- 13+00	FILL IN WETLANDS	0.14			0.06						
3	-L- 152+40 -Y113- 22+53	30" RCP-III 42" RCP-III						0.01	<0.01	130	10	
		BANK STABILIZATION						<0.01	<0.01	24	21	
4	-Y114- 32+67 -R674- 16+15 -R574- 35+41 -L- 175+72 -R174- 29+50	10'X7' RCBC						0.06	<0.01	666	2	
		BANK STABILIZATION						0.02	<0.01	194	20	
5	SR16 11+50	60" RCP	0.05			0.02		0.02		114		
		BANK STABILIZATION							<0.01		12	
6	Y112 27+50 RT	FILL IN WETLANDS	0.04			0.04						
7	-SR2- 17+00	FILL IN WETLANDS	0.24			0.04						
	-L- 198+00	FILL IN WETLANDS	0.64									
SUBTOTAL DESIGN SECTION 1:			1.12	0.00	0.00	0.17	0.00	0.22	0.01	1913	86	

*Rounded totals are the sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/2559)

ATN Revised 3/31/05

WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 2A

			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)
8	-L- 261+00	42" PIPE	<0.01		0.02	0.01		0.01		382		
9	-L- 265+40	(2) 9'X7' RCBC	0.12			<0.01		0.03		391		
		BANK STABILIZATION						<0.01	0.01	26	60	
		UTILITY IMPACTS		0.03					0.01		69	
10	-L- 293+48	12'X6' RCBC						0.02		167		
		BANK STABILIZATION						0.01	<0.01	105	20	
11	-L- 297+50 LT	(3) 36" RCP										
		BANK STABILIZATION							<0.01		10	
12 [1]	-L- 374+00	7'X8' RCBC FILL IN POND						0.13		532		
		BANK STABILIZATION						0.01	<0.01	65	24	
13 [2]	-L- 376+00	FILL IN POND						0.08				
14	-L- 396+14	10'X6' RCBC	0.12			0.01		0.04		327		
	-L- 396+14	BANK STABILIZATION						0.01	<0.01	42	18	
	-L- 392+00 RT	ROADWAY FILL	<0.01			0.02						
15 [3]	-Y107- 50+00	FILL IN POND						0.13				
SUBTOTAL DESIGN SECTION 2A:			0.24	0.03	0.02	0.05	0.00	0.47	0.02	2037	201	

*Rounded totals are the sum of actual impacts

[1] 0.07ac of fill in surface water due to draining pond

[2] 0.08ac of fill in surface water due to draining pond

[3] 0.13ac of fill in surface water due to draining pond

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/2559)

WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 2B

			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)
16	-L- 424+00	(3) 12'X8' RCBC								513		
		BANK STABILIZATION						0.01	<0.01	62	24	
17	-L- 432+98	(2) 66" RCP						0.03		429		
		BANK STABILIZATION						<0.01	<0.01	39	27	
18	-L- 479+00	(2) 42" RCP & 54" RCP	0.10		<0.01	<0.01		0.06		1163		
		BANK STABILIZATION						<0.01	<0.01	18	52	
19	-L- 511+70 LT	BRIDGE										
		BANK STABILIZATION							<0.01		26	
20	-L- 515+45	(2) 8'X8' RCBC						0.02		214		
		BANK STABILIZATION						<0.01	<0.01	51	20	
		UTLITY IMPACTS	0.02	0.04		0.01						
21	-L- 555+50	42" RCP	0.06									
22	-Y208- 20+65	42" RCP & RETAIN 24" RCP	0.01			0.01						
		BANK STABILIZATION						<0.01	<0.01	9	17	
23	-L- 586+33	12'X7' RCBC						0.04		408		
		BANK STABILIZATION						0.01	<0.01	122	20	
24	-L- 591+00	60" RCP						0.02		201		
		BANK STABILIZATION						<0.01	<0.01	32	20	
25	-L- 605+35	72" RCP						0.02		245		
		BANK STABILIZATION						<0.01	<0.01	40	21	
26	-L- 613+68	1@48", 2@36" RCP						0.02		189		
		BANK STABILIZATION						<0.01	<0.01	45	20	
27 [1]	-Y204- 13+50 LT	FILL IN POND						0.07				
SUBTOTAL DESIGN SECTION 2B:			0.19	0.04	0.00	0.02	0.00	0.39	0.02	3780	247	

*Rounded totals are the sum of actual impacts

[1] Surface Water Impact due to Rock Fill in Pond

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/2559)

WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 2C

			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)
28	-L- 656+17 TO - 657+71 RT	36" RCP						<0.01		72		
		BANK STABILIZATION						<0.01	<0.01	62	10	
29	-L- 669+50	3@9'X12' RCBC						0.09		241		
		BANK STABILIZATION						0.04	0.01	123	38	
30	-L- 700+11 TO - 705+91	7'X7' RCBC						0.04	<0.01	375	33	
		BANK STABILIZATION						0.02	<0.01	206	10	
31	-L- 718+00	FILL IN WETLANDS	0.09									
32	-L- 738+80 RT	72" RCP & PIPE REMOVAL	0.02					0.01	<0.01	59	20	
		BANK STABILIZATION						<0.01	<0.01	24	10	
33	-L- 752+51 TO - 769+15 LT	FILL IN WETLANDS 30" RCP	1.61			0.28						
34	-L- 805+06 LT	15" RCP						<0.01	<0.01	13	10	
35	-L- 805+89	10'X7' RCBC						0.01		185		
		BANK STABILIZATION						0.01	0.01	82	74	
36	-L- 817+63	48" RCP	0.07					0.01		260		
		BANK STABILIZATION						<0.01	<0.01	16	10	
37	-TLA- 13+07 - 15+68; -TRA- 22+00 LT	FILL IN WETLANDS 24" & 48" RCP	0.28			0.01		0.02		380		
38	-L- 841+00 LT & RT	60" RCP & 2 66" RCPs	0.57					0.06		1016		
		BANK STABILIZATION						0.01	<0.01	95	24	
39 [1]	-L- 849+00 RT	FILL IN POND						0.22				
40 [1]	-L- 856+00 RT	FILL IN POND						0.90				
41 [2]	-L- 866+50	42" RCP						0.12		279		
		BANK STABILIZATION						<0.01	<0.01	34	10	
42	-L- 890+87 TO -L- 893+14	FILL IN STREAM						0.03	<0.01	276	13	
43	-L- 893+00	84" RCP	0.01			<0.01		0.05		299	11	
		BANK STABILIZATION						0.01	<0.01	28	10	
44	-L- 903+70	54" RCP	0.13			0.02		0.02		179		
		BANK STABILIZATION						<0.01	<0.01	18	10	
45 [1]	-Y302- 152+00 RT	24" RCP						0.05				
SUBTOTAL DESIGN SECTION 2C:			2.78	0.00	0.00	0.31	0.00	1.73	0.04	4322	293	

*Rounded totals are the sum of actual impacts

[1] Fill in surface water due to draining pond

[2] 0.10ac of fill in surface water due to draining pond

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY

WBS - 34533.5.TA1 (R-3329/2559)

ATN Revised 3/31/05

WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 3A

			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)
46	-L-942+33 to 944+18	Bridge										
		Bank Stabilization						<0.01		38		
47	-L- 956+83 to 957+44	Bridge										
		Bank Stabilization						<0.01		43		
48	-Y306- 27+69 to 28+79 Rt	Roadway Fill	0.06	0.01		0.03						
	-Y306- 31+58 to 33+11 Rt	60" RCP						0.01		193		
49	-Y318- 16+03 to 15+65	9'x7' RCBC							<0.01		20	
		Bank Stabilization						<0.01		52		
50	-L- 973+14 to 980+36	9'x7' RCBC	0.06					0.09	<0.01	905	18	
	-L- 981+50 to 986+25 Lt	Roadway Fill	0.04									
51	-L- 1001+08 to 1003+00	66" RCP-III						0.02	<0.01	115	20	
		Bank Stabilization						<0.01		11		
52	-Y308- 34+43 to 31+75 Lt	Roadway Fill						0.86	<0.01	545	10	
53	-L- 1038+42	2@10'x6' RCBC						0.10		985		
		Bank Stabilization						0.02	<0.01	165	19	
		Utility Relocation							<0.01		41	
54	-L- 1055+58 to 1059+27	Bridge	0.01	0.52			0.78					
SUBTOTAL DESIGN SECTION 3A:			0.17	0.53	0.00	0.03	0.78	1.11	0.04	3052	128	0.00

*Rounded totals are the sum of actual impacts

NOTE: Site #54 - Permanent Fill In Wetland Impacts due to the proposed bents is 453.6 square feet (0.01 acres) (included above).

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/R-2559)

WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 3B

			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)
55	-L- 1074+23	7' x 7' RCBC						0.02		157		
		BANK STABILIZATION						0.01	0.01	80	39	
56 [1]	-Y309- 19+71	2@48" RCP	0.03		<0.01	<0.01						
		UTILITY IMPACTS		<0.01								
57	-L- 1096+08	2@42" RCP	0.19		0.02	0.06						
58	-L- 1122+50 Lt	FILL IN WETLANDS	0.02			0.01						
59	-Y310- 23+00 Rt	BANK STABILIZATION FOR 36" RCP						<0.01	<0.01	12	10	
60 [2]	-L- 1162+27	72" RCP, 10'x6' RCBC w\42" floodplain pipe	0.64		0.06	0.05		<0.01	<0.01	3	10	
61	-L- 1167+23	48" RCP	0.08			<0.01						
62 [3]	-L- 1201+62	Extend 2@7'x7' RCBC w\ 2@8'x8' RCBC	0.01			0.01		<0.01		37		
		BANK STABILIZATION						0.01	<0.01	102	20	
		UTILITY IMPACTS		0.03								
63	-Y314R- 25+85 Rt	30" RCP	0.04			0.02						
64 [4]	-Y315- 16+53 -Y316- 11+76 -Y314R-15+50 RT	48" RCP 2@48" RCP 36" STEEL	0.14		0.02	0.08						
		UTILITY IMPACTS	0.03	<0.01								
SUBTOTAL DESIGN SECTION 3B:			1.17	0.04	0.11	0.23	0.00	0.04	0.01	391	79	

*Rounded totals are the sum of actual impacts

[1] Temporary fill impacts include excavation of utility trench and backfill as well as equipment crossing during constructior

[2] Excavation in wetlands includes 1170.4 sf (0.03 ac) of temporary excavation for bypass channel during construction

[3] Temporary fill impacts include excavation of utility trench and backfill as well as equipment crossing during construction

[4] Temporary fill impacts include excavation of utility trench and backfill as well as equipment crossing during constructior

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/2559)

WETLAND PERMIT IMPACT SUMMARY - PROJECT TOTALS

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)
SUBTOTAL DESIGN SECTION 1			1.12	0.00	0.00	0.17	0.00	0.22	0.01	1913	86	
SUBTOTAL DESIGN SECTION 2A			0.24	0.03	0.02	0.05	0.00	0.47	0.02	2037	201	
SUBTOTAL DESIGN SECTION 2B			0.19	0.04	0.00	0.02	0.00	0.39	0.02	3780	247	
SUBTOTAL DESIGN SECTION 2C			2.78	0.00	0.00	0.31	0.00	1.73	0.04	4322	293	
SUBTOTAL DESIGN SECTION 3A			0.17	0.53	0.00	0.03	0.78	1.11	0.04	3052	128	
SUBTOTAL DESIGN SECTION 3B			1.17	0.04	0.11	0.23	0.00	0.04	0.01	391	79	
PROJECT TOTAL:			5.66	0.63	0.13	0.81	0.78	3.95	0.14	15495	1034	

*Rounded totals are the sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/2559)

ATN Revised 3/31/05

R-3329/R-2559

US 74 Monroe Bypass

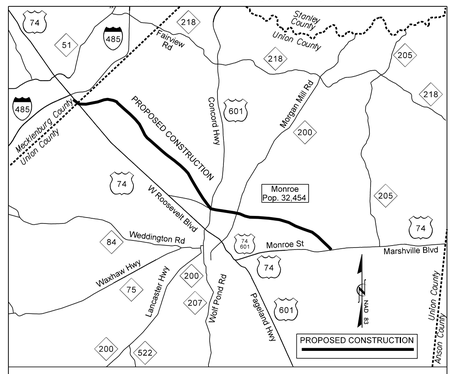
Roadway Plans

09/08/49

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

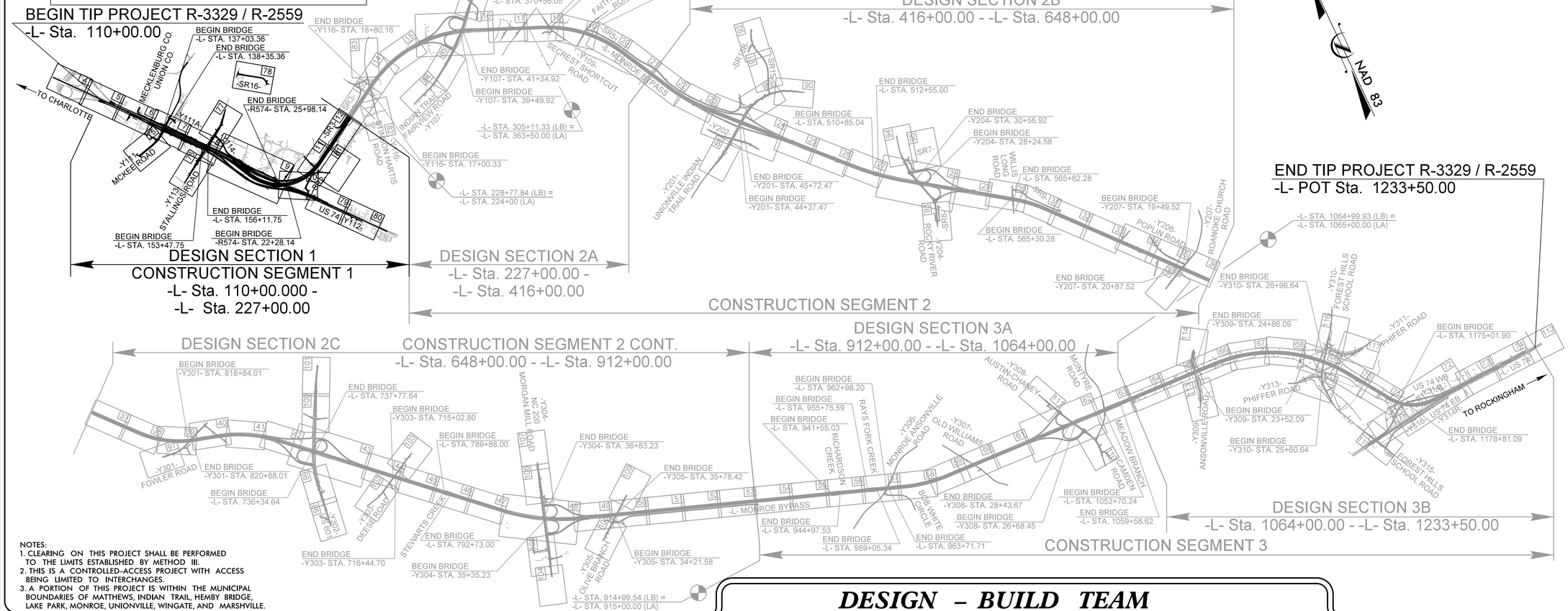
LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD

PERMIT APPLICATION
SUBMITTAL NO. S-099
DATE: 10-01-2014

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION


BEGIN TIP PROJECT R-3329 / R-2559
-L- Sta. 110+00.00
TO CHARLOTTE
MECKLENBURG CO
UNION CO
BEGIN BRIDGE
-L- STA. 137+03.36
END BRIDGE
-L- STA. 138+35.36
-SR16-
END BRIDGE
-R574- STA. 25+98.14
-Y111A-
-Y111-
MCKEE ROAD
-Y113-
STALLINGS ROAD
END BRIDGE
-L- STA. 156+11.75
BEGIN BRIDGE
-L- STA. 153+47.75
BEGIN BRIDGE
-R574- STA. 22+28.14
US 74
-Y112-
DESIGN SECTION 1
CONSTRUCTION SEGMENT 1
-L- Sta. 110+00.000 -
-L- Sta. 227+00.00
END BRIDGE
-Y116- STA. 18+80.16
-Y116-
INDIAN TRAIL FAIRVIEW ROAD
-Y101-
BEGIN BRIDGE
-L- STA. 370+56.05
END BRIDGE
-L- STA. 372+14.88
-Y110-
FAITH CHURCH ROAD
SECRET SHORTCUT ROAD
-Y109-
END BRIDGE
-Y107- STA. 41+24.92
BEGIN BRIDGE
-Y107- STA. 39+49.92
-L- STA. 305+11.33 (LB) =
-L- STA. 363+50.00 (LA)
BEGIN BRIDGE
-Y116- STA. 17+00.33
-L- STA. 228+77.84 (LB) =
-L- STA. 224+00 (LA)
DESIGN SECTION 2A
-L- Sta. 227+00.00 -
-L- Sta. 416+00.00
BEGIN BRIDGE
-L- STA. 384+53.66
END BRIDGE
-L- STA. 385+69.66
-L- STA. 417+99.82 (LB) =
-L- STA. 418+32.16 (LA)
DESIGN SECTION 2B
-L- Sta. 416+00.00 - -L- Sta. 648+00.00
-L- MONROE BYPASS
-SR5-
-SR5-
-SR5-

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	J2	PROPOSED 8" AGGREGATE BASE COURSE
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.	E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J3	PROPOSED 9" AGGREGATE BASE COURSE
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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	J4	PROPOSED 10" AGGREGATE BASE COURSE
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E4	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J5	PROPOSED VARIABLE DEPTH AGGREGATE BASE COURSE
C5	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.	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" OR GREATER THAN 5.5" IN DEPTH.	K1	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8" OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7"
C6	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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E6	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ YD
C7	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E7	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB & GUTTER
C8	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E8	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R2	1'-6" CONCRETE CURB & GUTTER
C9	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E9	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R3	SHOULDER BERM GUTTER
C10	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS.PER SQ. YD.	E10	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	CONCRETE EXPRESSWAY GUTTER
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E11	PROP. APPROX. 6.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E12	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.	R6	SINGLE FACED CONCRETE BARRIER
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E13	PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R7	DOUBLE FACED CONCRETE BARRIER (TYPE T, T1, T2)
D4	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 2.5" OR GREATER THAN 4" IN DEPTH.	E14	PROP. APPROX. 10.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R8	RUMBLE STRIPS
D5	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E15	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R9	8" X 18" CURB & GUTTER
D6	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E16	PROP. APPROX. 3.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 199 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	S	4" CONCRETE SIDEWALK
D7	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E17	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
D8	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 2.5" OR GREATER THAN 4" IN DEPTH.	E18	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" OR GREATER THAN 5.5" IN DEPTH.	U	EXISTING PAVEMENT
D9	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E19	PROP. APPROX. 12.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 712.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	V	SPLIT SEAL
D10	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	G1	8" CEMENT TREATED AGGREGATE BASE COURSE	W	WEDGING
D11	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.	J1	PROPOSED 6" AGGREGATE BASE COURSE	Z	NON WOVEN FIBERGLASS/POLYESTER INTERLAYER PAVING MAT

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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6/2/99

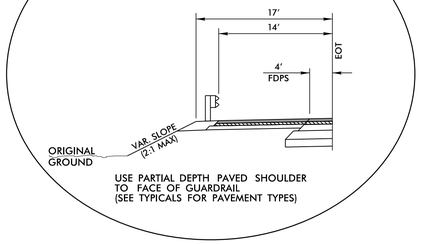
PAVEMENT SCHEDULE			
C2	3" S9.5B	E19	12.5" B25.0C
C3	VAR. DEPTH S9.5B	G1	8" CTABC
C5	3" S9.5C	J1	6" ABC
C6	VAR. DEPTH S9.BC	J2	8" ABC
C8	3" S9.5D	J3	9" ABC
C9	VAR. DEPTH S9.5D	J4	10" ABC
D1	2.5" I19.0B	J5	VAR. DEPTH ABC
D2	3" I19.0B	K1	SUBGRADE STAB.
D4	VAR. DEPTH I19.0B	P	PRIME COAT
D5	4" I19.0C	R1	2'-6" C&G
D6	2.5" I19.0C	R3	SBG
D7	3" I19.0C	R4	EXP. GUTTER
D8	VAR. DEPTH I19.0C	R5	5" CONC. ISLAND
D10	4" I19.0D	R6	CONC. BAR.
D11	VAR. DEPTH I19.0D	R7	TYPE T CONC. BAR.
E2	4" B20.0B	R8	RUMBLE STRIPS
E3	5" B25.0B	R9	8"x18" C&G
E5	VAR. DEPTH B25.0B	S	4" CONC. SIDEWALK
E6	3" B25.0C	T	EARTH MATERIAL
E7	4" B25.0C	U	EXIST. PAVEMENT
E10	6" B25.0C	V	SPLIT SEAL
E15	11" B25.0C	W	WEDGING
E18	VAR. DEPTH B25.0C		

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

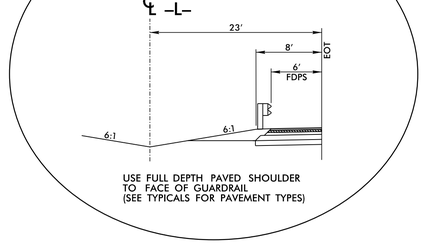
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SHOULDER WIDENING DETAIL FOR –L–



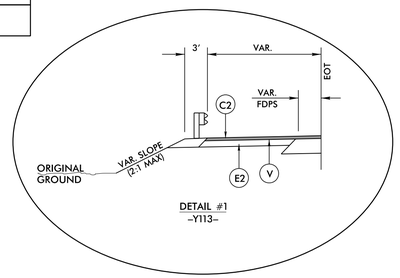
USE PARTIAL DEPTH PAVED SHOULDER
TO FACE OF GUARDRAIL
(SEE TYPICALS FOR PAVEMENT TYPES)

DETAIL FOR PLACEMENT OF GUARDRAIL IN MEDIAN OF –L–

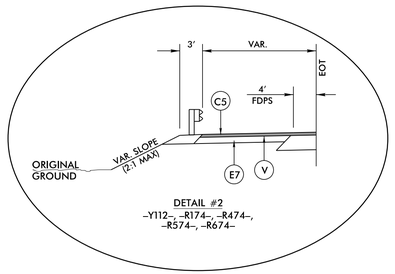


USE FULL DEPTH PAVED SHOULDER
TO FACE OF GUARDRAIL
(SEE TYPICALS FOR PAVEMENT TYPES)

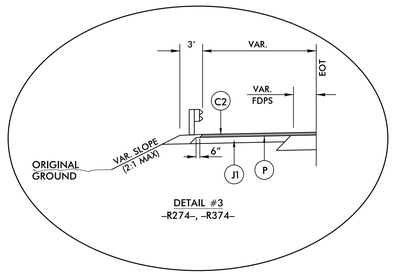
SHOULDER WIDENING DETAILS FOR Y–LINES & RAMPS



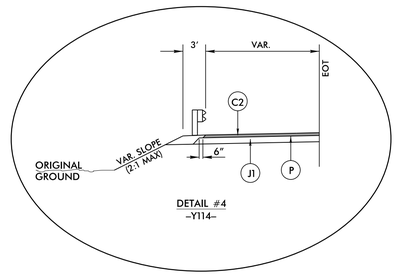
DETAIL #1
–Y113–



DETAIL #2
–Y112–, –R174–, –R474–,
–R574–, –R674–

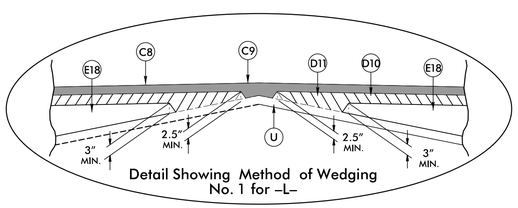


DETAIL #3
–R274–, –R374–

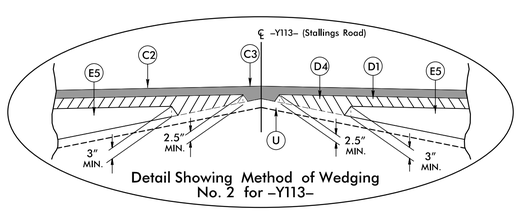


DETAIL #4
–Y114–

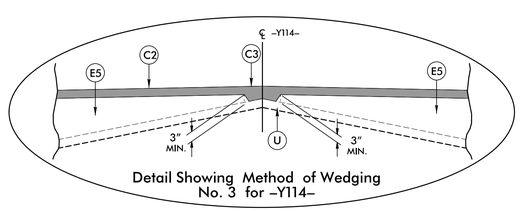
WEDGING DETAILS



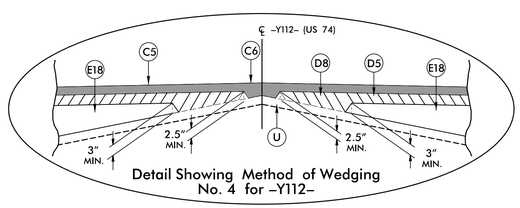
Detail Showing Method of Wedging
No. 1 for –L–



Detail Showing Method of Wedging
No. 2 for –Y113–



Detail Showing Method of Wedging
No. 3 for –Y114–



Detail Showing Method of Wedging
No. 4 for –Y112–

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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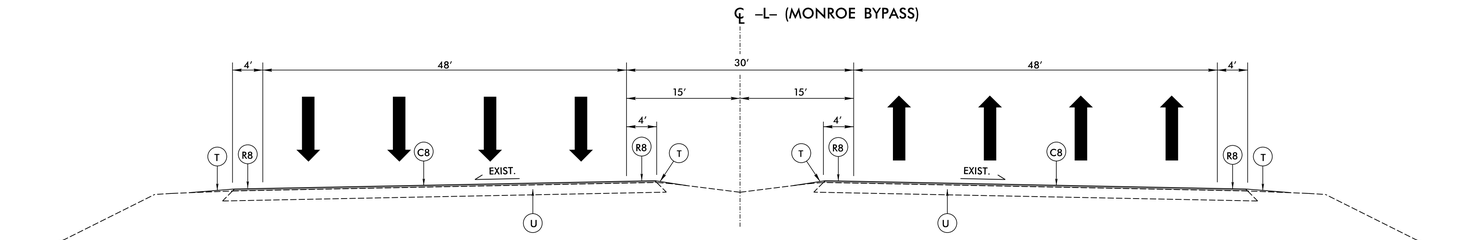
FRANK

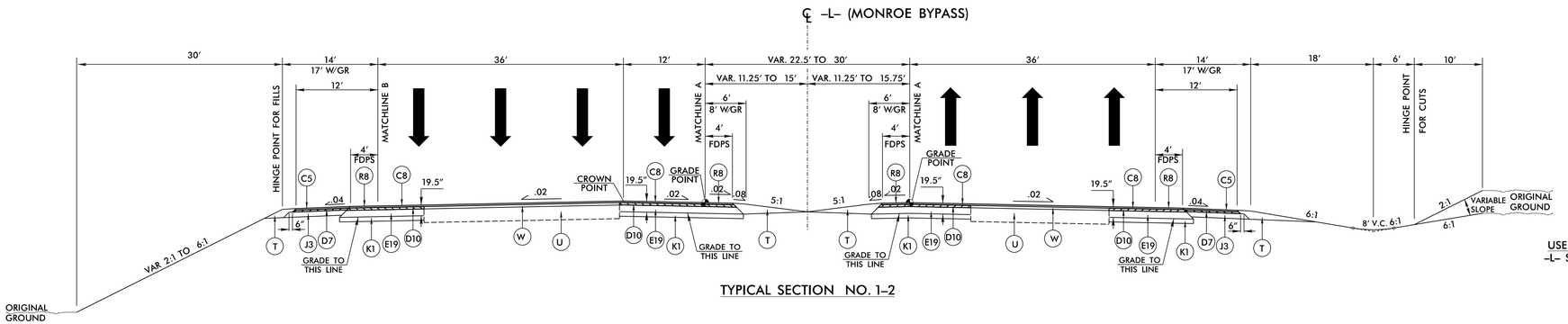
6/2/99

PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING

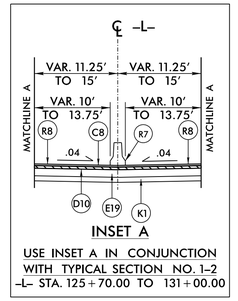


TYPICAL SECTION NO. 1–1

USE TYPICAL SECTION NO. 1–1
–L– STA. 110+00.00 TO 122+00.00 RT
–L– STA. 114+00.00 TO 122+00.00 LT



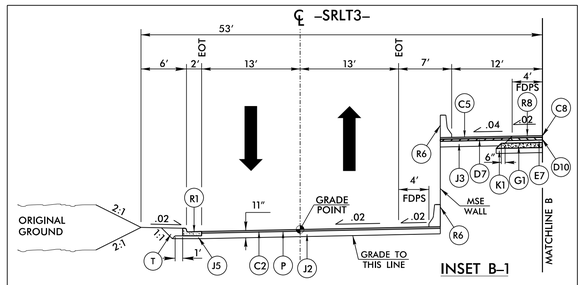
TYPICAL SECTION NO. 1–2



INSET A

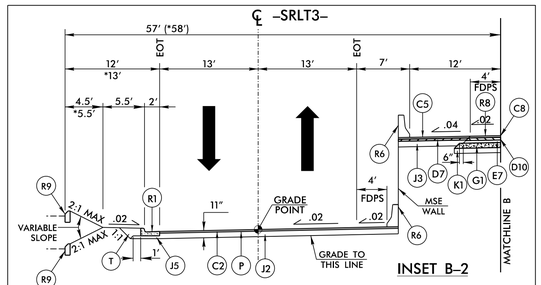
USE INSET A IN CONJUNCTION WITH TYPICAL SECTION NO. 1–2
–L– STA. 125+70.00 TO 131+00.00

USE TYPICAL SECTION NO. 1–2
–L– STA. 122+00.00 TO 131+00.00



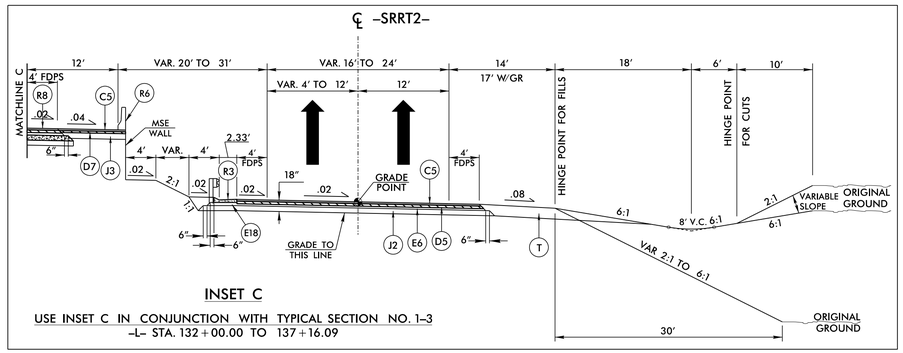
INSET B–1

USE INSET B–1 IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1–2 & 1–3
–L– STA. 126+06.35 TO 130+38.11
–L– STA. 131+70.27 TO 135+30.00



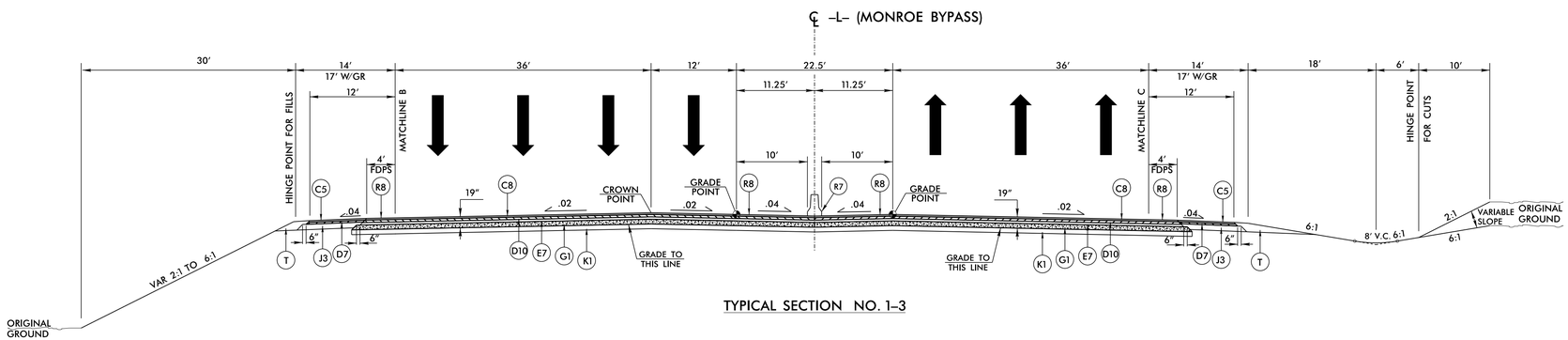
INSET B–2

USE INSET B–2 IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1–2 & 1–3
–L– STA. 130+38.11 TO 131+70.27
*–L– STA. 135+30.00 TO 137+27.73



INSET C

USE INSET C IN CONJUNCTION WITH TYPICAL SECTION NO. 1–3
–L– STA. 132+00.00 TO 137+16.09



TYPICAL SECTION NO. 1–3

USE TYPICAL SECTION NO. 1–2
–L– STA. 131+00.00 TO 137+03.36 (BEG. BRIDGE)

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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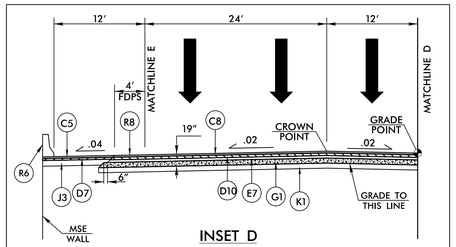
Plotted

6/2/99

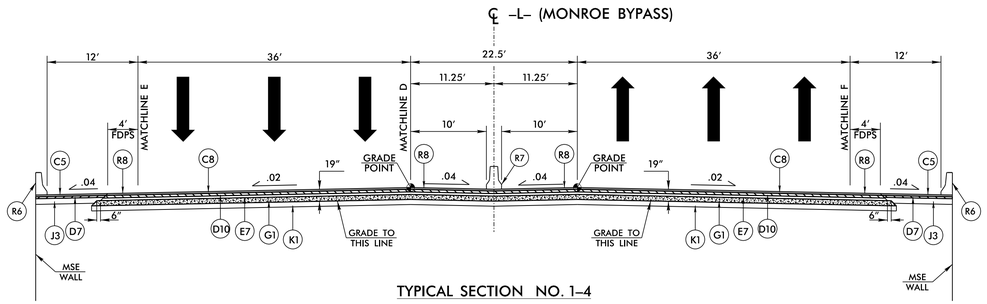
PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING



INSET D

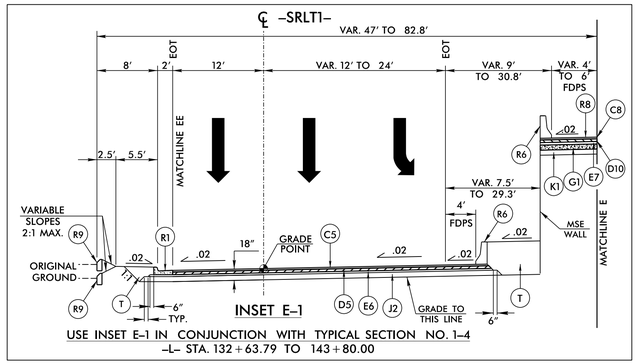
USE INSET D IN CONJUNCTION WITH TYPICAL SECTION NO. 1–4
–L– STA. 138+35.36 (END BRIDGE) TO 144+00.00

NOTE: TRANSITION FROM INSET D TO TYPICAL SECTION NO. 1–4 AT THE FOLLOWING LOCATIONS: –L– STA. 144+00.00 TO 145+20.00



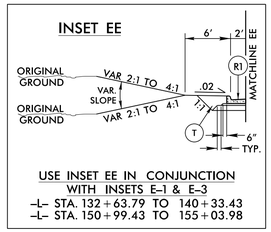
TYPICAL SECTION NO. 1–4

USE TYPICAL SECTION NO. 1–4
–L– STA. 138+35.36 (END BRIDGE) TO 153+47.75 (BEG. BRIDGE)
–L– STA. 156+11.75 (END BRIDGE) TO 163+00.00

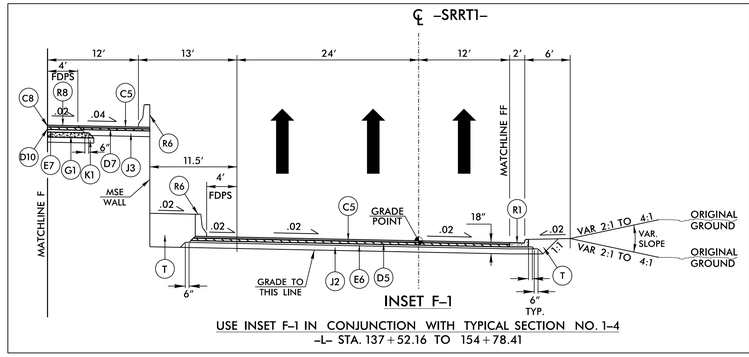


INSET E–1

USE INSET E–1 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–4
–L– STA. 132+63.79 TO 143+80.00

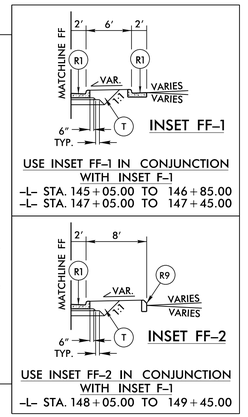


USE INSET EE IN CONJUNCTION WITH INSETS E–1 & E–3
–L– STA. 132+63.79 TO 140+33.43
–L– STA. 150+99.43 TO 155+03.98



INSET F–1

USE INSET F–1 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–4
–L– STA. 137+52.16 TO 154+78.41

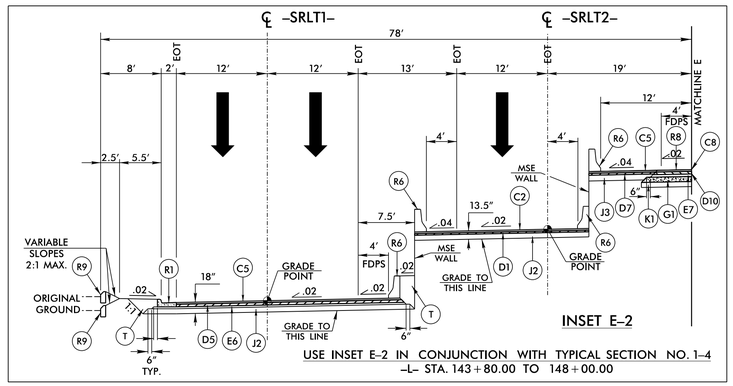


INSET FF–1

USE INSET FF–1 IN CONJUNCTION WITH INSET F–1
–L– STA. 145+05.00 TO 146+85.00
–L– STA. 147+05.00 TO 147+45.00

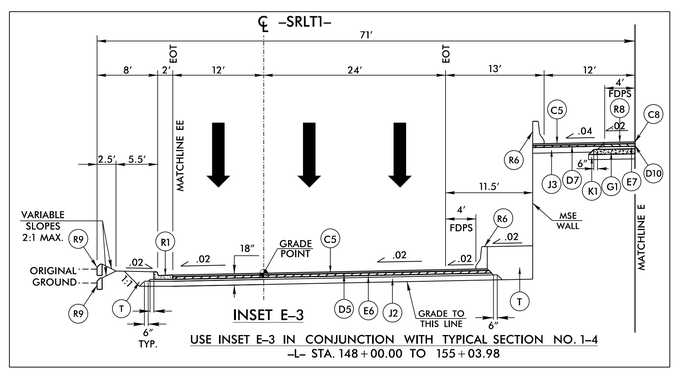
INSET FF–2

USE INSET FF–2 IN CONJUNCTION WITH INSET F–1
–L– STA. 148+05.00 TO 149+45.00



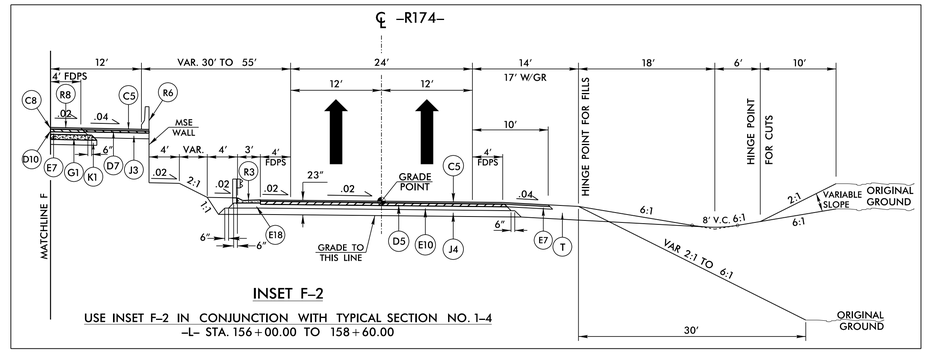
INSET E–2

USE INSET E–2 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–4
–L– STA. 143+80.00 TO 148+00.00



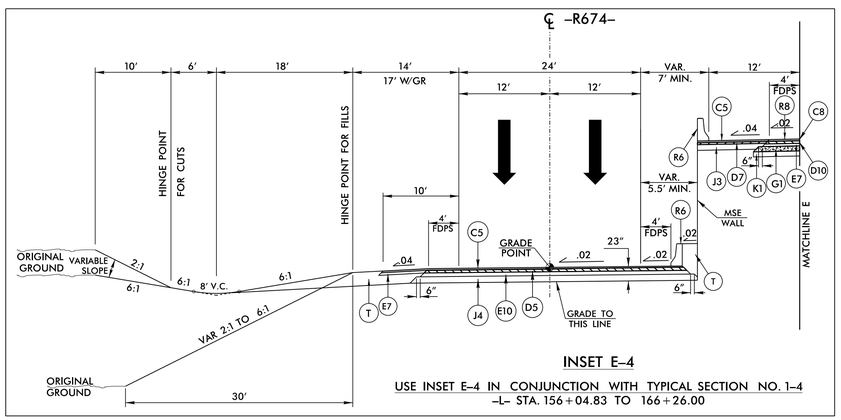
INSET E–3

USE INSET E–3 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–4
–L– STA. 148+00.00 TO 155+03.98



INSET F–2

USE INSET F–2 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–4
–L– STA. 156+00.00 TO 158+60.00



INSET E–4

USE INSET E–4 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–4
–L– STA. 156+04.83 TO 166+26.00

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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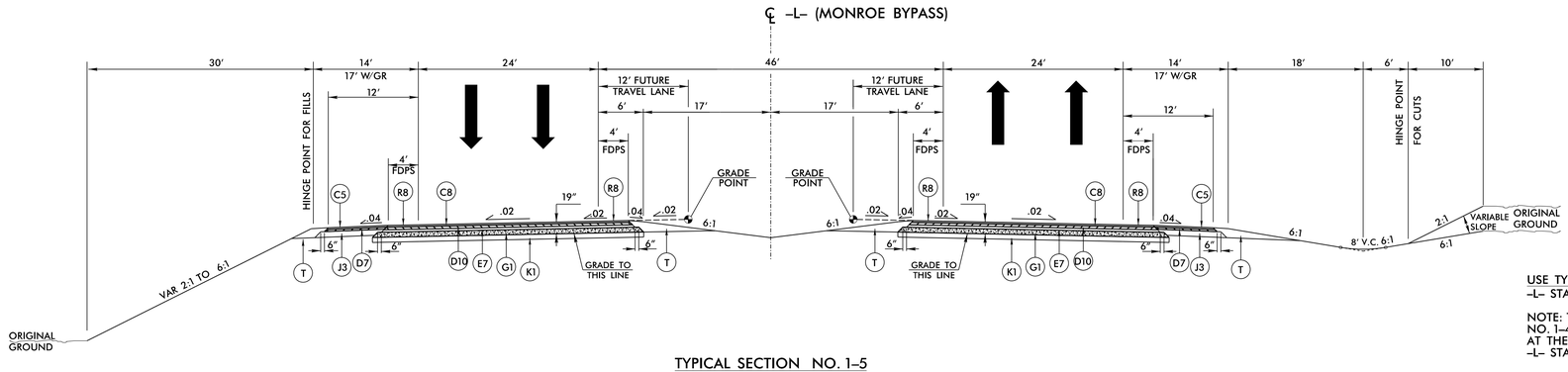
PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

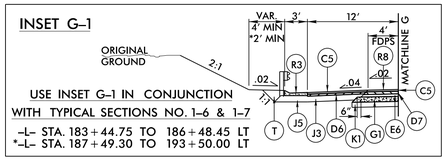
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



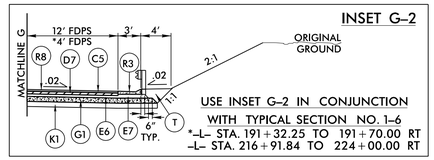
TYPICAL SECTION NO. 1–5

USE TYPICAL SECTION NO. 1–5
–L– STA. 171+00.00 TO 180+00.00

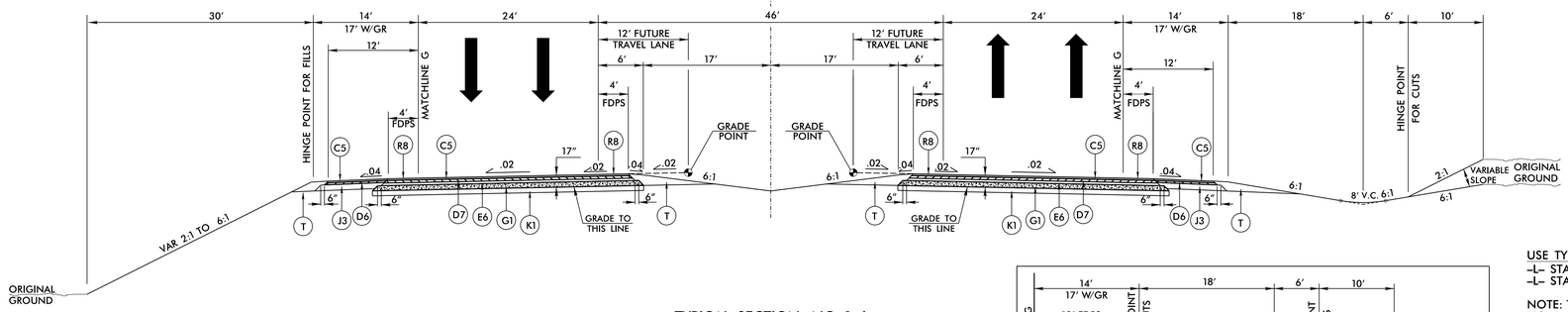
NOTE: TRANSITION FROM TYPICAL SECTION NO. 1–4 TO TYPICAL SECTION NO. 1–5 AT THE FOLLOWING LOCATIONS:
–L– STA. 163+00.00 TO 171+00.00



USE INSET G–1 IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1–6 & 1–7
–L– STA. 183+44.75 TO 186+48.45 LT
*–L– STA. 187+49.30 TO 193+50.00 LT



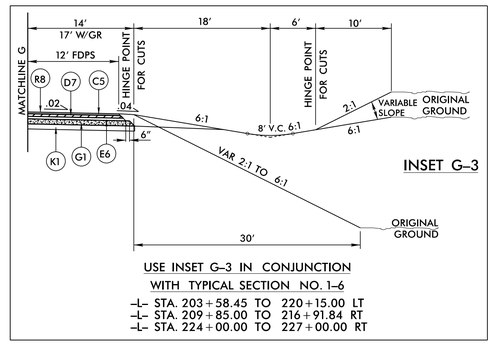
USE INSET G–2 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–6
*–L– STA. 191+32.25 TO 191+70.00 RT
–L– STA. 216+91.84 TO 224+00.00 RT



TYPICAL SECTION NO. 1–6

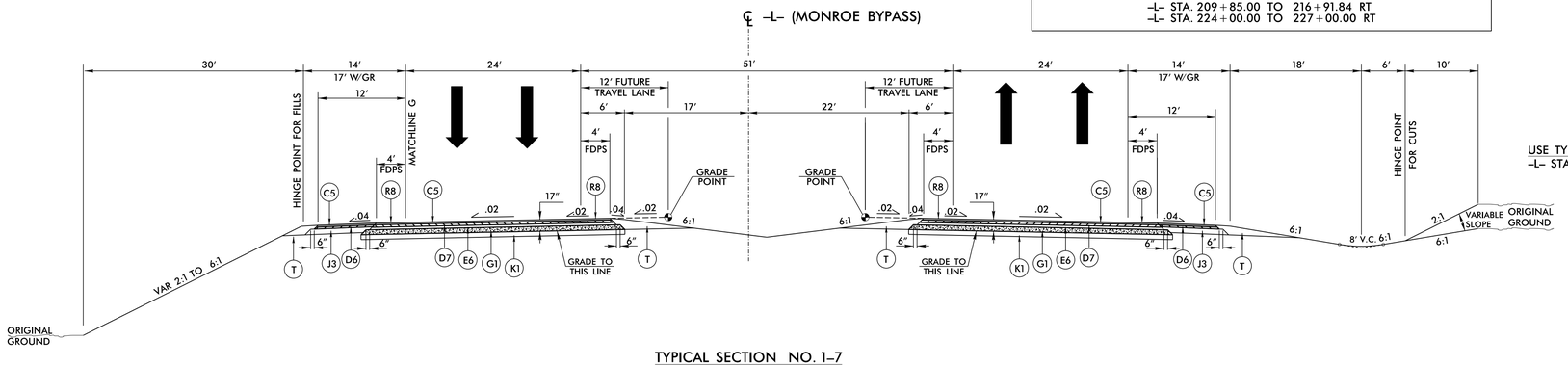
USE TYPICAL SECTION NO. 1–6
–L– STA. 180+00.00 TO 184+00.00
–L– STA. 193+50.00 TO 227+00.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1–6 TO TYPICAL SECTION NO. 1–7 AT THE FOLLOWING LOCATIONS:
–L– STA. 184+00.00 TO 188+00.00
–L– STA. 189+50.00 TO 193+50.00



INSET G–3

USE INSET G–3 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–6
–L– STA. 203+58.45 TO 220+15.00 LT
–L– STA. 209+85.00 TO 216+91.84 RT
–L– STA. 224+00.00 TO 227+00.00 RT



TYPICAL SECTION NO. 1–7

USE TYPICAL SECTION NO. 1–7
–L– STA. 184+00.00 TO 193+50.00

PLANS PREPARED BY :
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9/29/2014
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6/2/99

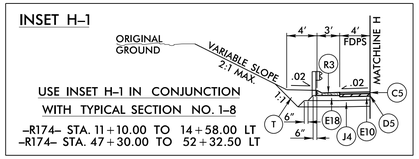
PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

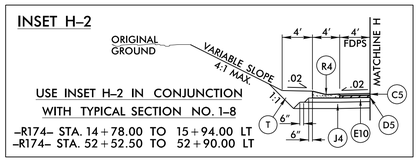
INSET H–1



USE INSET H–1 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–8
–R174– STA. 11+10.00 TO 14+58.00 LT
–R174– STA. 47+30.00 TO 52+32.50 LT

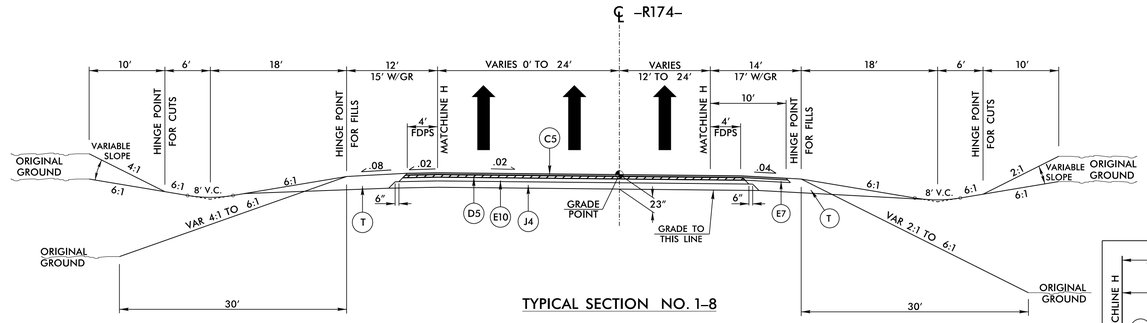
NOTE: TRANSITION FROM INSET H–1 TO INSET H–2 AT THE FOLLOWING LOCATIONS:
–R174– STA. 14+58.00 TO 14+78.00
–R174– STA. 52+32.50 TO 52+52.50

INSET H–2



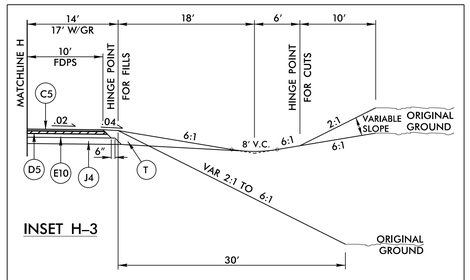
USE INSET H–2 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–8
–R174– STA. 14+78.00 TO 15+94.00 LT
–R174– STA. 52+52.50 TO 52+90.00 LT

TYPICAL SECTION NO. 1–8



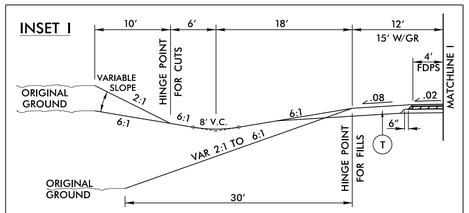
USE TYPICAL SECTION NO. 1–8
–R174– STA. 10+50.14 TO 59+30.77

INSET H–3



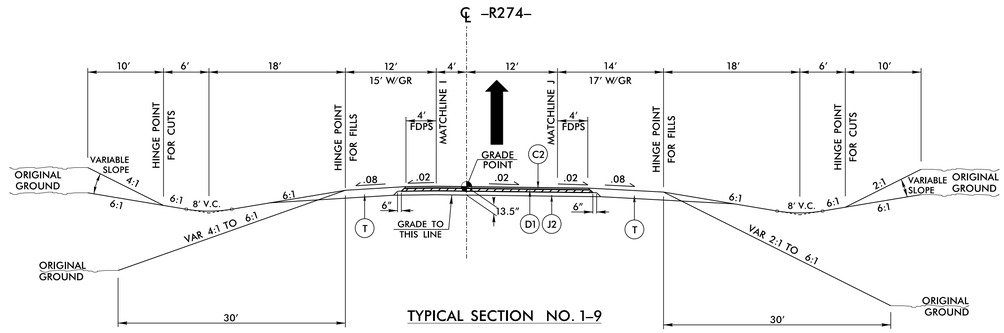
USE INSET H–3 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–8
–R174– STA. 16+00.00 TO 25+00.00 RT

INSET I

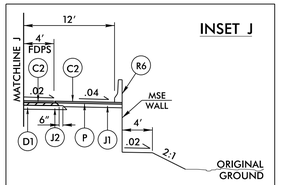


USE INSET I IN CONJUNCTION WITH TYPICAL SECTION NO. 1–9
–R274– STA. 20+20.00 TO 28+05.28

TYPICAL SECTION NO. 1–9



INSET J

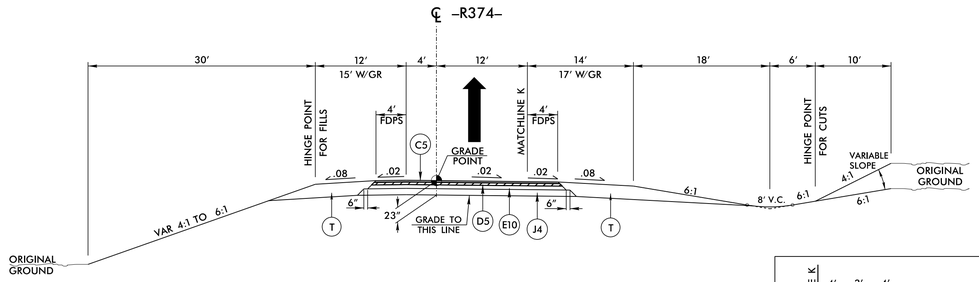


USE INSET J IN CONJUNCTION WITH TYPICAL SECTION NO. 1–9
–R274– STA. 27+15.00 TO 28+05.28

USE TYPICAL SECTION NO. 1–9
–R274– STA. 10+00.00 TO 31+46.63

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–R274– STA. 10+00.00 TO 17+85.07

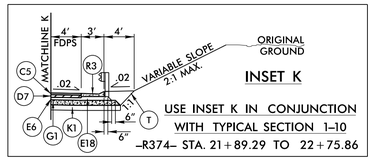
TYPICAL SECTION NO. 1–10



USE TYPICAL SECTION NO. 1–10
–R374– STA. 10+00.00 TO 22+75.86

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–R374– STA. 17+41.11 TO 22+75.86

INSET K



USE INSET K IN CONJUNCTION WITH TYPICAL SECTION 1–10
–R374– STA. 21+89.29 TO 22+75.86

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Kevin

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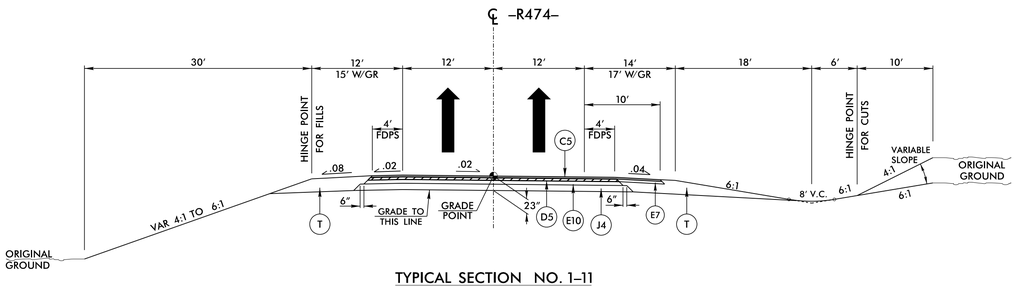
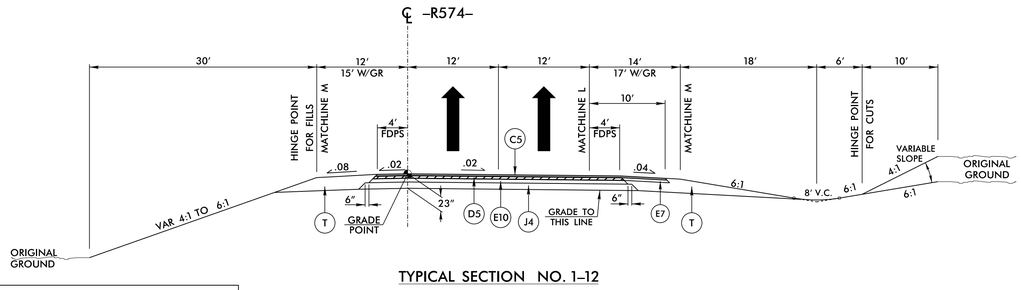
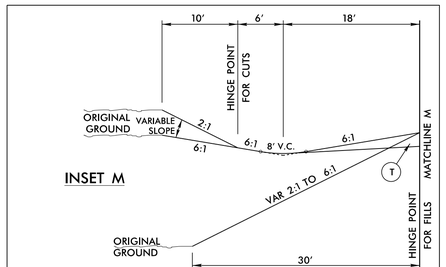
PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING



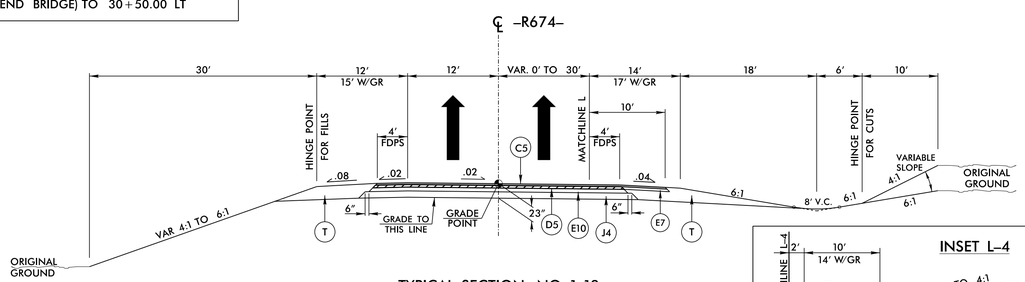
TYPICAL SECTION NO. 1–11



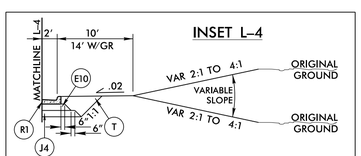
TYPICAL SECTION NO. 1–12



USE INSET M IN CONJUNCTION WITH TYPICAL SECTION NO. 1–12
–R574– STA. 10+00.00 TO 22+28.14 (BEG. BRIDGE) RT
–R574– STA. 15+00.00 TO 22+28.14 (BEG. BRIDGE) LT
–R574– STA. 25+98.14 (END BRIDGE) TO 30+50.00 LT



TYPICAL SECTION NO. 1–13



USE INSET L–4 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–13
–R674– STA. 34+23.18 TO 36+95.55 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2F

ROADWAY DESIGN ENGINEER

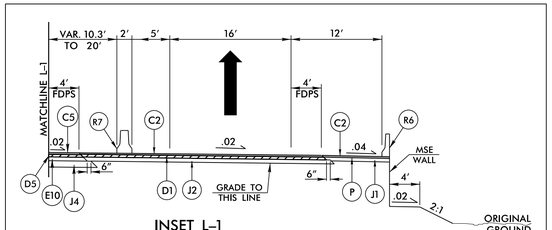
PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

USE TYPICAL SECTION NO. 1–11
–R474– STA. 10+00.00 TO 24+86.71

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–R474– STA. 15+36.17 TO 24+86.71

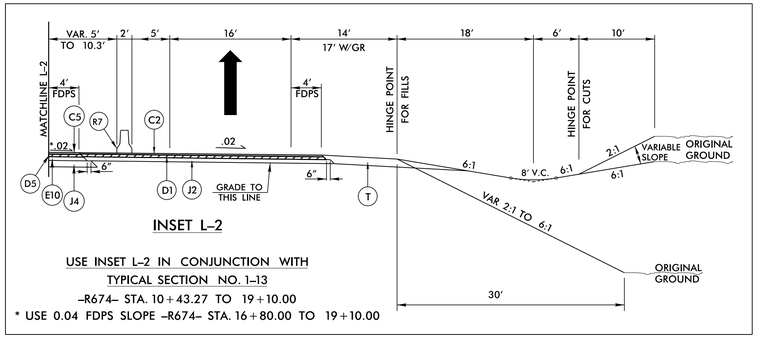


INSET L–1

USE INSET L–1 IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1–12 & 1–13
–R574– STA. 28+00.00 TO 28+92.78
–R674– STA. 10+00.00 TO 10+43.27

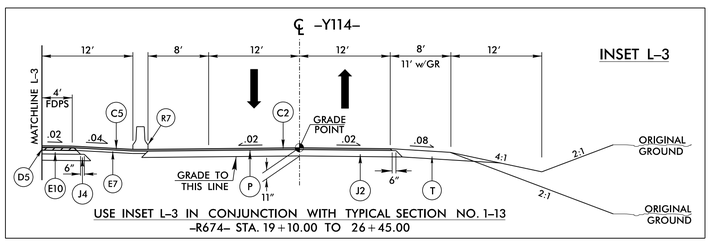
USE TYPICAL SECTION NO. 1–12
–R574– STA. 10+00.00 TO 22+28.14 (BEG. BRIDGE)
–R574– STA. 25+98.14 (END BRIDGE) TO 45+37.07

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–R574– STA. 39+80.13 TO 45+37.07



INSET L–2

USE INSET L–2 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–13
–R674– STA. 10+43.27 TO 19+10.00
* USE 0.04 FDPS SLOPE –R674– STA. 16+80.00 TO 19+10.00



USE INSET L–3 IN CONJUNCTION WITH TYPICAL SECTION NO. 1–13
–R674– STA. 19+10.00 TO 26+45.00

USE TYPICAL SECTION NO. 1–13
–R674– STA. 10+00.00 TO 36+95.55

PLANS PREPARED BY :
RK&K
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RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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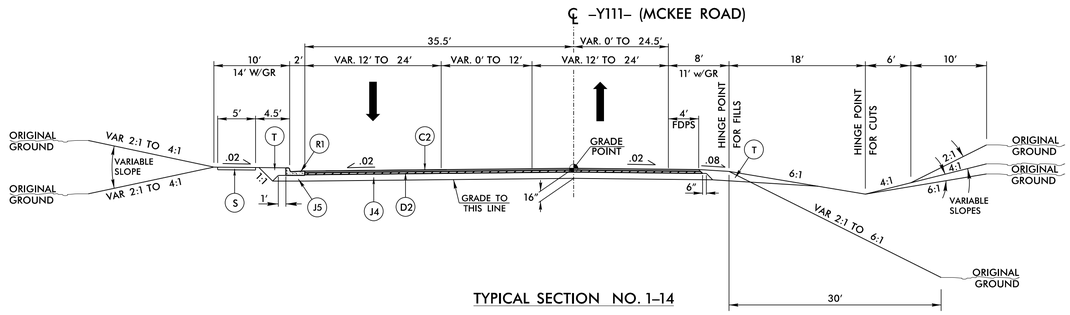
Features

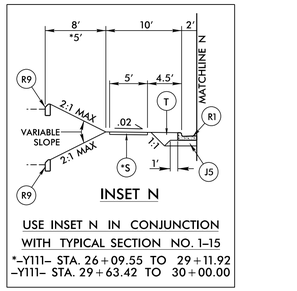
6/2/99

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C3	VAR. DEPTH S9.5B
C5	3″ S9.5C
C6	VAR. DEPTH S9.BC
C8	3″ S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5″ I19.0B
D2	3″ I19.0B
D4	VAR. DEPTH I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
D7	3″ I19.0C
D8	VAR. DEPTH I19.0C
D10	4″ I19.0D
D11	VAR. DEPTH I19.0D
E2	4″ B20.0B
E3	5″ B25.0B
E5	VAR. DEPTH B25.0B
E6	3″ B25.0C
E7	4″ B25.0C
E10	6″ B25.0C
E15	11″ B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2′-6″ C&G
R3	SBG
R4	EXP. GUTTER
R5	5″ CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8″x18″ C&G
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING



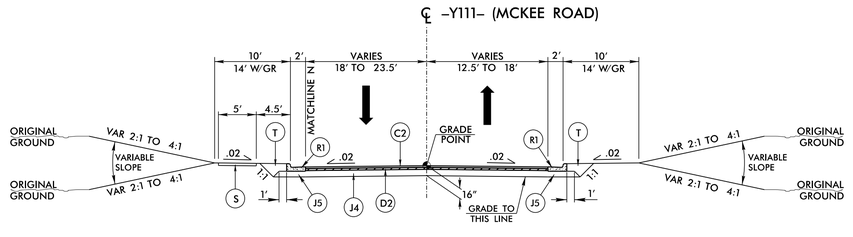
TYPICAL SECTION NO. 1–14

USE TYPICAL SECTION NO. 1–14
–Y111– STA. 10+12.39 TO 23+67.19



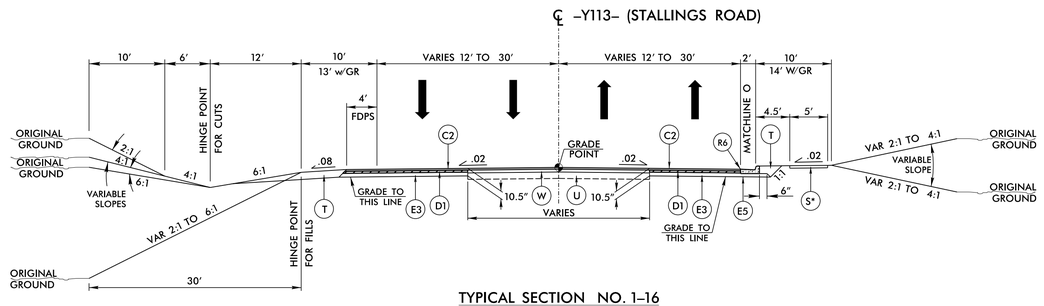
INSET N

USE INSET N IN CONJUNCTION WITH TYPICAL SECTION NO. 1–15
*–Y111– STA. 26+09.55 TO 29+11.92
–Y111– STA. 29+63.42 TO 30+00.00



TYPICAL SECTION NO. 1–15

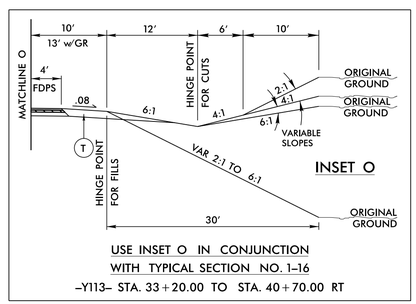
USE TYPICAL SECTION NO. 1–15
–Y111– STA. 23+67.19 TO 30+00.00



TYPICAL SECTION NO. 1–16

USE TYPICAL SECTION NO. 1–16
–Y113– STA. 13+45.00 TO 16+65.00
–Y113– STA. 33+20.00 TO 40+70.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1–16 AT THE FOLLOWING LOCATIONS:
–Y113– STA. 13+20.00 TO 13+45.00
–Y113– STA. 40+70.00 TO 41+20.00



INSET O

USE INSET O IN CONJUNCTION WITH TYPICAL SECTION NO. 1–16
–Y113– STA. 33+20.00 TO STA. 40+70.00 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-26
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
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NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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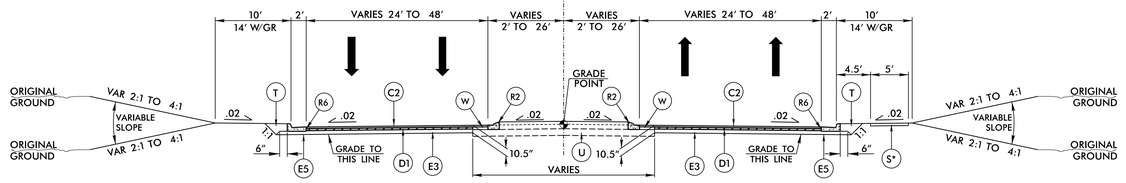
Ekeus

6/2/99

PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R2	1'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING

℄ –Y113– (STALLINGS ROAD)

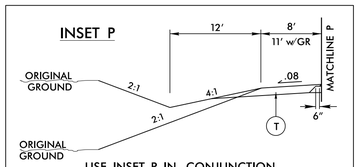


TYPICAL SECTION NO. 1–17

USE TYPICAL SECTION NO. 1–17
–Y113– STA. 16+65.00 TO 33+20.00

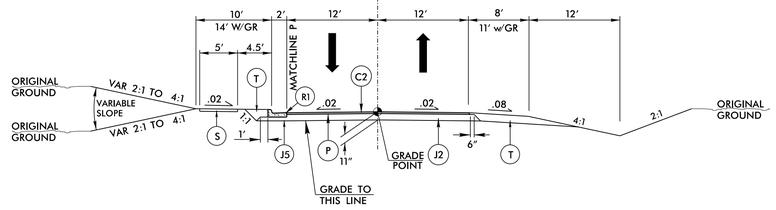
*NOTE: USE SIDEWALK:
–Y113– STA. 23+00.00 TO 33+20.00 RT

INSET P



USE INSET P IN CONJUNCTION
WITH TYPICAL SECTION NO. 1–18
–Y114– STA. 25+71.22 TO STA. 26+73.52 LT

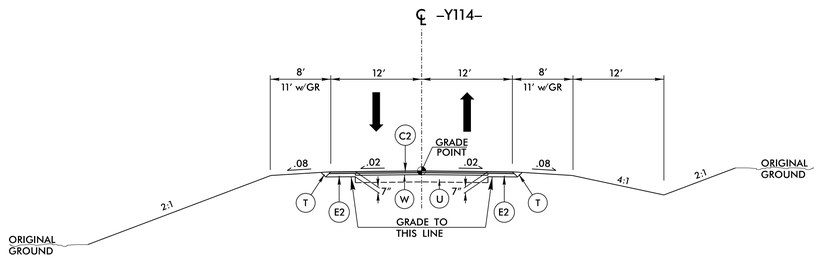
℄ –Y114–



TYPICAL SECTION NO. 1–18

USE TYPICAL SECTION NO. 1–18
–Y114– STA. 10+34.95 TO 26+73.52

℄ –Y114–



TYPICAL SECTION NO. 1–19

USE TYPICAL SECTION NO. 1–19
–Y114– STA. 26+73.52 TO 30+65.00

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2H
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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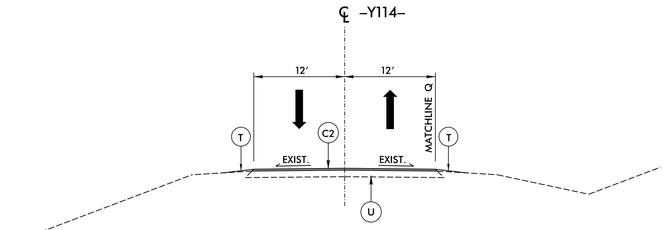
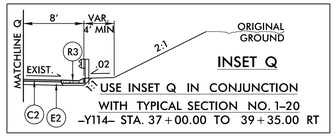
Ekeus

6/2/99

PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING



TYPICAL SECTION NO. 1–20



INSET Q

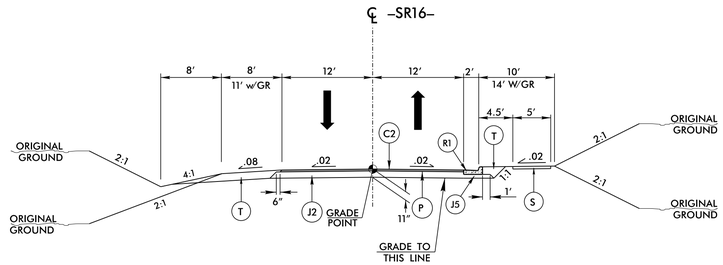
USE INSET Q IN CONJUNCTION
WITH TYPICAL SECTION NO. 1–20
–Y114– STA. 37+00.00 TO 39+35.00 RT

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-21
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

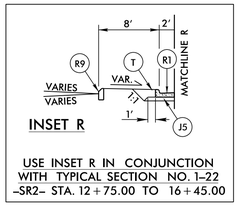
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

USE TYPICAL SECTION NO. 1–20
–Y114– STA. 30+65.00 TO 39+35.00



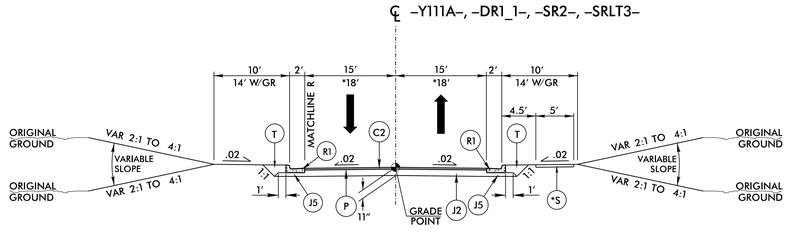
TYPICAL SECTION NO. 1–21

USE TYPICAL SECTION NO. 1–21
–SR16– STA. 10+10.59 TO 22+85.38



INSET R

USE INSET R IN CONJUNCTION
WITH TYPICAL SECTION NO. 1–22
–SR2– STA. 12+75.00 TO 16+45.00



TYPICAL SECTION NO. 1–22

USE TYPICAL SECTION NO. 1–22
–Y111A– STA. 10+18.02 TO 12+40.00
–DR1 1– STA. 10+35.50 TO 12+29.59
–SR2– STA. 10+41.88 TO 22+55.00
*–SRLT3– STA. 10+30.00 TO 12+93.02

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
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9/29/2014
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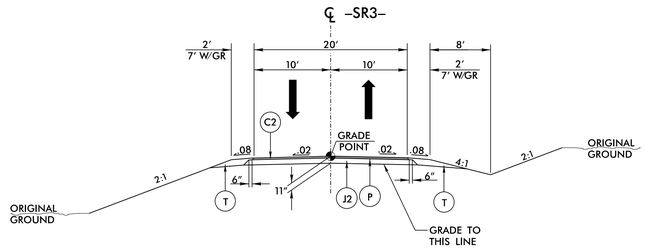
kevins

6/2/99

PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING



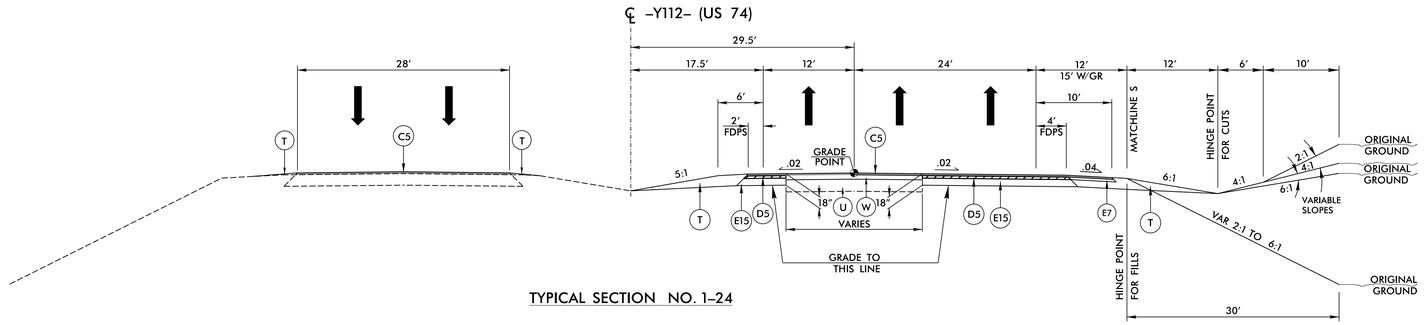
TYPICAL SECTION NO. 1–23

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2J
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

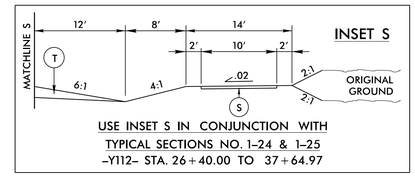
USE TYPICAL SECTION NO. 1–23
–SR3– STA. 9+25.00 TO 16+11.59

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1–23 AT THE FOLLOWING LOCATIONS:
–SR3– STA. 9+00.00 TO 9+25.00

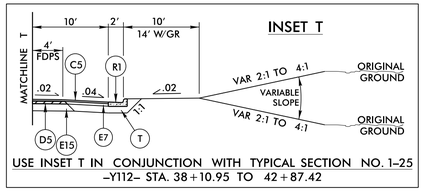


TYPICAL SECTION NO. 1–24

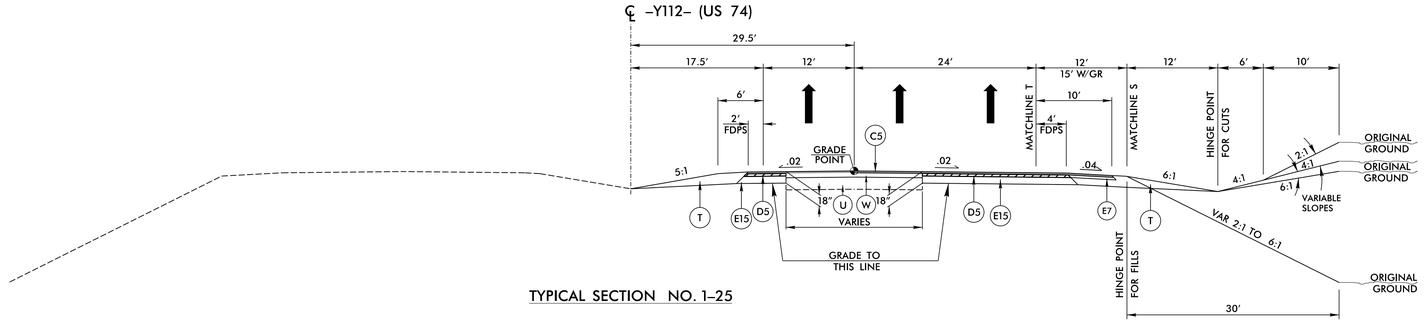
USE TYPICAL SECTION NO. 1–24
–Y112– STA. 24+68.66 TO 27+90.00



USE INSET S IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1–24 & 1–25
–Y112– STA. 26+40.00 TO 37+64.97



USE INSET T IN CONJUNCTION WITH TYPICAL SECTION NO. 1–25
–Y112– STA. 38+10.95 TO 42+87.42



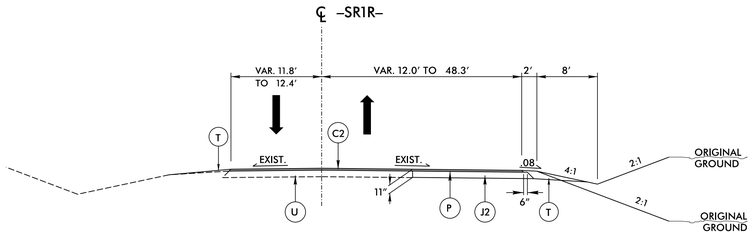
TYPICAL SECTION NO. 1–25

USE TYPICAL SECTION NO. 1–25
–Y112– STA. 27+90.00 TO 42+57.52

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

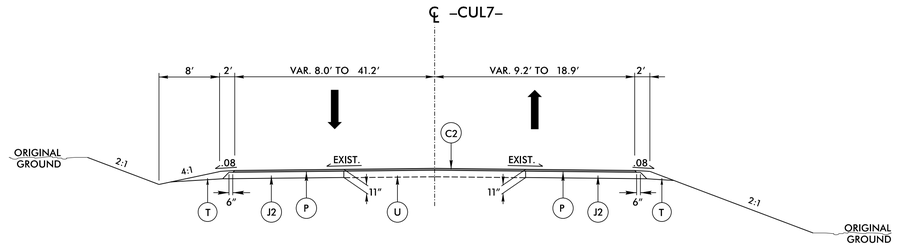
9/29/2014
K:\TPD\Roadway\Proj\Plan Sheets\Sec1\r-3329,r-2559,rdy_Sec1_typ.dgn
kevins

PAVEMENT SCHEDULE	
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
C5	3" S9.5C
C6	VAR. DEPTH S9.BC
C8	3" S9.5D
C9	VAR. DEPTH S9.5D
D1	2.5" I19.0B
D2	3" I19.0B
D4	VAR. DEPTH I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
D7	3" I19.0C
D8	VAR. DEPTH I19.0C
D10	4" I19.0D
D11	VAR. DEPTH I19.0D
E2	4" B20.0B
E3	5" B25.0B
E5	VAR. DEPTH B25.0B
E6	3" B25.0C
E7	4" B25.0C
E10	6" B25.0C
E15	11" B25.0C
E18	VAR. DEPTH B25.0C
E19	12.5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J4	10" ABC
J5	VAR. DEPTH ABC
K1	SUBGRADE STAB.
P	PRIME COAT
R1	2'-6" C&G
R3	SBG
R4	EXP. GUTTER
R5	5" CONC. ISLAND
R6	CONC. BAR.
R7	TYPE T CONC. BAR.
R8	RUMBLE STRIPS
R9	8"x18" C&G
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL
W	WEDGING



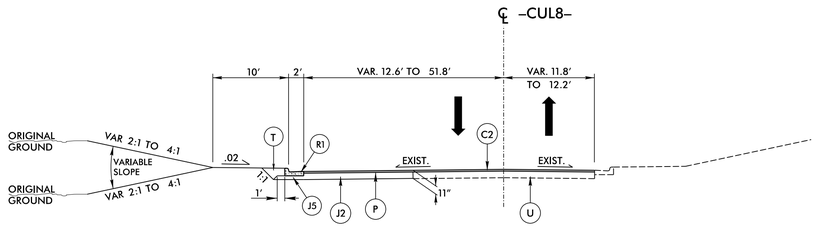
TYPICAL SECTION NO. 1–26

USE TYPICAL SECTION NO. 1–26
–SR1R– STA. 10+75.00 TO 11+90.00



TYPICAL SECTION NO. 1–27

USE TYPICAL SECTION NO. 1–27
–CUL7– STA. 11+62.32 TO 12+84.31



TYPICAL SECTION NO. 1–28

USE TYPICAL SECTION NO. 1–28
–CUL8– STA. 13+65.02 TO 15+12.04

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2K
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

6/2/99

9/28/2014
R:\Roadway\Proj\Plan Sheets\Sec1\r-3329_r-2559_rdy_Sec1_typ.dgn
Features

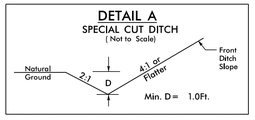
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-2N
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

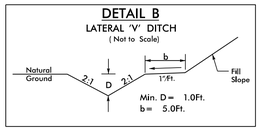
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



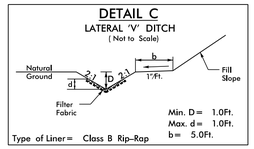
–R674– STA. 16+36.67 TO STA. 17+23.00 RT
–Y111– STA. 14+75 TO STA. 17+00 RT
–L– STA. 212+50 TO STA. 216+50 RT
–Y113– STA. 40+50 TO STA. 41+25 LT
–Y113– STA. 40+50 TO STA. 41+25 RT

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



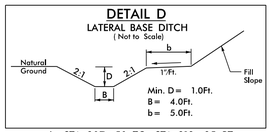
–Y114– STA. 38+15.73 TO STA. 40+52.00 LT
–SR2– STA. 18+53 TO STA. 22+50 RT

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



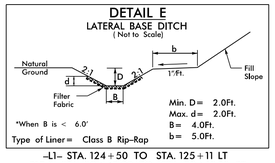
–R174– STA. 27+86.04 TO STA. 29+65 RT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



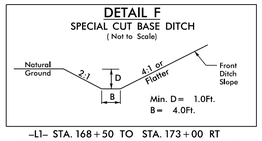
–L– STA. 207+50 TO STA. 212+25 RT
–Y113– STA. 13+00 TO STA. 17+00 RT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



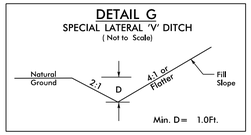
–L1– STA. 124+50 TO STA. 125+11 LT
–R174– STA. 29+65.00 TO STA. 33+19.10 RT
–R174– STA. 37+55.51 TO STA. 44+20.00 RT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



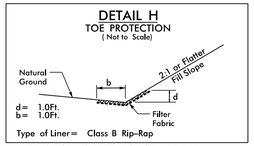
–L1– STA. 168+50 TO STA. 173+00 RT
–Y111– STA. 11+00 TO STA. 14+75 RT (D=1.5')

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



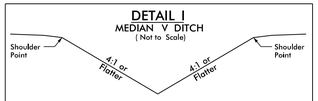
DETAIL G IS NOT USED IN SECTION 1

DETAIL H
TOE PROTECTION
(Not to Scale)



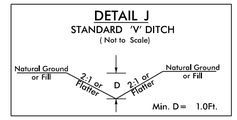
–Y113– STA. 21+00 TO STA. 23+00 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



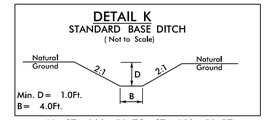
–L1– STA. 175+25 TO STA. 183+00 RT
–L1– STA. 189+50 TO STA. 191+50 CL

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



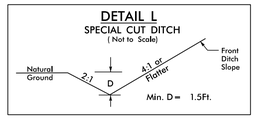
–L1– STA. 165+00 TO STA. 166+50 RT
–R174– STA. 27+36 RT; L=75', S=5.73%
BEG EL=694.86, END EL=690.56
–R674– STA. 10+94.87 TO STA. 15+00.75 RT

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



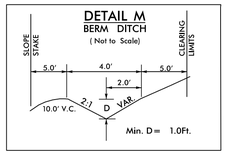
–L1– STA. 166+50 TO STA. 168+50 RT
–L1– STA. 173+00 TO STA. 175+25 RT
–L– STA. 213+85 LT, L=281', S=0.30%,
BEG EL=667.5, END EL=666.7

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



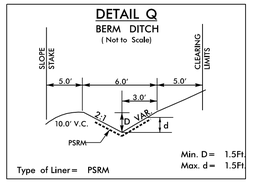
–R174– STA. 19+07.99 TO STA. 20+98.01 RT
–Y114– STA. 11+00 TO STA. 13+50 RT
–Y114– STA. 17+00.00 TO STA. 18+63.34 RT

DETAIL M
BERM DITCH
(Not to Scale)



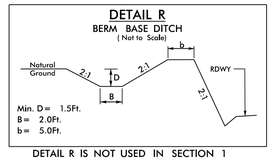
–L– STA. 213+50 TO STA. 227+00 RT

DETAIL Q
BERM DITCH
(Not to Scale)



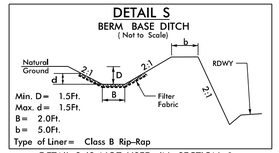
DETAIL Q IS NOT USED IN SECTION 1

DETAIL R
BERM BASE DITCH
(Not to Scale)



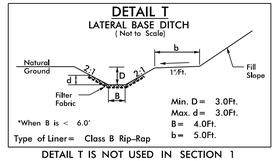
DETAIL R IS NOT USED IN SECTION 1

DETAIL S
BERM BASE DITCH
(Not to Scale)



DETAIL S IS NOT USED IN SECTION 1

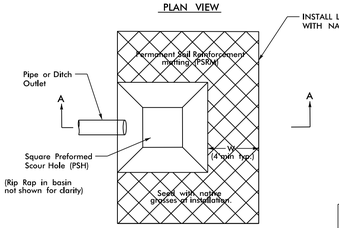
DETAIL T
LATERAL BASE DITCH
(Not to Scale)



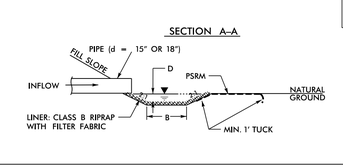
DETAIL T IS NOT USED IN SECTION 1

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE

PLAN VIEW

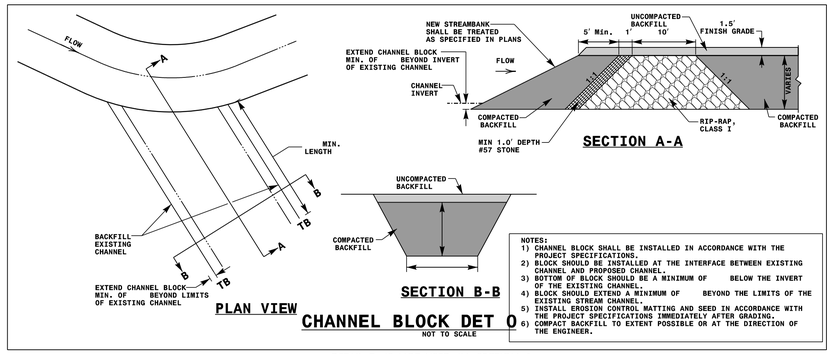


SECTION A–A



3/08

–DR1_1– STA. 10+92 RT

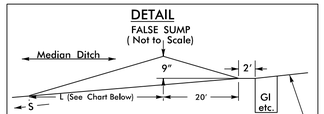


CHANNEL BLOCK DET O
NOT TO SCALE

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 BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 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.

DETAIL O IS NOT USED IN SECTION 1

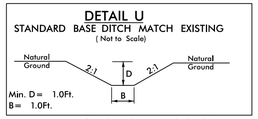
DETAIL
FALSE SUMP
(Not to Scale)



S = Ditch Slope

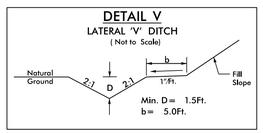
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



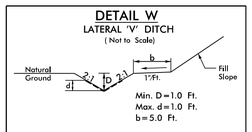
DETAIL U IS NOT USED IN SECTION 1

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



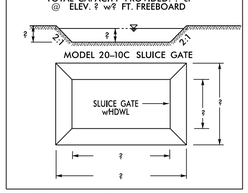
–R174– STA. 44+20.00 TO STA. 47+67.13 RT
–Y112– STA. 13+50.00 TO STA. 27+54.00 RT

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



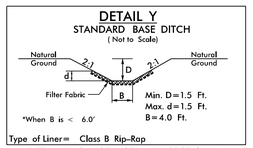
–R174– STA. 16+67.96 TO STA. 19+07.99 RT

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



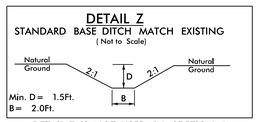
DETAIL X IS NOT USED IN SECTION 1

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



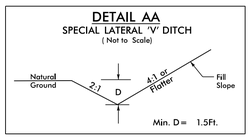
DETAIL Y IS NOT USED IN SECTION 1

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



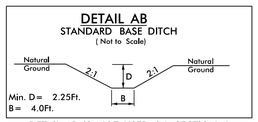
DETAIL Z IS NOT USED IN SECTION 1

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



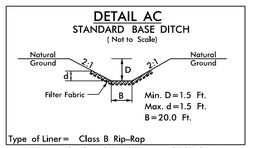
DETAIL AA IS NOT USED IN SECTION 1

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



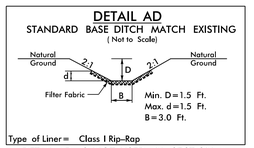
DETAIL AB IS NOT USED IN SECTION 1

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



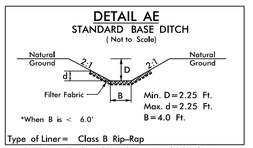
DETAIL AC IS NOT USED IN SECTION 1

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



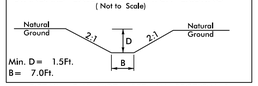
DETAIL AD IS NOT USED IN SECTION 1

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



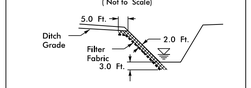
DETAIL AE IS NOT USED IN SECTION 1

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



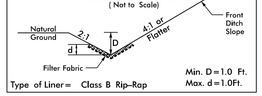
DETAIL AF IS NOT USED IN SECTION 1

DETAIL AG
RIP RAP AT EMBANKMENT



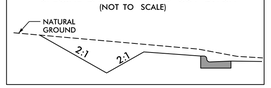
DETAIL AG IS NOT USED IN SECTION 1

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



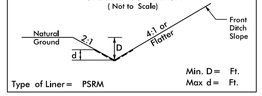
DETAIL AH IS NOT USED IN SECTION 1

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



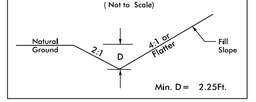
–R174– STA. 14+22.07 TO STA. 16+19.47 LT

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



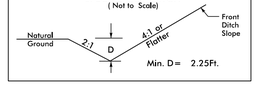
DETAIL AJ IS NOT USED IN SECTION 1

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



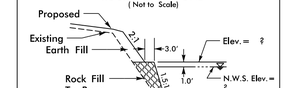
DETAIL AK IS NOT USED IN SECTION 1

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



DETAIL AL IS NOT USED IN SECTION 1

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



DETAIL AM IS NOT USED IN SECTION 1

8/28/2014
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Fleming

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	1-20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

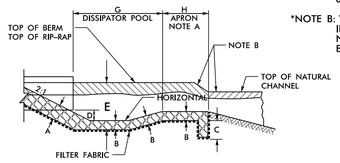
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

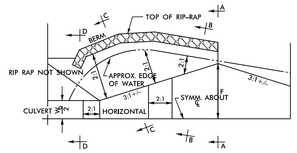
DETAIL AN

RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

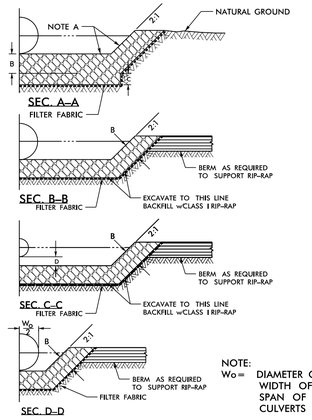


HALF PLAN



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A) = SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

*ALL DIMENSIONS APPROXIMATE IN FEET

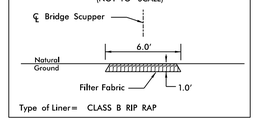
BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

5/05

DETAIL AO

SCOUR PROTECTION

(NOT TO SCALE)



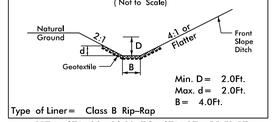
Type of Liner = CLASS B RIP RAP

DETAIL AO NOT USED IN SECTION 1

DETAIL AP

SPECIAL CUT BASE DITCH

(Not to Scale)



Min. D = 2.0Ft.
Max. d = 2.0Ft.
B = 4.0Ft.

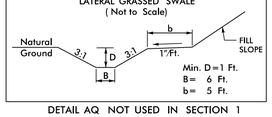
Type of Liner = Class B Rip–Rap

–R174– STA. 33+19.10 TO STA. 37+55.51 RT

DETAIL AQ

LATERAL GRASSED SWALE

(Not to Scale)



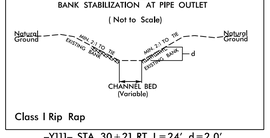
Min. D = 1 Ft.
B = 6 Ft.
b = 5 Ft.

DETAIL AQ NOT USED IN SECTION 1

DETAIL AR

BANK STABILIZATION AT PIPE OUTLET

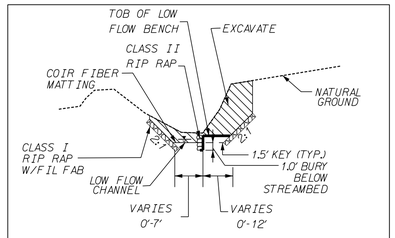
(Not to Scale)



Class I Rip Rap

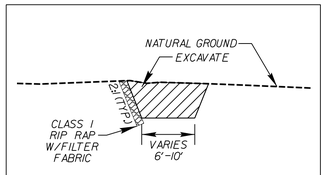
–Y111– STA. 30+21 RT, L=24', d=2.0'
–Y113– STA. 22+70 LT, L=10', d=1.4'

NORTH FORK
CROOKED CREEK TRIB. 5
–DR_1– STA. 11+55



CULVERT INLET DETAIL (NTS)
LENGTH = 25'

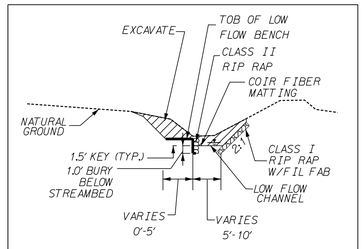
NORTH FORK
CROOKED CREEK TRIB. 5
–Y111– STA. 21+41



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

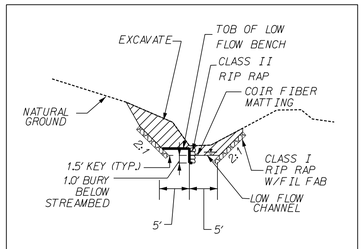
CULVERT INLET DETAIL (NTS)
LENGTH = 57'

NORTH FORK
CROOKED CREEK TRIB. 4
–R174– STA. 29+69



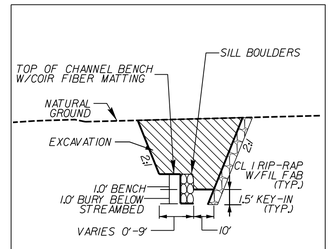
CULVERT INLET DETAIL (NTS)
LENGTH = 44'

NORTH FORK
CROOKED CREEK TRIB. 4
–L– STA. 175+72

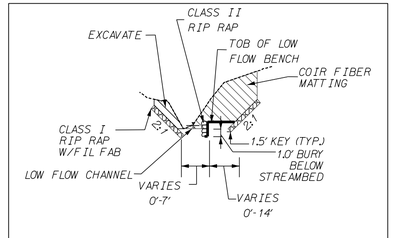


CULVERT INLET DETAIL (NTS)
LENGTH = 54'

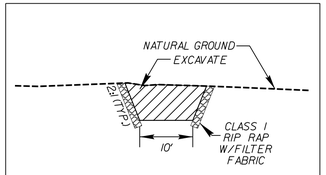
NORTH FORK
CROOKED CREEK TRIB. 5
–L– STA. 140+01



CULVERT INLET DETAIL (NTS)
LENGTH = 61'

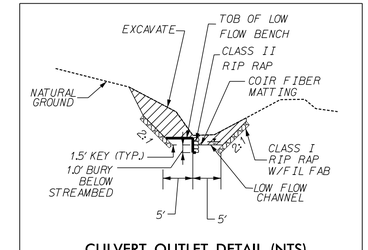


CULVERT OUTLET DETAIL (NTS)
LENGTH = 38'

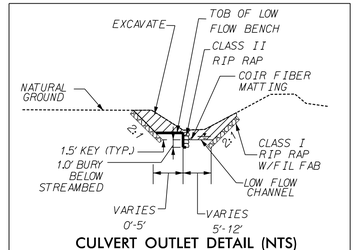


ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH = 41'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 54'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 40'

9/30/2004
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Plans

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

8/17/99

NAD 83

I-485

R-3329-L POT 95+00.00

95+00 -L- 100+00 S 40° 14' 48.9" E 105+00

MATCHLINE -L- STA. 108+00 SEE SHEET 5

NCDOT
DB 7487 PG 969

I S BK BUS

I S BK BUS

BRICK STORAGE SHED

PROPANE TANK

MTL CAN

CONC. ISLAND W/GAS PUMPS

SSMH

WOOD STORAGE SHED

OVERHEAD SIGN ASSEMBLY

WATER VAULT

POWER

R-3329-2 PNC 13+19.49

US 74 WBL 36' BST

US 74 EBL 48' BST

BRIDGE

CONC. SIDEWALK

STEPS

18" C&G

5' CHL

BST CURB

RIP RAP

15" RCP

18" RCP

24" RCP

30" C&G

CABLE GUARDRAIL

GUARDRAIL

WOODS

BST

EOP

EOT

DI

CB

LP

GUY

5' WWF

EXISTING R/W

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/29/2014
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Features

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

NAD 83

MATCHLINE –L– STA. 108+00 SEE SHEET 4

MATCHLINE –L– STA. 122+00 SEE SHEET 6

BEGIN TIP PROJECT R-3329, R-2559
–L– Sta. 110+00.00

BEGIN CONSTRUCTION
–L– POT Sta.114+00.00 LT

BEGIN CONSTRUCTION
–L– POT Sta.110+00.00 RT

–L–

–B– PI Sta. 24+47.35

S 40°14'48.9" E

110+00

115+00

120+00

S 40°09'07" E
235.37'

487.42'
S40°17'33"E

58.58'
S40°17'33"E

N 52°43'39"E
153.31'

N 5°55'17" E
97.60'

N 5°55'17" E
250.71'

S 5°55'17" W
379.99'

1 NCDOT
DB 7487 PG 969

2 HEP INVESTMENT CO., LLC.
DB 8445 PG 19

3 GRADY REID HILL AND WALTER DEAN HILL
DB 4537 PG 692

4 DONALD MONROE ROLLINS AND SHARON A ROLLINS
DB 5502 PG 398

5 CEVINA INVESTMENTS, INC.
DB 9628 PG 756

6 PHILLIP MARRONE HINSON
DB 4750 PG 242

8 INDEPENDENCE REAL ESTATE INVESTORS, LLC.
DB 17183 PG 325

9 PHILLIP MARRONE HINSON AND WIFE, TANYA I. HINSON AND DONALD MONROE ROLLINS AND WIFE SHARON A. ROLLINS
DB 8081 PG 444

US 74 WBL 36' BST

US 74 EBL 48' BST

EXIST. BST

RETAIN SYSTEM 15" RCP

SOIL PILE

REBAR & CAP

GUY

5' WWF

EXISTING R/W

WOODS

CREEK

JS

RAMP BST

30" RCP

24" RCP

15" RCP

12" CMP

30" C&G

GUARDRAIL

BRIDGE

5' CMP

EOP

EOT

RIP RAP

WOOD STORAGE SHED

METAL CANOPY SALT & SAND STORAGE SHED

STEPS

SOLAR PANEL

TANKS

BRICK WALL

LP

CHL

S 25°08'05" E
150.33'

S 25°08'05" E
130.00'

S 64°55'55" W
25.00'

N 25°08'08" W
24.80'

S 52°05'22" W
96.98'

S 25°14'55" E
196.98'

N 52°47'47" E
108.91'

N 25°16'30" W
308.95'

S 25°08'24" E
533.28'

BOLLARDS

WELL

GR

CONC. SIDEWALK

CONC.

CANOPY

AC UNIT 3 S F BUS

TRASH CAN

FLAGPOLE

IRRIGATION CONTROL VALVE

LANDSCAPE LIGHT

I S BK BUS

AC UNIT

TOP 720.15
INV (SW) 710.80
INV (SE) 710.70

FOR –L– PROFILE SEE SHT. 120

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/29/2014
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FKevins

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

-SRRT2-

PI Sta 13+40.48
△ = 4° 52' 26.8" (RT)
D = 0° 42' 58.3"
L = 680.55'
T = 340.48'
R = 8,000.00'
SE = NC
DS = 55mph

PI Sta 20+37.86
△ = 5° 06' 52.8" (LT)
D = 0° 42' 58.3"
L = 714.14'
T = 357.31'
R = 8,000.00'
SE = NC
DS = 55mph

-SRLT3-

PI Sta 12+60.53
△ = 90° 18' 11.7" (LT)
D = 57° 17' 44.8"
L = 157.61'
T = 100.53'
R = 100.00'
SE = 0.04
DS = 20mph

PI Sta 15+90.43
△ = 1° 16' 52.3" (RT)
D = 0° 45' 50.2"
L = 167.71'
T = 83.86'
R = 7,500.00'
SE = NC
DS = 55mph

PI Sta 17+58.14
△ = 1° 16' 52.3" (LT)
D = 0° 45' 50.2"
L = 167.71'
T = 83.86'
R = 7,500.00'
SE = NC
DS = 55mph

PI Sta 22+15.03
△ = 12° 22' 53.8" (LT)
D = 8° 25' 33.1"
L = 146.95'
T = 73.76'
R = 680.00'

PI Sta 23+61.98
△ = 12° 22' 53.8" (RT)
D = 8° 25' 33.1"
L = 146.95'
T = 73.76'
R = 680.00'

A–A
12.0'
0.0'
4.0'
4.0'
ROADSIDE

B–B
4.0'
0.0'
1.5'
4.0'
OUTFALL

NAD 83

MATCHLINE –L– STA. 122+00 SEE SHEET 5

MATCHLINE –L– STA. 136+00 SEE SHEET 7

BEGIN CONSTRUCTION
-SRLT3- POT Sta.10+30.00

-SRLT3- BC Sta. 11+60.00

-SRLT3- PT Sta. 13+17.61

-SRLT3- PC Sta. 15+06.58

-SRLT3- PRC Sta. 16+74.28

-SRLT3- PT Sta. 18+41.99

-SRLT3- PC Sta. 21+41.27

-SRLT3- PRC Sta. 22+88.22

-L- POT Sta.123+08.14 =
-SRIR- POT Sta. 13+20.07

-SRRT2- PC Sta. 10+00.00 (51.50' RT) =
-L- POT Sta.123+46.29

-SRIR- PT Sta. 11+51.00

-SRRT2- PRC Sta. 16+80.55

BEGIN CONSTRUCTION
-SRIR- POT Sta.10+75.00

-SRIR- PC Sta. 10+00.00

-SRRT1- PC Sta. 10+00.00=
-SRRT2- PC Sta. 23+94.69=
-YIII- POT Sta.23+67.19

-YIII- PT Sta. 22+05.05

-SRIR-
PI Sta 10+75.63
△ = 8° 16' 45.2" (LT)
D = 5° 28' 58.3"
L = 151.00'
T = 75.63'
R = 1,045.00'

FOR –L– PROFILE SEE SHT. 120
FOR –SRRT2– PROFILE SEE SHT. 162

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

NAD 83

-SRLT1-

PI Sta 11+19.47
Δ = 4° 33' 39.4" (LT)
D = 1° 54' 35.5"
L = 238.81'
T = 119.47'
R = 3,000.00'
SE = NC
DS = 50mph

PI Sta 13+58.28
Δ = 4° 33' 39.4" (RT)
D = 1° 54' 35.5"
L = 238.81'
T = 119.47'
R = 3,000.00'
SE = NC
DS = 50mph

PI Sta 20+25.55
Δ = 2° 29' 26.8" (LT)
D = 1° 38' 13.3"
L = 152.15'
T = 76.09'
R = 3,500.00'
SE = NC
DS = 50mph

PI Sta 21+95.25
Δ = 3° 03' 53.1" (RT)
D = 1° 38' 13.3"
L = 187.22'
T = 93.63'
R = 3,500.00'
SE = NC
DS = 50mph

-SRLT1-

PI Sta 11+31.69
Δ = 4° 17' 31.7" (RT)
D = 1° 38' 13.3"
L = 262.19'
T = 131.16'
R = 3,500.00'
SE = NC
DS = 40mph

PI Sta 13+93.88
Δ = 4° 17' 31.7" (LT)
D = 1° 38' 13.3"
L = 262.19'
T = 131.16'
R = 3,500.00'
SE = NC
DS = 40mph

PI Sta 21+23.15
Δ = 1° 37' 31.0" (RT)
D = 0° 39' 30.9"
L = 246.79'
T = 123.40'
R = 8,700.00'
SE = NC
DS = 55mph

PI Sta 23+69.93
Δ = 1° 37' 31.0" (LT)
D = 0° 39' 30.9"
L = 246.79'
T = 123.40'
R = 8,700.00'
SE = NC
DS = 55mph

-SRLT1-

PI Sta 10+70.80
Δ = 1° 00' 50.9" (LT)
D = 0° 42' 58.3"
L = 141.60'
T = 70.80'
R = 8,000.00'
SE = NC
DS = 55mph

PI Sta 12+50.63
Δ = 1° 33' 41.8" (RT)
D = 0° 42' 58.3"
L = 218.04'
T = 109.03'
R = 8,000.00'
SE = NC
DS = 55mph

-SRRT2-

PI Sta 20+37.86
Δ = 5° 06' 52.8" (LT)
D = 0° 42' 58.3"
L = 714.14'
T = 357.31'
R = 8,000.00'
SE = NC
DS = 55mph

-YIIIA-

PI Sta 11+35.91
Δ = 31° 41' 02.1" (RT)
D = 22° 55' 05.9"
L = 138.25'
T = 70.94'
R = 250.00'
SE = 0.04
DS = 30mph

PI Sta 12+68.00
Δ = 21° 19' 41.0" (LT)
D = 57° 17' 44.8"
L = 37.22'
T = 18.83'
R = 100.00'

-YIII-

PI Sta 19+09.73
Δ = 22° 52' 09.7" (LT)
D = 3° 49' 11.0"
L = 598.72'
T = 303.40'
R = 1,500.00'
SE = 0.04
DS = 50mph

FOR –L– PROFILE SEE SHT. 121
FOR –SRRT2– PROFILE SEE SHT. 162
FOR –SRRT1– PROFILE SEE SHT. 163
FOR –SRLT1– PROFILE SEE SHT. 164
FOR –SRLT2– PROFILE SEE SHT. 165
FOR –Y111– PROFILE SEE SHT. 161
FOR –Y111A– PROFILE SEE SHT. 162

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

BRIDGE ON –L– OVER –Y111– (NOT TO SCALE)

9/30/2014
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FLeus

8/17/99

-L-		-Y114-		-RI74-		-R474-		-SRLT1-
PIs Sta 160+40.21	PI Sta 164+40.01	PI Sta 13+41.18	PI Sta 18+46.07	PI Sta 12+55.05	PIs Sta 15+62.71	PIs Sta 11+26.68	PI Sta 14+18.28	PI Sta 23+69.40
θs = 1° 34' 32.3"	Δ = 9° 19' 54.9" (RT)	Δ = 31° 44' 34.5" (RT)	Δ = 36° 28' 39.2" (LT)	Δ = 7° 30' 09.1" (RT)	θs = 1° 10' 41.9"	θs = 2° 51' 53.2"	Δ = 13° 42' 07.5" (RT)	Δ = 1° 37' 31.0" (LT)
Ls = 220.00'	D = 1° 25' 56.6"	D = 4° 46' 28.7"	D = 10° 25' 02.7"	D = 1° 28' 22.4"	Ls = 160.00'	Ls = 190.00'	D = 3° 00' 56.0"	D = 0° 39' 30.9"
LT = 146.67'	L = 651.49'	L = 664.82'	L = 350.16'	L = 509.37'	LT = 106.67'	LT = 126.68'	L = 454.38'	L = 246.79'
ST = 73.34'	T = 326.47'	T = 341.18'	T = 181.24'	T = 255.05'	ST = 53.34'	ST = 63.35'	T = 228.28'	T = 123.40'
	R = 4,000.00'	R = 1,200.00'	R = 550.00'	R = 3,890.00'			R = 1,900.00'	R = 8,700.00'
	SE = 0.04	SE = 0.04	SE = 0.04	SE = 0.04			SE = 0.07	SE = NC
	DS = 60mph	DS = 40mph	DS = 40mph	DS = 60mph			DS = 60mph	DS = 55mph

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

MATCHLINE -Y113- STA. 30+00 SEE SHEET 77

MATCHLINE -Y114- STA. 14+50 SEE SHEET 77

MATCHLINE -L- STA. 150+00 SEE SHEET 7

MATCHLINE -L- STA. 163+00 SEE SHEET 9

MATCHLINE -Y114- STA. 18+50 SEE SHEET 9

MATCHLINE -R474- STA. 16+50 SEE SHEET 9

MATCHLINE -R174- STA. 17+50 SEE SHEET 9

MATCHLINE -Y113- STA. 21+50 SEE SHEET 76

-SRLT1- PRC Sta. 21+01.62

-SRLT2- PT Sta. 22+88.83

-SRLT1- PT Sta. 24+93.32

-SRLT1- PRC Sta. 22+46.53

-SRRT1- PC Sta. 26+01.66

-SRRT1- PT Sta. 27+89.05=
-Y113- POT Sta. 25+05.93

-Y113- POT Sta. 27+04.64=
-SRLT1- POT Sta. 28+04.21
-R674-POT Sta. 37+45.97

-L- POT Sta. 155+41.78=
-Y113- POT Sta. 26+07.57

-R674- PT Sta. 34+71.18

-Y114- PRC Sta. 16+64.82

-R474- SC Sta. 11+90.00

-R474- ST Sta. 10+00.00

-RI74- PC Sta. 10+00.00=
-Y113- POT Sta. 25+17.97

-L- TS Sta. 158+93.54

-L- SC Sta. 161+13.54

PSRM-R474- CS Sta. 16+44.38

-RI74- CS Sta. 15+09.37

-RI74- ST Sta. 16+69.37

-L- POT 153+22.75
BEGIN APPROACH SLAB

-L- POT 153+47.75
BEGIN BRIDGE

-L- POT 156+11.75
END BRIDGE

-L- POT 156+35.75
END APPROACH SLAB

Δ = 97° 28' 19"

BRIDGE ON -L- OVER -Y113- (NOT TO SCALE)

FOR -L- PROFILE SEE SHT. 121
FOR -SRRT1- PROFILE SEE SHT. 163
FOR -SRLT1- PROFILE SEE SHT. 164
FOR -SRLT2- PROFILE SEE SHT. 165
FOR -Y113- PROFILE SEE SHTS. 165 & 166
FOR -Y114- PROFILE SEE SHT. 166
FOR -R174- PROFILE SEE SHT. 168
FOR -R474- PROFILE SEE SHT. 171
FOR -R674- PROFILE SEE SHT. 174

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

NAD 83

9/30/2004
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K.Ellis

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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

NAD 83

-Y114-

PI Sta 131+45.07	PI Sta 164+40.01	PI Sta 168+38.37	PI Sta 175+99.40	PI Sta 193+90.86
Δ = 36° 28' 39.2" (LT)	Δ = 5° 53' 46.3" (LT)	Δ = 1° 34' 32.3"	Δ = 5° 53' 01.0"	Δ = 18° 31' 51.2" (LT)
D = 17° 25' 02.7"	D = 2° 51' 53.2"	D = 2° 51' 53.2"	D = 2° 51' 53.2"	D = 3° 05' 49.4"
L = 350.16'	L = 240.74'	L = 220.00'	L = 280.00'	L = 2,630.52'
T = 181.24'	T = 120.52'	T = 110.07'	T = 140.21'	T = 1,594.93'
R = 550.00'	R = 2,000.00'	R = 2,000.00'	R = 1,950.00'	R = 1,850.00'
SE = 0.04	SE = 0.03	SE = NC	SE = 0.04	SE = 0.07
DS = 40mph	DS = 40mph	DS = 60mph	DS = 60mph	DS = 60mph

-R574-

PI Sta 114+66.68	PI Sta 141+42.06	PI Sta 171+16.93	PI Sta 28+98.52 (LT)	PI Sta 36+69.02	PI Sta 42+97.07
6s = 2° 23' 14.4"	D = 1° 54' 35.5"	D = 2° 23' 14.4"	D = 17° 46' 55.4"	Δ = 12° 17' 57.3" (RT)	6s = 17° 39' 30.2"
Ls = 250.00'	L = 383.59'	Ls = 250.00'	L = 1,147.07'	D = 1° 02' 30.3"	Ls = 120.00'
LT = 166.68'	T = 192.06'	LT = 166.68'	T = 574.54'	L = 1,180.65'	LT = 90.00'
ST = 83.35'	R = 3,000.00'	ST = 83.35'	R = 5,500.00'	T = 592.60'	ST = 40.00'
	SE = 0.05		SE = NC	R = 5,500.00'	
	DS = 60mph		DS = 50mph	DS = 60mph	

-CUL7-

PI Sta 11+51.43
Δ = 2° 55' 33.9" (RT)
D = 1° 05' 28.9"
L = 266.62'
T = 134.09'
R = 5,250.00'

-R374-

PI Sta 12+16.52	PI Sta 14+34.31	PI Sta 19+27.04	PI Sta 22+12.64	PI Sta 30+30+16.41
6s = 4° 40' 06.8"	Δ = 12° 13' 10.7" (LT)	D = 1° 39' 39.7"	6s = 1° 09' 45.0"	6s = 17° 37' 30.2"
Ls = 220.00'	D = 4° 14' 38.9"	L = 418.14'	Ls = 140.00'	D = 1° 02' 30.3"
LT = 146.72'	L = 287.92'	T = 209.33'	LT = 76.78'	L = 180.65'
ST = 73.36'	T = 144.51'	R = 3,450.00'	ST = 63.26'	T = 592.60'
	R = 1,350.00'	SE = 0.05		R = 5,500.00'
	SE = 0.08	DS = 60mph		SE = 0.03
	DS = 60mph			DS = 60mph

-R574-

PI Sta 30+30+16.41	PI Sta 36+69.02	PI Sta 42+97.07	PI Sta 44+83.73	PI Sta 20+72.22
6s = 17° 37' 30.2"	Δ = 12° 17' 57.3" (RT)	6s = 17° 37' 30.2"	6s = 1° 08' 03.2"	Δ = 58° 41' 01.5" (RT)
D = 1° 02' 30.3"	D = 1° 02' 30.3"	Ls = 120.00'	Ls = 160.00'	D = 3° 34' 51.6"
L = 180.65'	L = 1,180.65'	LT = 90.00'	LT = 106.67'	L = 163.76'
T = 592.60'	T = 592.60'	ST = 40.00'	ST = 53.34'	T = 899.42'
R = 5,500.00'	R = 5,500.00'			R = 1,600.00'
SE = 0.03'	SE = 0.03'			SE = 0.06
DS = 60mph	DS = 60mph			DS = 50mph

-R274-

PI Sta 28+79.06	PI Sta 30+54.13
6s = 1° 26' 31.1"	Δ = 1° 33' 30.1" (RT)
6s = 2° 47' 08.8"	D = 1° 55' 21.8"
Ls = 150.00'	L = 185.01'
LT = 92.57'	T = 92.57'
ST = 67.50'	R = 2,980.00'
	SE = 0.04
	DS = 50mph

-R174-

PI Sta 28+67.96	PI Sta 34+41.82	PI Sta 40+12.61	PI Sta 46+79.32	PI Sta 49+45.73
6s = 2° 57' 48.9"	Δ = 24° 19' 08.1" (LT)	6s = 2° 57' 48.9"	6s = 1° 09' 28.9"	Δ = 16° 36' 40.4" (RT)
Ls = 240.00'	D = 2° 28' 10.7"	Ls = 240.00'	Ls = 160.00'	D = 1° 21' 51.6"
LT = 160.02'	L = 984.11'	LT = 160.02'	LT = 106.67'	L = 1,267.67'
ST = 80.02'	T = 499.88'	ST = 80.02'	ST = 53.34'	T = 643.13'
	R = 2,320.00'			R = 4,200.00'
	SE = 0.06			SE = 0.04
	DS = 60mph			DS = 60mph

-R474-

PI Sta 17+07.73	PI Sta 19+09.71	PI Sta 21+50.77	PI Sta 24+43.38
6s = 2° 51' 53.2"	6s = 17° 48' 28.9"	6s = 17° 48' 28.9"	6s = 17° 48' 28.9"
Ls = 190.01'	Ls = 110.00'	D = 1° 28' 08.8"	Ls = 110.01'
LT = 126.68'	LT = 73.33'	L = 432.33'	LT = 73.33'
ST = 63.35'	ST = 36.67'	T = 216.30'	ST = 36.67'
		R = 3,900.00'	
		SE = 0.04	
		DS = 60mph	

-L-

PI Sta 175+99.40	PI Sta 193+90.86	PI Sta 11+66.68	PI Sta 14+42.06	PI Sta 17+16.93
Δ = 5° 53' 01.0"	Δ = 18° 31' 51.2" (LT)	6s = 2° 23' 14.4"	D = 1° 54' 35.5" (RT)	6s = 2° 23' 14.4"
Ls = 280.00'	D = 3° 05' 49.4"	Ls = 250.00'	L = 383.59'	D = 1° 54' 35.5"
LT = 140.21'	L = 2,630.52'	LT = 166.68'	T = 192.06'	Ls = 250.00'
ST = 126.79'	T = 1,594.93'	ST = 83.35'	R = 3,000.00'	LT = 166.68'
	R = 1,850.00'		SE = 0.05	ST = 83.35'
	SE = 0.07'		DS = 60mph	
	DS = 60mph			

-CUL7-

PI Sta 28+98.52 (LT)
D = 17° 46' 55.4"
L = 1,147.07'
T = 574.54'
R = 3,250.00'
SE = NC
DS = 50mph

-R374-

PI Sta 12+16.52	PI Sta 14+34.31	PI Sta 19+27.04	PI Sta 22+12.64	PI Sta 30+30+16.41
6s = 4° 40' 06.8"	Δ = 12° 13' 10.7" (LT)	D = 1° 39' 39.7"	6s = 1° 09' 45.0"	6s = 17° 37' 30.2"
Ls = 220.00'	D = 4° 14' 38.9"	L = 418.14'	Ls = 140.00'	D = 1° 02' 30.3"
LT = 146.72'	L = 287.92'	T = 209.33'	LT = 76.78'	L = 180.65'
ST = 73.36'	T = 144.51'	R = 3,450.00'	ST = 63.26'	T = 592.60'
	R = 1,350.00'	SE = 0.08		R = 5,500.00'
	SE = 0.08	DS = 60mph		SE = 0.03
	DS = 60mph			DS = 60mph

-R474-

PI Sta 30+30+16.41	PI Sta 36+69.02	PI Sta 42+97.07	PI Sta 44+83.73	PI Sta 20+72.22
6s = 17° 37' 30.2"	Δ = 12° 17' 57.3" (RT)	6s = 17° 37' 30.2"	6s = 1° 08' 03.2"	Δ = 58° 41' 01.5" (RT)
D = 1° 02' 30.3"	D = 1° 02' 30.3"	Ls = 120.00'	Ls = 160.00'	D = 3° 34' 51.6"
L = 180.65'	L = 1,180.65'	LT = 90.00'	LT = 106.67'	L = 163.76'
T = 592.60'	T = 592.60'	ST = 40.00'	ST = 53.34'	T = 899.42'
R = 5,500.00'	R = 5,500.00'			R = 1,600.00'
SE = 0.03'	SE = 0.03'			SE = 0.06
DS = 60mph	DS = 60mph			DS = 50mph

-R274-

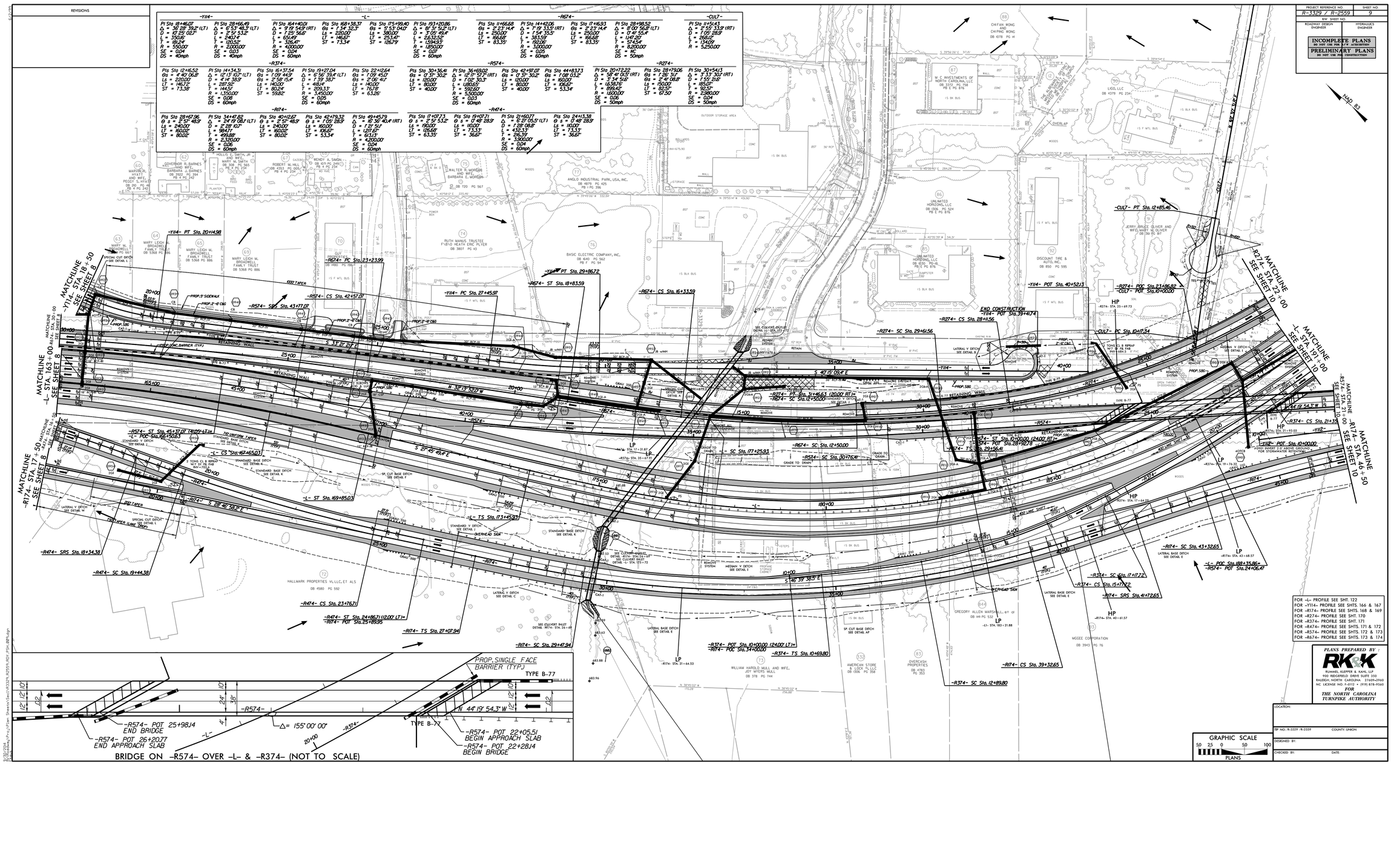
PI Sta 28+79.06	PI Sta 30+54.13
6s = 1° 26' 31.1"	Δ = 1° 33' 30.1" (RT)
6s = 2° 47' 08.8"	D = 1° 55' 21.8"
Ls = 150.00'	L = 185.01'
LT = 92.57'	T = 92.57'
ST = 67.50'	R = 2,980.00'
	SE = 0.04
	DS = 50mph

-R174-

PI Sta 28+67.96	PI Sta 34+41.82	PI Sta 40+12.61	PI Sta 46+79.32	PI Sta 49+45.73
6s = 2° 57' 48.9"	Δ = 24° 19' 08.1" (LT)	6s = 2° 57' 48.9"	6s = 1° 09' 28.9"	Δ = 16° 36' 40.4" (RT)
Ls = 240.00'	D = 2° 28' 10.7"	Ls = 240.00'	Ls = 160.00'	D = 1° 21' 51.6"
LT = 160.02'	L = 984.11'	LT = 160.02'	LT = 106.67'	L = 1,267.67'
ST = 80.02'	T = 499.88'	ST = 80.02'	ST = 53.34'	T = 643.13'
	R = 2,320.00'			R = 4,200.00'
	SE = 0.06			SE = 0.04
	DS = 60mph			DS = 60mph

-R474-

PI Sta 17+07.73	PI Sta 19+09.71	PI Sta 21+50.77	PI Sta 24+43.38
6s = 2° 51' 53.2"	6s = 17° 48' 28.9"	6s = 17° 48' 28.9"	6s = 17° 48' 28.9"
Ls = 190.01'	Ls = 110.00'	D = 1° 28' 08.8"	Ls = 110.01'
LT = 126.68'	LT = 73.33'	L = 432.33'	LT = 73.33'
ST = 63.35'	ST = 36.67'	T = 216.30'	ST = 36.67'
		R = 3,900.00'	
		SE = 0.04	
		DS = 60mph	


MATCHLINE -L- STA. 163+00 SEE SHEET 8
MATCHLINE -Y114- STA. 18+50 SEE SHEET 8
MATCHLINE -R174- STA. 17+50 SEE SHEET 8
MATCHLINE -R274- STA. 22+00 SEE SHEET 10
MATCHLINE -L- STA. 181+00 SEE SHEET 10
MATCHLINE -R574- STA. 21+00 SEE SHEET 10
MATCHLINE -R574- STA. 46+50 SEE SHEET 10
-Y114- PT Sta. 20+14.98
-R574- PC Sta. 23+23.99
-Y114- PT Sta. 29+86.72
-R574- ST Sta. 18+83.59
-Y114- PC Sta. 27+45.97
-R574- CS Sta. 16+33.59
-R574- CS Sta. 42+57.07
-R574- SRS Sta. 43+77.07
-R574- ST Sta. 45+37.07 (RT)
-L- POC Sta. 165+30.83
-L- CS Sta. 157+65.03
-L- ST Sta. 159+85.03
-L- TS Sta. 173+45.93
-R574- SRS Sta. 18+34.38
-R574- SC Sta. 19+44.38
-R574- CS Sta. 23+76.71
-R574- ST Sta. 24+86.71 (12.00' LT)=
-R174- POT Sta. 25+89.95
-R174- TS Sta. 27+07.94
-R174- SC Sta. 29+47.94
-Y114- POT Sta. 40+52.13
-R274- POC Sta. 21+86.82 =
-CUL7- POT Sta. 10+40.00
END CONSTRUCTION -Y114- POT Sta. 39+41.74
-R274- CS Sta. 28+11.56
-R274- SC Sta. 29+61.56
-CUL7- PC Sta. 10+17.34
-R574- ST Sta. 10+00.00 (24.00' RT)=
-R574- POT Sta. 28+98.78
-R574- TS Sta. 29+56.41
-Y112- POT Sta. 10+00.00
-R574- CS Sta. 21+35.00
-R574- SC Sta. 12+50.00
-R574- SC Sta. 30+76.41
-R574- CT Sta. 31+46.63 (120.00' RT)=
-R574- SC Sta. 12+50.00
-R574- SC Sta. 43+32.65
-L- POC Sta. 188+35.86 =
-R574- POT Sta. 24+06.40
-R374- SC Sta. 17+11.72
-R374- CS Sta. 15+71.72
-R174- SRS Sta. 41+72.65
-R574- CS Sta. 39+32.65
-R374- SC Sta. 12+89.80
-R374- POT Sta. 10+00.00 (24.00' LT)=
-R174- POC Sta. 34+00.00
-R374- TS Sta. 10+69.80
-R574- SC Sta. 12+89.80
-R574- SC Sta. 19+76.92
-R574- CS Sta. 17+26.92
-R574- SRS Sta. 16+46.92
-R574- ST Sta. 14+86.92 (RT)
-L- POC Sta. 165+30.83
-L- CS Sta. 157+65.03
-L- ST Sta. 159+85.03
-L- TS Sta. 173+45.93
-R574- SRS Sta. 18+34.38
-R574- SC Sta. 19+44.38
-R574- CS Sta. 23+76.71
-R574- ST Sta. 24+86.71 (12.00' LT)=
-R174- POT Sta. 25+89.95
-R174- TS Sta. 27+07.94
-R174- SC Sta. 29+47.94

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

NAD 83

MATCHLINE -L- STA. 199+00 SEE SHEET 11

MATCHLINE -SR2- STA. 17+50 SEE SHEET 11

MATCHLINE -L- STA. 191+00 -R274- STA. 22+00 SEE SHEET 9

MATCHLINE -L- STA. 176+00 -R274- STA. 21+00 SEE SHEET 9

MATCHLINE -R174- STA. 46+50 -R574- STA. 21+00 SEE SHEET 10

MATCHLINE -Y112- STA. 21+50 SEE SHEET 79

-SR2- PC Sta. 17+08.69

-SR2- PT Sta. 13+48.20

-SR2- PRC Sta. 12+06.22

-SR2- PC Sta. 10+69.34

-SR2- POT Sta. 10+00.00=
-Y112- POC Sta. 19+30.18

-R31- SC Sta. 22+75.86 =
-L- PCC Sta. 191+32.25 (49.72' RT)

-Y112- PC Sta. 16+17.58

-R574- ST Sta. 15+13.26

-R574- CS Sta. 13+93.26

-R574- SC Sta. 11+20.00

-R174- CS Sta. 55+50.32

S 47° 37' 02.6" E

N 46° 51' 55.5" E

N 67°02'38" W

N 67°02'01" E

-L-
PI Sta 193+20.86
△ = 81° 31' 51.2" (LT)
D = 3° 05' 49.4"
L = 2,632.52'
T = 1,594.93'
R = 1,850.00'
SE = 0.07
DS = 60mph

-Y112-
PI Sta 18+98.21
△ = 7° 22' 56.7" (RT)
D = 1° 19' 01.7"
L = 560.49'
T = 280.63'
R = 4,350.00'

-R274-
PI Sta 30+54.13
△ = 3° 33' 30.1" (RT)
D = 1° 55' 21.6"
L = 185.07'
T = 92.57'
R = 2,980.00'
SE = 0.04
DS = 50mph

-R174-
PI Sta 49+45.79
△ = 16° 36' 40.4" (RT)
D = 1° 21' 51.1"
L = 1,217.67'
T = 613.13'
R = 4,200.00'
SE = 0.04
DS = 60mph

PIs Sta 56+03.65
Θs = 1° 05' 28.9"
Ls = 160.00'
LT = 106.67'
ST = 53.34'

-SR2-
PI Sta 11+50.93
△ = 78° 25' 34.9" (LT)
D = 57° 17' 44.8"
L = 136.88'
T = 81.60'
R = 100.00'

PI Sta 12+92.16
△ = 81° 21' 01.7" (RT)
D = 57° 17' 44.8"
L = 141.98'
T = 85.94'
R = 100.00'
SE = 0.02

PI Sta 19+96.52
△ = 70° 08' 22.7" (RT)
D = 13° 58' 28.5"
L = 501.91'
T = 287.83'
R = 410.00'
SE = 0.04
DS = 30mph

-R574-
PIs Sta 14+33.26
Θs = 0° 37' 30.2"
Ls = 120.00'
LT = 80.00'
ST = 40.00'

PI Sta 12+56.66
△ = 2° 50' 48.0" (LT)
D = 1° 02' 30.3"
L = 273.26'
T = 136.66'
R = 5,500.00'
SE = 0.03
DS = 60mph

PIs Sta 10+80.00
Θs = 0° 37' 30.2"
Ls = 120.00'
LT = 80.00'
ST = 40.00'

FOR -L- PROFILE SEE SHT. 123
FOR -Y112- PROFILE SEE SHT. 174
FOR -R174- PROFILE SEE SHT. 169
FOR -R274- PROFILE SEE SHT. 170
FOR -R574- PROFILE SEE SHT. 172
FOR -SR2- PROFILE SEE SHT. 176

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

-L- STA. 199+00 SEE SHEET 10

MATCHLINE -SR2- STA. 17+50 SEE SHEET 10

MATCHLINE -L- STA. 213+00 SEE SHEET 12

MATCHLINE SEE SHEET 81

-R274- POC Sta.10+39.04 =
-CUL8- POT Sta.16+02.89

-R274- SC Sta. 11+72.80

BEGIN CONSTRUCTION
-CUL8- POT Sta.13+64.98

-R274- TS Sta. 10+12.80

-R274- POT Sta. 10+00.00 (47.00' LT) =
-L- POC Sta.203+58.45 Θ = 4°

-L- ST Sta. 207+38.45

-L- CS Sta. 203+58.45

-SR2- PT Sta. 22+10.60

END CONSTRUCTION
-SR2- POT Sta. 22+50.00

-L- STA. 22+75.59 PNC

-SR2- STA. 21+42.10 PNC

-SR2- STA. 22+03.10 PNC

S 17°59'28" E

S 68°49'15.4" W

N 58°56'11.5" E

S 72°04'00" W 332.67'

S 72°03'15" W 350.49'

S 72°02'28" W 628.57'

S 66°18'11" W 232.49'

N 87°31'14" W 234.90'

S 57°10'42" W 419.14'

N 78°07'35" E 179.69'

N 37°42'27" E 236.85'

S 55°23'39" E 388.82'

S 10°44'40" W 84.78'

S 13°54'10" W 53.47'

N 45°42'35" E 84.78'

S 51°04'10" W 55.19'

S 72°04'00" W 332.67'

S 72°03'15" W 350.49'

S 72°02'28" W 628.57'

S 66°18'11" W 232.49'

N 87°31'14" W 234.90'

S 57°10'42" W 419.14'

N 78°07'35" E 179.69'

N 37°42'27" E 236.85'

S 55°23'39" E 388.82'

S 10°44'40" W 84.78'

S 13°54'10" W 53.47'

N 45°42'35" E 84.78'

S 51°04'10" W 55.19'

-L-		-SR2-	-R274-	
PI Sta 193+20.86	PIs Sta 204+85.24	PI Sta 19+96.52	PIs Sta 11+19.48	PI Sta 20+72.22
Δ = 81° 31' 51.2" (LT)	Θs = 5° 53' 04.0"	Δ = 70° 08' 22.7" (RT)	Θs = 2° 51' 53.2"	Δ = 58° 41' 01.5" (RT)
D = 3° 05' 49.4"	Ls = 380.00'	D = 13° 58' 28.5"	Ls = 160.00'	D = 3° 34' 51.6"
L = 2,632.52'	LT = 253.47'	L = 501.91'	LT = 106.68'	L = 1,638.76'
T = 1,594.93'	ST = 126.79'	T = 287.83'	ST = 53.35'	T = 899.42'
R = 1,850.00'		R = 410.00'		R = 1,600.00'
SE = 0.07		SE = 0.04		SE = 0.06
DS = 60mph		DS = 30mph		DS = 50mph

FOR -L- PROFILE SEE SHT. 123
FOR -R274- PROFILE SEE SHT. 170
FOR -SR2- PROFILE SEE SHT. 176

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE –L– STA. 213+00 SEE SHEET 11

MATCHLINE –L– STA. 227+00 SEE SHEET 13

NAD 83

STANDARD BASE DITCH SEE DETAIL K

-BL-4 PINC 31+58.99

-BL-5 PINC 35+19.39

INDIAN TRAIL TOWN LIMITS

INV=667.5
26 TONS CL I RIPRAP W/50 SY FIL FAB

BEGIN CONSTRUCTION
-SR3- POT Sta. 9+00.00
-SR3- PC Sta. 9+25.00

-SR3- PT Sta. 11+36.39

-L- POT Sta. 227+00.00

-SR3-

-L- 215+00

-L- 220+00

-L- 225+00

N 58° 56' 11.5" E

(128) RUSHING CONSTRUCTION CO., INC.
DB 4907 PG 498

(135) VADER M. BULLOCK, HEIRS
DB 396 PG 853
(DEED FOR JACK AND VADER)

(137) MARY EVELYN FORBIS STRAND AND HUSBAND, ELLIS MERLE STRAND
DB 993 PG 276

(126) TWO LITTLE INDIANS, LLC
DB 1895 PG 023
PB 6 PG 980

(129) R & K DAVIS, LLC
DB 4179 PG 571
PC 1 PG 290

(131) FIFTH THIRD BANK
DB 5626 PG 138

(134) KENNETH E. CONLEY AND WIFE, MARY ELLEN CONLEY
DB 3562 PG 407
PC 1PG 290

PROP. 48" WW FENCE

PROP. SBG

TYPE B-77

SPECIAL CUT DITCH SEE DETAIL A

BERM DITCH SEE DETAIL M

RETAIN SYSTEM

FOR –L– PROFILE SEE SHTS. 123 & 124
FOR –SR3– PROFILE SEE SHT. 176

–SR3–	
PI Sta	10+49.33
Δ	= 75° 41' 56.5" (LT)
D	= 35° 48' 35.5"
L	= 211.39'
T	= 124.33'
R	= 160.00'
SE	= 0.04
DS	= 25mph

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	75
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

16
T & C OF NC, LLC.
DB 4530 PG 584
DB 4090 PG 680
DB 4090 PG 682
PC J PG 632

-Y111- PC Sta. 16+06.33

N 70°29'09" E
182.67'

N 66°53'37" E
340.63'

R=300'

OFFSET=12'

F

R=60'

50'

+55

CB

CB

CB

15" RCP-IV

15" RCP-IV

30" RCP-IV

30" RCP-IV

10+00

15+00

03

02

12'

12'

N 75° 35' 18.5" E

-Y111- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y111- POT Sta. 10+12.39

11 TONS CL B RIPRAP
W/28 SY FIL FAB
600' TAPER (LANE DROP) INV=689.7

INV=690.5

+73

50'
(TYP.)

FUTURE WIDENING BY OTHERS

SP. CUT BASE DITCH
SEE DETAIL F

SPECIAL CUT DITCH
SEE DETAIL A

1,200' LANE SHIFT RT

PAINTED ISLAND

150' TAPER

+50

R=40'

OFFSET=10'

R=250'

C

N 81°39'48" E
110.32'

N 65°14'14" W
100.03'

S 24°46'23" W
400.42'

S 87°42'07" W
436.42'

-DRI_1- POT Sta. 13+10.00

SEE CULVERT
INLET OUTLET DETAIL
-DRI_1- STA. 12+05.28

-DRI_1- PT Sta. 12+05.28
END CONSTRUCTION

-DRI_1- PC Sta. 11+55.43

NOTE: INSTALL 1-84" RCP AT
-DR_1- STA. 11+56 BURIED 1.0'
BELOW STREAM BED. INSTALL
SECOND 84" RCP 1.0' ABOVE
STREAM BED.

PROP. 5' SIDEWALK

PROP. 2'-6" C&G

30' TAPER
TO EXIST

R=45'

R=250'

OFFSET=10'

11+00

+00

00

01

02

03

04

12'

15" RCP-III

CAT-1

PROP. 2'-6" C&G

SEE CULVERT INLET
DETAIL -Y111-
STA. 21+41

150 TONS
CL I RIPRAP
W/200 SY FIL FAB

R=83.75'

R=200'

OFFSET=10'

PSH
SEE
DET

N 55°37'W
55.37'

R=45'

20+00

12'

12'

12'

12'

MATCHLINE
-Y111- STA. 21+00 SEE SHEET 7

-Y111-3 POT
23+63.08

-DRI_1- POT Sta. 10+00.00=
-Y111- POC Sta. 19+26.37

17
HENDRICK AUTOMOTIVE GROUP
DB 3828 PG 149
PC J PG 632

130
HENDRICK AUTOMOTIVE GROUP
DB 3828 PG 143

25
HENDRICK AUTOMOTIVE GROUP
DB 3828 PG 149

8' CHL

GATE

6' CHL

POWER
BOX

5 BAY D
(UTILITY)

BENCH

BST

CONC

CONC S/W

BRICK PAVERS

18" CMP

18" CMP

18" CMP

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	76
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 -Y113- STA. 21+50 SEE SHEET 8

NAD 83

-Y113- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y113- POC Sta. 13+20.00

-Y113- PC Sta. 12+17.24

-Y113- PT Sta. 16+64.56

INV=734.0
5 TONS CL B RIPRAP
W/14 SY FIL FAB

25' BLEND TO EXIST.

320' TAPER (LANE DROP)

300' TAPER

150' TAPER

700' UNIFORM TAPER LT & RT

REMOVE 24" RCP-III

RETAIN

LATERAL BASE DITCH
SEE DETAIL D

PROP. 2'-6" C&G

PROP. 1'-6" C&G

6' CHL & ISBW

10+00

15+00

20+00

N 56° 42' 45.1" E

N 57° 13' 30.4" E

-Y113-
PI Sta. 14+40.90
Δ = 0° 30' 45.3" (RT)
D = 0° 06' 52.5"
L = 447.32'
T = 223.66'
R = 50,000.00'
SE = NC
DS = 40mph

FOR -Y113- PROFILE SEE SHT. 165

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	77
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

MATCHLINE –Y113– STA. 30+00 SEE SHEET 8

MATCHLINE –Y114– STA. 14+50 SEE SHEET 8

–Y114– PC Sta. 10+00.00=
–Y113– POT Sta. 31+92.97

–Y113– PT Sta. 38+24.45

–Y113– PC Sta. 34+84.13

–Y113– POT Sta. 42+85.07

END CONSTRUCTION
–Y113– POT Sta. 41+20.00

42 NEWCARR II, LLC. DB 3369 PG 110

43 C. L. RINEHULTS AND WIFE, SARAH F RINEHULTS DB 914 PG 450

203 WILLIAM I. PAXTON AND WIFE, TERRI G. PAXTON DB 421 PG 430

273 DOROTHY D. PAXTON DB 421 PG 428

272 GAYLE P. BOLES AND HUSBAND JOHN R. BOLES DB 421 PG 426

266 PHILLIP DAVID DRYE AND WIFE AMELIA H. DRYE DB 127 PG 379

274 FORREST H. MILLER AND WIFE BETTY S. MILLER DB 212 PG 133

275 WILLIAM L. HARTIS AND WIFE RENEE W. HARTIS DB 1324 PG 48

276 IRMA D. HEATON DB 296 PG 577

44 CLARA L. VASQUEZ AND SPOUSE, LUIS VASQUEZ DB 4782 PG 221

46 BLANCHE W. JACKSON AND HUSBAND, EARL L. JACKSON DB 3776 PG 119

45 BLANCHE W. JACKSON AND SPOUSE, EARL L. JACKSON DB 4540 PG 767

47 RICHARD G. KELLER AND WIFE, VERENA E. KELLER DB 5255 PG 787

2 TONS CL B RIPRAP W/7 SY FIL FAB INV = 706.8

2 TONS CL B RIPRAP W/7 SY FIL FAB INV = 705.5

150' TAPER

100' TAPER

300' UNIFORM TAPER

150' TAPER

600' TAPER (LANE DROP)

540' UNIFORM TAPER LT & RT

100' UNIFORM TAPER

PROP. 2'-6" C&G

PROP. 1'-6" C&G REMOVE

PROP. 2'-6" C&G

PROP. 5' SIDEWALK

PROP. 2'-6" C&G

PROP. 5' SIDEWALK

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL L

RETAIN

STALLINGS RD 22' BST

N 40° 58' 33.6" E 40+00

5+00.00

50' BLEND TO EXIST.

FOR –Y113– PROFILE SEE SHT. 166
FOR –Y114– PROFILE SEE SHT. 166

–Y114–	–Y113–
PI Sta 13+41.18	PI Sta 36+55.44
Δ = 31° 44' 34.5" (RT)	Δ = 16° 14' 56.8" (LT)
D = 4° 46' 28.7"	D = 4° 46' 28.7"
L = 664.82'	L = 340.32'
T = 341.18'	T = 171.31'
R = 1,200.00'	R = 1,200.00'
SE = 0.04	SE = 0.04
DS = 40mph	DS = 50mph

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	78
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

-SR16- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-SR16- POT Sta.10+10.59

33 TONS CL I RIPRAP
W/62 SY FIL FAB
INV=661.7
(PIPE=660.7)

R=250'
OFFSET=10'

10+00

15+00

20+00

S 56°01'03.6" E

-SR16-

CAT-1

GRAU 350

CB
SP. DET

15" RCP-III

CB

15" RCP-III

CB

15" RCP-III

CB

60" RCP-III BURIED 1.0'

HW

INV=663.0
(PIPE=662.0)

20' (TYP.)

R=40'

+60.00

100' UNIFORM TAPER

PROP. 2'-6" C&G

PROP. 5' SIDEWALK

20' (TYP.)

PROPOSED 60' STREET PIPE

S 56°00'04" E
225.70'

S 56°01'04" E
937.13'

S 55°20'31" E
143.23'

N 56°21'04" W
528.46'

S 46°57'05" W
744.49'

N 46°57'33" W
385.23'

N 49°46'56" E
408.40'

S 33°59'56" W
199.48'

N 24°50'58" W
215.18'

228
STALLINGS CROSSING LLC
DB3746 PG 367

229
ROGER W. SHERIN AND WIFE JOYCE P. SHERIN
DB 3255 PG 001

223
RONALD HARVEY & DONNA RENEE BURKS
DB 4905 PG 402

224
ROGER W SHERIN
DB 3255 PG 174

225
JANNICK BRIOSO
DB 5368 PG 004

226
CHRISTINA I GUTIERREZ
DB 5603 PG 383

227
ROBERT K & SHARON B DAVIS
DB 0380 PG 343

-SR16- PC Sta. 19+23.93

-SR16- PT Sta. 21+30.86

-SR16- PC Sta. 22+17.57

-SR16- PT Sta. 22+95.29

END CONSTRUCTION
-SR16- POT Sta.22+85.38

S 61°35'29.5" E

+50.00

100' UNIFORM TAPER

OFFSET=4'

R=150'

R=20'

15" RCP-III

CB

ISBKD

END NOT FOUND

1 TON CL B RIPRAP
W/5 SY FIL FAB
INV=687.0

PIPE 4.5' MTL

40' PVC

15" RCP

MEADOWBROOK DRIVE (SR 1618) (PVT)

NCLCCB

4" AC

FOR -SR16- PROFILE SEE SHT. 175

-SR16-

PI Sta 20+33.74	PI Sta 22+56.75
△ = 47° 25' 34.0" (RT)	△ = 17° 48' 40.8" (RT)
D = 22° 55' 05.9"	D = 22° 55' 05.9"
L = 206.94'	L = 77.72'
T = 109.81'	T = 39.17'
R = 250.00'	R = 250.00'
SE = 0.04	SE = 0.04
DS = 30mph	DS = 30mph

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	79
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

MATCHLINE –Y112– STA. 21+50 SEE SHEET 10

MATCHLINE –Y112– STA. 35+00 SEE SHEET 80

UNION COUNTY
INDIAN TRAIL TOWN LIMITS

JOSEPH E. SMITH
DB 733 PG 574

FERAS I. SHAKHTUR AND EYAD I. SHAKHTUR
DB 1374 PG 851

CYCLONE ROOFING, LLC
DB 3831 PG 248

BRUCE H. GRIFFIN, JR. FAMILY LIMITED PARTNERSHIP
DB 3454 PG 668

DENNIS J. ROGERS AND WIFE, PHYLLIS P. ROGERS
DB 444 PG 857

COOK OUT INDIAN TRAIL, INC, ET AL
DB 4387 PG 599
DB 4831 PG 446

J. D. ARMSTRONG AND LARRY A. MCKINNEY
DB 665 PG 177
PB B PG 322B

JANN L. SNYDER REVOCABLE LIVING TRUST, ET AL
DB 5524 PG 592

EDWARDS & NEWMAN COMPANY, LLC,
DB 4914 PG 84,
PB B PG 322B

REA NELSON LEMMOND, HEIRS
DB 877 PG 179

–R574– ST Sta. 10+00.00

–R574– POT Sta.8+00.00 =
–Y112– POT Sta.24+68.66 (18.0' LT)

END OVERLAY
–Y112– POT Sta.27+90.00 LT

–R174– ST Sta. 57+10.32

–Y112– PT Sta. 21+78.07

–R174– ST Sta. 59+30.77 =
–Y112– POT Sta.24+68.66 (41.5' RT)

BEGIN MULTI-USE CONC.PATH
–Y112– POT Sta.26+40.00
30 TONS CL I RIPRAP
W/60 SY FIL FAB
INV=678.4

PROP.MULTI-USE CONC.PATH

3 TONS CL B RIPRAP
W/11 SY FIL FAB
INV=678.1

1 TON CL B RIPRAP
W/5 SY FIL FAB
INV=680.0

REMOVE 30" 12" RCP

REMOVE

REMOVE SYSTEM

RESET CONC.ISLAND

ADJUST DI

GRADE TO DRAIN

RETAIN

TAPER

LATERAL V DITCH SEE DETAIL V

10+00 N 40° 14' 05.9" W

25+00

30+00

35+00

S 40° 14' 05.9" E

–Y112– OPEN THROAT

COLLAR

18" RCP–III 2GI

24" RCP–III

36" RCP–III

15" RCP–II

FOR –Y112– PROFILE SEE SHT. 174
FOR –R174– PROFILE SEE SHT. 169
FOR –R574– PROFILE SEE SHT. 172

–R174–
PIs Sta 11+40.00
Θ s = 1°26' 11.4"
Ls = 210.00'
LT = 140.00'
ST = 70.00'

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	80
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

MATCHLINE –Y112– STA. 35+00 SEE SHEET 79

35+00 40+00 45+00

–Y112– S 40°14'05.9" E

RESET CONC. ISLAND

END CONSTRUCTION
–Y112– POT Sta. 42+87.42

PROP. MULTI-USE CONC. PATH

END MULTI-USE CONC. PATH
–Y112– POT Sta. 38+38.89

PROP. 2'-6" C&G

FILL W/ FLOWABLE FILL

RETAIN SYSTEM

RETAIN

ADJ. DI

15" RCP-III

COOK OUT
INDIAN TRAIL, INC., ET AL
DB 4387 PG 599
DB 4831 PG 486

HILLCREST FOODS, INC.
DB 874 PG 456
PB E PG 297

CNL INCOME FUND XII, LTD
DB 644 PG 315

MCCAULEY AND MCDONALD INVESTMENTS, INC
DB 454 PG 731

BRANFUL, LLC
DB 4999 PG 150

SIR JAKE, LLC
DB 4359 PG 463

REA NELSON LEMMOND, HEIRS
DB 877 PG 179

INDIAN TRAIL-FAIRVIEW RD

NORTH INDIAN TRAIL RD

FOR –Y112– PROFILE SEE SHT. 175

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THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	81
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

MATCHLINE SEE SHEET 11

S 60°04'15" E -SR2- 1229.80'

POT Sta. 25+88.06

-SR2-

356
LANDMARK/OVERTERRA II LTD PARTNERSHIP
PC G FILE 172

N 67°34'45" E 509.00'

S 01°38'03" W 98.52'

S 04°18'00" W 66.53'

N 44°27'54" W 614.49'

INDIAN TRAIL TOWNSHIP
UNION COUNTY

840
JOHNNY C. SIMPSON AND WIFE, SHIRLEY M. SIMPSON
DB 397 PG 893

839
EDWARDS LAND HOLDINGS, LLC
DB 5083 PG 497

125
SMITH PROPERTIES II, LLC
DB 1819 PG 588
PB G PG 884

N 45°42'39" W 529.51'

N 45°42'39" W 210.03'

S 45°44'15" E 207.65'

358
1047 VAN BUREN ASSOCIATION, INC
DB 5261 PG 48
PC L FILE 92

S 44°16'46" W 371.41'

S 44°18'46" W 349.74'

N 45°42'39" W 280.28'

VAN BUREN AVENUE

FOR -SR2- PROFILE SEE SHT. 176

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	120
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

790
780
770
760
750
740
730
720
710
700

107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00

-L- STA.110+00 RT
BEGIN CONSTRUCTION

-L- STA.110+50 RT
BEGIN OVERLAY

-L- STA.114+00 LT
BEGIN CONSTRUCTION

-L- STA.114+50 LT
BEGIN OVERLAY

50' BLEND
TO EXISTING

50' BLEND
TO EXISTING

EXISTING GROUND

NOTE:
OVERLAY USING EXISTING GRADE & SUPERELEVATION.

-L-LT- STA.122+00 ELEV.= 722.67
-L-RT- STA.122+00 ELEV.= 722.37
END OVERLAY
BEGIN GRADES

-LI-LT-

PI = 122+90.00	PI = 124+40.00
EL = 721.20'	EL = 719.14'
VC = 150'	VC = 150'
K = 578	K = 301
DS = > 80mph	DS = 74mph

END GRADES -L-LT- & -L-RT-
BEGIN GRADE -L- STA.125+60
ELEV.= 716.89

PROPOSED GRADE LT

(-)1.6333%
(-)1.6542%
(-)1.3740%
(-)1.3740%
(-)1.2800%
(-)1.8725%
(-)1.8725%
(-)4.0984%

PROPOSED GRADE

PROPOSED GRADE RT

-L- STA.123+08.14 =
-SRIR- STA.13+20.07
-L-RT- ELEV.= 720.70'

-L- STA.123+46.29 =
-SRRT2- STA.10+00.00, 51.10' RT
-L-RT- ELEV.= 720.17'

-LI-RT-

PI = 122+90.00	PI = 124+70.00
EL = 720.88'	EL = 718.58'
VC = 180'	VC = 180'
K = 481	K = 304
DS = > 80mph	DS = 74mph

BEGIN LAT. BASE DITCH LT.
-L- STA.124+50.00
EI = 711.50

END LAT. BASE DITCH LT.
-L- STA.125+11.00
EI = 709.00

-L- STA.125+35.68 =
-SRIL- STA.10+00.00
-L-LT- ELEV.= 717.35'

EXISTING GROUND

PI = 131+30.00
EL = 706.22'
VC = 650'
K = 138
DS = 60mph

(-)1.8725%
(+)2.8357%

PI = 137+50.00
EL = 723.80'
VC = 590'
K = 151
DS = 60mph

FOR -L- PLAN SEE SHTS.5 & 6

PLANS PREPARED BY :
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660 670 680 690 700 710 720 730 740 750 760

121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	121
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= X	FT
BASE DISCHARGE	= 1700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= X	FT
OVERTOPPING DISCHARGE	= X	CFS
OVERTOPPING FREQUENCY	= 10	YRS
OVERTOPPING ELEVATION	= X	FT

PI = 137+50.00
EL = 723.80'
VC = 590'
K = 151
DS = 60mph

-L- STA.137+44.91
-Y111- STA.24+69.16
ELEV. = 720.88'
MCKEE RD.

-L- STA.138+67.88 =
-SRLT2- STA.10+00.00, 47.25' LT
ELEV. = 721.51'

PROPOSED GRADE

(+)2.8357%

(-)1.0643%

PI = 144+50.00
EL = 716.35'
VC = 690'
K = 136
DS = 60mph

(-)1.0643%

(+)4.0000%

10'X8' RCBC

EXISTING GROUND

760 750 740 730 720 710 700 690 680 670

135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00

PI = 155+40.00
EL = 759.95'
VC = 1,210'
K = 151
DS = 60mph

(+)4.0000%

(-)4.0000%

℄ TOLL ZONES 1.1 & 1.2
-L- STA.151+75.00

PROPOSED GRADE

-L- STA.155+41.78 =
-Y113- STA.26+07.57
ELEV. = 747.85'
STALLINGS RD.

-L- STA.156+52.41 =
-R474- STA.10+00.00, 35.25' RT
ELEV. = 747.43'

EXISTING GROUND

770 760 750 740 730 720 710 700 690 680

149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00

FOR -L- PLAN SEE SHTS.6 THRU 8
FOR AET PLAN SEE SHEET AET-1

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	122
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 550	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 487.8	FT
BASE DISCHARGE	= 600	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 488.3	FT
OVERTOPPING DISCHARGE	= 890	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 495.0	FT

BACK	AHEAD
PI = 170+70.00	PI = 170+70.00
EL = 698.750'	EL = 698.755'
VC = 480'	VC = 480'
K = 138	K = 138
DS = 60mph	DS = 60mph

-L- STA.166+50.63 =
-R574- STA.45+37.07, 41.05' LT
ELEV. = 715.53'

PROPOSED GRADE

EXISTING GROUND

(-) 13.7600%

(-) 3.1000%

(-) 0.4900%

(-) 0.5000%

(-) 3.0280%

(-)4.0000%

(-)0.5124%

(-) 0.6667%

(-) 0.6320%

(-) 4.8889%

(-) 1.4600%

BEGIN STD.V DITCH RT.
-L- STA.165+00.00
EI = 712.78

PI = 165+50.00
EI = 705.90

END STD.V DITCH RT.
BEGIN STD.BASE DITCH RT.
-L- STA.166+50.00
EI = 702.80

END STD.BASE DITCH RT.
BEGIN SP.CUT BASE DITCH RT.
-L- STA.168+50.00
EI = 701.82

PI = 169+00.00
EI = 701.57

-L- STA.171+00.00
ELEV. = 700.198 LB
ELEV. = 700.203 LA

PI = 171+50.00
EI = 694.00

END SP.CUT BASE DITCH RT.
BEGIN STD.BASE DITCH RT.
-L- STA.173+00.00
EI = 693.00

BEGIN MEDIAN V.DITCH CL
-L- STA.174+00.00
EI = 691.08

END STD.BASE DITCH RT.
BEGIN MEDIAN V.DITCH CL
-L- STA.175+25.00
EI = 682.00

PI = 176+50.00
EI = 689.50

PI = 177+00.00

10'X7' RCBC

EI = 688.770

END MEDIAN V.DITCH CL
-L- STA.177+50.00
EI = 688.92

PROPOSED GRADE

(+) 0.3000%

(+) 1.0667%

(+) 1.5875%

EXISTING GROUND

PI = 179+00.00
EI = 686.00

PI = 183+20.00
EL = 692.35'
VC = 307'
K = 303
DS = > 80mph

(-)0.5124%

(+)0.5000%

END MEDIAN V.DITCH CL
-L- STA.183+00.00
EI = 692.35

-L- STA.188+35.86 =
-R574- STA.24+06.47
ELEV. = 694.93'

BEGIN MEDIAN V.DITCH CL
-L- STA.189+50.00
EI = 694.46

(-) 0.3000%

FOR -L- PLAN SEE SHT.9

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-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	123
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

740 730 720 710 700 690 680 670 660 650

191+00 192+00 193+00 194+00 195+00 196+00 197+00 198+00 199+00 200+00 201+00 202+00 203+00 204+00 205+00

-L- STA.192+04.05 =
-R374- STA.23+49.18, 47.0' RT
ELEV.= 696.77'

PROPOSED GRADE

PI = 197+00.00
EL = 699.25'
VC = 400'
K = 251
DS = 70mph

(+)0.5000%

(-)1.0926%

-L- STA.203+58.45 =
-R274- STA.10+00.00, 47.0' LT
ELEV.= 692.06'

EXISTING GROUND

END MEDIAN V.DITCH CL
-L- STA.191+50.00
EI = 693.86

720 710 700 690 680 670 660 650 640 630

205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00 216+00 217+00 218+00 219+00

PROPOSED GRADE

BEGIN LAT.BASE DITCH RT.
-L- STA.207+00.00
EI = 685.10

(-) 2.1048%

END LAT.BASE DITCH RT.
-L- STA.212+25.00
EI = 674.05

BEGIN SP.CUT DITCH RT.
-L- STA.212+50.00
EI = 676.04

PI = 213+50.00
EL = 681.22'
VC = 300'
K = 215
DS = 76mph

(-)1.0926%

(+)0.3017%

(-) 0.3000%

PI = 213+50.00
EI = 675.74

BEGIN TOLL ZONE
-L- STA.213+75.00

LOW POINT
-L- STA.214+35.08

(+) 0.5267%

EXISTING GROUND

℄ TOLL ZONES 2.1 & 2.2
-L- STA.215+00.00

END SP.CUT DITCH RT.
-L- STA.216+50.00
EI = 677.32

FOR -L- PLAN SEE SHTS.10 THRU 12
FOR AET PLAN SEE SHEET AET-2

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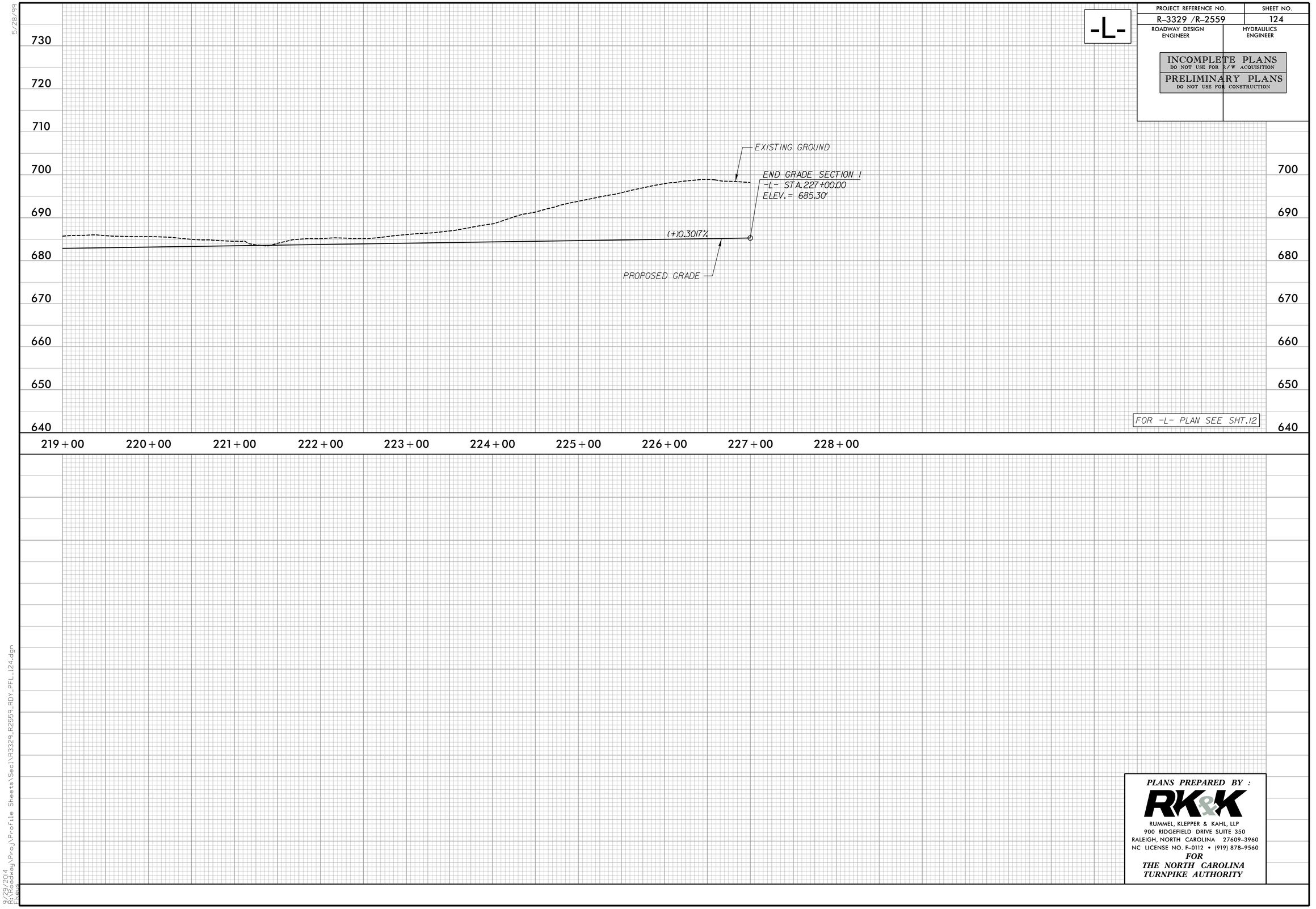
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	124
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -L- PLAN SEE SHT.12

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-Y111- McKEE RD.

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	161
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1400	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 695.3	FT
BASE DISCHARGE	= 1550	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 696.7	FT
OVERTOPPING DISCHARGE	= 1040	CFS
OVERTOPPING FREQUENCY	= 10+	YRS
OVERTOPPING ELEVATION	= 694.5	FT

-Y111- STA.10+12.39
BEGIN CONSTRUCTION
ELEV.= 696.74'

PI = 11+50.00
EL = 694.00'
VC = 270'
K = 99
DS = 50mph

(-)1.9911%
(+)0.7213%
(-) 0.3493%

BEGIN SP.CUT BASE DITCH RT.
-Y111- STA.11+00.00
EI = 691.81

END SP.CUT BASE DITCH RT.
BEGIN SP.CUT DITCH RT.
-Y111- STA.14+75.00
EI = 690.50

PI = 17+00.00
EL = 698.00'
VC = 200'
K = 112
DS = 54mph

(+)1.6356%
PROPOSED GRADE
(+)0.7213%
(-)1.0526%
EXISTING GROUND

END SP.CUT DITCH RT.
-Y111- STA.17+00.00
EI = 694.18

-Y111- STA.19+26.37 =
-DRI- STA.10+00.00
ELEV.= 695.62'

PI = 20+80.00
EL = 694.00'
VC = 200'
K = 108
DS = 53mph

(-)1.0526%
(+)0.7941%

10'X8' RCBC

-Y111- STA.22+27.67
-L- STA.137+44.91
ELEV.= 695.17'

(+)0.7941%

-Y111- STA.23+67.19 =
-SRRT1- STA.10+00.00
-SRRT2- STA.23+94.69
ELEV.= 696.24'

-Y111- STA.25+72.54 =
-SRLT1- STA.10+00.00
ELEV.= 696.20'

PI = 24+20.00
EL = 696.70'
VC = 180'
K = 160
DS = 61mph

(-)0.3276%
(-)0.3276%
EXISTING GROUND
PROPOSED GRADE

-Y111- STA.29+29.83 =
-Y111A- STA.10+00.00
ELEV.= 695.03'

-Y111- STA.30+00.00
END CONSTRUCTION
ELEV.= 694.80'

8' BERM
4%

-Y111- STA.30+12.07
END CONSTRUCTION

FOR -Y111- PLAN SEE SHTS.7 & 75

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	162
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y111A-

-Y111A- STA.10+18.02
-Y111- STA.29+30.76
BEGIN GRADE
ELEV.= 694.67'

-Y111A- STA.12+40.00
END GRADE
ELEV.= 693.82'

EXISTING GROUND

.02

(-)0.3815%

PROPOSED GRADE

FOR -Y111A- PLAN SEE SHT.7

-DR1_1-

-DR1_1- STA.10+35.50
-Y111- STA.19+26.17
BEGIN GRADE
ELEV.= 694.20'

PI = 10+70.00
EL = 693.50'
VC = 60'
K = 23
DS = 23mph

PI = 11+60.00
EL = 694.00'
VC = 60'
K = 54
DS = 43mph

-DR1_1- STA.12+29.59
END GRADE
ELEV.= 693.62'

.04

(-)2.0290%

(+)0.5556%

(-)0.5495%

PROPOSED GRADE

EXISTING GROUND

FOR -DR1_1- PLAN SEE SHT.75

-SRRT2-

-SRRT2- STA.10+00.00 =
-L- STA.123+46.29
BEGIN GRADE
ELEV.= 719.93'

PI = 12+90.00
EL = 714.80'
VC = 360'
K = 1076
DS = > 80mph

PI = 15+80.00
EL = 708.70'
VC = 220'
K = 122
DS = 56mph

(-)1.7690%

(-)2.1034%

PROPOSED GRADE

EXISTING GROUND

(-)2.1034%

-SRRT2-

PI = 19+10.00
EL = 707.70'
VC = 320'
K = 119
DS = 55mph

PROPOSED GRADE

(-)0.3030%

(-)0.3030%

(-)3.0000%

EXISTING GROUND

-SRRT2- STA.23+71.15
-Y111- STA.23+65.78
END GRADE
ELEV.= 696.46'

PI = 22+40.00
EL = 697.80'
VC = 230'
K = 116
DS = 55mph

(-)3.0000%

(-)1.0217%

.01

FOR -SRRT2- PLAN SEE SHTS.6 & 7

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-SRRT1-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	163
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SRRT1- STA.10+12.52 =
-Y111- STA.23+67.97
BEGIN GRADE
ELEV.= 696.12'

PI = 12+50.00
EL = 693.75'
VC = 330'
K = 118
DS = 56mph

PI = 18+90.00
EL = 705.30'
VC = 210'
K = 118
DS = 56mph

PI = 21+80.00
EL = 715.70'
VC = 370'
K = 143
DS = 59mph

PROPOSED GRADE

EXISTING GROUND

.01

(-)10.9980%

(+)1.8047%

(+)3.5862%

(+)1.0074%

750 740 730 720 710 700 690 680 670 660

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

760 750 740 730 720 710 700 690 680 670

-SRRT1- STA.27+38.86 =
-Y113- STA.25+01.49
END GRADE
ELEV.= 721.33'

PROPOSED GRADE

.01

EXISTING GROUND

24+00 25+00 26+00 27+00 28+00 29+00

FOR -SRRT1- PLAN SEE SHTS.7 & 8

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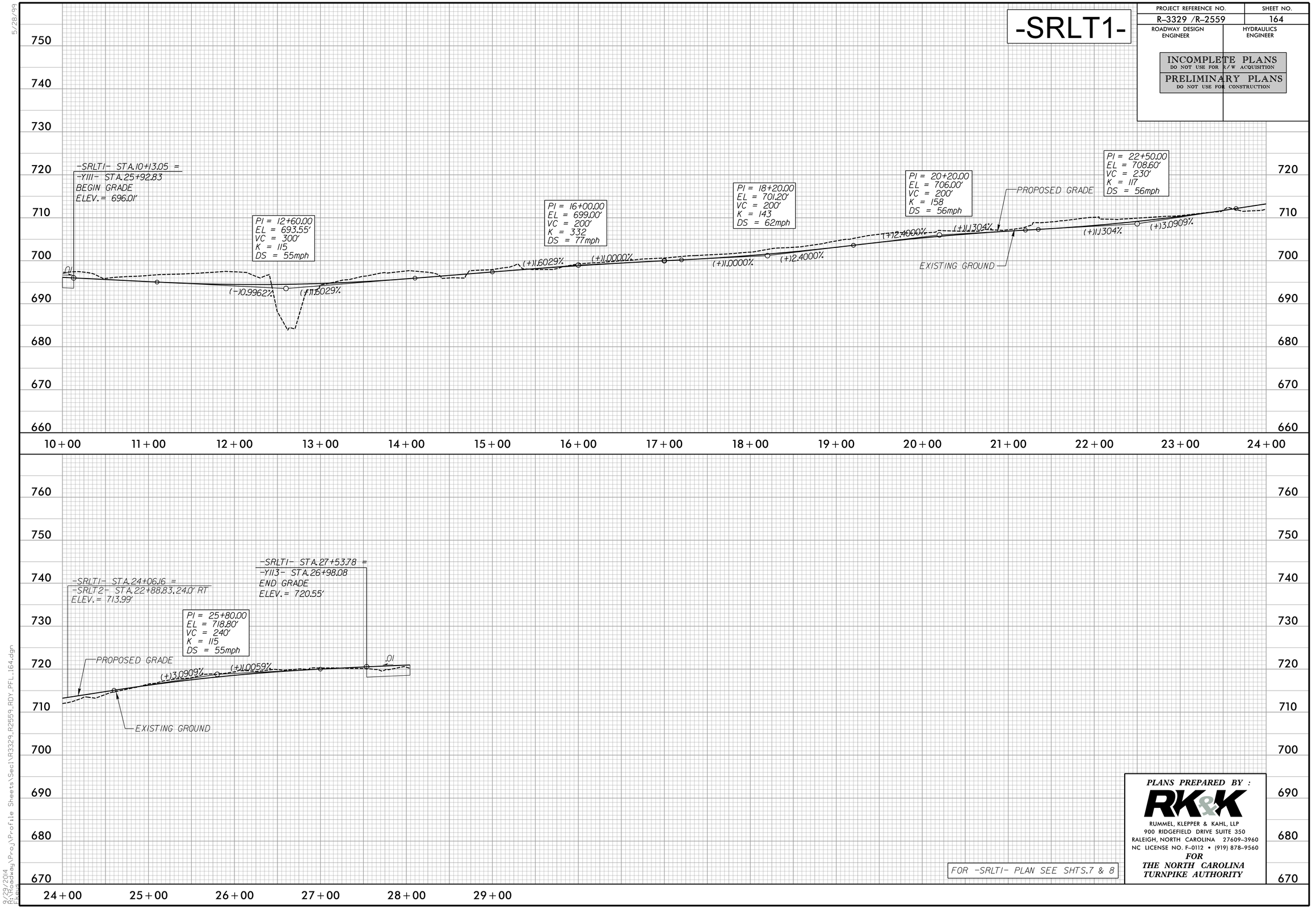
-SRLT1-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	164
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -SRLT1- PLAN SEE SHTS.7 & 8

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-SRLT2-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	165
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SRLT2- STA.10+00.00 =
-L- STA.138+67.88
BEGIN GRADE
ELEV. = 721.27'

PI = 11+00.00
EL = 721.50'
VC = 200'
K = 112
DS = 55mph

PI = 12+70.00
EL = 718.85'
VC = 140'
K = 114
DS = 55mph

PI = 15+25.00
EL = 718.00'
VC = 240'
K = 86
DS = 50mph

PI = 19+10.00
EL = 706.00'
VC = 310'
K = 64
Ds = 40mph

PI = 22+00.00
EL = 711.00'
VC = 170'
K = 110
DS = 54mph

-SRLT2- STA.22+88.83
-SRLT1- STA.24+06.16
END GRADE
ELEV. = 713.91'

(+)0.2300%
(−)1.5588%
(−)11.5588%
(−)10.3333%
(−)10.3333%
(+)13.1169%
(−)13.1169%
(+)11.7241%
(+)11.7241%
(+)3.2759%
713.91

PROPOSED GRADE
EXISTING GROUND

FOR -SRLT2- PLAN SEE SHTS.7 & 8

-Y113- STALLINGS RD.

-Y113- STA.13+20.00
BEGIN GRADE

25' BLEND TO EXIST.

-Y113- STA.13+45.00
BEGIN GRADE
ELEV. = 739.64'

PI = 14+35.00
EL = 739.10'
VC = 180'
K = 49
DS = 35mph

PI = 17+85.00
EL = 749.80'
VC = 420'
K = 44
DS = 40mph

PI = 22+28.00
EL = 721.00'
VC = 440'
K = 65
DS = 38mph

PI = 26+05.00
EL = 722.15'
VC = 200'
K = 135
DS = 58mph

(−)0.6000%
(−)1.6389%
(+)3.0571%
(+) 2.6879%
(+)3.0571%
(−)6.5011%
(−)6.5011%
(+)0.3050%
(+) 0.3000%
(+)0.3050%

BEGIN LAT. BASE DITCH RT.
-Y113- STA.13+00.00
El = 737.89

PI = 13+86.00
El = 737.30

END LAT. BASE DITCH RT.
-Y113- STA.17+00.00
El = 745.74

BEGIN LAT. BASE DITCH RT.
-Y113- STA.22+00.00
El = 718.31

-Y113- STA.25+17.97 =
-RI174- STA.10+00.00
ELEV. = 721.88'

-Y113- STA.25+05.93 =
-SRRT1- STA.27+89.05
ELEV. = 721.85'

END LAT. BASE DITCH RT.
-Y113- STA.25+00.00
El = 719.06

EXISTING GROUND

FOR -Y113- PLAN SEE SHTS.8,76 & 77

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	166
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y113- STALLINGS RD.

PI = 26+05.00
EL = 722.15'
VC = 200'
K = 135
DS = 58mph

-Y113- STA. 26+07.46 =
-L- STA. 155+41.29
ELEV. = 721.77'

-Y113- STA. 27+04.64 =
-SRLT1- STA. 28+04.21
-R674- STA. 37+45.97
ELEV. = 720.97'

PI = 28+80.00
EL = 718.90'
VC = 150'
K = 68
DS = 47mph

PI = 31+60.00
EL = 709.40'
VC = 410'
K = 64
DS = 40mph

-Y113- STA. 31+92.97 =
-Y114- STA. 10+00.00
ELEV. = 712.70'

PI = 36+50.00
EL = 724.15'
VC = 530'
K = 62
DS = 45mph

PI = 40+15.00
EL = 703.85'
VC = 110'
K = 103
DS = 51mph

PROPOSED GRADE

EXISTING GROUND

(-)1.18718%
(-)1.18718%
(-)13.39298%
(-)13.39298%
(+)3.01102%
(+)3.01102%
(-)15.56716%
(-)15.56716%

26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00

740 730 720 710 700 690 680 670

-Y113- STALLINGS RD.

-Y113- STA. 40+70.00
END GRADE
ELEV. = 701.38'

-Y113- STA. 41+20.00
END CONSTRUCTION

50' BLEND TO EXIST.

PROPOSED GRADE

EXISTING GROUND

(-)4.49091%
(-)11.92007%
(-)1.69333%

BEGIN SP.CUT DITCH RT.& LT.
-Y113- STA.40+50.00
EI = 699.27 RT.
EI = 699.44 LT.

END SP.CUT DITCH RT.& LT.
-Y113- STA.41+25.00
EI = 698.00 RT.& LT.

PI = 40+15.00
EL = 703.85'
VC = 110'
K = 103
DS = 51mph

FOR -Y113- PLAN SEE SHTS.8 & 77

-Y114-

-Y114- STA. 10+34.95 =
-Y113- STA. 31+89.93
BEGIN GRADE
ELEV. 712.00'

PI = 11+10.00
EL = 710.50'
VC = 120'
K = 145
DS = 62mph

℄

(-)11.99871%
(-)11.17731%
(-) 0.41607%
(-) 1.64291%
(-) 1.26311%

EXISTING GROUND

PROPOSED GRADE

BEGIN SP.CUT DITCH RT.
-Y114- STA.11+00.00
EI = 705.60

END SP.CUT DITCH RT.
-Y114- STA.13+50.00
EI = 704.56

BEGIN SP.CUT DITCH RT.
-Y114- STA.17+00.00
EI = 701.41

PI = 18+07.13
EI = 699.65

END SP.CUT DITCH RT.
-Y114- STA.18+63.34
EI = 698.94

FOR -Y114- PLAN SEE SHTS.8,9 & 77

40+00 41+00 42+00 43+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

740 730 720 710 700 690 680 670 660 650

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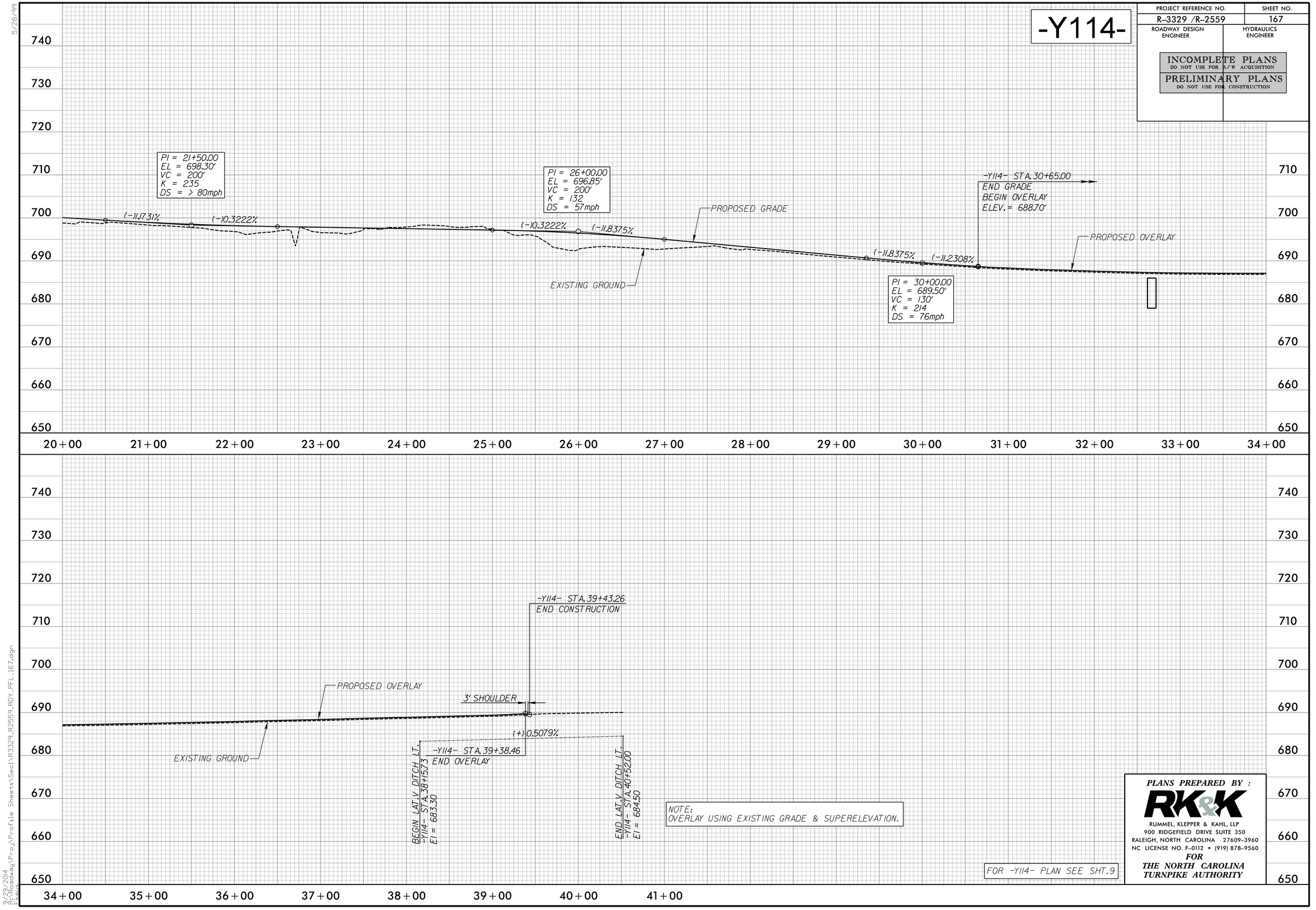
-Y114-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	167
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTE:
OVERLAY USING EXISTING GRADE & SUPERELEVATION.

FOR -Y114- PLAN SEE SHT.9

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-R174-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	168
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-R174- STA.10+50.14 =
-Y113- STA.25+21.74
BEGIN GRADE
ELEV. = 722.39'

PI = 15+35.00
EL = 727.05'
VC = 550'
K = 166
DS = 61mph

(+)0.9621%
(-)12.3469%
(-) 0.5715%
(-) 4.5819%
(-) 4.0614%
(-) 0.5866%
(-) 0.5947%

PROPOSED GRADE
EXISTING GROUND

BEGIN SP.BACK OF CURB DITCH LT.
-RI74- STA.14+22.07
EI = 724.50

PI = 15+70.80
EI = 723.65

END SP.BACK OF CURB DITCH LT.
-RI74- STA.16+19.41
EI = 721.42

BEGIN LAT.V DITCH RT.
-RI74- STA.16+67.96
EI = 719.81

PI = 18+60.26
EI = 712.00

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-RI74- STA.19+07.99
EI = 711.72

END SP.CUT DITCH RT.
-RI74- STA.20+98.01
EI = 710.59

760 750 740 730 720 710 700 690 680 670

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

-RI74- STA.25+89.95 =
-R474- STA.24+86.71\12.0' LT
ELEV. = 702.30'

PI = 30+40.00
EL = 691.73'
VC = 600'
K = 181
DS = 70mph

(-)12.3469%
(+)0.9700%
(-) 6.5378%
(+) 0.6392%
(+) 0.6392%

PROPOSED GRADE
EXISTING GROUND

-RI74- STA.34+00.00 =
-R374- STA.10+00.00, 24.0' LT
ELEV. = 695.23'

BEGIN LAT.V DITCH RT.
-RI74- STA.27+86.04
EI = 694.40

END LAT.V DITCH RT.
BEGIN LAT.BASE DITCH RT.
-RI74- STA.29+65.00
EI = 682.70

END LAT.BASE DITCH RT.
BEGIN SP.CUT BASE DITCH RT.
-RI74- STA.33+19.10

END SP.CUT BASE DITCH RT.
BEGIN LAT.BASE DITCH RT.
-RI74- STA.37+55.51

740 730 720 710 700 690 680 670 660 650

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

FOR -RI74- PLAN SEE SHTS.8 & 9

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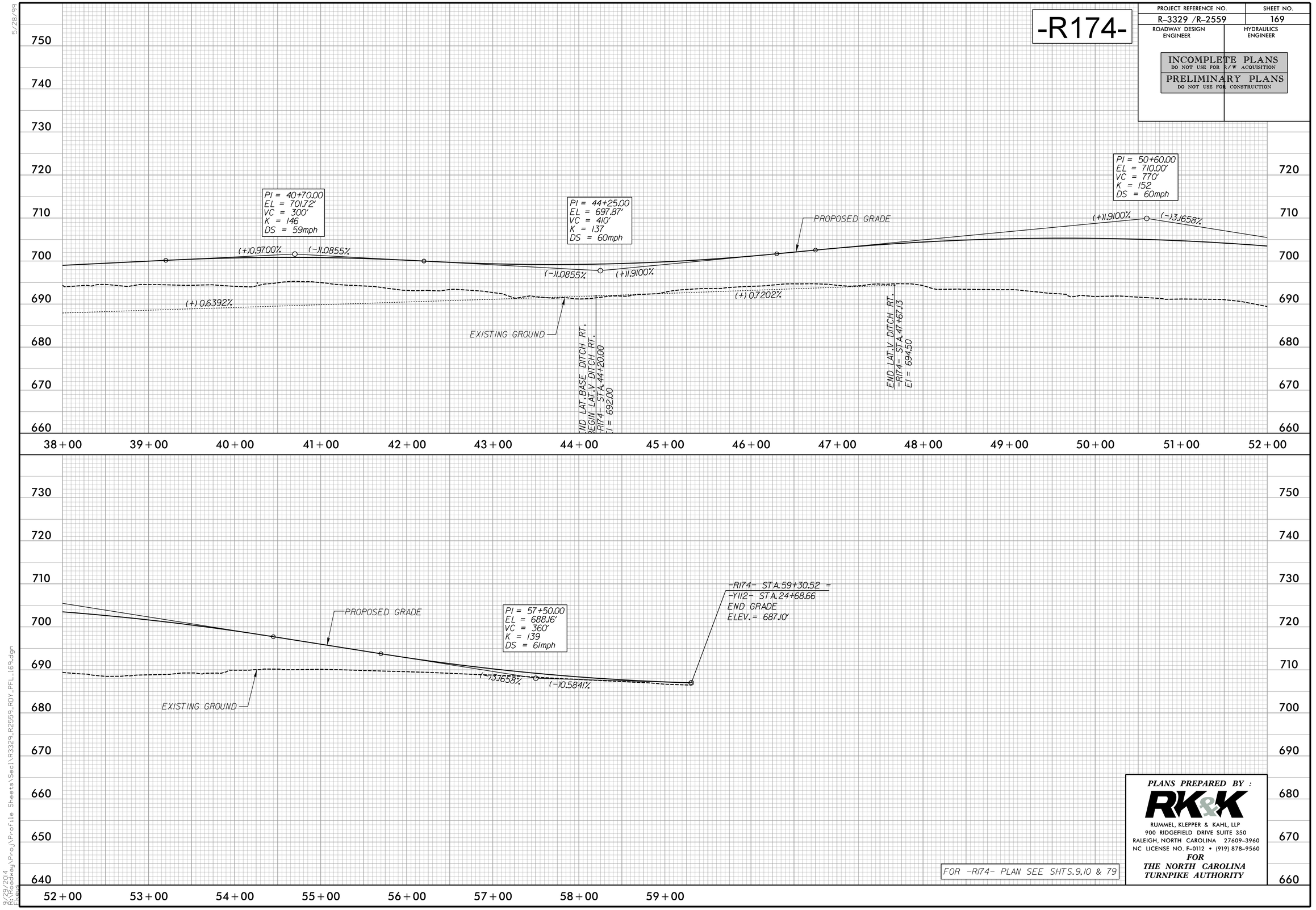
-R174-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	169
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -RI74- PLAN SEE SHTS. 9, 10 & 79

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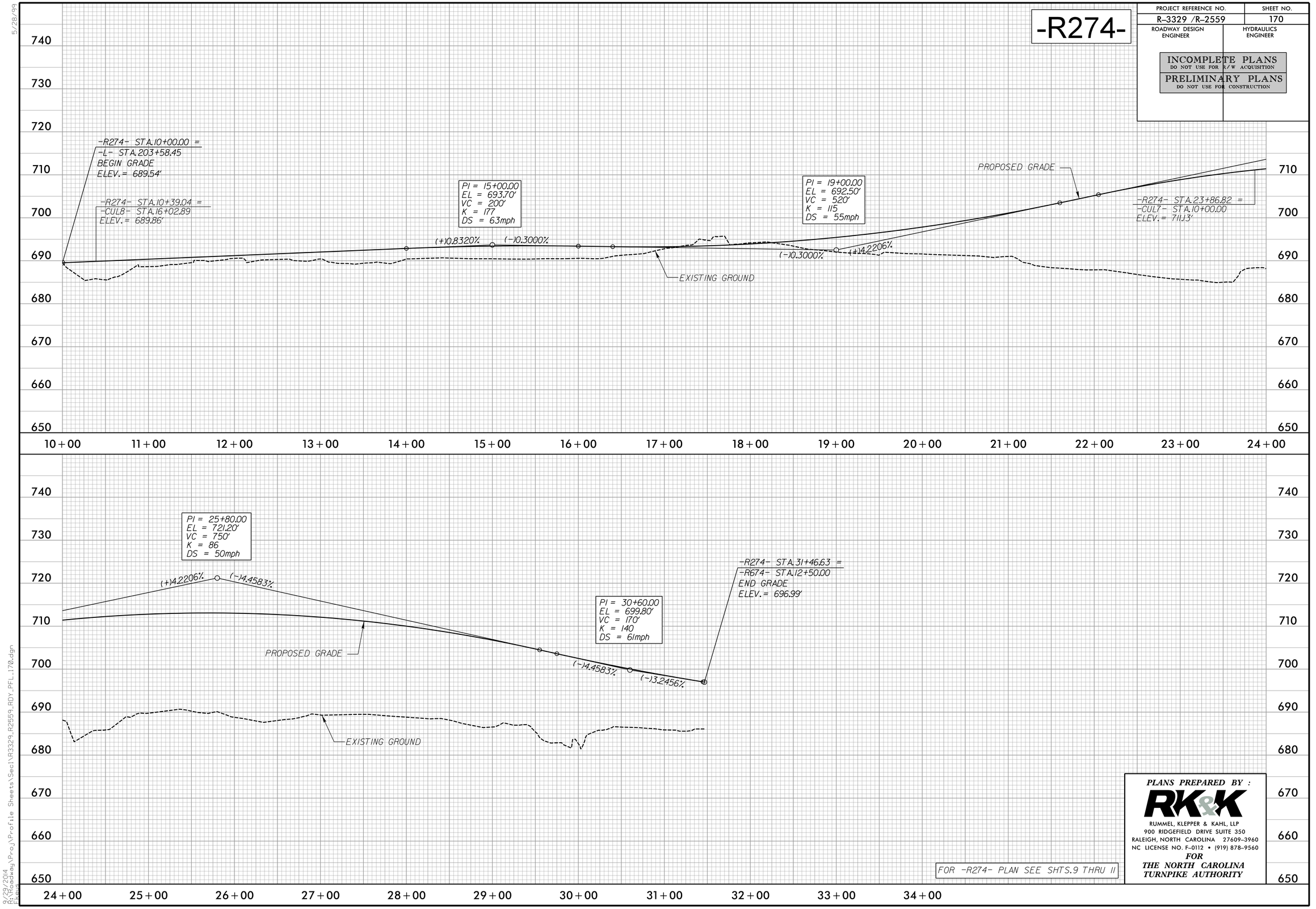
-R274-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	170
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -R274- PLAN SEE SHTS.9 THRU 11

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-R374-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	171
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-R374- STA.10+00.00 =
-RI74- STA.34+00.00
BEGIN GRADE
ELEV. = 693.79'

PI = 11+60.00
EL = 694.96'
VC = 180'
K = 623
DS = > 80mph

PI = 13+40.00
EL = 696.80'
VC = 180'
K = 289
DS = 73mph

PI = 17+50.00
EL = 698.44'
VC = 200'
K = 286
DS = 73mph

PROPOSED GRADE

EXISTING GROUND

(+)0.7339%
(+)1.0230%
(+)1.0230%
(+)0.4000%
(+)0.4000%
(-)0.3000%
(-)0.3000%
(+)0.5075%

-R374- STA.22+75.86 =
-L- STA.191+32.25
END GRADE
ELEV. = 698.93'

-R374- STA.20+86.01 =
-R574- STA.22+80.94
ELEV. = 698.10'

PI = 20+20.00
EL = 697.63'
VC = 340'
K = 421
DS = > 80mph

FOR -R374- PLAN SEE SHT.9 & 10

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

740 730 720 710 700 690 680 670 650

-R474-

PI = 11+75.00
EL = 745.64'
VC = 340'
K = 115
DS = 55mph

PI = 14+40.00
EL = 735.83'
VC = 180'
K = 157
DS = 65mph

PI = 18+46.00
EL = 716.14'
VC = 410'
K = 155
DS = 64mph

PROPOSED GRADE

EXISTING GROUND

(-)0.7500%
(-)3.7000%
(-)3.7000%
(-)4.8500%
(-)4.8500%
(-)2.1983%

-R474- STA.10+00.00 =
-L- STA.156+52.41
BEGIN GRADE
ELEV. = 746.95'

FOR -R474- PLAN SEE SHTS.8 & 9

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750 740 730 720 710 700 690 680 670

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

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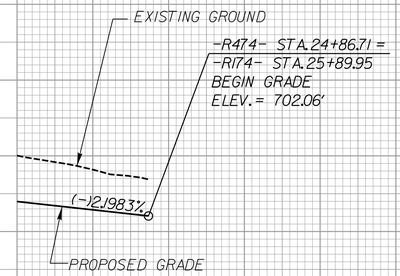
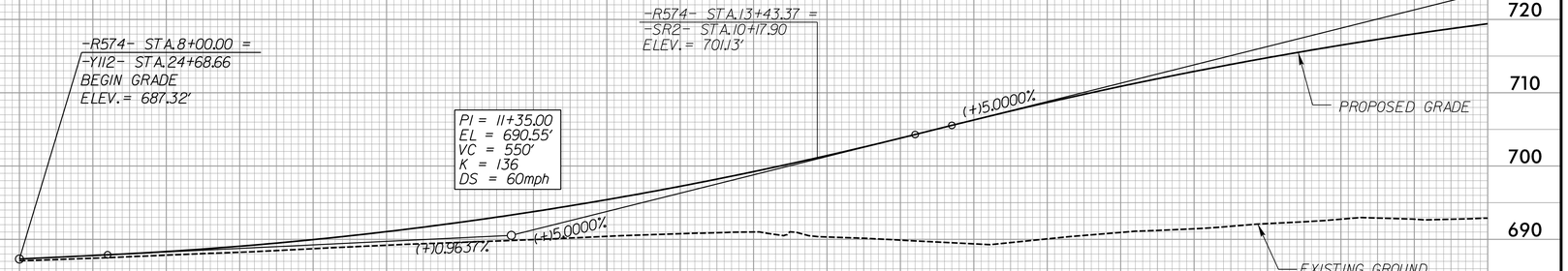
-R474-



FOR -R474- PLAN SEE SHT.9

-R574-

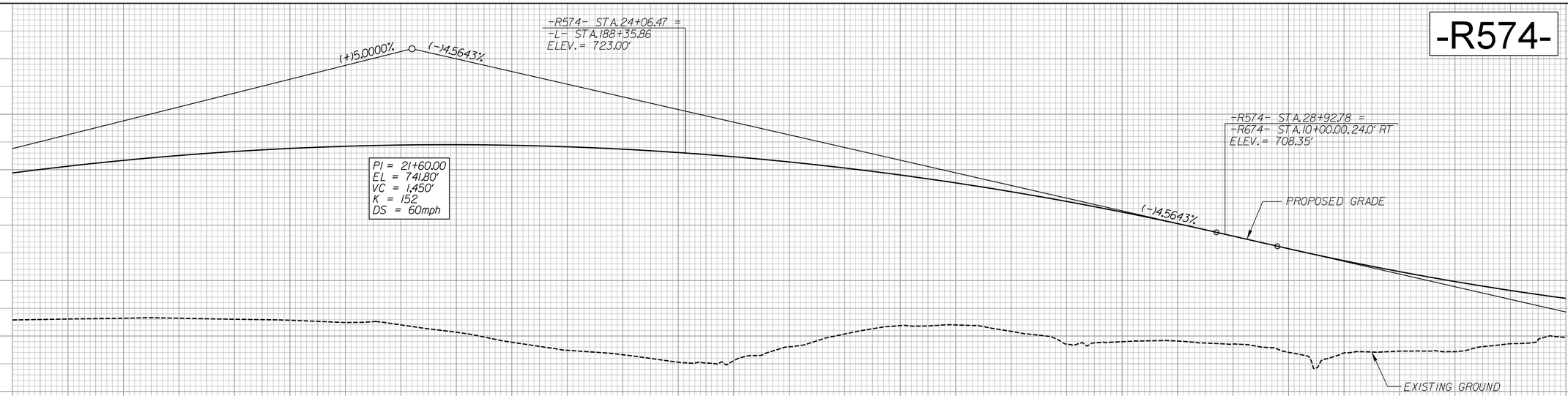


PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	172
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-R574-



FOR -R574- PLAN SEE SHTS.9,10 & 79

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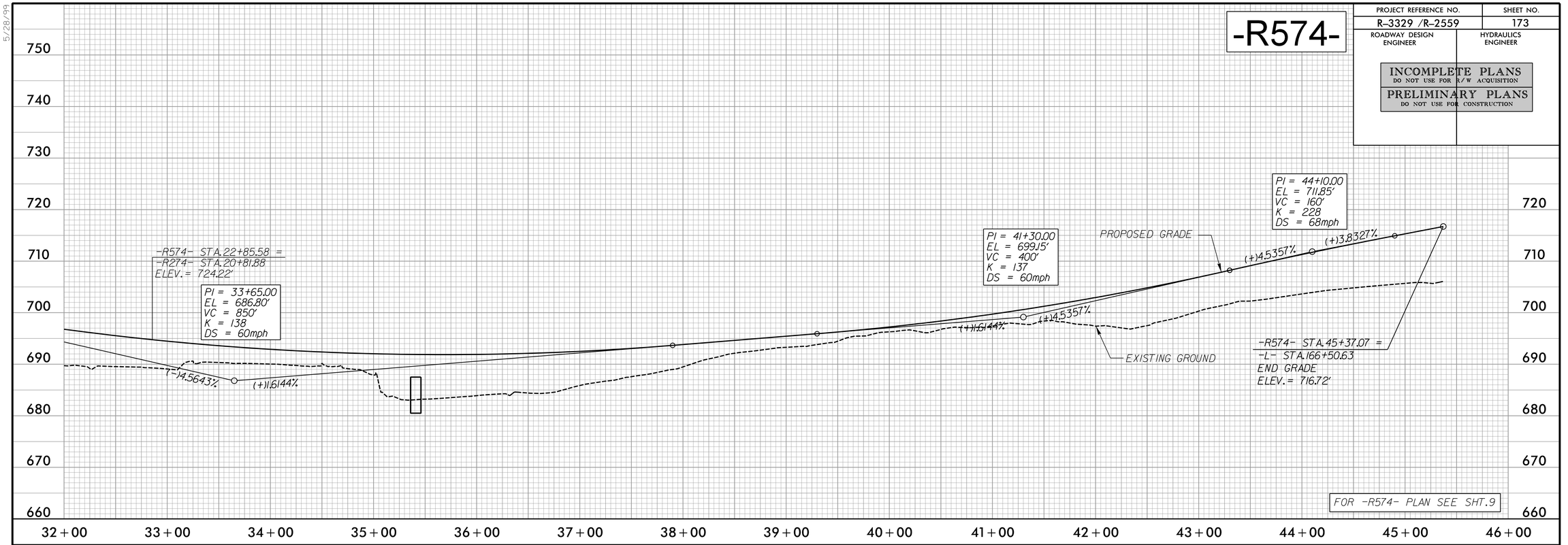
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	173
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

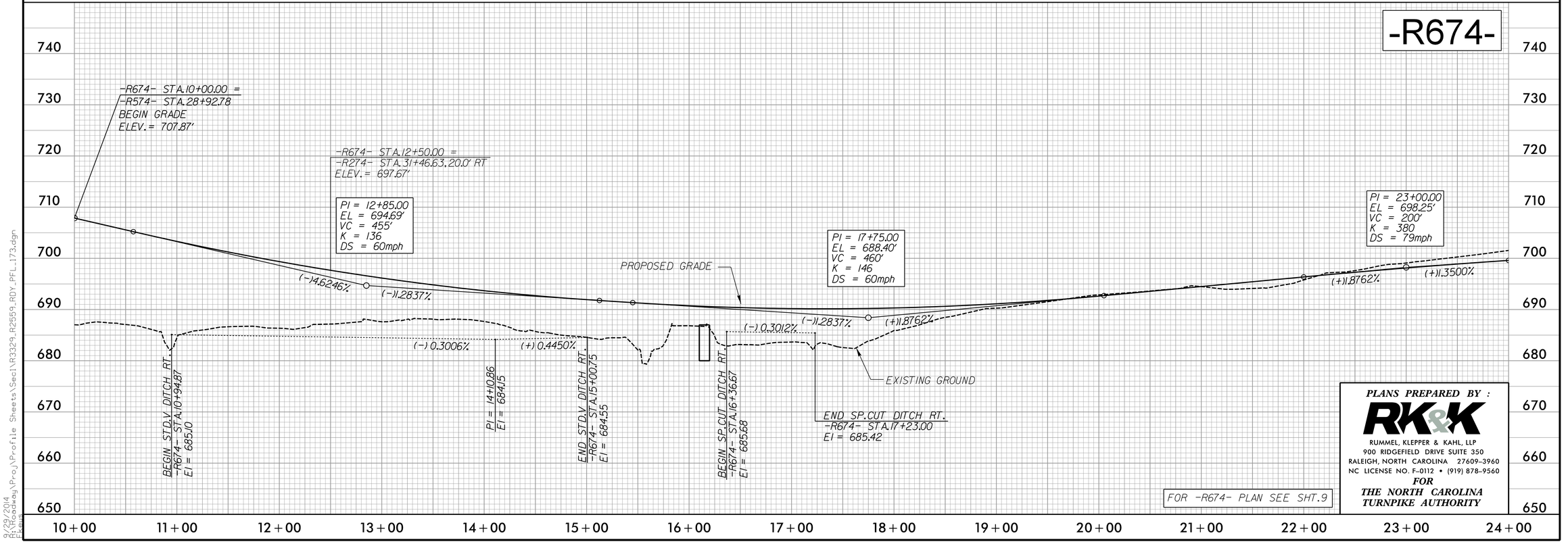
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-R574-



-R674-



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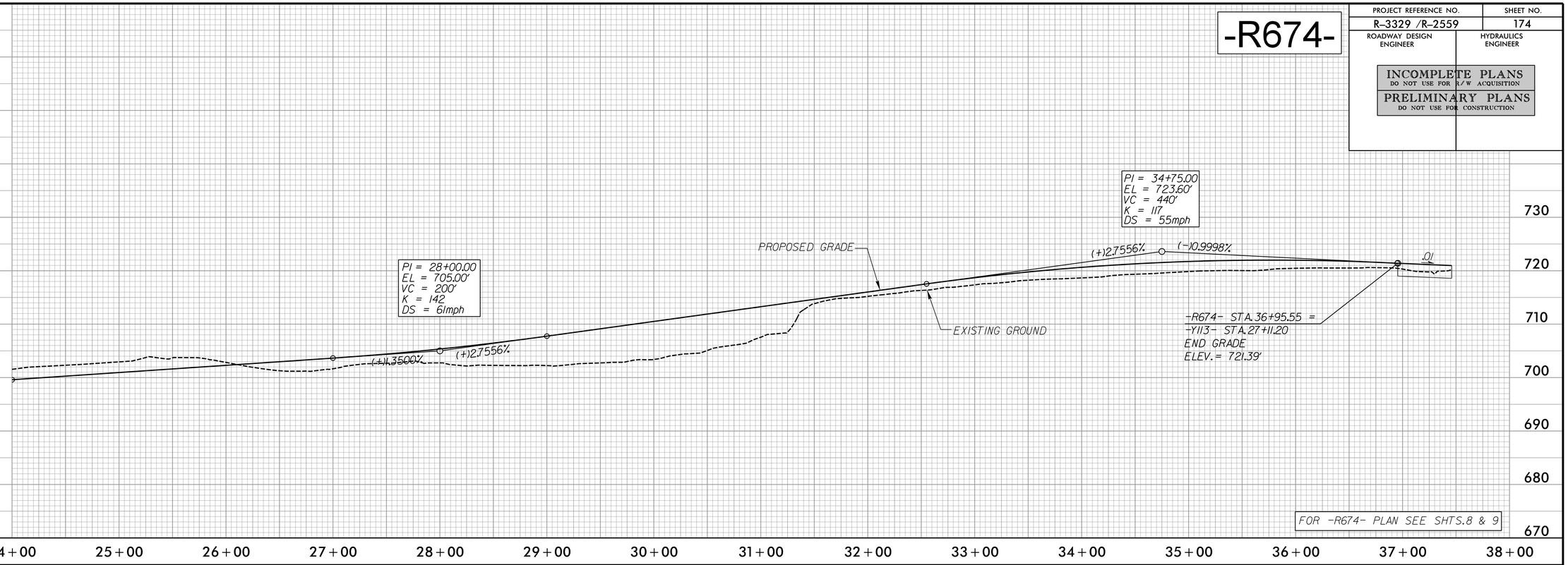
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	174
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

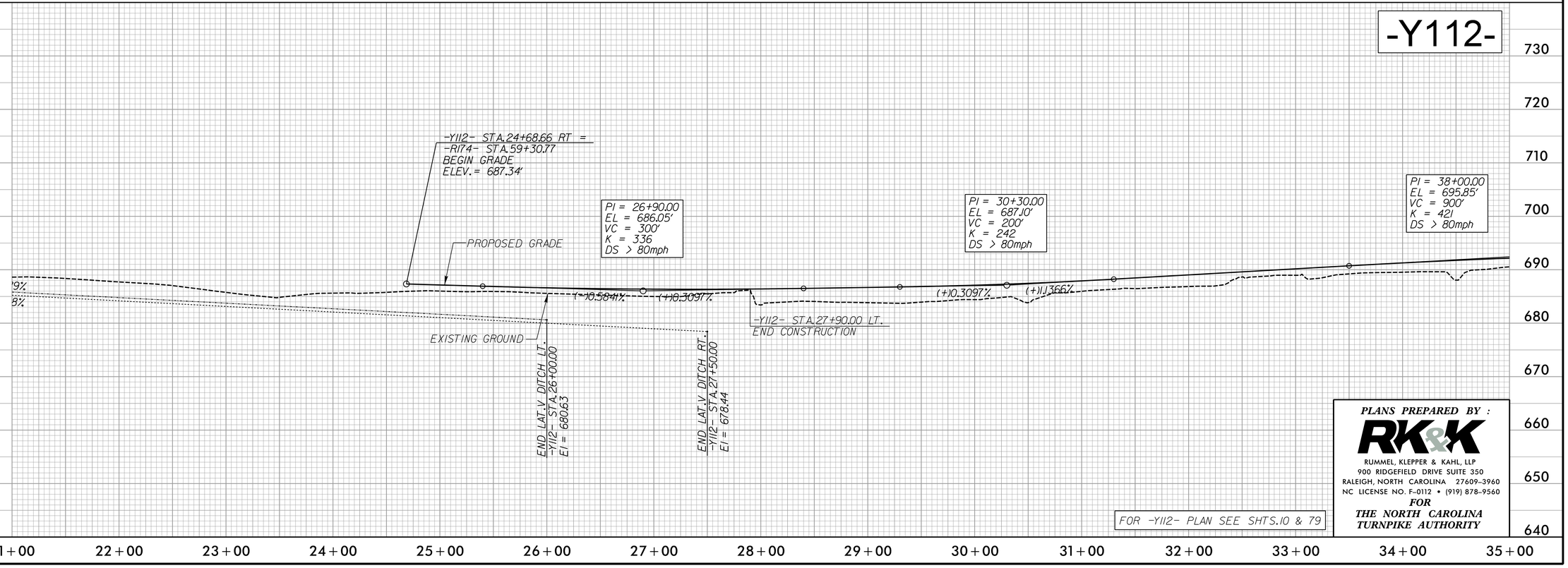
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-R674-



-Y112-



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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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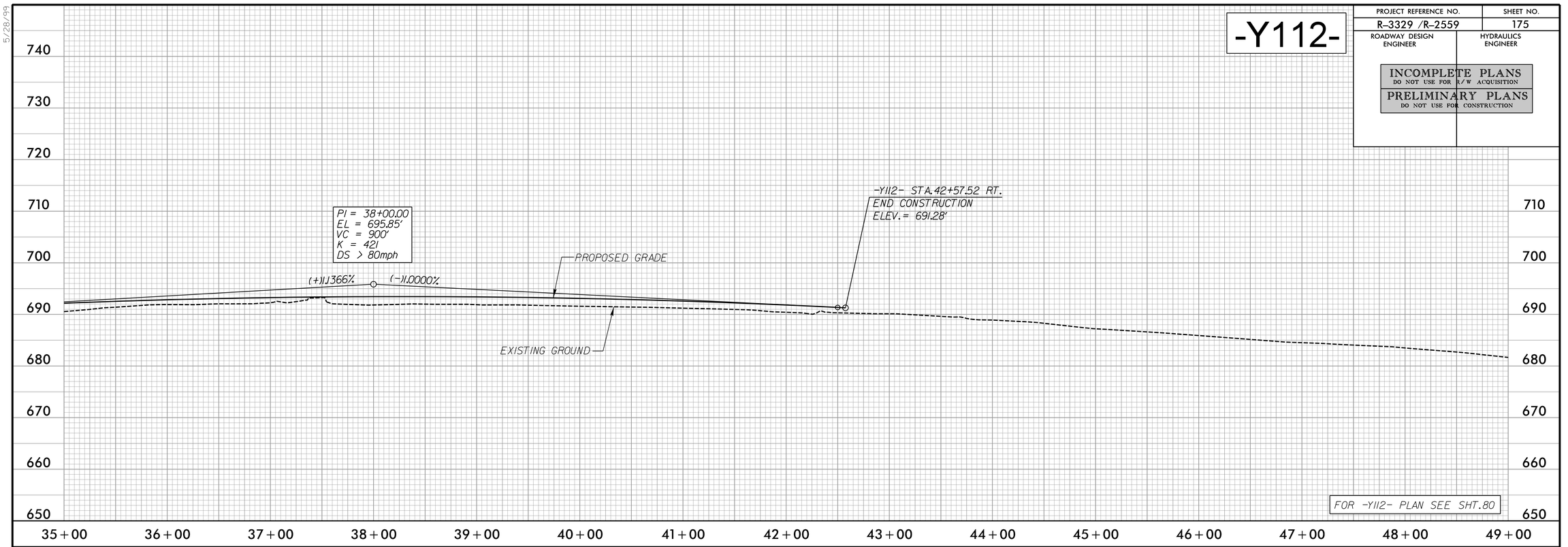
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	175
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y112-



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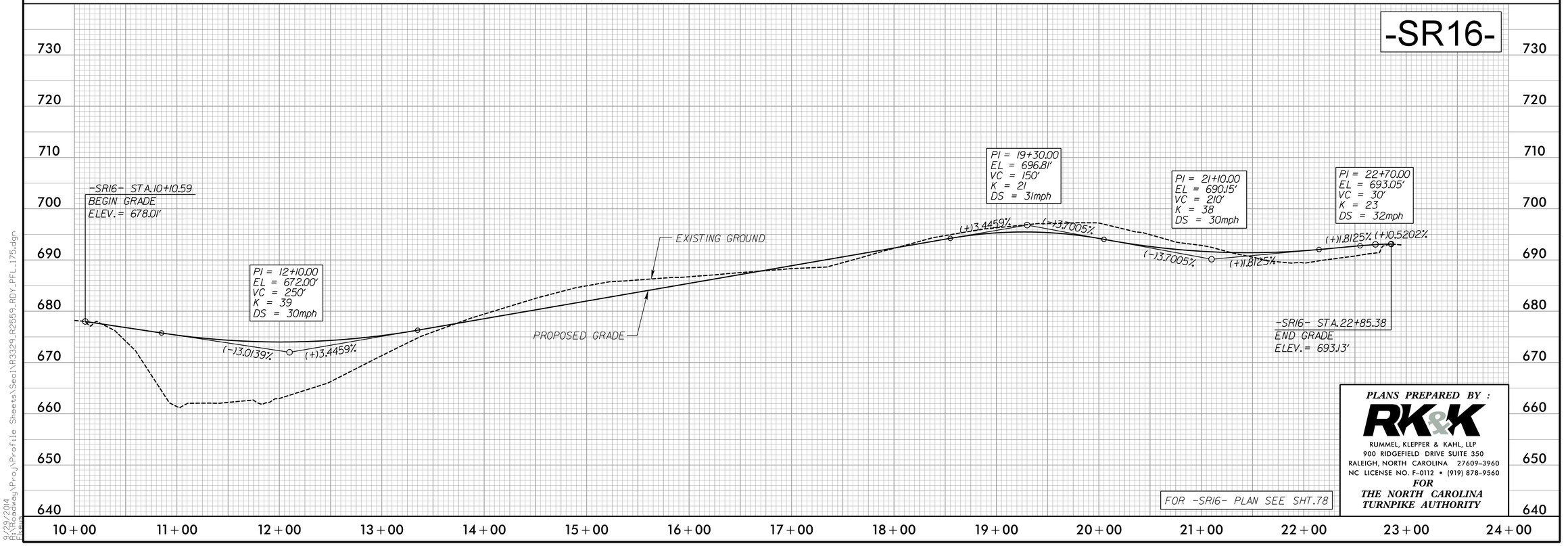

PLANS PREPARED BY :

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8/29/2014
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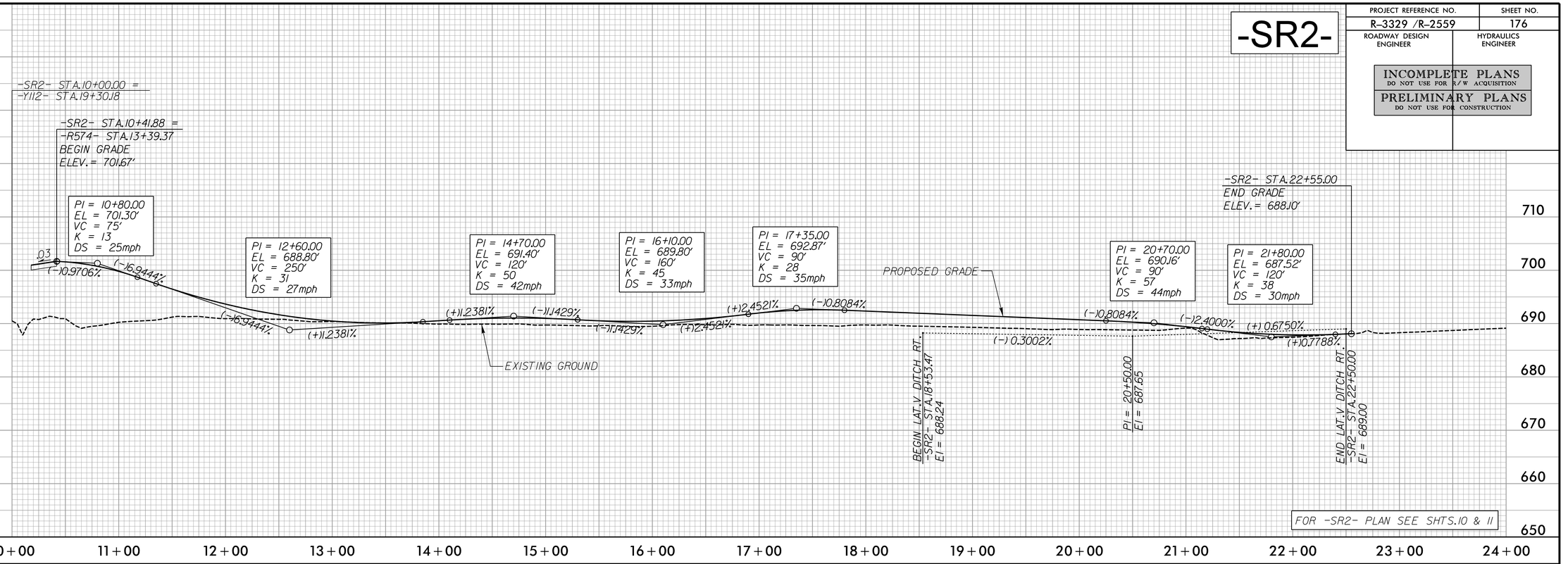
5/28/99

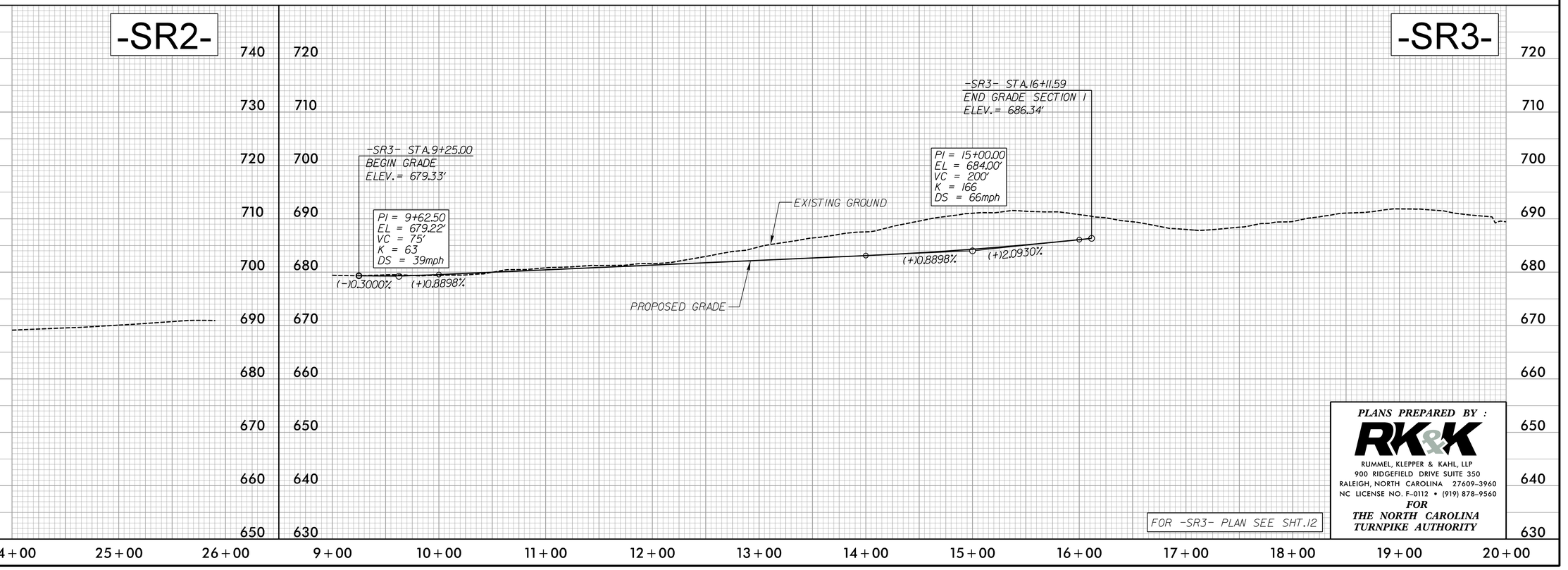
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	176
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SR2-





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8/29/2014
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09/08/49

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

9/30/2014
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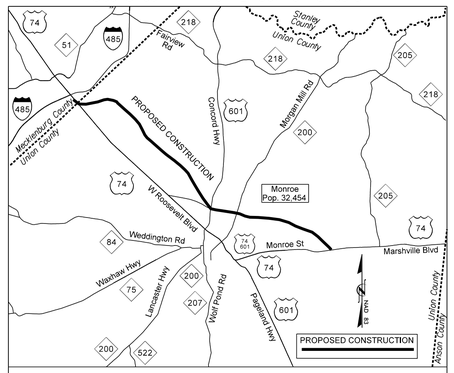
default

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

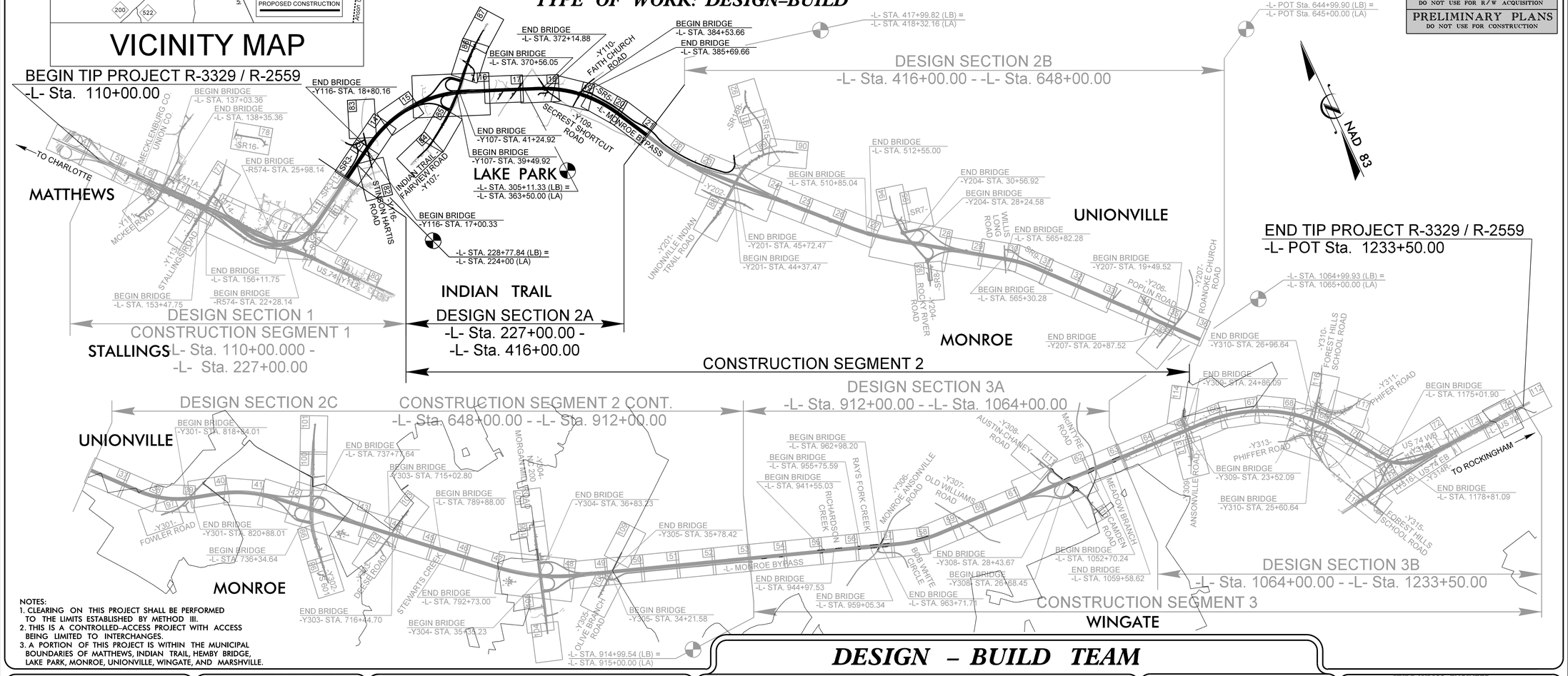
PERMIT APPLICATION
SUBMITTAL NO. S-099
DATE: 10-01-2014

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

DESIGN – BUILD TEAM

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 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*
ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

01/20/11

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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 — 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 — 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 — 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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

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
- 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 — HH
- 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
- 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 — ?UTL
- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	J2	PROPOSED 8" AGGREGATE BASE COURSE
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.	E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J3	PROPOSED 9" AGGREGATE BASE COURSE
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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	J4	PROPOSED 10" AGGREGATE BASE COURSE
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E4	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J5	PROPOSED VARIABLE DEPTH AGGREGATE BASE COURSE
C5	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.	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" OR GREATER THAN 5.5" IN DEPTH.	K1	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8" OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7"
C6	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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E6	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ YD
C7	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E7	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB & GUTTER
C8	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E8	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R2	1'-6" CONCRETE CURB & GUTTER
C9	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E9	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R3	SHOULDER BERM GUTTER
C10	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS.PER SQ. YD.	E10	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	CONCRETE EXPRESSWAY GUTTER
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E11	PROP. APPROX. 6.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E12	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.	R6	SINGLE FACED CONCRETE BARRIER
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E13	PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R7	DOUBLE FACED CONCRETE BARRIER (TYPE T, T1, T2)
D4	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 2.5" OR GREATER THAN 4" IN DEPTH.	E14	PROP. APPROX. 10.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R8	RUMBLE STRIPS
D5	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E15	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	S	4" CONCRETE SIDEWALK
D6	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E16	PROP. APPROX. 3.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 199 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
D7	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E17	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT
D8	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 2.5" OR GREATER THAN 4" IN DEPTH.	E18	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" OR GREATER THAN 5.5" IN DEPTH.	V	SPLIT SEAL
D9	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E19	PROP. APPROX. 12.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 712.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W	WEDGING
D10	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	G1	8" CEMENT TREATED AGGREGATE BASE COURSE	Z	NON WOVEN FIBERGLASS/POLYESTER INTERLAYER PAVING MAT
D11	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.	J1	PROPOSED 6" AGGREGATE BASE COURSE		

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PLANS PREPARED BY :
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Plan Sheets

6/2/99

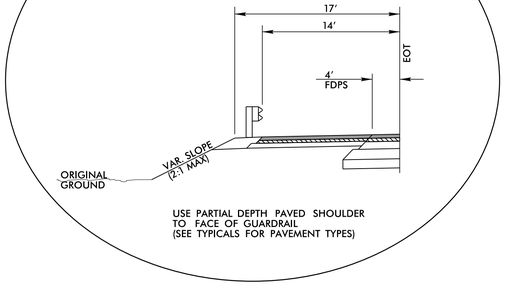
PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D6	2.5" I19.0C
D7	3" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E6	3" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J5	VAR. ABC
K1	8" LIME BASE OR 7" CEMENT BASE
P	PRIME COAT
R1	2'-6"C&G
R2	1'-6"C&G
R5	5" MCI
R8	RUMBLE STRIPS
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

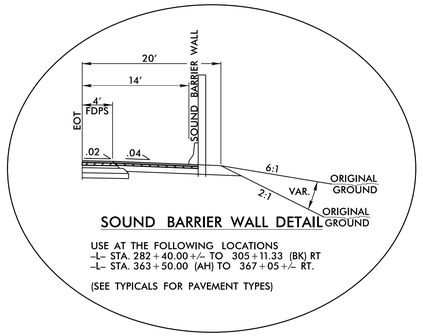
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SHOULDER WIDENING DETAIL FOR –L–



USE PARTIAL DEPTH PAVED SHOULDER
TO FACE OF GUARDRAIL
(SEE TYPICALS FOR PAVEMENT TYPES)

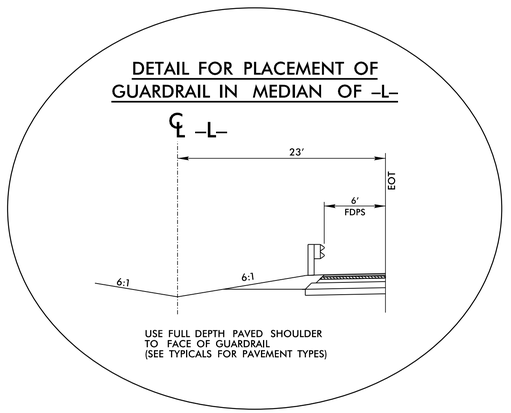


SOUND BARRIER WALL DETAIL

USE AT THE FOLLOWING LOCATIONS
–L– STA. 282+40.00 +/– TO 305+11.33 (BK) RT
–L– STA. 363+50.00 (AH) TO 367+05 +/– RT.

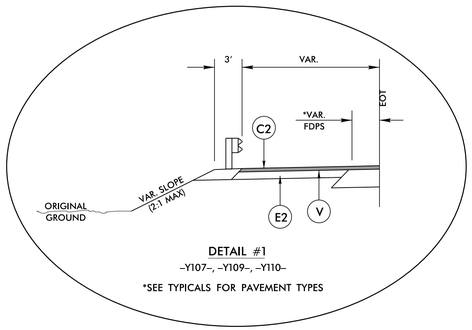
(SEE TYPICALS FOR PAVEMENT TYPES)

DETAIL FOR PLACEMENT OF GUARDRAIL IN MEDIAN OF –L–

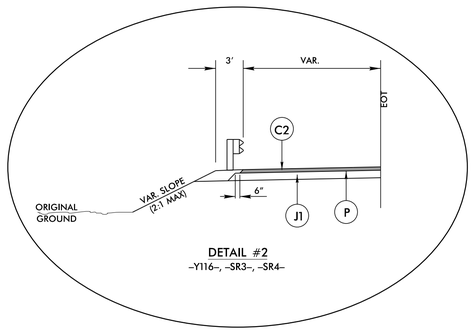


USE FULL DEPTH PAVED SHOULDER
TO FACE OF GUARDRAIL
(SEE TYPICALS FOR PAVEMENT TYPES)

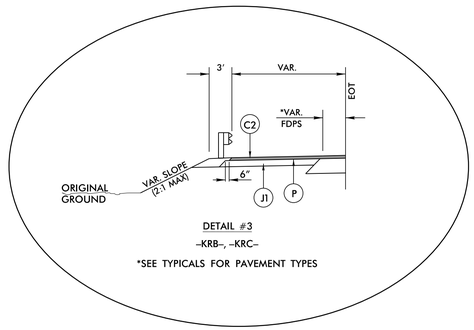
SHOULDER WIDENING DETAILS FOR Y–LINES & RAMPS



DETAIL #1
–Y107–, –Y109–, –Y110–
*SEE TYPICALS FOR PAVEMENT TYPES



DETAIL #2
–Y116–, –SR3–, –SR4–



DETAIL #3
–KRB–, –KRC–
*SEE TYPICALS FOR PAVEMENT TYPES

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tkeus

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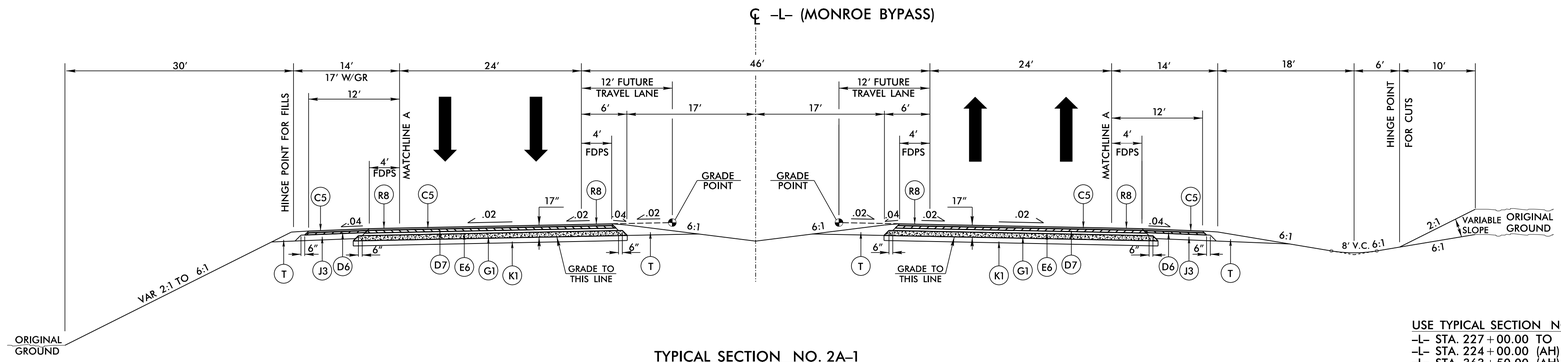
PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D6	2.5" I19.0C
D7	3" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E6	3" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J5	VAR. ABC
K1	8" LIME BASE OR 7" CEMENT BASE
P	PRIME COAT
R1	2'-6"C&G
R2	1'-6"C&G
R5	5" MCI
R8	RUMBLE STRIPS
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

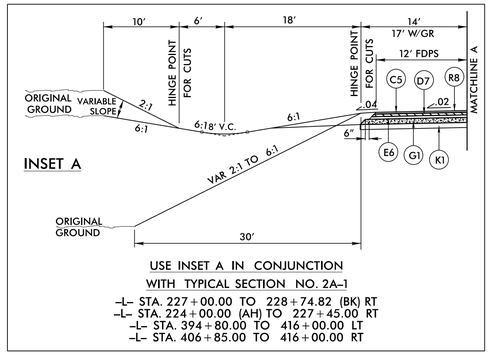
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

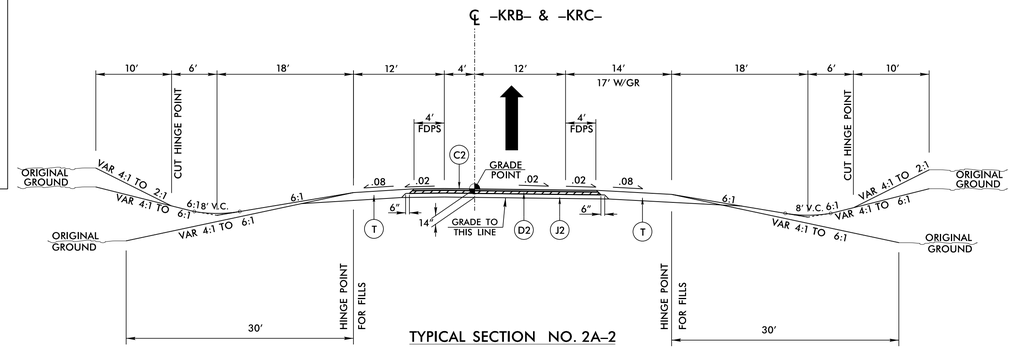


TYPICAL SECTION NO. 2A–1

USE TYPICAL SECTION NO. 2A–1
–L– STA. 227+00.00 TO 228+74.82 (BK)
–L– STA. 224+00.00 (AH) TO 305+11.33 (BK)
–L– STA. 363+50.00 (AH) TO 370+56.05+/– (BEGIN BRIDGE)
–L– STA. 372+14.88+/– (END BRIDGE) TO 384+53.66+/– (BEGIN BRIDGE)
–L– STA. 385+69.66+/– (END BRIDGE TO 416+00.00



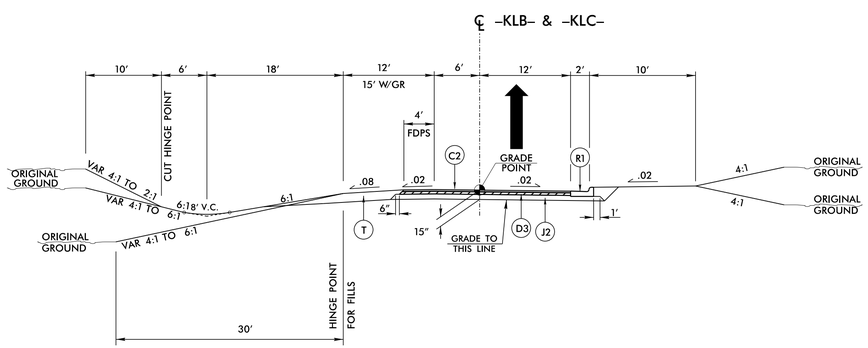
USE INSET A IN CONJUNCTION
WITH TYPICAL SECTION NO. 2A–1
–L– STA. 227+00.00 TO 228+74.82 (BK) RT
–L– STA. 224+00.00 (AH) TO 227+45.00 RT
–L– STA. 394+80.00 TO 416+00.00 LT
–L– STA. 406+85.00 TO 416+00.00 RT



TYPICAL SECTION NO. 2A–2

USE TYPICAL SECTION NO. 2A–2
–KRB– STA 10+00.00 TO 31+70.49
–KRC– STA 10+00.00 TO 26+41.86

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–KRB– STA 10+00.00 TO 15+00.16
–KRC– STA 10+00.00 TO 15+26.81



TYPICAL SECTION NO. 2A–3

USE TYPICAL SECTION NO. 2A–3
–KLB– STA 10+00.00 TO 28+14.20
–KLC– STA 10+00.00 TO 18+90.67

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–KLB– STA 10+00.00 TO 16+90.63
–KLC– STA 10+00.00 TO 12+04.55

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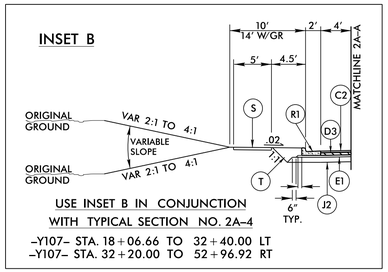
PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D6	2.5" I19.0C
D7	3" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E6	3" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
J3	9" ABC
J5	VAR. ABC
K1	8" LIME BASE OR 7" CEMENT BASE
P	PRIME COAT
R1	2'-6"C&G
R2	1'-6"C&G
R5	5" MCI
R8	RUMBLE STRIPS
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL

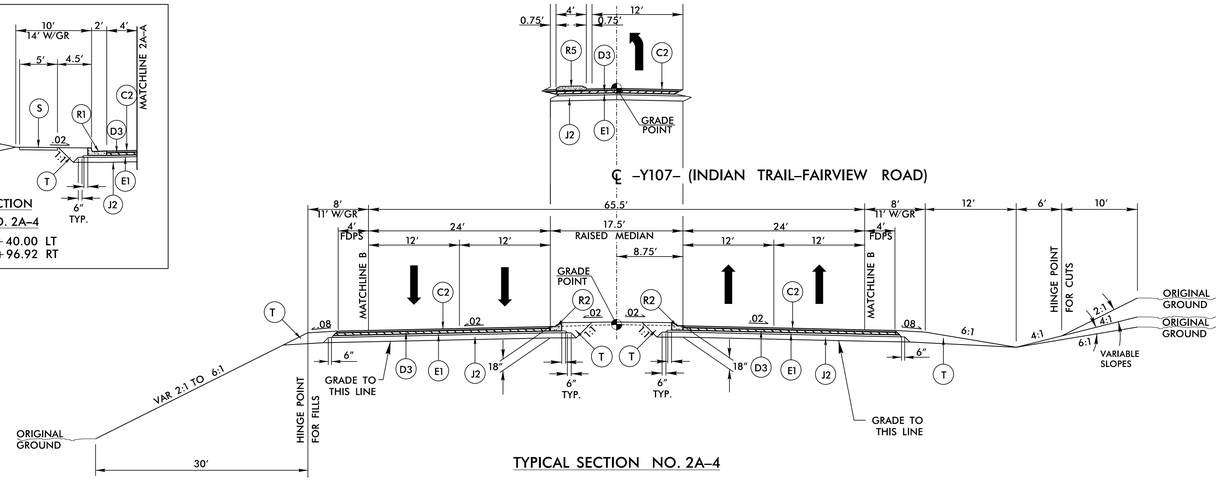
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



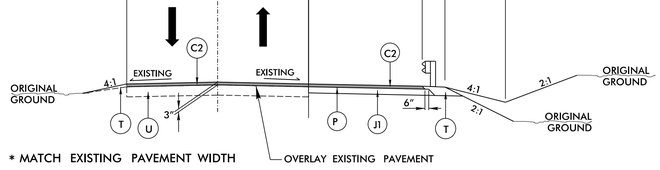
USE INSET B IN CONJUNCTION
WITH TYPICAL SECTION NO. 2A–4
–Y107– STA. 18+06.66 TO 32+40.00 LT
–Y107– STA. 32+20.00 TO 52+96.92 RT



TYPICAL SECTION NO. 2A–4

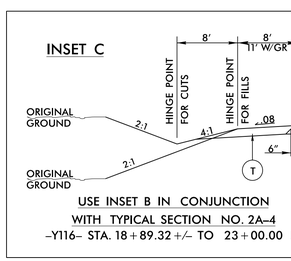
USE TYPICAL SECTION NO. 2A–4
–Y107– STA. 15+70.67 TO 39+49.92 +/– (BEGIN BRIDGE)
–Y107– STA. 41+24.92 +/– (END BRIDGE) TO 62+50.00

NOTE: TRNASITION FROM EXISTING TO TYPICAL SECTION NO. 2A–4 AT THE FOLLOWING LOCATIONS:
–Y107– STA. 15+90.00 TO 16+40.00
–Y107– STA. 62+50.00 TO 63+00.00

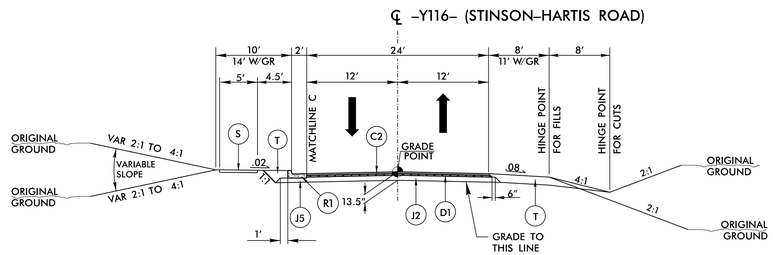


TYPICAL SECTION NO. 2A–5

USE TYPICAL SECTION NO. 2A–5
–Y110– STA. 12+40.00 TO 18+00.00



USE INSET B IN CONJUNCTION
WITH TYPICAL SECTION NO. 2A–4
–Y116– STA. 18+89.32 +/– TO 23+00.00 LT



TYPICAL SECTION NO. 2A–6

USE TYPICAL SECTION NO. 2A–6
–Y116– STA. 11+50.00 TO 17+00.13 +/– (BEGIN BRIDGE)
–Y116– STA. 18+80.16 +/– (END BRIDGE) TO 23+00.00

NOTE: TRNASITION FROM EXISTING TO TYPICAL SECTION NO. 2A–6 AT THE FOLLOWING LOCATIONS:
–Y116– STA. 11+00.00 TO 11+50.00
–Y116– STA. 23+00.00 TO 23+50.00

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8/29/2014
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PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D6	2.5" I19.0C
D7	3" I19.0C
E1	3" B25.0B
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J1	6" ABC
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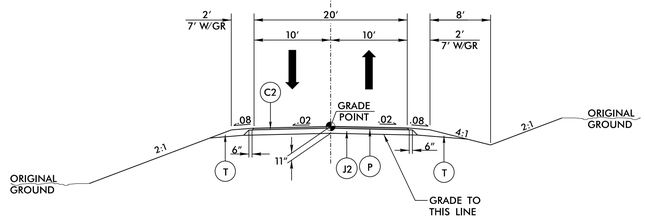
R2	1'-6"C&G
R5	5" MCI
R8	RUMBLE STRIPS
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ –SR3– & –SR4–

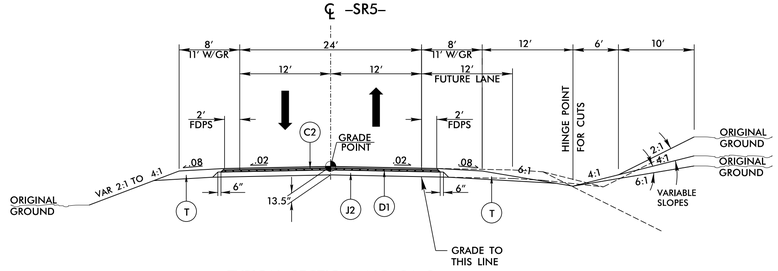


TYPICAL SECTION NO. 2A–7

USE TYPICAL SECTION NO. 2A–7
–SR3– STA. 16+11.59 TO 28+00.56
–SR4– STA. 10+25.00 TO 14+27+76

NOTE: TRNASITION FROM EXISTING TO TYPICAL SECTION NO. 2A–8 AT THE FOLLOWING LOCATIONS:
–SR4– STA. 10+00.00 TO 10+25.00

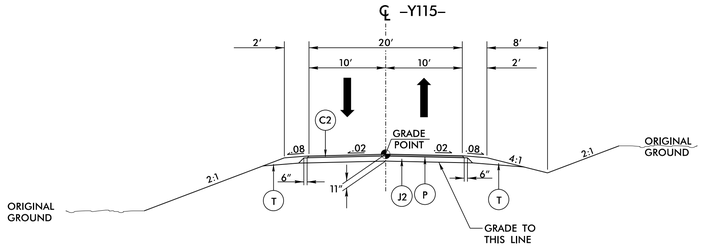
℄ –SR5–



TYPICAL SECTION NO. 2A–8

USE TYPICAL SECTION NO. 2A–8
–SR5– STA. 10+19.75 TO 41+00.00

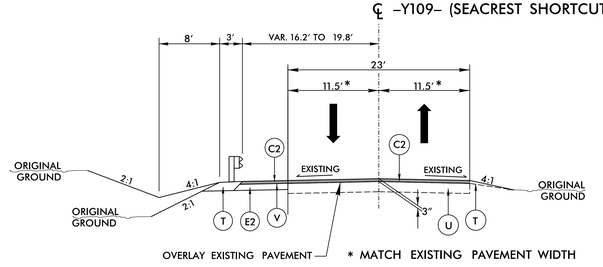
℄ –Y115–



TYPICAL SECTION NO. 2A–16

USE TYPICAL SECTION NO. 2A–16
–Y115– STA. 10+00.00 TO 18+45.48

℄ –Y109– (SEACREST SHORTCUT ROAD)



TYPICAL SECTION NO. 2A–9

USE TYPICAL SECTION NO. 2A–9
–Y109– STA. 15+85.00 TO 21+35.00

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PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
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E2	4" B25.0B
E6	3" B25.0C
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J1	6" ABC
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J5	VAR. ABC
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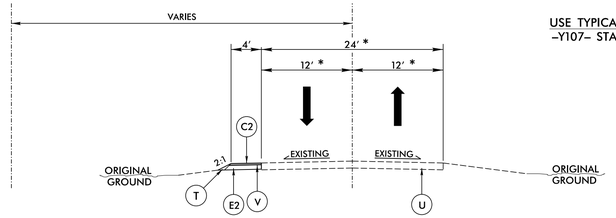
P	PRIME COAT
R1	2'-6"C&G
R2	1'-6"C&G
R5	5" MCI
R8	RUMBLE STRIPS
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	SPLIT SEAL

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

℄ –Y107– (INDIAN TRAIL–FAIRVIEW ROAD) ℄ EXISTING

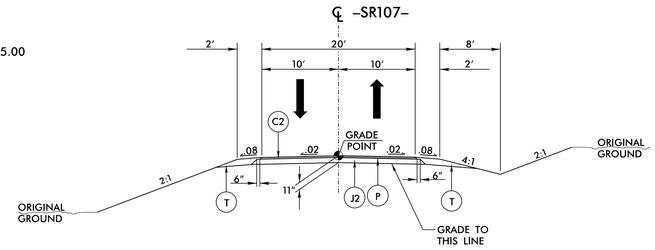


* EXISTING PAVEMENT WIDTHS

TYPICAL SECTION NO. 2A–10
TEMPORARY WIDENING FOR TRAFFIC CONTROL

USE TYPICAL SECTION NO. 2A–10
–Y107– STA. 30+75.00 TO 49+45.00

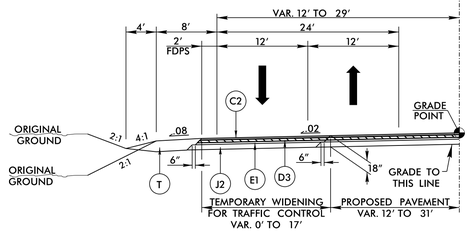
℄ –SR107–



TYPICAL SECTION NO. 2A–15

USE TYPICAL SECTION NO. 2A–15
–SR107– STA. 10+82.19 TO 18+37.13

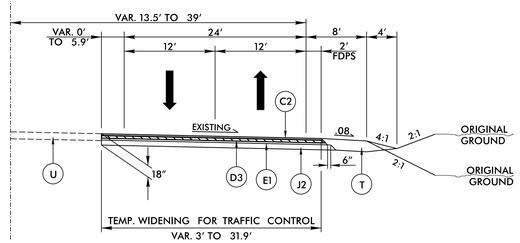
℄ –Y107– (INDIAN TRAIL–FAIRVIEW ROAD)



TYPICAL SECTION NO. 2A–11

USE TYPICAL SECTION NO. 2A–11
–Y107– STA. 50+76.87 TO 64+60.00

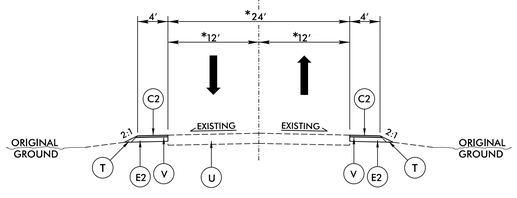
℄ –Y107– (INDIAN TRAIL–FAIRVIEW ROAD)



TYPICAL SECTION NO. 2A–12

USE TYPICAL SECTION NO. 2A–12
–Y107– STA. 52+70.00 TO 65+20.00

℄ –Y109– (SEACREST SHORTCUT ROAD)

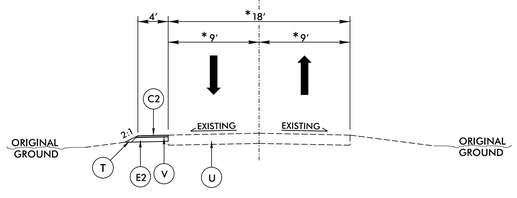


* EXISTING PAVEMENT WIDTHS

TYPICAL SECTION NO. 2A–13
TEMPORARY WIDENING FOR TRAFFIC CONTROL

USE TYPICAL SECTION NO. 2A–13
–Y109– STA. 12+70.00 TO 19+90.00 RT
–Y109– STA. 21+03.02 TO 21+85.00 LT

℄ –Y110– (FAITH CHURCH ROAD)



*EXISTING PAVEMENT WIDTHS

TYPICAL SECTION NO. 2A–14
TEMPORARY WIDENING FOR TRAFFIC CONTROL

USE TYPICAL SECTION NO. 2A–14
–Y110– STA. 13+75.00 TO 18+00.00

PLANS PREPARED BY :

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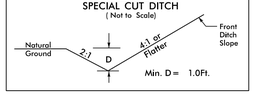
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

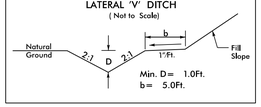
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



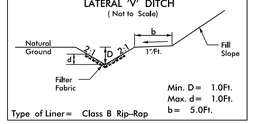
–L2A– STA. 226+50 TO STA. 229+00 LT
–L2A– STA. 281+00 TO STA. 282+50 RT
–L2A– STA. 285+00 TO STA. 287+00 LT
–L2A– STA. 289+00 TO STA. 289+50 RT
–L2A– STA. 295+00 TO STA. 297+00 RT
–L2A– STA. 413+00 TO STA. 414+00 RT
–KRC– STA. 18+70 TO STA. 20+50 RT
–SR3– STA. 29+00 TO STA. 29+81 RT
–SR3– STA. 29+00 TO STA. 29+85 RT
–Y115– STA. 13+50 TO STA. 16+00 RT
–SR4– STA. 12+50 TO STA. 14+00 RT
–Y107– STA. 15+90 TO STA. 16+50 LT & RT
–Y107– STA. 51+00 TO STA. 52+00 LT
–Y107– STA. 53+00 TO STA. 56+65 LT
–Y107– STA. 62+50 TO STA. 63+00 LT & RT
–Y109– STA. 18+00 TO STA. 21+00 LT
–Y116– STA. 22+50 TO STA. 23+50 LT & RT

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



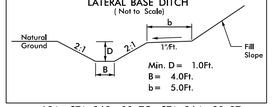
–Y107– STA. 17+35 TO STA. 18+70 LT
–Y107– STA. 56+65 TO STA. 58+00 LT

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



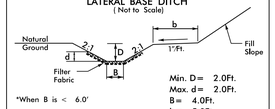
–X– STA. XX+XX TO STA. XX+XX XT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



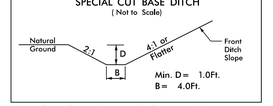
–L2A– STA. 263+00 TO STA. 264+90 RT
–L2A– STA. 289+50 TO STA. 295+00 RT
–L2A– STA. 291+50 TO STA. 293+70 LT
–L2A– STA. 364+00 TO STA. 370+55 LT
–L2A– STA. 371+20 TO STA. 373+55 LT
–L2A– STA. 373+50 TO STA. 375+24 RT
–L2A– STA. 375+50 TO STA. 379+50 RT
–L2A– STA. 397+00 TO STA. 409+50 RT
–KRC– STA. 16+25 TO STA. 18+70 RT
–SR107– STA. 11+50 TO STA. 17+50 LT
–SR5– STA. 34+35.74 TO STA. 38+92.70 RT
–Y107– STA. 18+00 TO STA. 21+91 LT
–Y107– STA. 21+91 TO STA. 24+50 RT
–Y109– STA. 15+50 TO STA. 15+93 LT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



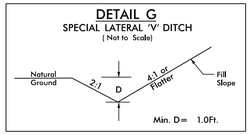
DETAIL E NOT USED IN SECTION 2A

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



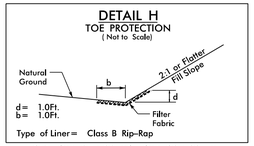
–SR4– STA. 10+50 TO STA. 14+22 LT
–Y107– STA. 17+50 TO STA. 21+91 RT

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



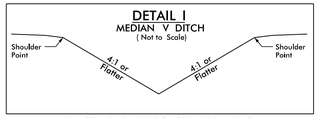
–Y107– STA. 55+00 TO STA. 59+50 RT

DETAIL H
TOE PROTECTION
(Not to Scale)



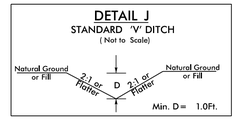
–KRB– STA. 27+00 TO STA. 30+00 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



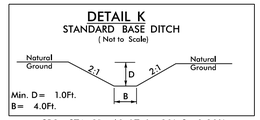
–L2A– STA. 256+00 TO STA. 260+50 CL
–L2A– STA. 408+00 TO STA. 411+00 CL
–L2A– STA. 372+50 TO STA. 375+50 CL

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



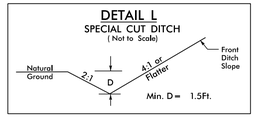
–L2A– STA. 386+50 TO STA. 393+50 LT
–L2A– STA. 396+00 TO STA. 401+00 LT
–L2A– STA. 401+50 TO STA. 409+50 LT

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



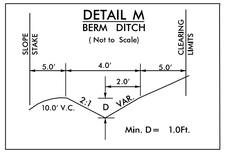
–SR3– STA. 21+60 LT; L=80', S=0.30%
BEG EL=680.2, END EL=680.0

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



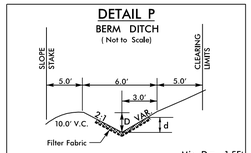
–L2A– STA. 259+00 TO STA. 263+00 RT

DETAIL M
BERM DITCH
(Not to Scale)



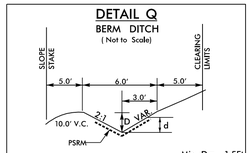
–L2A– STA. 227+00 TO STA. 225+50 RT (STA. EQUAL.; L=328')
–L2A– STA. 227+25 TO STA. 231+00 RT
–L2A– STA. 238+00 TO STA. 244+00 LT
–L2A– STA. 246+50 TO STA. 250+75 RT
–L2A– STA. 244+00 TO STA. 246+50 LT
–L2A– STA. 255+00 TO STA. 257+00 RT

DETAIL P
BERM DITCH
(Not to Scale)



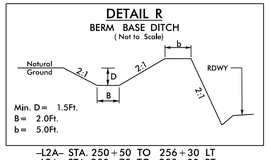
DETAIL P NOT USED IN SECTION 2A

DETAIL Q
BERM DITCH
(Not to Scale)



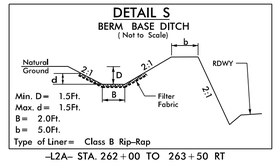
–L2A– STA. 225+50 TO STA. 227+25 RT
–L2A– STA. 245+50 TO STA. 246+50 RT
–L2A– STA. 246+50 TO STA. 250+50 LT

DETAIL R
BERM BASE DITCH
(Not to Scale)



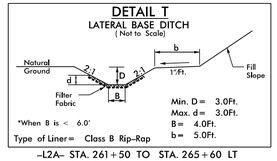
–L2A– STA. 250+50 TO 256+30 LT
–L2A– STA. 250+75 TO 255+00 RT
–L2A– STA. 257+00 TO 262+00 RT

DETAIL S
BERM BASE DITCH
(Not to Scale)



–L2A– STA. 262+00 TO 263+50 RT

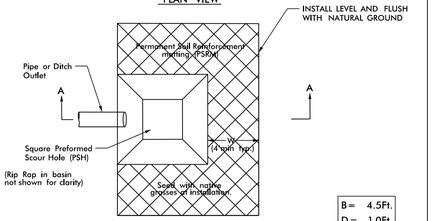
DETAIL T
LATERAL BASE DITCH
(Not to Scale)



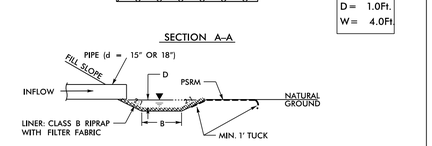
–L2A– STA. 261+50 TO STA. 265+60 LT

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE

PLAN VIEW

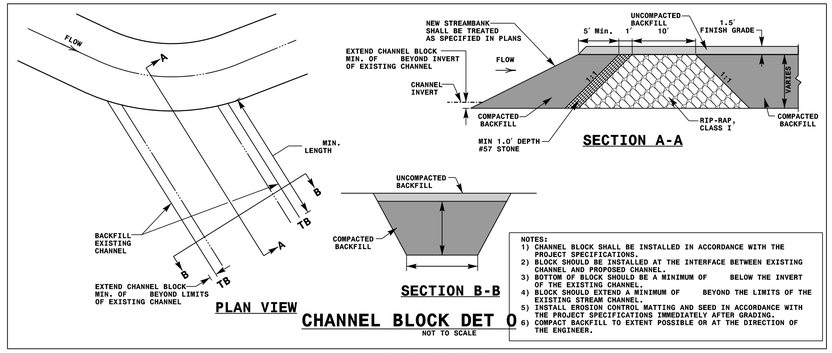


SECTION A–A



3/08

–L2A– STA. 294+25 LT

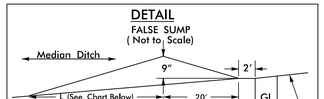


CHANNEL BLOCK DET 0
NOT TO SCALE

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 BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 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.

–L2A– STA. 370+98 RT
–SR4– STA. 12+20 RT

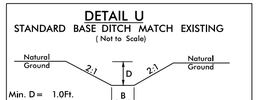
DETAIL
FALSE SUMP
(Not to Scale)



S = Ditch Slope

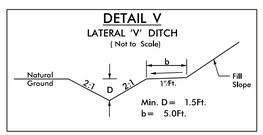
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



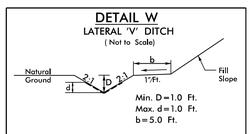
–Y107– STA. 56+65 RT; L=35', S=1.00%
BEG EL=640.0, END EL=639.7

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



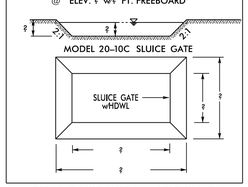
–L2A– STA. 298+84 TO STA. 300+50 RT

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



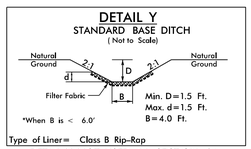
–L2A– STA. 298+05 TO STA. 300+50 LT

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



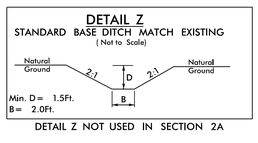
DETAIL X NOT USED IN SECTION 2A

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



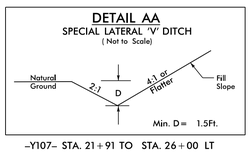
DETAIL Y NOT USED IN SECTION 2A

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



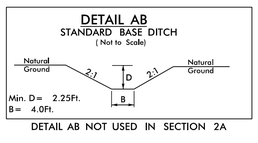
DETAIL Z NOT USED IN SECTION 2A

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



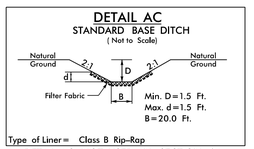
–Y107– STA. 21+91 TO STA. 26+00 LT

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



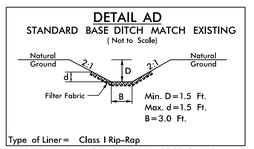
DETAIL AB NOT USED IN SECTION 2A

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



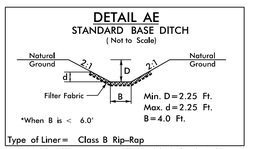
DETAIL AC NOT USED IN SECTION 2A

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



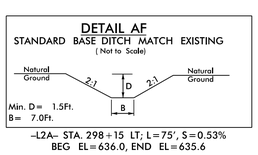
DETAIL AD NOT USED IN SECTION 2A

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



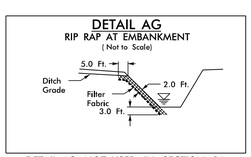
–Y109– STA. 15+54 LT; L=235', S=2.45%
BEG EL=631.75, END EL=626.0
INSTALL CLASS B RIP-RAP ON BANKS ONLY

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



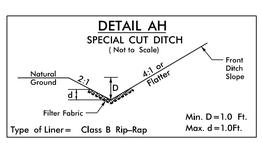
–L2A– STA. 298+15 LT; L=75', S=0.53%
BEG EL=636.0, END EL=635.6

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



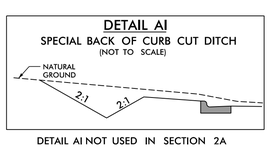
DETAIL AG NOT USED IN SECTION 2A

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



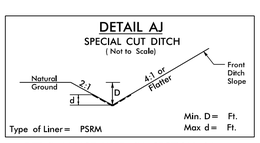
DETAIL AH NOT USED IN SECTION 2A

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



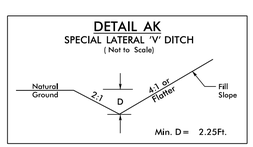
DETAIL AI NOT USED IN SECTION 2A

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



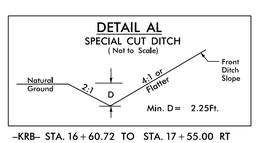
DETAIL AJ NOT USED IN SECTION 2A

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



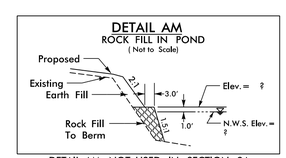
–KRB– STA. 14+00 TO STA. 17+55 LT

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



–KRB– STA. 16+60.72 TO STA. 17+55.00 RT
–KRB– STA. 17+55 TO STA. 20+00 LT

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



DETAIL AM NOT USED IN SECTION 2A

8/29/2014
R:\Projects\CADD\R3329_R2559_HYD_DitchDet_Sec02A.dgn
Flexis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2A-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

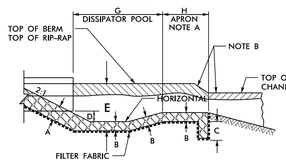
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

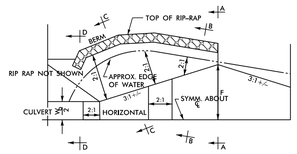
DETAIL AN

RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION

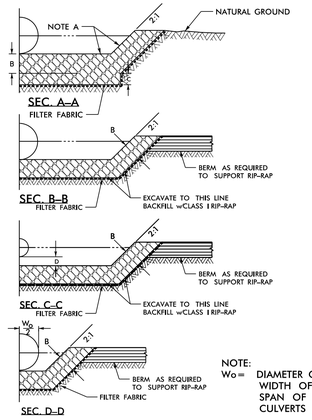


HALF PLAN



*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A) = SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

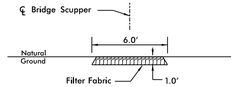
*ALL DIMENSIONS APPROXIMATE IN FEET

5/05

DETAIL AN NOT USED IN SECTION 2A

DETAIL AO

SCOUR PROTECTION
(NOT TO SCALE)

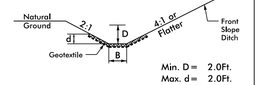


Type of Liner = CLASS B RIP RAP

DETAIL AO NOT USED IN SECTION 2A

DETAIL AP

SPECIAL CUT BASE DITCH
(Not to Scale)



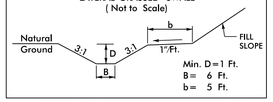
Min. D = 2.0Ft.
Max. d = 2.0Ft.
B = 4.0Ft.

Type of Liner = Class B Rip–Rap

DETAIL AP NOT USED IN SECTION 2A

DETAIL AQ

LATERAL GRASSED SWALE
(Not to Scale)

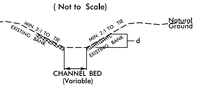


Min. D = 1 Ft.
B = 6 Ft.
b = 5 Ft.

DETAIL AQ NOT USED IN SECTION 2A

DETAIL AR

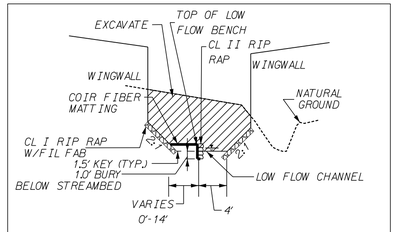
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)



Class I Rip Rap

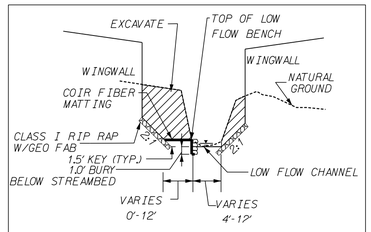
DETAIL AR NOT USED IN SECTION 2A

UT TO NORTH FORK CROOKED CREEK –L– STA. 265+40



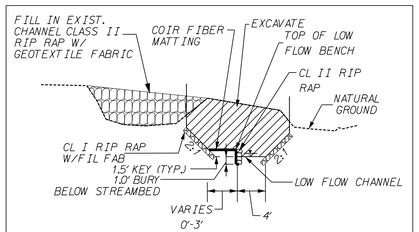
CULVERT INLET DETAIL (NTS)
LENGTH = 26'

UT TO NORTH FORK CROOKED CREEK –L– STA. 293+48



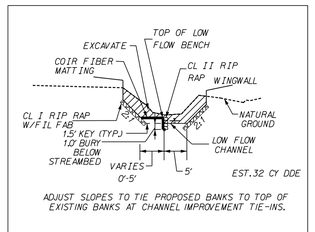
CULVERT INLET DETAIL (NTS)
LENGTH = 48'

UT TO NORTH FORK CROOKED CREEK –L– STA. 373+54

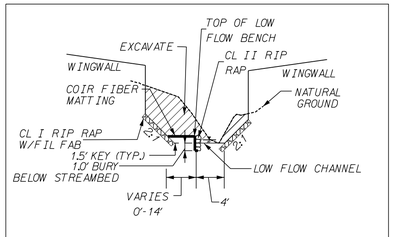


CULVERT OUTLET DETAIL (NTS)
LENGTH = 63'

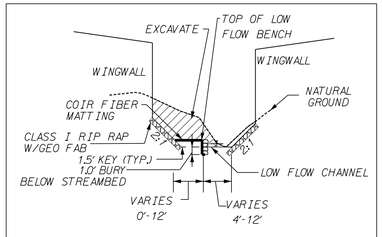
UT TO NORTH FORK CROOKED CREEK –L– STA. 396+14



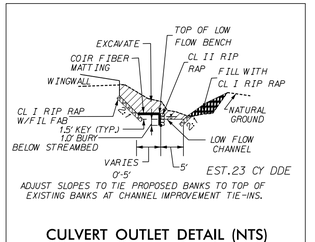
CULVERT INLET DETAIL (NTS)
LENGTH = 19'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 43'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 56'



CULVERT OUTLET DETAIL (NTS)
LENGTH = 41'

9/30/2004
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ekevin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

NAD 83

MATCHLINE –L– STA. 223+50 SEE SHEET 12

MATCHLINE –L– STA. 234+50 SEE SHEET 14

MATCHLINE –SR3– STA. 29+00 SEE SHEET 14

MATCHLINE –Y116– STA. 16+00 SEE SHEET 14

MATCHLINE –Y116– STA. 12+00 SEE SHEET 82

–SR3– PT Sta. 28+71.66

–SR3– PCC Sta. 25+39.50

–SR3– PC Sta. 21+17.27

–L– Sta 228+74.82 BK = –L– POT Sta. 224+00.00 AH

137 MARY EVELYN FORBIS STRAND AND HUSBAND, ELLIS MERLE STRAND DB 993 PG 276

138 MICHAEL F. STRAND AND WIFE, SYLVIA M. STRAND DB 334 PG 014

843 INEZ MAE CRUMP NO DEED FOUND

139 DOUGLAS E. RUSSELL AND WIFE, SHELLIE A. RUSSELL DB 1650 PG 574

145 JOE D. PERRY DB 1385 PG 595

146 EVELYN M. ENNIS DB 423 PG 210

147 DAVID B. SHERIN AND WIFE, SHIRLEY D. SHERIN DB 401 PG 350

140 LFC CFP I, LLC, DB 4949 PG 816 PC J PG 247

141 CAM[illegible] LC DB 5[illegible]03

142 HOWARD S. MONTEITH AND VIOLET M. MONTEITH DB 4286 PG 449 PC J PG 431

143 NJV INVESTMENT, LLC PC K PG 384

147 J WATSON'S INVESTMENT, LLC DB 4918 PG 515 PC K PG 384

–SR3–	
PI Sta 23+29.28	PI Sta 27+13.55
Δ = 12° 52' 05.02" (LT)	Δ = 42° 17' 30.13" (LT)
D = 3° 02' 51.53"	D = 12° 43' 56.62"
L = 422.23'	L = 332.16'
T = 212.01'	T = 174.05'
R = 1,880.00'	R = 450.00'
SE = RC	SE = 0.04
DS = 30mph	DS = 30mph

FOR –L– PROFILE SEE SHT. 125
FOR –Y116– PROFILE SEE SHT. 178
FOR –SR3– PROFILE SEE SHT. 177

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	14
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 -Y115- STA. 14+00 SEE INSET THIS SHEET

-SR3- POT Sta. 30+09.51
-Y115- POC Sta. 14+45.03
-Y115- PT Sta. 14+91.60

-Y116-
PI Sta 16+65.68
△ = 1° 30' 11.3" (RT)
D = 0° 09' 33.0"
L = 944.45'
T = 472.25'
R = 36,000.00'
SE = NC
DS = 50mph

MATCHLINE -SR3- STA. 29+00 SEE SHEET 13

MATCHLINE -SY116- STA. 23+00 SEE SHEET 83

NAD 83

HIRLEY WALTERS
NO DEED FOUND
TAX ID K7081006

-Y115- POT Sta. 10+00.00
-Y115- PC Sta. 11+00.00

MATCHLINE -Y115- STA. 14+00 SEE THIS SHEET

DAVID B. AND WIFE SHIRLEY D. SHERIN
DB 401 PG 950

OLD HICKORY LLC
PC K PG 384

SPECIAL CUT DITCH SEE DETAIL A

-Y116- PT Sta. 21+37.88
-Y115- POT Sta. 18+45.48
-Y116- POT Sta. 21+50.00

-L-
Pls Sta 237+68.83
Θs = 1° 29' 31.5"
Ls = 250.00'
LT = 166.67'
ST = 83.34'

PI Sta 261+27.99
△ = 50° 44' 03.3" (RT)
D = 1° 11' 37.2"
L = 4,250.30'
T = 2,275.83'
R = 4,800.00'
SE = 0.04
DS = 70mph

-Y116- POC Sta. 17+90.77 = -L- POS 236+07.22

-BL-8 PINC 70+33.21
BY116 POT 19+37.24

NJV INVESTMENT, LLC
PC K PG 384

PROP. 48" WW FENCE
END 48" WW FENCE
BEGIN 48" WW FENCE
BERM DITCH SEE DETAIL M
BERM DITCH SEE DETAIL Q

WOODS

15" CAAP 2 ELBOWS ROD & LUG

24" RCP-III
30" RCP-III
36" RCP-III
18" RCP-III

-L- TS Sta.236+02.16
-L- SC Sta.238+52.16

J WATSON'S INVESTMENT, LLC
DB 4918 PG 515
PC K PG 384

PARTNERS IN HOOPS, LLC
DB 4836 PG 263
PC K PG 384

IRRIGATION CONTROL VALVE
DUMPSTER PAD
REMOVE SYSTEM
GRADE TO DRAIN
REMOVE RETENTION BASIN AND BERM GRADE TO BDO
-BL-9 PINC 76+16.82
-BL-10 PINC 81+25.50

MATCHLINE -L- STA. 234+50 SEE SHEET 13

MATCHLINE -Y116- STA. 16+00 SEE SHEET 13

MATCHLINE -L- STA. 248+00 SEE SHEET 15

-Y115-
PI Sta 13+15.19
△ = 59° 02' 40.95" (RT)
D = 15° 04' 40.21"
L = 391.60'
T = 421.519'
R = 380.00'
SE = 4%
DS = 35mph

-Y116- POC 17+00.33 BEGIN BRIDGE
-Y116- POC 19+04.34 END APPROACH SLAB
-Y116- POC 16+77.42 BEGIN APPROACH SLAB
-Y116- POC 18+80J6 END BRIDGE
PROP. 2'-6" C&G
5' CONC. SIDEWALK
PROP. MSE WALL
△ = 47° 42' 56"

BRIDGE ON -Y116- OVER -L- (NOT TO SCALE)

FOR -L- PROFILE SEE SHT. 125
FOR -SR3- PROFILE SEE SHT. 177
FOR -Y115- PROFILE SEE SHT. 178
FOR -Y116- PROFILE SEE SHT. 178

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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tkevis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

MATCHLINE –L– STA. 248+00 SEE SHEET 14

MATCHLINE –L– STA. 262+00 SEE SHEET 16

S 86°13'15" E 1229.34'

N 04°45'02" W 420.38'

S 52°28'39" E 288.82'

S 52°28'39" E 886.66'

160 LR & FR, LLC DB 3409 PG 898

156 LR & FR, LLC DB 3409 PG 898

161 LR & FR, LLC DB 3409 PG 898

152 NJV INVESTMENT, LLC PC K PG 384

153 NJV INVESTMENT, LLC PC K PG 384

WOODS

300' TAPER

600' ACCELERATION LANE

-KRB- POT Sta. 10+00.00 (47.00' LT) =
-L- POC Sta. 261+93.65

+10.00 140.00'

+40.00 130.00'

+70.00 130.00'

-KRB- +00.00 95.00'

PROP. 48" WW FENCE

BERM DITCH SEE DETAIL Q

BDO

15" CAAP 2 ELBOWS ROD & LUG

2GI

FS

15" RCP-III

BERM DITCH SEE DETAIL R

TIE BOTH PROP. DITCHES TO EXIST. DITCH

5 TONS CL B RIPRAP W/14 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL T

42" RCP-III

CAT-1

250+00

255+00

260+00

2GI-A

36" RCP-III

24" RCP-III

MEDIAN V DITCH SEE DETAIL I

GRAU 350

10+00

N 87° 22' 22.7" E

-KRC-

2GI-D

SPECIAL CUT DITCH SEE DETAIL L

-BL-11 PINC 96+63.36

-BL-12 PINC 91+63.31

+09.08

27.5' (TYP)

OVERHEAD SIGN

BERM DITCH SEE DETAIL M

BERM BASE DITCH SEE DETAIL R

SWALE

-KRC- POT Sta. 10+00.00 (47.00' LT) =
-L- POC Sta. 259+00.00 (Θ=2.5°)

-KRC- TS Sta. 10+90.64

500' DECELERATION LENGTH

SOIL

FOR –L– PROFILE SEE SHTS. 125 & 126
FOR –KRC– PROFILE SEE SHT. 183

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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Ekeus

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

MATCHLINE -L- STA. 290+00 SEE SHEET 17

MATCHLINE -L- STA. 262+00 SEE SHEET 15

MATCHLINE -Y107- STA. 31+00 SEE SHEET 85

MATCHLINE -Y107- STA. 47+00 SEE SHEET 86

MATCHLINE -SR107- STA. 12+00 SEE SHEET 86

-KRB- SC Sta. 23+97.55

-KRB- TS Sta. 22+27.55

-KRB- ST Sta. 20+65.74

-KRB- CS Sta. 18+45.34

-KRB- SC Sta. 15+02.97

-KRB- TS Sta. 12+82.97

-KRB- PT Sta. 28+65.39

-KLB- CS Sta. 24+03.58

-KLB- ST Sta. 25+53.58

-KLB- TS Sta. 15+28.69

-KLB- SC Sta. 18+28.69

-KLC- SC Sta. 11+50.00

-KLC- ST Sta. 10+00.00
147.00 FT I-L- POC Sta. 274+96.33

-KLC- CS Sta. 15+75.91

-KLC- ST Sta. 17+25.91

-KRC- CS Sta. 22+02.54

-KRC- ST Sta. 24+22.54

-Y107- POT Sta. 10+19.29

-SR107- POT Sta. 10+00.00

-Y107- POT Sta. 45+02.32=
-KRB- POT Sta. 32+03.24

-Y107- PT Sta. 44+84.32

-Y107- POC Sta. 44+76.08=
-KLB- POT Sta. 28+14.20

-L- POC Sta. 279+11.40=
-Y107- POC Sta. 40+32.81

-KLB- ST Sta. 10+00.00 (47.00' LT)=
-L- ST Sta. 283+52.46

-Y107- POC Sta. 32+94.95 =
-KLC- POT Sta. 19+23.42

-Y107- POC Sta. 32+68.94 =
-KRC- POT Sta. 26+74.83

-BL-I4 PINC 102+39.81

-BL-I5 PINC 107+71.21

-BL-I6 PINC 82+26.68

-BY107- PINC 34+26.39

-BL-I7 PINC 119+73.70

-BY107-5 PINC 35+29.62

-BL-95- PINC 98+25.17

LR & FR, LLC
DB 3409 PG 898

NCDOT-TA
DB 5476 PG 617

HAL D. HOWARD
AND WIFE,
STEVEN C. HOWARD
DB 1962 PG 44
PB 17 PG 795

RUSSELL C. HOSAFLOOK
AND WIFE,
DONNA R. HOSAFLOOK
DB 447 PG 661

BILLY M. STEGALL
DB 806 PG 758

RUBY S. WILLIAMS
DB 806 PG 756

BILLY A. THOMPSON
AND WIFE,
BARBARA J. THOMPSON
DB 906 PG 958

JOHN R. BALLOM
AND WIFE,
CATHERINE BL
DB 223 PG 950

BARBARA BROOKS TAYLOR
DB 1239 PG 27

JODIE P. STEGALL
AND WIFE,
NANCY G. STEGALL
DB 806 PG 762

RUBY STEGALL WILLIAMS
DB 764 PG 758

WILLIAM RALPH JORDAN
ERNIE ANDERSON LANE
DB 784 PG 329

INDIAN TRAIL FAIRVIEW RD

MONROE BYPASS

SPENCER
DB 757 PG 627
PB 1 PG 795

TRAFFIC DIAGRAM

ADT 2013
ADT 2035

-Y107-

20,600 / 25,700	
3,200 / 6,600	3,800 / 8,700
-L- MONROE BYPASS	-L- MONROE BYPASS
23,200 / 48,200	24,300 / 51,200
300 / 800	800 / 1,700
	14,700 / 12,900

-L-

PI Sta 264+27.99	
Δ = 50° 44' 03.3" (RT)	
D = 1° 31' 37.2"	
T = 4,250.50'	
L = 8,875.83'	
R = 4,800.00'	
SE = 0.04	
DS = 70mph	

PI Sta 281+85.79	
Ls = 250.00'	
ST = 83.34'	

PI Sta 14+29.70	
Ls = 220.00'	
LT = 146.7'	
ST = 73.35'	

PI Sta 15+75.33	
Δ = 6° 20' 49.2" (LT)	
D = 4° 46' 28.7"	
L = 342.32'	
T = 171.36'	
R = 1,200.00'	
SE = 0.08	
DS = 60mph	

-KRB-

PI Sta 19+18.74	
Ls = 220.00'	
LT = 146.7'	
ST = 73.35'	

PI Sta 23+44.10	
Ls = 170.00'	
LT = 113.55'	
ST = 56.86'	

PI Sta 26+55.10	
Δ = 59° 34' 02.5" (RT)	
D = 12° 43' 56.6"	
L = 467.84'	
T = 257.55'	
R = 450.00'	
SE = 0.08	
DS = 40mph	

-KLB-

PI Sta 17+33.34	
Δ = 37° 22' 00.5"	
Ls = 300.00'	
LT = 204.65'	
ST = 104.24'	

PI Sta 25+20.33	
Δ = 143° 12' 41.5" (RT)	
D = 24° 54' 40.4"	
L = 574.85'	
T = 698.64'	
R = 230.00'	
SE = 0.08	
DS = 30mph	

PI Sta 24+54.09	
Ls = 150.00'	
LT = 100.56'	
ST = 50.51'	

-KRC-

PI Sta 12+37.37	
Δ = 51° 15' 07.6"	
Ls = 220.00'	
LT = 146.7'	
ST = 73.35'	

PI Sta 17+18.32	
Δ = 45° 35' 06.5" (RT)	
D = 4° 46' 28.7"	
L = 89.36'	
T = 467.68'	
R = 1,200.00'	
SE = 0.08	
DS = 60mph	

PI Sta 22+75.94	
Δ = 51° 15' 07.6"	
Ls = 220.00'	
LT = 146.7'	
ST = 73.35'	

-KLC-

PI Sta 11+00.56	
Gs = 18° 41' 00.3"	
Ls = 150.00'	
LT = 100.56'	
ST = 50.51'	

PI Sta 14+55.78	
Δ = 106° 05' 01.4" (LT)	
D = 24° 54' 40.4"	
L = 425.31'	
T = 335.18'	
R = 230.00'	
SE = 0.08	
DS = 30mph	

PI Sta 16+26.43	
Gs = 18° 41' 00.3"	
Ls = 150.00'	
LT = 100.56'	
ST = 50.51'	

-Y107-

PI Sta 34+48.56	
Δ = 14° 38' 36.0" (LT)	
D = 1° 42' 03.9"	
L = 2,082.93'	
T = 1,041.87'	
R = 3,450.00'	
SE = NC	
DS = 50mph	

FOR -L- PROFILE SEE SHTS. 126 & 127
FOR -Y107- PROFILE SEE SHTS. 179 & 180
FOR -KRB- PROFILE SEE SHT. 181
FOR -KLB- PROFILE SEE SHT. 182
FOR -KRC- PROFILE SEE SHT. 183
FOR -KLC- PROFILE SEE SHT. 183

PLANS PREPARED BY :

RKK
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-4760
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

LOCATION:

TIP NO. R-3329 / R-2559 COUNTY: UNION

DESIGNED BY:

CHECKED BY: DATE:

GRAPHIC SCALE
50 25 0 50 100
PLANS

BRIDGE ON -Y107- OVER -L- (NOT TO SCALE)

-Y107- POC 39+49.92
BEGIN BRIDGE
-Y107- POC 39+26.03
BEGIN APPROACH SLAB
TYPE B-77

-Y107- POC 41+48.81
END APPROACH SLAB
-Y107- POC 41+24.92
END BRIDGE
TYPE B-77

PROP. SBG

CONC. ISLAND
40+00
-Y107-
-L-

TYPE III
5' CONC. SIDEWALK
PROP. 2'-6" C&G

PROP. MSE WALL

-Δ= 63° 47' 32"

TYPE III
PROP. MSE WALL
5' CONC. SIDEWALK
PROP. 2'-6" C&G

6' 12' 24' 12' 17.5' 14' 12' 5.5' 7.5'

2/20/2024
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	17
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

MATCHLINE –L– STA. 290+00 SEE SHEET 16

MATCHLINE –L– STA. 304+00 SEE SHEET 18

-BL-18 PINC 123+39.25

-BL-19 PINC 130+15.22

-BL-20 PINC 134+89.34

-BY108- PINC 15+69.45

-L- POT Sta. 302+26.18 =
-CUL2- POC Sta. 14+54.02

-CUL2- PT Sta. 14+86.68

-CUL2- POT Sta. 17+35.00
END CONSTRUCTION

-CUL2- PC Sta. 10+00.00

-CUL2- POC Sta. 11+40.00
BEGIN CONSTRUCTION

-CUL1- POT Sta. 12+55.00
END CONSTRUCTION

-CUL1- POT Sta. 11+35.00
BEGIN CONSTRUCTION

-CUL1- POT Sta. 10+00.00

-L- POT Sta. 297+00.22 =
-CUL1- POT Sta. 14+35.00

S 67° 20' 42.3" E -L-

N 57° 32' 41.0" E

TEMPORARY CHANNEL CONST. EASEMENT

PROP. 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

SEE CULVERT OUTLET DETAIL -L- STA. 293+48

SEE CULVERT INLET DETAIL -L- STA. 293+48

PSH SEE DETAIL N

STANDARD BASE DITCH SEE DETAIL AF

LATERAL V DITCH SEE DETAIL W

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL V

11 TONS CL B RIPRAP W/28 SY FIL FAB EACH

PROPOSED SOUND BARRIER WALL #1

(2)12'x6' RCBC

15" RCP-III

36" RCP-III

2GI

FS

REMOVE

GRADE TO DRAIN

300' TAPER

JAMES RICHARD JENKINS III, DB 5584 PG 657

MARK J. TRICKEY AND WIFE, LISA M. TRICKEY DB 5179 PG 641

HELGA E. RIDER DB 232 PG 456

THOMAS H. KNOWLES AND WIFE, AGNES L. KNOWLES DB 226 PG 143 PB 5 PG 134

VERNON F. FOXX AND WIFE, WANDA R. FOXX DB 297 PG 124

THEODORE E. BAUCOM AND WIFE, BOBBI JO L. BAUCOM DB 1420 PG 305

THEODORE E. BAUCOM AND WIFE, BOBBI JO L. BAUCOM DB 478 PG 701 PB 5 PG 134

BILLY M. STEGALL DB 806 PG 758

MARY K. SIMPSON

ROY N. BECK, JR. AND WIFE, CAROL G. BECK DB 484 PG 598

JOHN H. SWINDELL AND WIFE, JEANNINE T. SWINDELL DB 422 PG 353

DONALD ATKINSON AND WIFE, CLEVELAND B. ATKINSON DB 231 PG 152 PB 5 PG 134

DAVID JETHRO OATES, III DB 375 PG 235 PB 5 PG 134

DAVID JETHRO OATES, III DB 263 PG 666 PB 5 PG 134

RUSHING CONSTRUCTION COMPANY DB 212 PG 794 PB 5 PG 134

RAYMOND M. STEGALL JR. AND WIFE, REBECCA STEGALL DB 235 PG 138 PB 5 PG 134

RAYMOND M. STEGALL AND WIFE, REBECCA STEGALL DB 240 PG 720 PB 5 PG 134

BILLY L. BAUCOM REVOCABLE TRUST DB 1620 PG 414 PB 5 PG 134

J. S. BAUCOM REVOCABLE TRUST DB 899 PG 71

SANDRA D. BAIRD DB 1405 PG 892

WILLIAM RALPH JORDAN EMMIE ANDERSON LANEY DB 716 PG 229

RICHARD C. PETTERGUIST AND WIFE, LAURA L. PETTERGUIST DB 5275 PG 575 PB 5 PG 134

JODIE P. STEGALL AND WIFE, NANCY G. STEGALL DB 429 PG 303

-CUL2-
PI Sta 12+43.36
△ = 1° 41' 24.0" (LT)
D = 0° 20' 50.1"
L = 486.68'
T = 243.36'
R = 16,500.00'

FOR –L– PROFILE SEE SHT. 127

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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kevin

8/17/99

-L-	-SR4-		-Y109-
PIs Sta 369+43.84	PI Sta 11+05.66	PI Sta 13+70.37	PI Sta 16+53.14
Θs = 1° 29' 31.5"	△ = 45° 49' 15.2" (RT)	△ = 53° 36' 42.4" (LT)	△ = 21° 25' 05.0" (RT)
Ls = 250.00'	D = 57° 17' 44.8"	D = 57° 17' 44.8"	D = 7° 38' 22.0"
LT = 166.67'	L = 79.97'	L = 93.57'	L = 280.36'
ST = 83.34'	T = 42.26'	T = 50.53'	T = 141.84'
	R = 100.00'	R = 100.00'	R = 750.00'
	SE = NC	SE = NC	SE = 0.08
	DS = 20mph	DS = 20mph	DS = 50mph

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	18
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

MATCHLINE -L- STA. 304+00 SEE SHEET 17

MATCHLINE -L- STA. 376+00 SEE SHEET 19

MATCHLINE -Y109- STA. 13+00 SEE SHEET 19

-Y109- POT Sta. 22+80.78

END CONSTRUCTION
-Y109- POT Sta. 21+35.00

-Y109- PT Sta. 17+91.66

-L- POC Sta. 371+67.85=
-Y109- POC Sta. 17+86.10

-L- Sta 305+11.33 BK =
-L- Sta 363+50.00 AH

BEGIN CONSTRUCTION
-SR4- POT Sta. 10+00.00

-SR4- PC Sta. 10+63.39

-SR4- PT Sta. 11+43.37

-L- TS Sta. 367+77.18

-L- SC Sta. 370+27.18

-SR4- PC Sta. 13+19.85

-L- PC Sta. 371+86.10

-Y109- PC Sta. 15+11.30

-SR4- PT Sta. 14+13.42

-Y109- POC Sta. 16+30.27

-SR4- POT Sta. 14+38.68

BEGIN CONSTRUCTION
-Y109- POC Sta. 15+85.00

-BL-2 PINC 142+65.27

-BL-22 PINC 148+88.64

-BY109- PINC 11+56.58

-BY109-2 PINC 15+58.31

N 9° 00' 47.3" W

S 64° 11' 33.6" E

N 69° 59' 11.1" E

N 62° 11' 43.9" E

N 30° 25' 52.3" W

S 67° 20' 42.3" E -L-

PROPOSED SOUND BARRIER WALL #1

PROP. 48" WW FENCE

BRIDGE ON -L- OVER -Y109- (NOT TO SCALE)

-L- POC 370+32.22
BEGIN APPROACH SLAB
-L- POC 370+56.05
BEGIN BRIDGE
-L- POC 370+64.74
BEGIN APPROACH SLAB
-L- POC 370+88.52
BEGIN BRIDGE
-L- POC 372+14.88
END BRIDGE
-L- POC 372+38.66
END APPROACH SLAB
-L- POC 372+49.81
END BRIDGE
-L- POC 372+73.59
END APPROACH SLAB
△ = 54° 44' 07"
PROP. MSE WALL
PROP. SBG
TYPE B-77

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

FOR -L- PROFILE SEE SHTS. 127 & 128
FOR -Y109- PROFILE SEE SHT. 184
FOR -SR4- PROFILE SEE SHT. 184

8/29/2014
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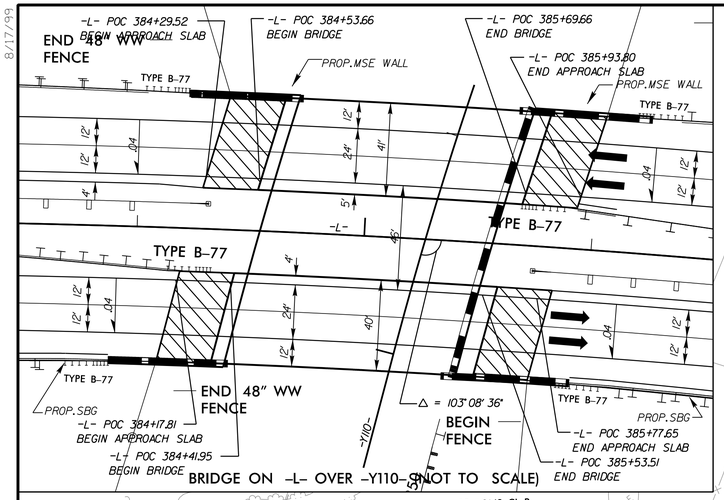
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-	-Y110-	-SR5-
PI Sta 386+05.24	PI Sta 19+03.12	PI Sta 12+95.98
Δ = 36° 23' 52.8" (RT)	Δ = 25° 13' 23.6" (RT)	Δ = 13° 26' 21.4" (RT)
D = 1° 11' 37.2"	D = 3° 10' 59.2"	D = 3° 58' 43.9"
L = 3,049.27'	L = 792.41'	L = 337.77'
T = 1,578.07'	T = 402.73'	T = 169.66'
R = 4,800.00'	R = 1,800.00'	R = 1,440.00'
SE = 0.04	SE = 0.06	SE = 0.04
DS = 70mph	DS = 50mph	DS = 40mph



END CONSTRUCTION
-Y110- POC Sta.18+00.00

-Y110- POC Sta.17+17.00=
-SR5- POT Sta.10+06.52

-SR5- PC Sta.12+33.03

-BY110-3 PINC 10+47.80

-Y110- PC Sta.15+00.39

-BY110-4 PINC 13+00.90

-BY110-5 PINC 17+05.02

-BL-24 PINC 161+45.88
-BY110- PINC 14+93.36

-BL-23 PINC 155+30.07

-BY109-3 POT 18+62.93

BEGIN CONSTRUCTION
-Y110-POT Sta. 12+60.00

-Y110-POT Sta. 10+00.00

BY110-6 POT 19+65.06

-Y109- POT Sta. 10+00.00

-L- POC Sta.385+26.97
-Y110- POC Sta.15+52.43

S 46° 36' 55.5" E

N 30° 25' 52.3" W

N 53° 11' 24" E

MATCHLINE -L- STA. 376+00 SEE SHEET 18

MATCHLINE -Y109- STA. 13+00 SEE SHEET 18

MATCHLINE -L- STA. 389+00 SEE SHEET 20

MATCHLINE -SR5- STA. 13+50 SEE SHEET 20

NAD 83

245 JAMES W. SIMPSON AND WIFE, NANCY HEIR SIMPSON DB 156 PG 578

248 J. W. SIMPSON AND WIFE, NANCY SIMPSON DB 3183 PG 610

249 TERRY R. SIMPSON AND WIFE, CARMEL H. SIMPSON

250 TERRY REID SIMPSON AND WIFE, CARMEL HARGETT SIMPSON DB 216 PG 123

251 ROY J. LESLEY AND WIFE, DELILA E. LESLEY DB 852 PG 549

252 RODNEY A. MULLIS AND WIFE, PERONDA S. MULLIS DB 4577 PG 841

253 LARRY DEAN PHILEMON AND WIFE, JEAN C. PHILEMON DB 332 PG 399

254 JOHNNY SIMPSON AND WIFE, SHIRLEY M. SIMPSON DB 3380 PG 529

255 CHARLES WAYNE BYRUM AND WIFE, JANET W. BYRUM

256 SHIRLEY ANN TAYLOR DB 485 PG 30

257 DOUGLAS E. TAYLOR AND WIFE, SHIRLEY ANN TAYLOR DB 164 PG 526

258 JAMES F. MARLOW DB 4147 PG 754

15 TONS CL B RIPRAP W/37 SY FIL FAB

1 TONS CL B RIPRAP W/5 SY FIL FAB

PROP. 48" WW FENCE

STANDARD V DITCH SEE DETAIL J

LATERAL BASE DITCH SEE DETAIL D

FUTURE WIDENING BY OTHERS

REMOVE

TYPE M350

TYPE B-77

36" RCP-III

15" CSP 2 ELBOWS ROD & LUG

15" CAAP 2 ELBOWS ROD & LUG

GRAU 350 TYPE B-77

SR 1501 SECREST SHORTCUT RD

HEMBY BRIDGE TOWN LIMITS

UNION COUNTY

FOR -L- PROFILE SEE SHT. 128
FOR -SR5- PROFILE SEE SHT. 184

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

3/28/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

-L-		-SR5-	
PI Sta 386+05.24	PIs Sta 401+59.78	PI Sta 13+61.51	PI Sta 23+26.94
Δ = 36° 23' 52.8" (RT)	Θs = 1° 29' 31.5"	Δ = 10° 11' 47.8" (RT)	Δ = 8° 27' 21.1" (RT)
D = 1° 11' 37.2"	Ls = 250.00'	D = 3° 58' 43.9"	D = 1° 09' 14.4"
L = 3,049.27'	LT = 166.67'	L = 256.27'	L = 732.75'
T = 1,578.07'	ST = 83.34'	T = 128.47'	T = 367.04'
R = 4,800.00'		R = 1,440.00'	R = 4,965.00'
SE = 0.04		SE = 0.04	SE = 0.02
DS = 70mph		DS = 40mph	DS = 40mph

257 DOUGLAS E. TAYLOR AND WIFE, SHIRLEY ANN TAYLOR DB 164 PG 526

258 JAMES F. MARLOW DB 4147 PG 754

259 BRIAN KEITH GAULT AND KAREN LISA CHRISTENSEN DB 609 PG 440

260 THE WILLIAMS COMPANY DB 4008 PG 64

202 JAMES F. MARLOW DB 3733 PG 271

-SR5- PT Sta. 14+89.30

-SR5- PC Sta. 19+59.90

-SR5- PT Sta. 26+92.65

MATCHLINE -SR5- STA. 13+50 SEE SHEET 19

MATCHLINE -SR5- STA. 27+00 SEE SHEET 21

MATCHLINE -L- STA. 389+00 SEE SHEET 19

MATCHLINE -L- STA. 402+00 SEE SHEET 21

S 80°09'46" E 136.51'

S 36° 25' 07.7" E

N 49°02'52" E 590.41'

N 44°06'48" W 396.09'

S 46°59'43" E 426.92'

15+00 20+00 25+00 390+00 395+00 400+00

GRAU 350

FUTURE WIDENING BY OTHERS

STANDARD V DITCH SEE DETAIL J

PROP. 48" WW FENCE

15" RCP-III

18" RCP-III

10'x6' RCBC

2GI

FS

-L-

-SR5-

CAAP 2 ELBOWS ROD & LUG

END PROP 48" WW FENCE

BEGIN PROP 48" WW FENCE

2 TONS CL B RIPRAP W/7 SY FIL FAB

SEE CULVERT INLET DETAIL -L- STA. 397+14

123.24'

TEMPORARY CHANNEL CONST. EASEMENT

CAT-1

LATERAL BASE DITCH SEE DETAIL D

-L- CS Sta. 400+76.45

CULVERT OUTLET DETAIL -L- STA. 396+14

-BL-25 PINC 168+50.81

-BL-26 PINC 174+40.80

-BL-27 PINC 178+83.71

UNION COUNTY INDIAN TRAIL TOWN LIMITS

WOODS

POND

WELL

CONC BENCH

STONE WALKWAY

CONC BRK

GR

FOR -L- PROFILE SEE SHTS. 128 & 129
FOR -SR5- PROFILE SEE SHT. 184

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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9/28/2014
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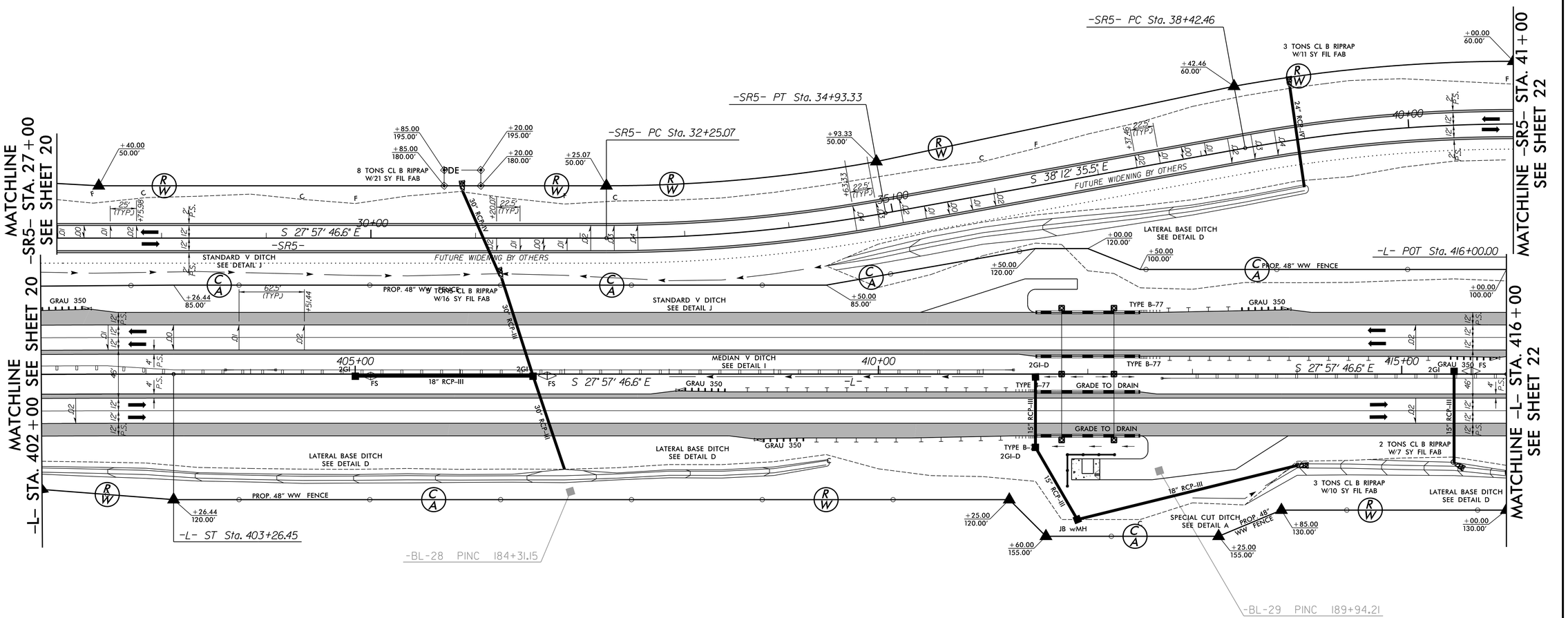
-L-	-SR5-		
PIs Sta 401+59.78	PI Sta 23+26.94	PI Sta 33+59.56	PI Sta 41+73.12
Θs = 1° 29' 31.5"	△ = 8° 27' 21.1" (RT)	△ = 10° 14' 48.9" (LT)	△ = 25° 51' 51.0" (RT)
Ls = 250.00'	D = 1° 09' 14.4"	D = 3° 49' 11.0"	D = 3° 58' 43.9"
LT = 166.67'	L = 732.75'	L = 268.26'	L = 650.04'
ST = 83.34'	T = 367.04'	T = 134.49'	T = 330.65'
	R = 4,965.00'	R = 1,500.00'	R = 1,440.00'
	SE = 0.02	SE = 0.04	SE = 0.04
	DS = 40mph	DS = 40mph	DS = 40mph

NAD 83

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	21
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



FOR -L- PROFILE SEE SHT. 129
FOR -SR5- PROFILE SEE SHTS. 184 & 185

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	82
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

R-3329-6 PINC 53+49.20

BEGIN CONSTRUCTION
-Y116- POT Sta.11+00.00

-Y116- POT Sta. 10+00.00

-Y116- PC Sta. 11+93.43

10+00
N 10° 15' 09.3" E
-Y116-

MATCHLINE -Y116- STA. 12+00
SEE SHEET 13

FOR -Y116- PROFILE SEE SHT. 178

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	83
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

MATCHLINE -Y116- STA. 23+00
SEE SHEET 14

END CONSTRUCTION
-Y116- POT Sta. 23+50.00

50' BLEND TO EXIST.

+50.00
34.34'
SPECIAL CUT DITCH
SEE DETAIL A

N 11° 45' 20.7" E
-Y116-

+50.00
34.36'
SPECIAL CUT DITCH
SEE DETAIL A

-Y116- POT Sta. 24+15.19

CHECK PIPE FOR CLEANOUT

-BY116-3 PINC 13+20.47

-BY116-2 PINC 8+09.95

-BY116-1 POT 5+00.00

SR 1522 STINSON HARTIS RD 20.5' BST

S 30°18'36" W 35.89'

S 55°51'01" E 27.84'

N 29°48'10" E 126.83'

N 65°40'15" W 244.82'

S 46°17'27" E 218.06'

S 10°52'20" E 696.69'

151 DAVID B. SHERIN AND WIFE, SHIRLEY D. SHERIN DB 401 PG 950

150 DAVID B. SHERIN AND WIFE, SHIRLEY D. SHERIN DB 401 PG 950

149 OLD HICKORY LLC PC K PG 384

155 D. BOSWELL SHERRIN AND WIFE, LENA P. SHERRIN DB 237 PG 755

154 SHIRLEY D. SHERIN DB 1332 PG 129

156 LR & FR, LLC DB 3409 PG 898

152 NJV INVESTMENT, LLC PC K PG 384

WOODS

BIRD HOUSES

WD POSTS

WELL

CONC HTR

1 S BK D

FUEL PUMPS

MTL CARPORT

BIRD BATH

BIRD HOUSE

SILO

GR

EIP

LP

MB

EXISTING R/W

18" RCP

15" RCP

60.01'

65.00'

FOR -Y116- PROFILE SEE SHT. 178

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
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9/29/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	84
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

-Y107-
PI Sta 16+50.76
△ = 14° 17' 30.9" (LT)
D = 3° 16' 26.6"
L = 436.52'
T = 219.40'
R = 1,750.00'
SE = 0.04
DS = 50mph

NAD 83

BEGIN CONSTRUCTION
-Y107- POC Sta.15+90.00

-Y107- PC Sta. 14+31.36

-BY107-9 POT 60+81.63

-Y107- POT Sta. 10+00.00

10+00

15+00

N 70° 51' 06.8" E

MATCHLINE -Y107- STA. 18+00 SEE SHEET 85

+90.00
70.00'

+90.00
50.00'

50' BLEND TO EXIST.

SPECIAL CUT DITCH SEE DETAIL A

SP. CUT BASE DITCH SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL A

-BY107-8 PINC 155+51.61

INDIAN TRAIL FAIRVIEW ROAD 37' BST

OLD HICKORY LLC
PC K PG 384

ISAAC GROSSMAN
DB 5008 PG 391
PC J PG 724

OLD HICKORY SELF STORAGE, LLC
DB 4481 PG 485
PB J PG 831

158

WILLIE RUTH PRICE
DB 250 PG 315

LEE G. & CAROLYN MAYBERRY
DB 191PG 595

LEE G. & CAROLYN MAYBERRY
DB 225 PG 455

ERIC W. TURNER &
ERIN W. ELDER
DB 1106 PG 682

CAROLL & BILLIE E.
CUNNINGHAM
DB 0157 PG 154

136

159

ETTA MAE ROBINSON
NO DEED FOUND

157

GEORGIA N. CUPP
AND HUSBAND,
WILLIAM D. CUPP
DB 4679 PG 13

FOR -Y107- PROFILE SEE SHT. 179

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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Kevin

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	85
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

MATCHLINE -Y107- STA. 18+00 SEE SHEET 84

MATCHLINE -Y107- STA. 31+00 SEE SHEET 16

-Y107- PT Sta. 18+67.88

-Y107- PC Sta. 24+01.39

-BYI07-7 PINC 48+44.44

-BYI07-6 PINC 41+48.89

PROPOSED 2'-6" C&G

PROPOSED 5' SIDEWALK

PROPOSED 5' SIDEWALK

PROP. CL FENCE

PROP. CL FENCE

+67.88
75.00'

440' TRANSITION

LATERAL BASE DITCH
SEE DETAIL D

+50
85.00'

26 TONS CL I RIPRAP
W/50 SY FIL FAB

+01.39
75.00'

2 TONS CL B RIPRAP
W/7 SY FIL FAB

600' TAPER

SP. LAT. V DITCH
SEE DETAIL AA

+50.00
70.00'
BEGIN C/A
BEGIN CL FENCE

37.5'
TYP.

2 TONS CL B RIPRAP
W/7 SY FIL FAB

TB
2GL-D

20+00

N 56° 33' 35.9" E

25+00

30+00

FILL W/
FLOWABLE
FILL

REMOVE

24" RCP-III

15" RCP-III

CB

R=8.5'

-Y107-

SR 1520 INDIAN TRAIL-FAIRVIEW RD 24' BST HEMBY BRIDGE TOWN LIMITS

EXISTING R/W

8" PVC

6" AC

12" RCP

150' TAPER

+00.00
60.00'

SP. CUT BASE DITCH
SEE DETAIL F

+00.00
75.00'

LATERAL BASE DITCH
SEE DETAIL D

+01.39
75.00'

+50.00
75.00'
BEGIN C/A
BEGIN CL FENCE

+80.00
85.00'

+75.00
85.00'

158
OLD HICKORY SELF STORAGE, LLC
DB 4481 PG 485
PB J PG 831

160
LR & FR, LLC
DB 3409 PG 898

165
LR & FR, LLC
DB 3409 PG 898

157
GEORGIA N. CUPP
AND HUSBAND,
WILLIAM D. CUPP
DB 4679 PG 13

162
BUFORD CARL ROWELL
AND WIFE,
MARGARET MCLAIN ROWELL
DB 189 PG 383

163
DONALD R. SIMPSON
AND WIFE,
MARLENE C./SIMPSON
DB 986 PG 898

164
MICKEY MONROE MCGUIRE, SR.
AND WIFE,
JOY CAROL MCGUIRE
DB 3982 PG 820

163
DONALD R. SIMPSON
AND WIFE,
MARLENE C. SIMPSON
DB 986 PG 898

166
CHARLES W. HANEY
AND WIFE,
SHIRLEY H. HANEY
DB 286 PG 75

167
DON BAUCOM
AND WIFE,
CATHERINE BAUCOM
DB 1023 PG 785

WOODS

GAZEBO

IS BK D

IS F GARAGE

STORAGE

POOL

PLAYHOUSE

TENT

2 S F D

FLAGPOLE

MTL BLDG

GAS MARKER

WD DECK

WD O POST

CONC

BST

GR

LP

W/LT

S 56°22'12" W
183.36'

S 56°10'30" W
413.50'

S 54°49'30" E
420.08'

N 56°26'55" E
143.88'

S 56°36'21" W
288.59'

N 56°32'13" E
147.52'

N 54°46'43" W
245.83'

S 40°02'05" E
365.08'

N 27°25'36" E
272.27'

N 33°49'30" W
393.01'

S 33°49'30" E
272.27'

N 27°25'36" E
145.36'

FOR -Y107- PROFILE SEE SHT. 179

PLANS PREPARED BY :

RK&K

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	86
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

-Y107-	-SR107-
PI Sta 55+06.25	PI Sta 14+57.78
△ = 11° 09' 23.0" (RT)	△ = 61° 16' 06.7" (LT)
D = 0° 57' 17.8"	D = 22° 55' 05.9"
L = 1,168.29'	L = 267.33'
T = 586.00'	T = 148.05'
R = 6,000.00'	R = 250.00'
SE = 0.02	SE = 0.04
DS = 50mph	DS = 30mph

NAD 83

MATCHLINE -Y107- STA. 47+00 SEE SHEET 16

MATCHLINE -Y107- STA. 60+00 SEE SHEET 87

MATCHLINE -SR107- STA. 12+00 SEE SHEET 16

-Y107- POT Sta. 52+23.85=
-SR107- POT Sta. 18+37.13

BY107-3 PINC 15+66.04

BY107-4 PINC 21+92.16

-Y107- PC Sta. 49+20.25

-SR107- PT Sta. 15+77.06

-SR107- PC Sta. 13+09.72

MONROE WEST CAPITAL, LLC
DB 5543 PG 402

MILDRED H. SPENCER
DB 750 PG 622
PB D PG 795

DWAIN P. ROEKLE
AND WIFE,
DELORIS A. ROEKLE
DB 446 PG 198

DONNA R. HOSAFLOOK, ET UX
DB 5588 PG 898

BILLY M. STEGALL
DB 806 PG 758

NORTH CAROLINA
TELEPHONE COMPANY
DB 218 PG 697

ETHEL MAE BROOKS
PG 601

CHRISTINE RUTH B. HORNE
DB 125 PG 88

TERRY W. KING
AND WIFE,
JOAN H. KING
DB 313 PG 359

DONALD RAY DEESE

GEORGE W. SHEARIN (GS)

BOBBY
THEODORE
CARPENTER
PB 5 PG 2

MILDRED B. ROWELL
PB 5 PG 2

JESSE L. CARSON
AND WIFE,
CHERYL T. CARSON
DB 725 PG 509
PB 5 PG 2

PRESTON ALBERT
DAVIDSON JR, ET UX
DB 5528 PG 365

INDIAN TRAIL TOWN LIMITS
HEMBY BRIDGE TOWN LIMITS

150' TAPER
150' TAPER
265' TAPER
700' TAPER (LANE DROP)
100' TAPER
440' UNIFORM TRANSITION
LATERAL V DITCH SEE DETAIL B
SPECIAL CUT DITCH SEE DETAIL A
SP. LAT. V DITCH SEE DETAIL G
STANDARD BASE DITCH SEE DETAIL U
LATERAL BASE DITCH SEE DETAIL D
PROP. 48" WW FENCE
PROP. 1'-6" C&G
PROP. 2'-6" C&G
PROP. CL FENCE
PROP. 5' SIDEWALK
END 48" WW FENCE
END C/A
END CL FENCE
FILL W/ FLOWABLE FILL
DRAIN POND
5 TONS CL B RIPRAP W/14 SY FIL FAB
5 TONS CL B RIPRAP W/16 SY FIL FAB
3 TONS CL B RIPRAP W/10 SY FIL FAB
2 TONS CL B RIPRAP W/7 SY FIL FAB CUT /FILL TRANSITION
15" RCP-III
18" RCP-IV
30" RCP-IV
REMOVE
GRAU 350
DI 15" RCP-IV
CB
PDE-B
GR
BST
CONC
WOODS
BRICK WALKWAY
STONE WALKWAY
I S F MTL GARAGE
I S BK BUS
I S F BUS
I S BK D
I S F D
WD DECK
WD BLDG
POWER METER POST
GENERATOR
GATE
MTL BLDG
CAN
GAR
PLANTER
DECK
WALL
GUY
ISFB
S 57°47'03" W 286.61'
S 57°41'18" W 203.20'
S 57°33'14" W 97.89'
S 57°09'46" W 97.98'
S 57°13'44" W 98.22'
S 56°16'18" W 30.19'
N 22° 39' 12" W 100.00'
N 43°29'38" E 192.91'
N 40°53'29" W 350.92'
S 46°12'43" W 103.31'
S 40°25'25" E 232.20'
N 40°00'25" W 232.98'
S 56°16'18" E 436.46'
N 56°16'18" W 436.46'
N 57°33'14" E 97.89'
N 57°09'46" E 97.98'
N 57°13'44" E 98.22'
N 57°41'18" E 203.20'
N 57°47'03" E 286.61'
S 22°39'12" E 100.00'
S 40°53'29" E 350.92'
N 46°12'43" E 103.31'
S 40°00'25" W 232.98'
N 56°16'18" E 436.46'
S 56°16'18" E 30.19'
S 57°33'14" E 97.89'
S 57°09'46" E 97.98'
S 57°13'44" E 98.22'
S 57°41'18" E 203.20'
S 57°47'03" E 286.61'
N 22°39'

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	87
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

-Y107-

PI Sta 55+06.25	PI Sta 64+87.36
△ = 11° 09' 23.0" (RT)	△ = 3° 33' 37.9" (RT)
D = 0° 57' 17.8"	D = 0° 57' 17.7"
L = 1,168.29'	L = 372.86'
T = 586.00'	T = 186.49'
R = 6,000.00'	R = 6,000.00'
SE = 0.02	
DS = 50mph	

NAD 83

MATCHLINE -Y107- STA. 60+00 SEE SHEET 86

-Y107- PC Sta. 63+00.87

-Y107- PT Sta. 66+73.73

END CONSTRUCTION
-Y107- POC Sta. 65+20.00

-Y107- PT Sta. 60+88.55

-BY107-2 PINC 10+42.06

-BY107-1 POT 5+00.00

65+00

+30 60.00'
440' UNIFORM TRANSITION
+88.55 60.00'
50' BLEND TO EXIST.
SPECIAL CUT DITCH SEE DETAIL A
+00.00 60.00'
+00.00 30.35'
+00.00 29.65'
+00.00 60.00'
50' (TYP.)
RETAIN
REMOVE
15" RCP III
4' P.S.
S 36°47'51" E 300.00'
S 54°41'51" E 253.00'
N 53° 04' 22.9" E
N 54°41'44" E 42.60'
N 65°12'08" E 135.49'
N 19°47'23" E 11.95'
N 36°12'16" W 46.99'
N 36°12'16" W 21.25'
N 36°12'16" W 21.19'
N 58°30'00" E 98.00'
S 38°38'08" E 444.88'
N 38°38'08" W 397.36'
N 38°42'00" W 472.29'
S 38°42'00" E 404.24'
N 38°38'08" W 397.36'
N 38°38'08" W 397.36'
S 38°38'08" E 444.88

5/28/99

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	125
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- STA. 228+77.84 BK =
-L- STA. 224+00.00 AH

BEGIN GRADE SECTION 2A
-L- STA.227+00.00
ELEV.= 685.30'

PI = 227+90.00
EL = 687.00'
VC = 850'
K = 257
DS = 70mph

EXISTING GROUND

(+)0.3017%

(-)3.0000%

(-) 0.4200%

(+) 0.3000%

(-) 6.2200%

BEGIN SP.CUT DITCH LT.
-L- STA.226+50.00
EI = 680.80

PI = 227+50.00
EI = 680.38

PI = 228+50.00
EI = 680.68

END SP.CUT DITCH LT.
-L- STA.229+00.00
EI = 677.57

PROPOSED GRADE

EXISTING GROUND

730 720 710 700 690 680 670 660 650 640

227+00 228+00 224+00 225+00 226+00 227+00 228+00 229+00 230+00 231+00 232+00 233+00 234+00 235+00 236+00

700 690 680 670 660 650 640 630 620 610

236+00 237+00 238+00 239+00 240+00 241+00 242+00 243+00 244+00 245+00 246+00 247+00 248+00 249+00 250+00

-L- STA.236+07.22
-Y116- STA.17+90.77
ELEV.= 663.03'

PI = 237+20.00
EL = 659.10'
VC = 530'
K = 212
DS = 76mph

(-)3.0000%

(-)0.5000%

EXISTING GROUND

PROPOSED GRADE

FOR -L- PLAN SEE SHTS.13 THRU 15

PLANS PREPARED BY :

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-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	126
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 258+40.00
EL = 648.50'
VC = 250'
K = 290
DS = > 80mph

-L- STA. 259+00.00 =
-KRC- STA. 10+00.00, 47' RT.
ELEV. = 648.79'

-L- STA. 261+93.65 =
-KRB- STA. 10+00.00, 47' LT.
ELEV. = 649.78'

EXISTING GROUND

PROPOSED GRADE

(−)0.5000%
(−) 0.2993%
(+)0.3622%
(+) 1.8480%
(−) 0.3000%
(−) 4.0000%
(−) 0.8056%

BEGIN MED.V. DITCH
-L- STA. 256+00.00
EI = 647.03

BEGIN SP.CUT DITCH RT.
-L- STA. 259+00.00
EI = 643.19

PI = 260+00.00
EI = 645.830

END MED.V. DITCH
-L- STA. 260+50.00
EI = 646.75

BEGIN LAT.BASE DITCH LT.
-L- STA. 261+50.00
EI = 638.30

PI = 262+00.00
EI = 636.30

END SP.CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA. 263+00.00
EI = 641.99

250+00 251+00 252+00 253+00 254+00 255+00 256+00 257+00 258+00 259+00 260+00 261+00 262+00 263+00 264+00

610 620 630 640 650 660 670 680 690

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 643.7	FT
OVERTOPPING DISCHARGE	= 1000	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 647.5	FT

END LAT.BASE DITCH RT.
-L- STA. 264+90.00
EI = 636.70

(−) 2.7842%

2@9'X7' RCBC

(−)0.8056%

END LAT.BASE DITCH LT.
-L- STA. 265+60.00
EI = 633.40

EXISTING GROUND

-L- STA. 274+96.33 =
-KLC- STA. 10+00.00, 47' RT.
ELEV. = 654.50'

PI = 278+00.00
EL = 655.60'
VC = 250'
K = 296
DS = 73mph

(+)0.3622%

PROPOSED GRADE

FOR -L- PLAN SEE SHTS. 15 & 16

264+00 265+00 266+00 267+00 268+00 269+00 270+00 271+00 272+00 273+00 274+00 275+00 276+00 277+00 278+00

600 610 620 630 640 650 660 670 680 690

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	127
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- STA. 279+11.40 =
-Y107- STA. 40+32.81
ELEV. = 655.06'

PI = 278+00.00
EL = 655.60'
VC = 250'
K = 296
DS = 73mph

(-)0.4810%

EXISTING GROUND

PROPOSED GRADE

-L- STA. 283+52.46 =
-KLB- STA. 10+00.00, 47' LT
ELEV. = 652.94'

BEGIN SP.CUT DITCH RT.
-L- STA. 281+00.00
EI = 651.71

(-)1.9667%

END SP.CUT DITCH RT.
-L- STA. 282+50.00
EI = 648.76

BEGIN SP.CUT DITCH LT.
-L- STA. 285+00.00
EI = 648.67

(-)0.8500%

END SP.CUT DITCH LT.
-L- STA. 287+00.00
EI = 646.97

(-)5.3400%

BEGIN SP.CUT DITCH RT.
-L- STA. 289+00.00
EI = 645.67

END SP.CUT DITCH RT.
BEGIN LAT. BASE DITCH RT.
-L- STA. 289+50.00
EI = 643.00

(-)1.0000%

(-)7.2733%

(-)4.2857%

BEGIN LAT. BASE DITCH LT.
-L- STA. 291+50.00
EI = 644.91

PI = 291+50.00
EI = 641.00

278+00 279+00 280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00

610 620 630 640 650 660 670 680

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 390	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 638.9	FT
BASE DISCHARGE	= 440	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 639.4	FT
OVERTOPPING DISCHARGE	= 1350	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 655.0	FT

STR 1703 Sta. 298+40

DRAINAGE AREA	= 35.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 640.5	FT
100 YEAR DISCHARGE	= 140	CFS
100 YEAR HW ELEVATION	= 640.9	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

-L- STA. 297+00.22 =
-CULI- STA. 14+35.00
ELEV. = 646.46'

PI = 299+00.00
EL = 645.50'
VC = 350'
K = 239
DS = > 80mph

-L- STA. 305+11.33 BK =
-L- STA. 363+50.00 AH

PROPOSED GRADE

PI = 293+25.00
EI = 633.50

(-)7.2857%

(-)4.2857%

(2)-12'x6' RCBC

(-)1.4429% flat bottom stream (rt)

(+)4.5257%

EXISTING GROUND

nat. downstream (rt)

(+)0.3000%

3@36" RCP

(-)0.4810%

(+)0.9843%

(+)11.9300%

(+)10.4500%

(+)3.8700%

(+)4.7500%

PI = 293+00.00
EI = 634.00

END LAT. BASE DITCH LT.
-L- STA. 293+70.00
EI = 633.20

END LAT. BASE DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA. 295+00.00
EI = 641.42

END SP.CUT DITCH RT.
-L- STA. 297+00.00
EI = 642.02

BEGIN LAT. V. DITCH LT.
-L- STA. 298+05.00
EI = 636.00

BEGIN LAT. V. DITCH RT.
-L- STA. 298+84.00
EI = 637.50

PI = 299+50.00
EI = 637.80

PI = 299+50.00
EI = 638.80

END LAT. V. DITCH LT.
-L- STA. 300+50.00
EI = 642.67

END LAT. V. DITCH RT.
-L- STA. 300+54.00
EI = 642.55

-L- STA. 302+26.18 =
-CUL2- STA. 14+54.02
ELEV. = 648.71'

BEGIN LAT. BASE DITCH LT.

FOR -L- PLAN SEE SHTS. 16 THRU 18

PLANS PREPARED BY :
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NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

292+00 293+00 294+00 295+00 296+00 297+00 298+00 299+00 300+00 301+00 302+00 303+00 304+00 305+00 306+00

590 600 610 620 630 640 650 660 670 680

8/29/2014
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Kevin

5/28/99

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	128
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 380	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 632.3	FT
BASE DISCHARGE	= 430	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 632.4	FT
OVERTOPPING DISCHARGE	= 840	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 633.5	FT

PI = 371+00.00
EL = 658.90'
VC = 280'
K = 438
DS = > 80mph

-L- STA. 371+67.85=
-Y109- STA. 17+86.10
ELEV. = 659.07'

(+)0.9843%
(+)0.3452%
(-) 0.2992%
(+) 1.3000%
(-) 2.2901%
(-) 1.7872%
(+) 1.4080%
(-) 1.2333%
(-) 0.6303%

PROPOSED GRADE
EXISTING GROUND
EXISTING GROUND LT
EXIST GRND RT
7'X8' RCBC

-L- STA. 364+00.00
EL = 645.00

END LAT. BASE DITCH LT.
-L- STA. 370+55.00
EL = 630.00

BEGIN LAT. BASE DITCH LT.
-L- STA. 371+20.00
EL = 629.50

BEGIN MED. V DITCH
-L- STA. 372+50.00
EL = 657.88

BEGIN LAT. BASE DITCH RT.
-L- STA. 373+50.00
EL = 626.00

END LAT. BASE DITCH LT.
-L- STA. 373+55.00
EL = 625.30

PI = 375+00.00
EL = 657.30

END MED. V DITCH
-L- STA. 375+50.00
EL = 657.78

END LAT. BASE DITCH RT.
-L- STA. 375+24.00
EL = 628.45

BEGIN LAT. BASE DITCH RT.
-L- STA. 375+50.00
EL = 628.30

PI = 377+00.00
EL = 626.45

364+00 365+00 366+00 367+00 368+00 369+00 370+00 371+00 372+00 373+00 374+00 375+00 376+00 377+00 378+00

690 680 670 660 650 640 630 620 610 600

PI = 385+35.00
EL = 663.85'
VC = 840'
K = 249
DS = 70mph

-L- STA. 385+26.97=
-Y110- STA. 15+52.43
ELEV. = 660.42'

(+)0.3452%
(-)3.0246%
(+) 1.9847%
(-) 2.6400%
(-) 0.3000%
(+) 1.2080%

PROPOSED GRADE
EXISTING GROUND

PI = 378+19.00
EL = 625.70

END LAT. BASE DITCH RT.
PI = 379+50.00
EL = 628.30

BEGIN STD. V DITCH LT.
-L- STA. 386+50.00
EL = 628.72

PI = 387+00.00
EL = 627.40

PI = 391+00.00
EL = 626.20

FOR -L- PLAN SEE SHTS. 18 THRU 20

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378+00 379+00 380+00 381+00 382+00 383+00 384+00 385+00 386+00 387+00 388+00 389+00 390+00 391+00 392+00

690 680 670 660 650 640 630 620 610 600 590

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	129
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 290	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 620.5	FT
BASE DISCHARGE	= 346	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 621	FT
OVERTOPPING DISCHARGE	= 600	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 628.1	FT

PI = 395+00.00
EL = 634.67'
VC = 550'
K = 208
DS = 75mph

PROPOSED GRADE
(−)3.0246%
(−)0.3742%
(+) 1.2080%
(+) 0.2900%
EXISTING GROUND
10'X6' RCBC
(+) 1.5966%
623.9'
(−) 0.9677%
(−) 0.3150%
(−) 0.2520%
(−) 0.9774%

END STD.V. DITCH LT.
-L- STA. 393+50.00
EL = 629.22

BEGIN STD.V. DITCH LT.
-L- STA. 396+00.00
EL = 622.83

BEGIN LAT. BASE DITCH RT.
-L- STA. 397+00.00
EL = 618.78

END STD.V. DITCH LT.
-L- STA. 401+00.00
EL = 624.28

BEGIN STD.V. DITCH LT.
-L- STA. 401+50.00
PI = 401+71.00
EL = 623.91
EL = 626.30

PI = 403+50.00
EL = 623.28

PI = 404+50.00
EL = 623.60

PROPOSED GRADE
(−)0.3742%
(+) 0.3140%
(+) 2.6400%
(−) 0.2520%
(+) 0.3150%
(+) 0.9138%
(−) 0.9774%
EXISTING GROUND
(−) 2.0100%
(−) 0.3000%
(−) 1.3672%

℄ TOLL ZONES 3.1 & 3.2
-L- STA. 412+00.00

END GRADE SECTION 2A
-L- STA. 416+00.00
ELEV. = 626.81'

PI = 406+60.00
EL = 620.25

PI = 407+00.00
EL = 622.97

BEGIN MED.V DITCH
-L- STA. 408+00.00
EL = 626.73

PI = 409+00.00
EL = 623.60

END LAT. BASE DITCH RT.
END STD.V. DITCH LT
-L- STA. 409+50.00
EL = 624.92 RT
EL = 622.90 LT

END MED.V DITCH
-L- STA. 411+00.00
EL = 627.68

BEGIN SP.CUT DITCH RT.
-L- STA. 413+00.00
EL = 622.91

END SP.CUT DITCH RT.
BEGIN LAT. BASE DITCH RT.
-L- STA. 414+00.00
EL = 620.90

PI = 415+50.00
EL = 620.45

TIE TO SECTION 2A
LAT. BASE DITCH RT.
-L- STA. 416+00.00
EL = 619.77

FOR -L- PLAN SEE SHTS. 20 & 21
FOR AET PLAN SEE SHEET AET-3

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-SR3-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	177
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

730
720
710
700
690
680
670
660
650
640

-SR3- STA.16+11.59
BEGIN PROFILE (SECTION 2A)
ELEV.= 686.34'

PI = 19+30.00
EL = 693.00'
VC = 130'
K = 20
DS = 30mph

(+)2.0930%
(-)14.3478%

PI = 21+60.00
EL = 683.00'
VC = 260'
K = 37
DS = 30mph

(-)14.3478%
(+)2.6087%

PROPOSED GRADE
EXISTING GROUND

PI = 26+20.00
EL = 695.00'
VC = 170'
K = 20
DS = 30mph

(+)2.6087%
(-)15.9091%

BEGIN SP.CU
-SR3- STA.2
El = 679.26 L
El = 679.63 R

14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00

700
690
680
670
660
650
640

PI = 28+40.00
EL = 682.00'
VC = 200'
K = 40
DS = 30mph

(-)10.9568%
(-) 3.0988%
(-) 3.2588%

-SR3- STA.30+09.51
-Y115- STA.14+45.03
END GRADE
ELEV.= 680.38'

END SP.CUT DITCH LT.
-SR3- STA.29+85.00
El = 676.49

END SP.CUT DITCH RT.
-SR3- STA.29+81.00
El = 677.12

T DITCH LT.& RT.
29+00.00
T.
RT.

FOR -SR3- PLAN SEE SHT.13

28+00 29+00 30+00 31+00 32+00

700
690
680
670
660

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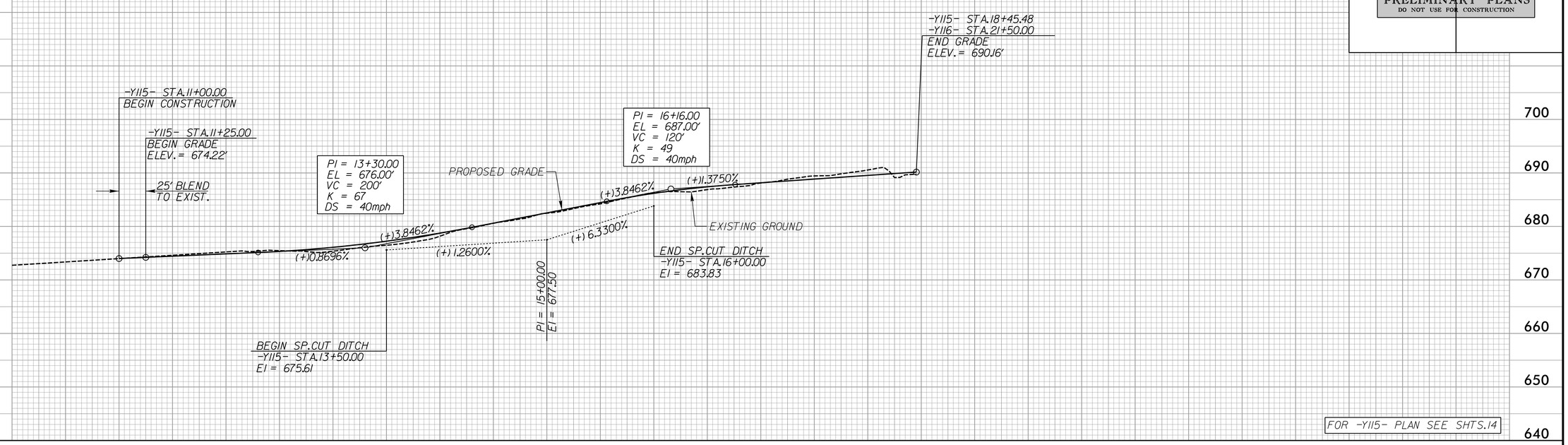
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	178
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y115-

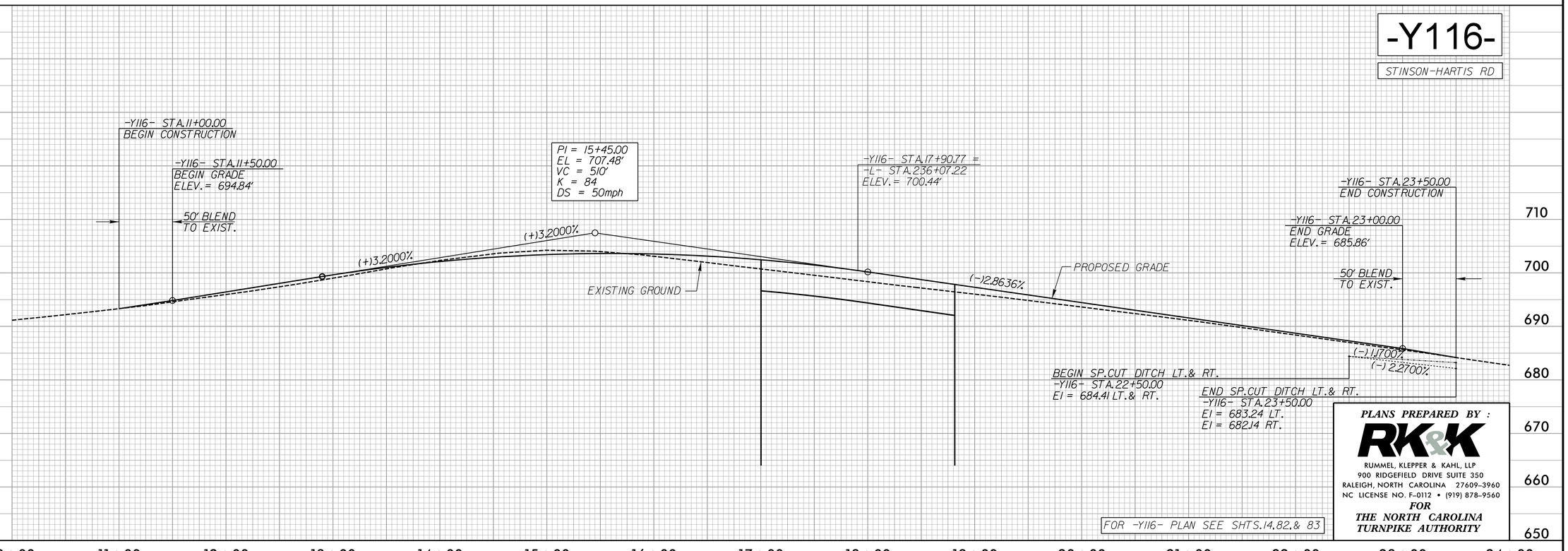
OAK SPRING RD



FOR -Y115- PLAN SEE SHTS.14

-Y116-

STINSON-HARTIS RD



FOR -Y116- PLAN SEE SHTS.14,82,& 83

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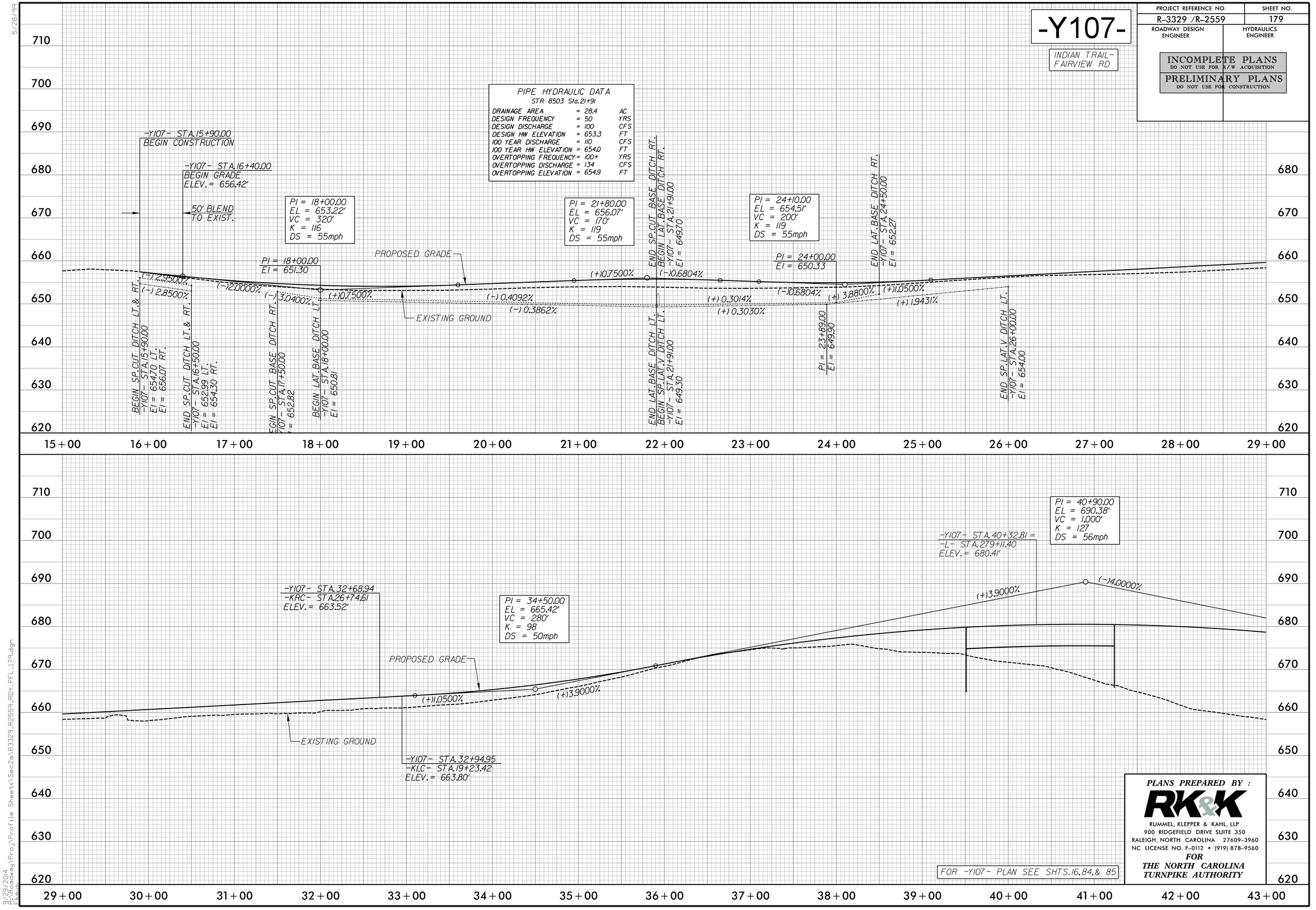
-Y107-

INDIAN TRAIL-FAIRVIEW RD

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	179
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y107- PLAN SEE SHTS.16,84,& 85

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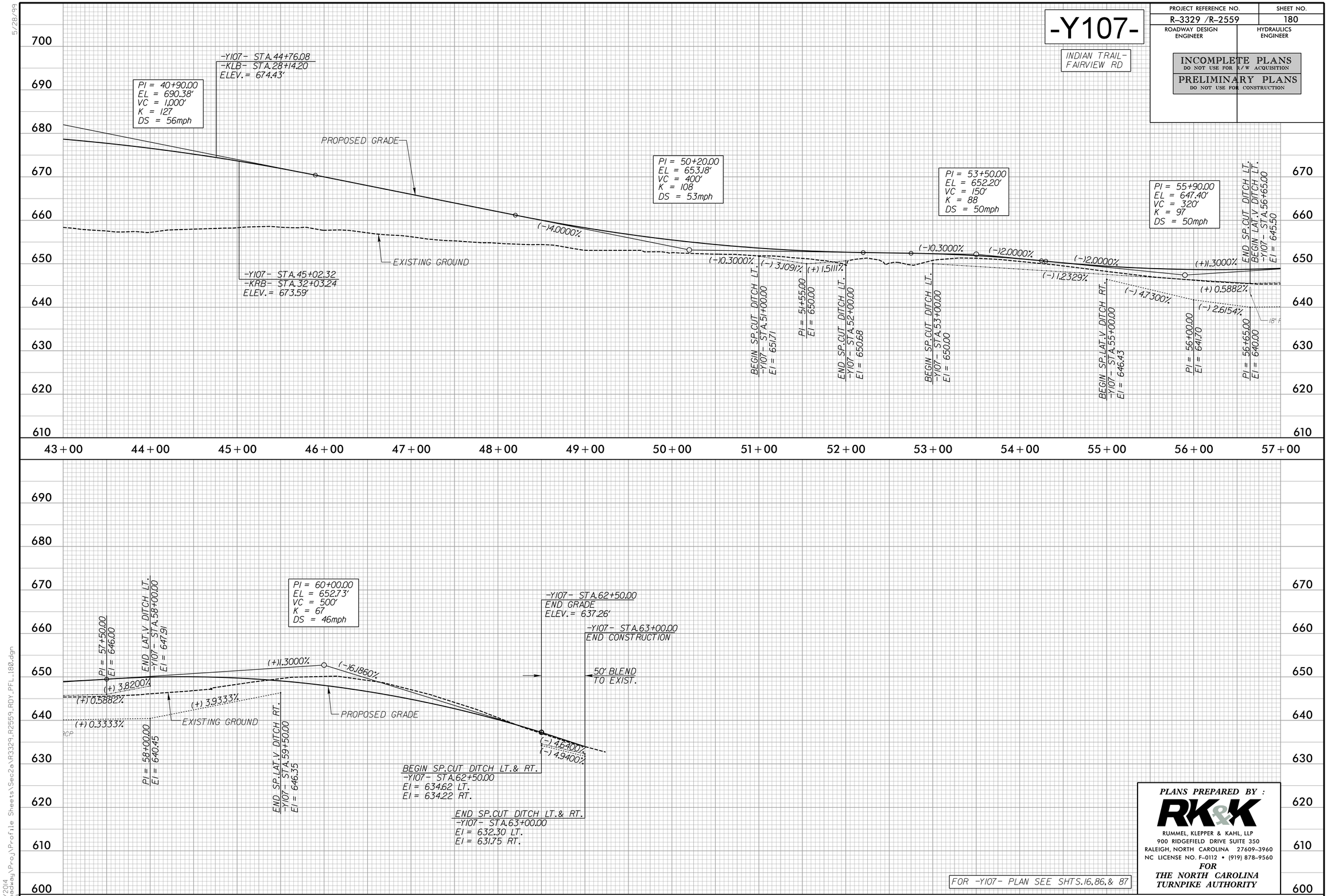
-Y107-

INDIAN TRAIL-FAIRVIEW RD

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	180
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y107- PLAN SEE SHTS.16,86,& 87

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-KRB-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	181
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-KRB- STA.10+00.00 =
-L- STA.261+93.65
BEGIN GRADE
ELEV. = 651.22'

PI = 11+10.00
EL = 651.60'
VC = 200'
K = 1294
DS = > 80mph

PI = 13+30.00
EL = 652.70'
VC = 150'
K = 186
DS = 64mph

PI = 14+60.00
EL = 652.30'
VC = 110'
K = 180
DS = 69mph

PI = 23+50.00
EL = 655.00'
VC = 300'
K = 159
DS = 65mph

PROPOSED GRADE

(+)0.3455%
(+)0.5000%
(+)0.5000%
(-)0.3077%
(-)0.3077%
(+)0.3034%
(-)1.5698%
(+)0.4000%
(+)0.4000%
(+)2.1865%
(+)0.3034%

EXISTING GROUND

BEGIN SP.CUT DITCH RT.
-KRB- STA.16+60.72
EI = 648.10

END SP.CUT DITCH RT.
-KRB- STA.17+55.00
EI = 646.62

BEGIN SP.LAT.V DITCH LT.
-KRB- STA.14+00.00
EI = 633.40

END SP.LAT.V DITCH LT.
BEGIN SP.CUT DITCH LT.
-KRB- STA.17+55.00
EI = 634.82

END SP.CUT DITCH LT.
-KRB- STA.20+00.00
EI = 635.80

2@9'X7' RCBC

30" RCP

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 643.7	FT
OVERTOPPING DISCHARGE	= 1000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 647.5	FT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

690 680 670 660 650 640 630 620 610 600

-KRB- STA.31+70.49
-Y107- STA.45+02.32
END GRADE
ELEV. = 672.94'

PROPOSED GRADE

(+)2.2800%

(+)2.1865%

EXISTING GROUND

FOR -KRB- PLAN SEE SHTS.15 & 16

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00

700 690 680 670 660 650 640 630 620 610

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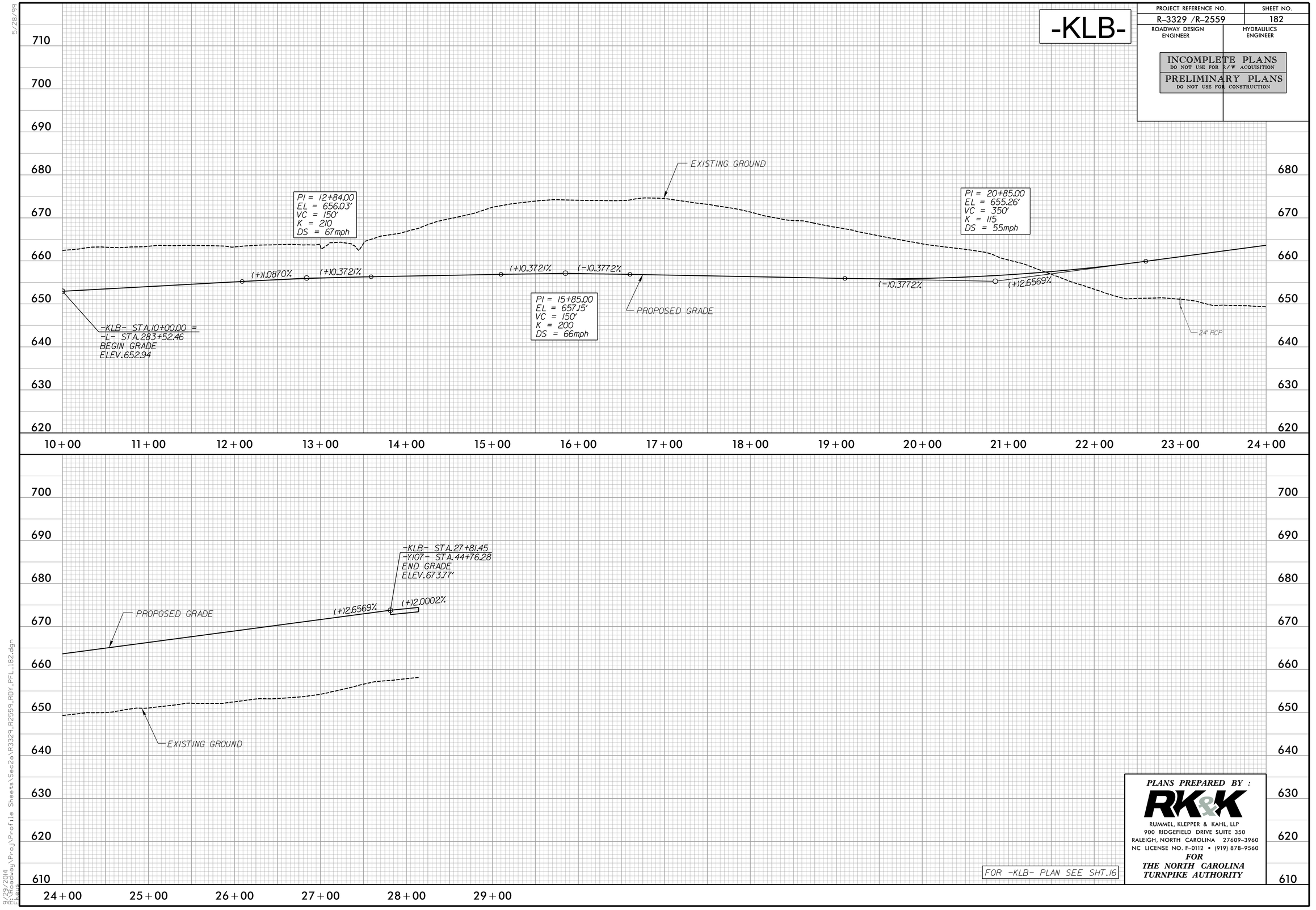
-KLB-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	182
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -KLB- PLAN SEE SHT.16

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	183
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-KRC-

PI = 10+70.00
EL = 647.40'
VC = 140'
K = 604
DS > 80mph

PI = 12+35.00
EL = 647.90'
VC = 190'
K = 259
DS = 71mph

PI = 14+90.00
EL = 646.80'
VC = 320'
K = 183
DS = 71mph

PI = 18+10.00
EL = 651.00'
VC = 300'
K = 167
DS = 62mph

PI = 21+80.00
EL = 649.20'
VC = 440'
K = 124
DS = 57mph

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 643.7	FT
OVERTOPPING DISCHARGE	= 1000	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 647.5	FT

PROPOSED GRADE

(+)0.0714%
(+)0.3030%
(+)0.3030%
(-)0.4314%
(-)0.4314%
(+)11.3125%
(+)11.3125%
(-)0.4865%
(-)0.4865%
(+)3.0750%

-KRC- STA.10+00.00 =
-L- STA.259+00.00
BEGIN GRADE
ELEV. = 647.35'

2@9'X7' RCBC

EXISTING GROUND

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

610 620 630 640 650 660 670 680 690 700

-KRC-

-KRC- STA.26+41.86
-Y107- STA.32+68.94
END GRADE
ELEV. = 662.87

PI = 25+80.00
EL = 661.50'
VC = 100'
K = 116
DS = 55mph

EXISTING GROUND

(+)2.2147%
(+)2.0000%
(+)3.0750%

PROPOSED GRADE

FOR -KLC- PLAN SEE SHTS.15 & 16

24+00 25+00 26+00

-KLC-

-KLC- STA.10+00 =
-L- STA.274+96.33
BEGIN GRADE
ELEV.653.06'

PI = 10+85.00
EL = 652.80'
VC = 110'
K = 85
DS = 50mph

EXISTING GROUND

PI = 14+30.00
EL = 647.30'
VC = 510'
K = 97
DS = 50mph

PROPOSED GRADE

(-)0.3059%
(-)1.5942%
(-)1.5942%
(+)3.6456%
(+)3.6456%

PI = 18+25.00
EL = 661.70'
VC = 100'
K = 69
DS = 47mph

-KLC- STA.18+90.67 =
-Y107- STA.32+95.05
END GRADE
ELEV.663.14

(+)2.2004%
(+)2.0000%

FOR -KLC- PLAN SEE SHT.16

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

610 620 630 640 650 660 670 680 690 700

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	184
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SR4-

-SR4- STA.10+00.00
BEGIN CONSTRUCTION

-SR4- STA.10+25.00
BEGIN GRADE
ELEV. = 637.13'

25' BLEND
TO EXIST.

PI = 12+70.00
K = 42
EL = 632.57'
VC = 90'
DS = 32mph

-SR4- STA.14+27.76 =
-Y109- STA.16+29.06
END GRADE
ELEV. = 633.04'

PROPOSED GRADE

(-)1.8626%

(-)1.8600%

EXISTING GROUND

(-)1.9200%

(+)0.3000%

(-)0.3412%

BEGIN SP.CUT DITCH RT.& PI LT.
-SR4- STA.12+50.00
EI = 630.56 RT.& LT.

BEGIN LAT.V DITCH LT.
-SR4- STA.10+50.00
EI = 634.28

END SP.CUT DITCH RT.
-SR4- STA.14+00.00
EI = 627.68

END LAT.V DITCH LT.
-SR4- STA.14+14.00
EI = 630.00

FOR -SR4- PLAN SEE SHT.18

-Y109-

SEACREST SHORTCUT RD

PIPE HYDRAULIC DATA
STR 1804 Sta.15+54

DRAINAGE AREA	= 89.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 200	CFS
DESIGN HW ELEVATION	= 632.3	FT
100 YEAR DISCHARGE	= 320	CFS
100 YEAR HW ELEVATION	= 635.2	FT
OVERTOPPING FREQUENCY	= 25+	YRS
OVERTOPPING DISCHARGE	= 212.3	CFS
OVERTOPPING ELEVATION	= 632.5	FT

-Y109- STA.15+85.00
BEGIN 3" RESURFACING

-Y109- STA.21+35.00
END 3" RESURFACING

EXISTING GROUND

(-)0.9231%

(-)0.5333%

30" RCP

(+)5.9867%

28&60" RCP

BEGIN SP.CUT DITCH RT.
-Y109- STA.16+00.00
EI = 630.00

BEGIN SP.CUT DITCH LT.
-Y109- STA.18+00.00
EI = 630.00

END SP.CUT DITCH RT.
-Y109- STA.19+25.00
EI = 627.00 PI = 19+50.00
EI = 629.20

END SP.CUT DITCH LT.
-Y109- STA.21+00.00
EI = 638.8

FOR -Y109- PLAN SEE SHT.18

-Y110-

FAITH CHURCH RD

-Y110- STA.17+50.00
END OVERLAY

-Y110- STA.18+00.00
END CONSTRUCTION

50' BLEND
TO EXIST.

50' BLEND
TO EXIST.

-Y110- STA.12+40.00
BEGIN OVERLAY

-Y110- STA.11+90.00
BEGIN CONSTRUCTION

EXISTING GROUND

FOR -Y110- PLAN SEE SHT.19

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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RKeus

5/28/99

-SR5-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	185
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 290	
DESIGN FREQUENCY	= 50	
DESIGN HW ELEVATION	= 620.5	
BASE DISCHARGE	= 350	
BASE FREQUENCY	= 100	
BASE HW ELEVATION	= 621.1	
OVERTOPPING DISCHARGE	= 600	
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 628.1	FT

-SR5- STA. 10+16.40
-Y110- STA. 17+19.91
BEGIN GRADE
ELEV. = 633.09'

PI = 12+30.00
EL = 628.34'
VC = 250'
K = 76
DS = 45mph

PI = 16+50.00
EL = 632.92'
VC = 250'
K = 150
DS = 55mph

(-)12.2214%

(+)11.0890%

(-)0.5806%

PROPOSED GRADE

EXISTING GROUND

10'X6' RCBC

PI = 31+00.00
EL = 624.50'
VC = 300'
K = 290
DS = > 80mph

PI = 36+50.00
EL = 627.00'
VC = 150'
K = 124
DS = 55mph

(-)0.5806%

(+)0.4545%

PROPOSED GRADE

EXISTING GROUND

30" RCP

(+)0.4545%

(-)0.7576%

(-) 0.7003%

BEGIN LAT. BASE DITCH RT.
-SR5- STA. 34+35.74
ET = 622.90

FOR -SR5- PLAN SEE SHTS. 19 THRU 21

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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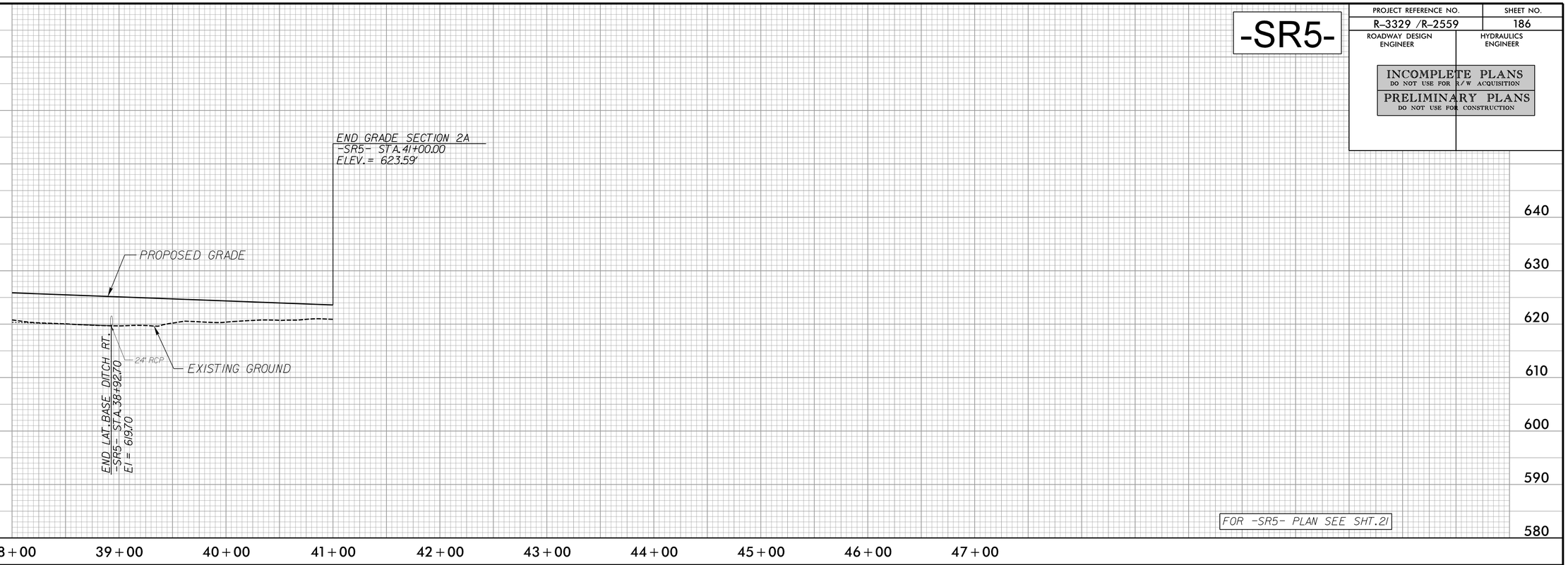
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	186
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

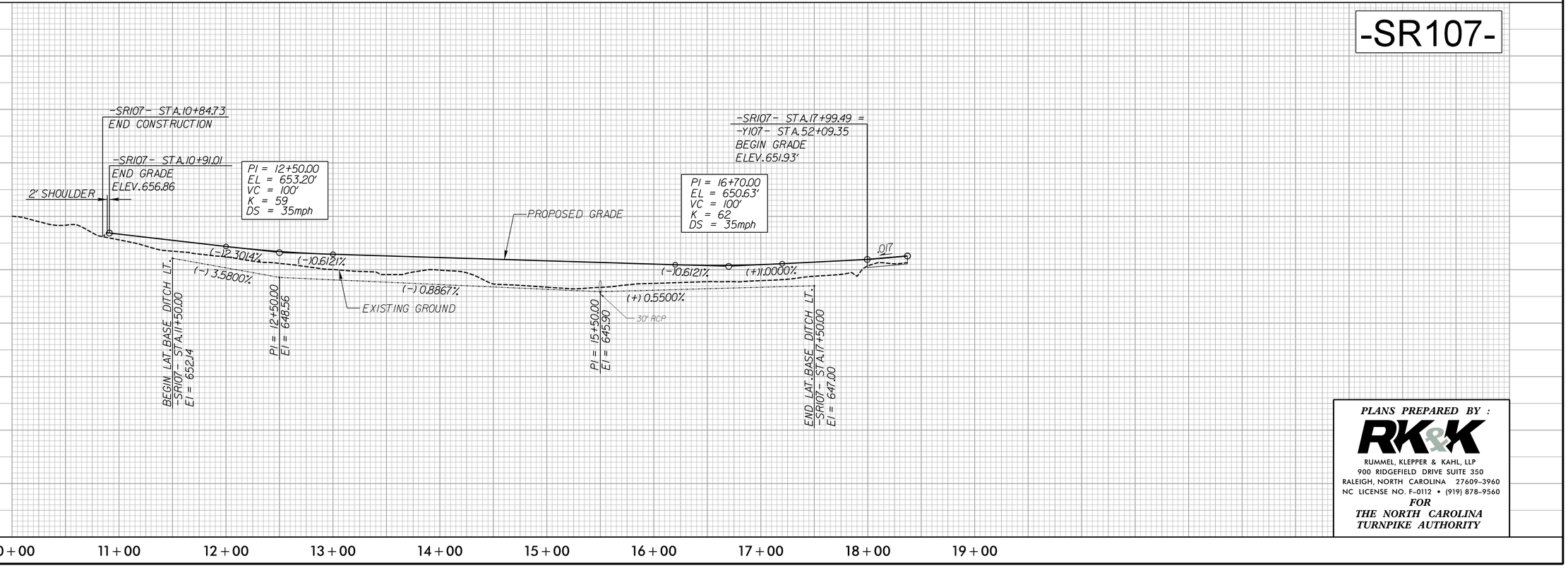
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SR5-



-SR107-



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900 RIDGEFIELD DRIVE SUITE 350
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8/29/2014
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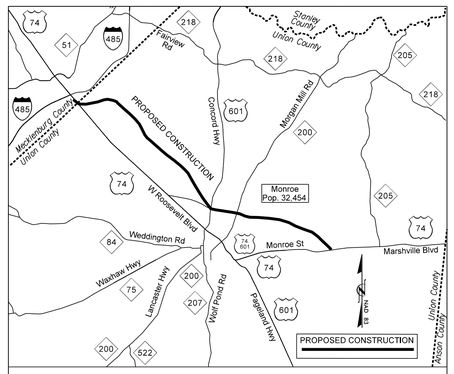
09/08/49

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

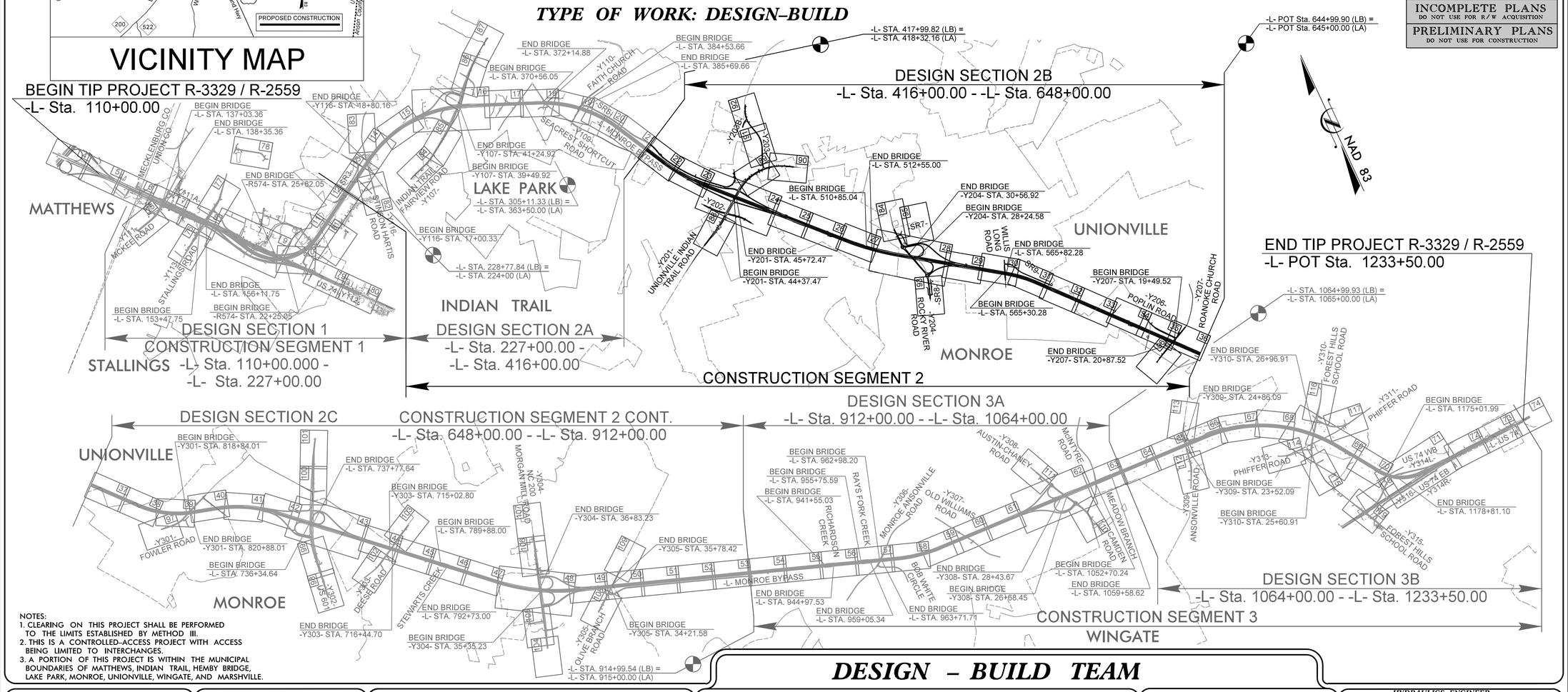
LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD

PERMIT APPLICATION
SUBMITTAL NO. S-099
DATE: 10-01-2014

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

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 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*(TTST 11% +DUAL 7%)
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

NCDOT CONTACT: K. ZAK HAMIDI, PE

DESIGN - BUILD TEAM

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2006 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*
ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

$$$$$$TIME$$$$$
9/30/2014
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default

12/05/11

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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 — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- 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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- 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
- 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 — HH
- 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
- 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
- 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 — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	J2	PROPOSED 8" AGGREGATE BASE COURSE
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.	E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J3	PROPOSED 9" AGGREGATE BASE COURSE
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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	J4	PROPOSED 10" AGGREGATE BASE COURSE
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E4	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J5	PROPOSED VARIABLE DEPTH AGGREGATE BASE COURSE
C5	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.	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" OR GREATER THAN 5.5" IN DEPTH.	K1	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8" OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7"
C6	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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E6	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ YD
C7	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E7	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB & GUTTER
C8	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E8	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R2	1'-6" CONCRETE CURB & GUTTER
C9	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E9	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R3	SHOULDER BERM GUTTER
C10	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS.PER SQ. YD.	E10	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	CONCRETE EXPRESSWAY GUTTER
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E11	PROP. APPROX. 6.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	5" MONOLITHIC CONCRETE ISLAND, KEYED IN
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E12	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.	R6	SINGLE FACED CONCRETE BARRIER
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E13	PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R7	DOUBLE FACED CONCRETE BARRIER (TYPE T, T1, T2)
D4	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 2.5" OR GREATER THAN 4" IN DEPTH.	E14	PROP. APPROX. 10.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R8	RUMBLE STRIPS
D5	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E15	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	S	4" CONCRETE SIDEWALK
D6	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E16	PROP. APPROX. 3.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 199 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
D7	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E17	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT
D8	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 2.5" OR GREATER THAN 4" IN DEPTH.	E18	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" OR GREATER THAN 5.5" IN DEPTH.	V	SPLIT SEAL
D9	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E19	PROP. APPROX. 12.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 712.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W	WEDGING
D10	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	G1	8" CEMENT TREATED AGGREGATE BASE COURSE	Z	NON WOVEN FIBERGLASS/POLYESTER INTERLAYER PAVING MAT
D11	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.	J1	PROPOSED 6" AGGREGATE BASE COURSE		

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
8/27/2014
R:\Roadway\Proj\Plan Sheets\Sec2b\r-3329_r-2559_rdy_typ_2B-2.DGN
Plans

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

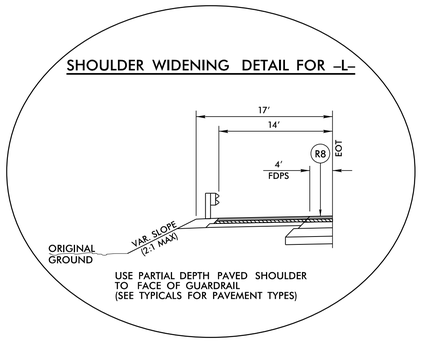
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
C6	VAR. DEPTH S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
D7	3″ I19.0C
D8	VAR. DEPTH I19.0C
E2	4″ B25.0B
E6	3″ B25.0C
E7	4″ B25.0C
E9	5.5″ B25.0C
E18	VAR. DEPTH B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI
T	EARTH
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING

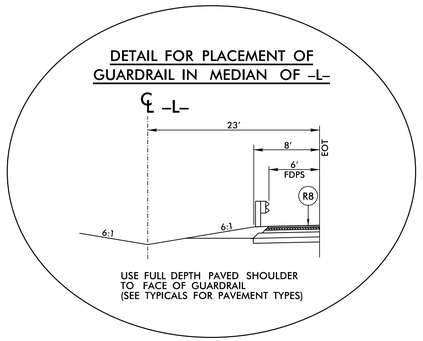
NOTE 1: SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE

SHOULDER WIDENING DETAIL FOR –L–



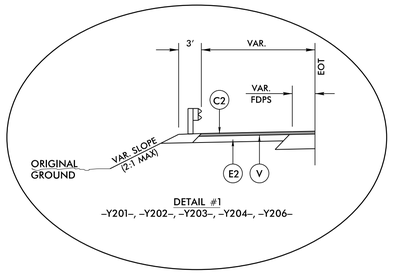
USE PARTIAL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)

DETAIL FOR PLACEMENT OF GUARDRAIL IN MEDIAN OF –L–

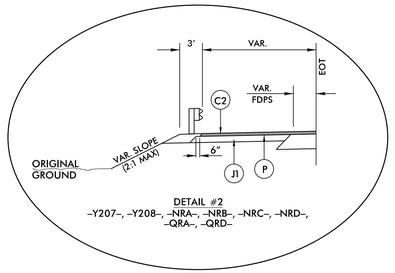


USE FULL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)

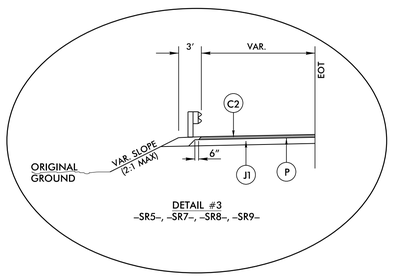
SHOULDER WIDENING DETAILS FOR Y–LINES & RAMPS



DETAIL #1
–Y201–, –Y202–, –Y203–, –Y204–, –Y206–

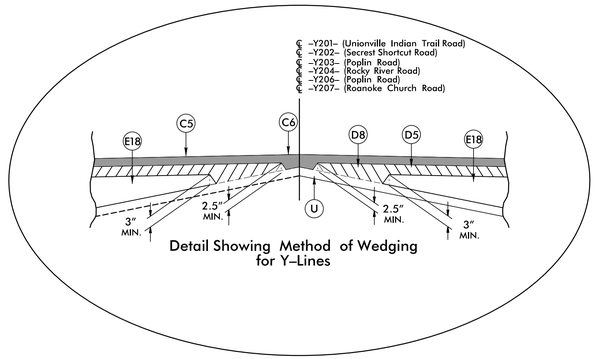


DETAIL #2
–Y207–, –Y208–, –NRA–, –NRB–, –NRC–, –NRD–, –QRA–, –QRD–



DETAIL #3
–SR5–, –SR7–, –SR8–, –SR9–

WEDGING DETAILS



Detail Showing Method of Wedging for Y–Lines

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6/3/2014
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Plans

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

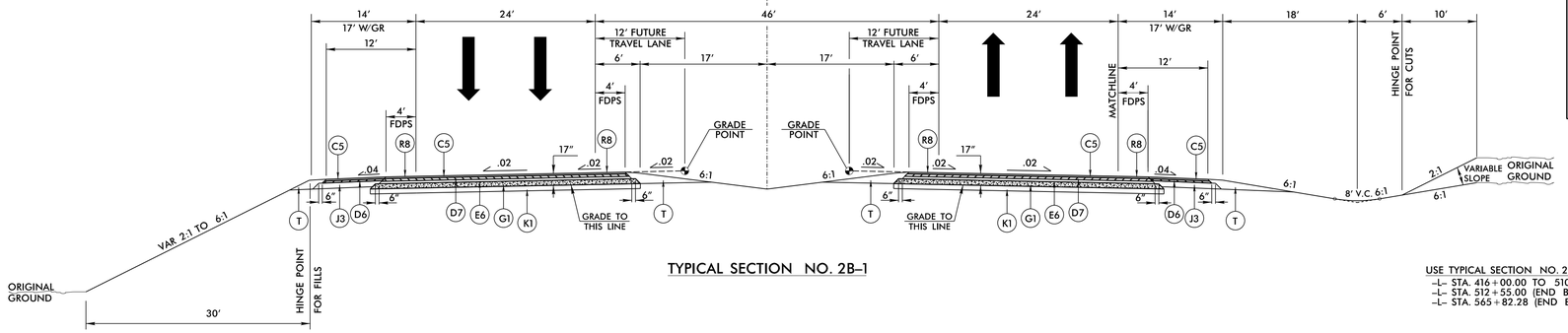
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E3	5″ B25.0B
E6	3″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI, KEYED IN
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

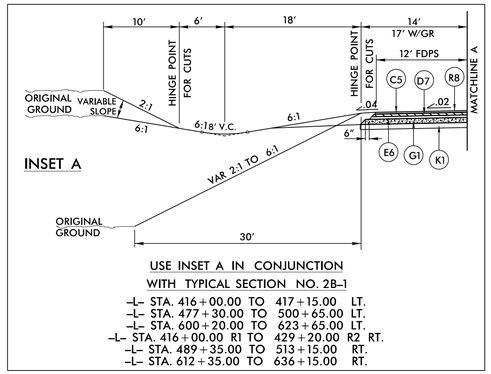
NOTE 1: SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE

℄ –L– (MONROE BYPASS)



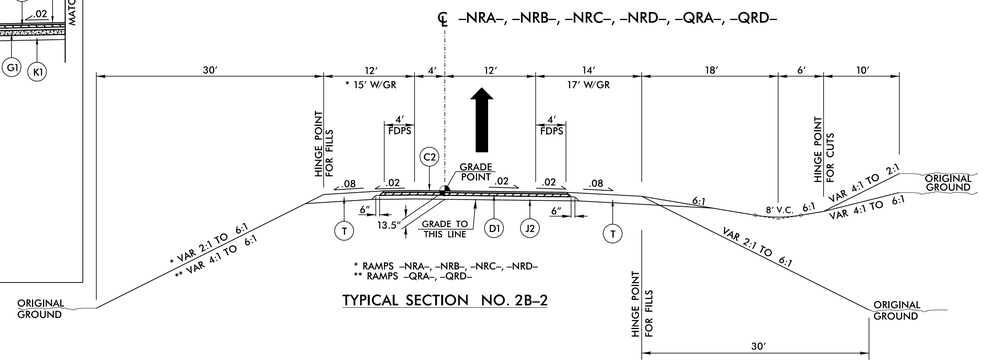
TYPICAL SECTION NO. 2B–1

USE TYPICAL SECTION NO. 2B–1
–L– STA. 416+00.00 TO 510+85.04 (BEGIN BRIDGE)
–L– STA. 512+55.00 (END BRIDGE) TO 565+30.28 (BEGIN BRIDGE)
–L– STA. 565+82.28 (END BRIDGE) TO 648+00.00



USE INSET A IN CONJUNCTION WITH TYPICAL SECTION NO. 2B–1
–L– STA. 416+00.00 TO 417+15.00 LT.
–L– STA. 477+30.00 TO 500+65.00 LT.
–L– STA. 600+20.00 TO 623+65.00 LT.
–L– STA. 416+00.00 R1 TO 429+20.00 R2 RT.
–L– STA. 489+35.00 TO 513+15.00 RT.
–L– STA. 612+35.00 TO 636+15.00 RT.

℄ –NRA–, –NRB–, –NRC–, –NRD–, –QRA–, –QRD–



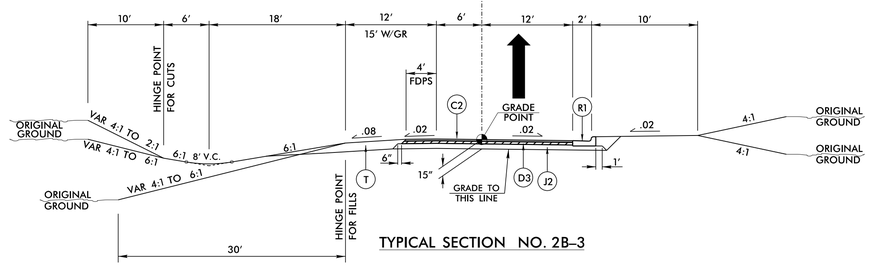
* RAMPS –NRA–, –NRB–, –NRC–, –NRD–
** RAMPS –QRA–, –QRD–

TYPICAL SECTION NO. 2B–2

USE TYPICAL SECTION NO. 2B–2
–NRA– STA. 10+00.00 TO 28+59.68
–NRB– STA. 10+00.00 TO 33+82.95
–NRC– STA. 10+00.00 TO 29+49.79
–NRD– STA. 10+00.00 TO 31+44.73
–QRA– STA. 10+64.07 TO 37+46.65
–QRD– STA. 10+81.79 TO 23+38.66

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–NRA– STA. 10+00.00 TO 15+86.16
–NRB– STA. 10+00.00 TO 20+28.09
–NRC– STA. 10+00.00 TO 14+70.08
–NRD– STA. 10+00.00 TO 18+00.00
–QRA– STA. 31+80.32 TO 37+46.65
–QRD– STA. 19+59.61 TO 23+38.66

℄ –QLA– & –QLD–



TYPICAL SECTION NO. 2B–3

USE TYPICAL SECTION NO. 2B–3
–QLA– STA. 10+00.00 TO 24+00.00
–QLD– STA. 10+00.00 TO 17+86.37

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–QLA– STA. 10+00.00 TO 12+16.42
–QLD– STA. 10+00.00 TO 12+59.27

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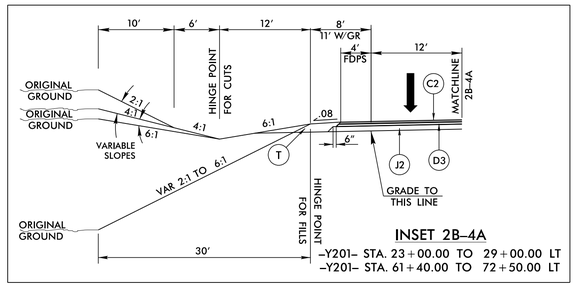
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

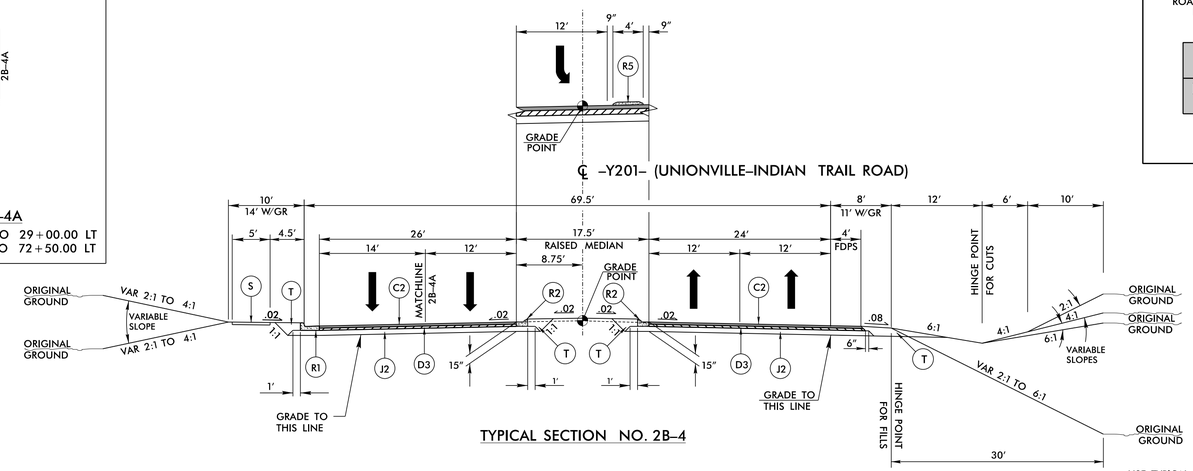
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E3	5″ B25.0B
E6	3″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI, KEYED IN
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTE 1: SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE



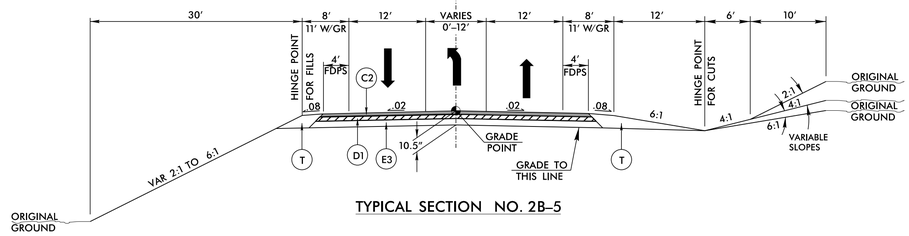
INSET 2B–4A
–Y201– STA. 23+00.00 TO 29+00.00 LT
–Y201– STA. 61+40.00 TO 72+50.00 LT



TYPICAL SECTION NO. 2B–4

USE TYPICAL SECTION NO. 2B–4
–Y201– STA. 23+00.00 TO 44+37.47 (BEGIN BRIDGE)
–Y201– STA. 45+72.47 (END BRIDGE) TO 72+50.00

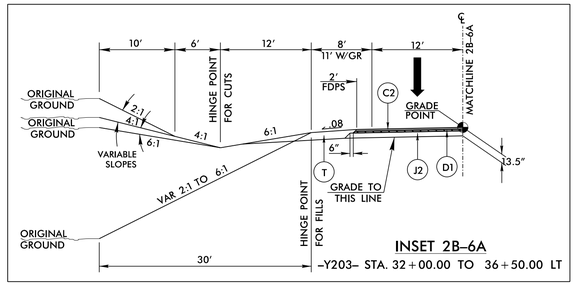
NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–4 AT THE FOLLOWING LOCATIONS:
–Y201– STA. 22+50.00 TO 23+00.00
–Y201– STA. 72+50.00 TO 73+00.00



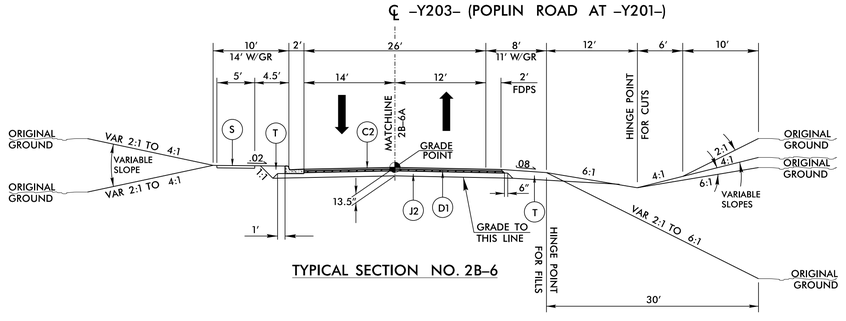
TYPICAL SECTION NO. 2B–5

USE TYPICAL SECTION NO. 2B–5
–Y202– STA. 9+50.00 TO 28+66.54

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–5 AT THE FOLLOWING LOCATIONS:
–Y202– STA. 9+00.00 TO 9+50.00
–Y202– STA. 29+15.64 TO 29+65.64



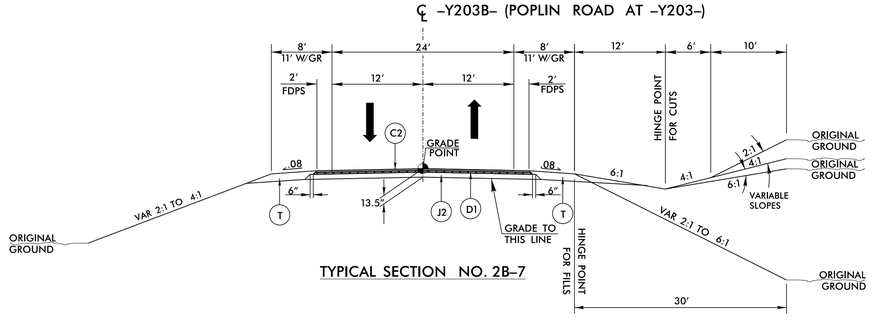
INSET 2B–6A
–Y203– STA. 32+00.00 TO 36+50.00 LT



TYPICAL SECTION NO. 2B–6

USE TYPICAL SECTION NO. 2B–6
–Y203– STA. 10+18.92 TO 36+50.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–6 AT THE FOLLOWING LOCATIONS:
–Y203– STA. 36+50.00 TO 37+00.00



TYPICAL SECTION NO. 2B–7

USE TYPICAL SECTION NO. 2B–7
–Y203B– STA. 10+14.08 TO 13+25

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–7 AT THE FOLLOWING LOCATIONS:
–Y203B– STA. 13+25 TO 13+50.00

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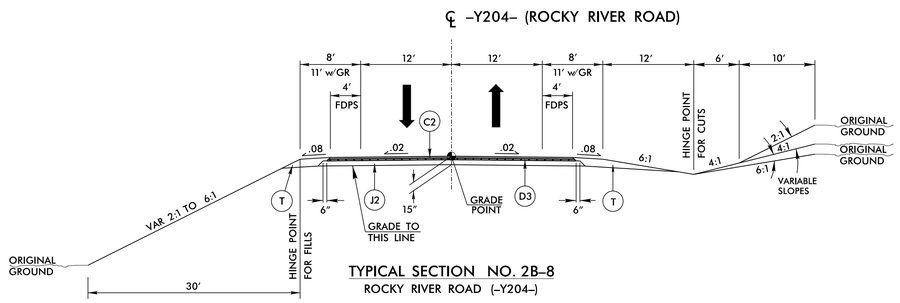
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E3	5″ B25.0B
E6	3″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI, KEYED IN
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

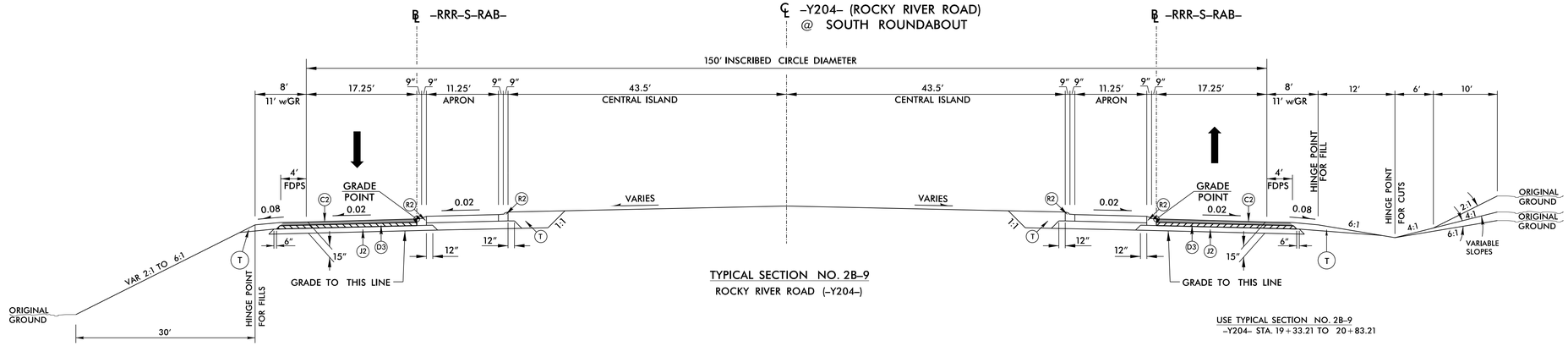
NOTE 1: SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE



TYPICAL SECTION NO. 2B–8
ROCKY RIVER ROAD (–Y204–)

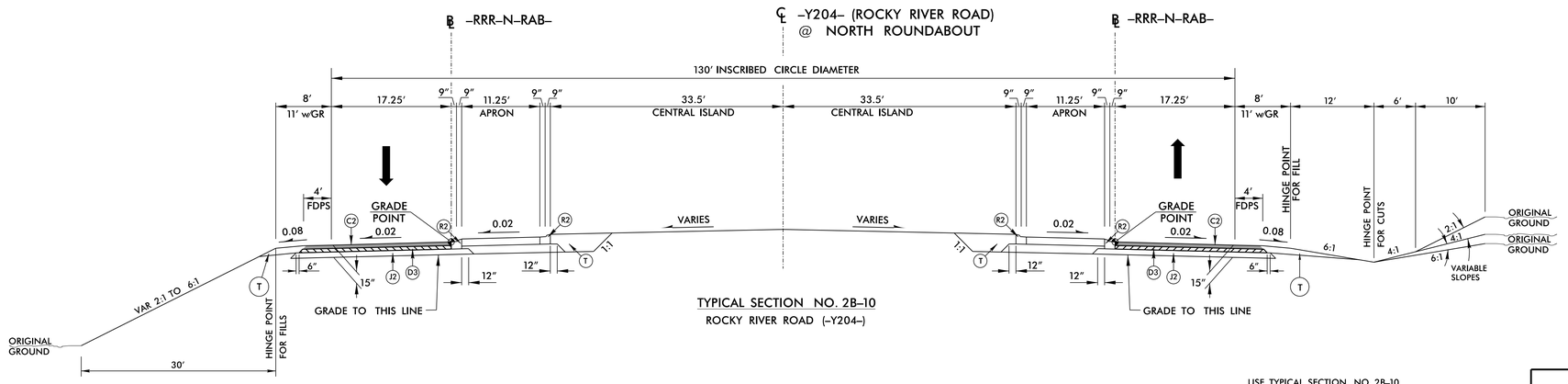
USE TYPICAL SECTION NO. 2B–8
–Y204– STA. 11+25.00 TO 28+24.58 (BEGIN BRIDGE)
STA. 30+56.92 (END BRIDGE) TO 42+03.73

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–8 AT THE FOLLOWING LOCATIONS:
–Y204– STA. 10+75.00 TO 11+25.00
–Y204– STA. 42+03.73 TO 42+53.72



TYPICAL SECTION NO. 2B–9
ROCKY RIVER ROAD (–Y204–)

USE TYPICAL SECTION NO. 2B–9
–Y204– STA. 19+33.21 TO 20+83.21



TYPICAL SECTION NO. 2B–10
ROCKY RIVER ROAD (–Y204–)

USE TYPICAL SECTION NO. 2B–10
–Y204– STA. 34+07.59 TO 35+37.59

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2F
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

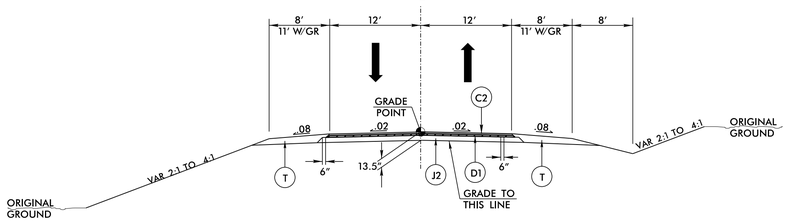
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E3	5″ B25.0B
E6	3″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI, KEYED IN
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTE 1: SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE

℄ –Y206 (POPLIN ROAD AT –Y207–)

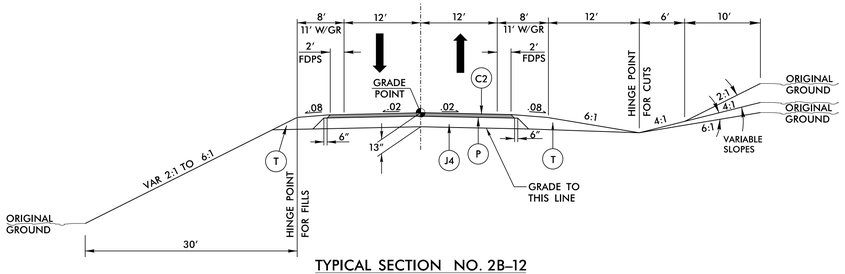


TYPICAL SECTION NO. 2B–11

USE TYPICAL SECTION NO. 2B–9
–Y206– STA. 10+12.38 TO 26+50.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–9 AT THE FOLLOWING LOCATIONS:
–Y206– STA. 26+50.00 TO 27+00.00

℄ –Y207– (ROANOKE CHURCH ROAD)

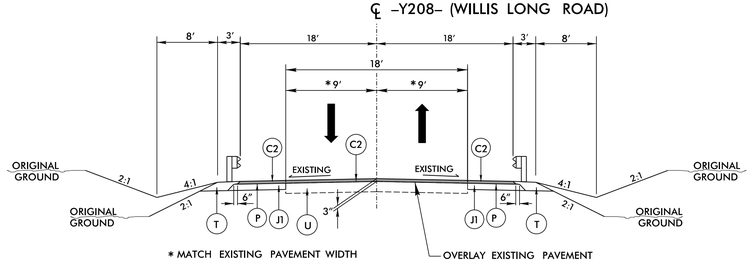


TYPICAL SECTION NO. 2B–12

USE TYPICAL SECTION NO. 2B–10
–Y207– STA. 12+00.00 TO 19+49.52 (BEGIN BRIDGE)
STA. 20+87.52 (END BRIDGE) TO 27+46.27

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–10 AT THE FOLLOWING LOCATIONS:
–Y207– STA. 11+50.00 TO 12+00.00
–Y207– STA. 27+46.27 TO 27.96.27

℄ –Y208– (WILLIS LONG ROAD)



TYPICAL SECTION NO. 2B–13

USE TYPICAL SECTION NO. 2B–11
–Y208– STA. 13+25.00 TO 19+50.00

TRANSITION TO EXISTING
STA. 12+75.00 TO 13.25.00
STA 19+50.00 TO 20+20.00

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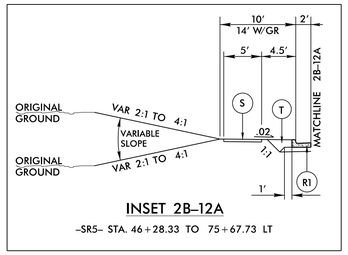
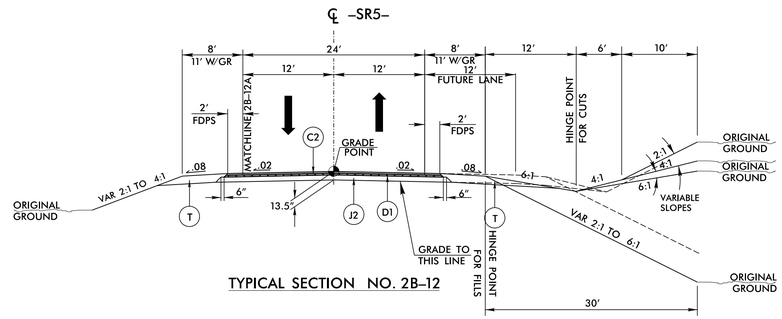
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E3	5″ B25.0B
E6	3″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI, KEYED IN
S	4″ CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTE 1: SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE



INSET 2B–12A

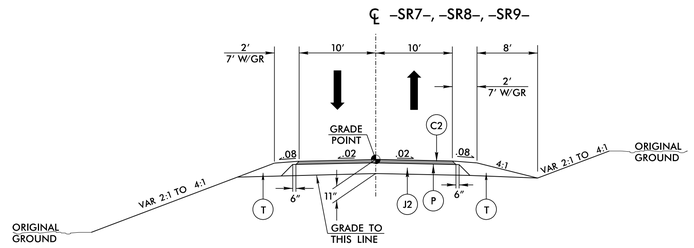
–SR5– STA. 46+28.33 TO 75+67.73 LT



TYPICAL SECTION NO. 2B–12

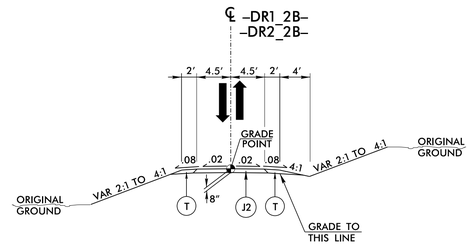
USE TYPICAL SECTION NO. 2B–12
–SR5– STA. 41+00.00 TO 82+75.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2B–12 AT THE FOLLOWING LOCATION:
–SR5– STA. 82+75.00 TO 83+00.00



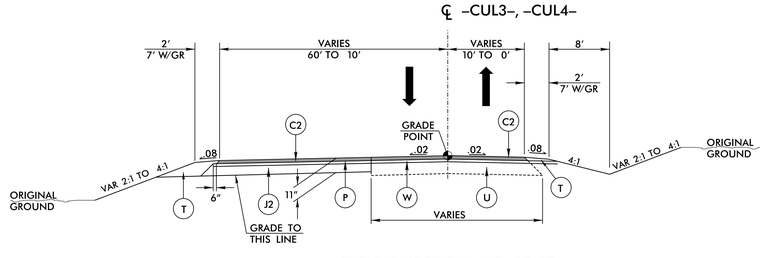
TYPICAL SECTION NO. 2B–13

USE TYPICAL SECTION NO. 2B–13
–SR7– STA. 10+12.17 TO STA. 22+03.00
–SR8– STA. 10+12.00 TO STA. 16+64.24
–SR9– STA. 10+18.90 TO STA. 30+44.72



TYPICAL SECTION NO. 2B–14

USE TYPICAL SECTION NO. 2B–14
–DR1_2B– STA. 10+18.82 TO STA. 11+55.73
–DR2_2B– STA. 10+19.48 TO STA. 13+70.95



TYPICAL SECTION NO. 2B–15

USE TYPICAL SECTION NO. 2B–15
–CUL3– STA. 11+35.00 TO STA. 12+54.72
–CUL4– STA. 14+34.82 TO STA. 15+55.16

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-26
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
6/2/2014
R:\R-3329\Proj\Plan Sheets\Sec2b\r-3329_r-2559_rdy_typ_2B-2F.DGN
kkeus

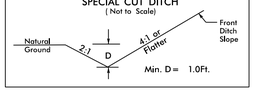
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2H
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

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

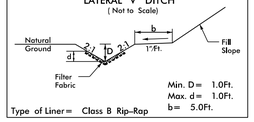


–L– STA. 424+50 TO STA. 426+00 LT
–L– STA. 441+00 TO STA. 454+00 RT
–L– STA. 442+50 TO STA. 444+50 LT
–L–/–NRB– STA. 449+00 TO STA. 450+00 LT
–L– STA. 463+50 TO STA. 469+00 RT
–L– STA. 465+50 TO STA. 469+00 LT
–L– STA. 494+75 TO STA. 496+00 LT
–L– STA. 496+50 TO STA. 497+50 RT
–L– STA. 531+00 TO STA. 534+00 RT
–L– STA. 532+00 TO STA. 536+00 LT
–L– STA. 539+00 TO STA. 543+00 LT
–L– STA. 539+00 TO STA. 542+50 RT
–L– STA. 545+50 TO STA. 550+00 LT
–L– STA. 575+00 TO STA. 576+00 RT
–L– STA. 583+00 TO STA. 585+00 LT
–L– STA. 582+50 TO STA. 584+00 RT
–L– STA. 588+00 TO STA. 590+50 RT
–L– STA. 592+50 TO STA. 595+00 LT
–L– STA. 593+00 TO STA. 595+50 RT
–L– STA. 598+00 TO STA. 598+68 RT
–L– STA. 599+50 TO STA. 600+00 RT
–L– STA. 605+45 TO STA. 612+00 RT
–L– STA. 606+20 TO STA. 612+00 LT
–L– STA. 618+50 TO STA. 620+00 LT
–L– STA. 618+50 TO STA. 619+50 RT
–L– STA. 634+50 TO STA. 635+50 LT
–L– STA. 634+50 TO STA. 635+50 RT
–QRA– STA. 17+50 TO STA. 20+50 LT
–QRA– STA. 19+50 TO STA. 20+00 RT
–QRA– STA. 25+50 TO STA. 28+00 LT
–QLD– STA. 10+10 TO STA. 12+12 RT
–QLD– STA. 16+85 TO STA. 17+35 RT
–QRD– STA. 15+00 TO STA. 19+00 RT
–SR5– STA. 44+14 TO STA. 47+21 RT
–SR5– STA. 79+00 TO STA. 83+25 RT
–SR5– STA. 79+00 TO STA. 82+95 LT
–SR7– STA. 13+23 TO STA. 15+50 RT
–SR8– STA. 10+50 TO STA. 15+42 LT
–Y201– STA. 22+11 TO STA. 26+50 RT
–Y201– STA. 52+00 TO STA. 54+00 RT
–Y201– STA. 66+50 TO STA. 73+26 LT
–Y201– STA. 72+50 TO STA. 73+08 RT
–Y202– STA. 8+83 TO STA. 9+50 RT
–Y202– STA. 8+90 TO STA. 9+50 LT
–Y202– STA. 13+50 TO STA. 15+00 LT
–Y202– STA. 19+00 TO STA. 21+00 RT
–Y202– STA. 19+50 TO STA. 21+00 LT
–Y202– STA. 23+00 TO STA. 24+00 RT
–Y202– STA. 28+00 TO STA. 29+70 RT
–Y202– STA. 28+75 TO STA. 29+75 LT
–Y203– STA. 18+00 TO STA. 19+50 RT
–Y203– STA. 23+50 TO STA. 29+50 RT
–Y203– STA. 35+00 TO STA. 36+92 RT
–Y203– STA. 35+00 TO STA. 37+03 LT
–Y203B– STA. 12+50 TO STA. 13+64 LT
–Y203B– STA. 12+25 TO STA. 13+40 RT
–Y204– STA. 11+00 TO STA. 12+00 RT
–Y204– STA. 12+50 TO STA. 15+50 RT
–Y204– STA. 15+50 TO STA. 18+00 LT
–Y204– STA. 42+00 TO STA. 43+04 RT
–Y204– STA. 42+00 TO STA. 42+84 LT
–Y208– STA. 13+00 TO STA. 14+25 RT
–Y208– STA. 17+00 TO STA. 18+00 RT
–Y204_DET– STA. 20+34.66 TO STA. 21+84.66 RT

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

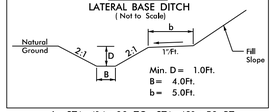
–L– STA. 431+50 TO STA. 433+62 RT
–L– STA. 513+00 TO STA. 515+00 RT
–L– STA. 558+00 TO STA. 559+10 RT
–L– STA. 566+50 TO STA. 569+50 RT
–L– STA. 566+50 TO STA. 572+00 LT
–L– STA. 573+00 TO STA. 575+00 RT
–L– STA. 584+50 TO STA. 586+00 RT
–L– STA. 590+50 TO STA. 593+00 RT
–L– STA. 591+18 TO STA. 591+70 LT
–L– STA. 604+25 TO STA. 605+45 RT
–L– STA. 605+00 TO STA. 606+20 LT
–L– STA. 612+00 TO STA. 614+00 RT
–L– STA. 614+03 TO STA. 615+00 LT
–L– STA. 638+37 TO STA. 639+50 RT
–QRA– STA. 20+50 TO STA. 25+50 LT
–QRA– STA. 28+00 TO STA. 28+76 LT
–QRD– STA. 19+00 TO STA. 19+71 LT
–QRD– STA. 19+00 TO STA. 19+41 RT
–SR5– STA. 78+25 TO STA. 79+00 LT
–SR9– STA. 15+00 TO STA. 19+10 RT
–SR9– STA. 15+66 TO STA. 18+59 LT
–Y201– STA. 26+75 TO STA. 27+50 RT
–Y201– STA. 48+50 TO STA. 48+87 LT
–Y202– STA. 17+00 TO STA. 17+85 LT
–Y203– STA. 15+67 TO STA. 18+00 RT
–Y204– STA. 36+00 TO STA. 39+00 RT
–Y207– STA. 14+00 TO STA. 15+00 LT

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



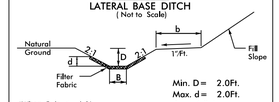
DETAIL C NOT USED IN SECTION 2B

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



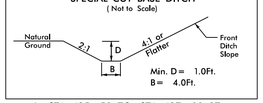
–L– STA. 414+00 TO STA. 431+50 RT
–L– STA. 437+00 TO STA. 444+00 RT
–L– STA. 473+50 TO STA. 474+62 LT
–L– STA. 476+00 TO STA. 488+00 LT
–L– STA. 515+00 TO STA. 516+12 RT
–L– STA. 519+25 TO STA. 524+00 RT
–L– STA. 524+50 TO STA. 525+00 LT
–L– STA. 536+00 TO STA. 539+00 LT
–L– STA. 537+86 TO STA. 539+00 RT
–L– STA. 553+93 TO STA. 554+50 RT
–L– STA. 554+50 TO STA. 556+00 LT
–L– STA. 555+50 TO STA. 558+00 RT
–L– STA. 559+10 TO STA. 562+32 RT
–L– STA. 560+00 TO STA. 561+61 LT
–L– STA. 584+00 TO STA. 586+00 RT
–L– STA. 598+00 TO STA. 600+20 LT
–L– STA. 613+05 TO STA. 614+03 LT
–L– STA. 619+50 TO STA. 621+50 RT
–L– STA. 620+50 TO STA. 624+50 LT
–L– STA. 628+00 TO STA. 632+50 RT
–L– STA. 631+50 TO STA. 633+50 LT
–L– STA. 637+70 TO STA. 640+00 LT
–NRD– STA. 29+50 TO STA. 30+90 RT
–QLA– STA. 12+05 TO STA. 16+50 LT
–QRA– STA. 20+00 TO STA. 24+46 RT
–QRD– STA. 19+71 TO STA. 20+50 LT
–SR5– STA. 76+85 TO STA. 78+50 RT
–Y201– STA. 28+50 TO STA. 34+75 LT
–Y201– STA. 48+50 TO STA. 52+00 RT
–Y201– STA. 48+87 TO STA. 50+00 LT
–Y203– STA. 10+70 TO STA. 18+00 LT
–Y204– STA. 23+50 TO STA. 25+99 RT
–Y206– STA. 15+50 TO STA. 17+50 LT
–Y207– STA. 15+00 TO STA. 18+84 LT
–Y207– STA. 17+00 TO STA. 19+50 RT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)

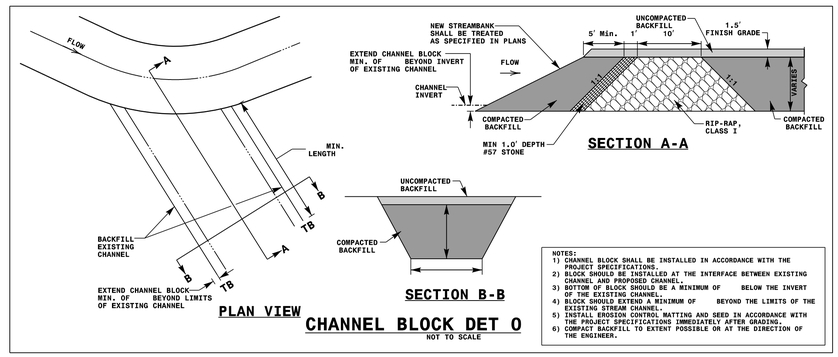


–L– STA. 433+62 TO STA. 435+50 RT
–L– STA. 444+00 TO STA. 445+50 RT
–L– STA. 474+62 TO STA. 476+00 LT
–L– STA. 477+00 TO STA. 484+00 RT
–L– STA. 524+00 TO STA. 525+50 RT
–L– STA. 585+50 TO STA. 587+75 LT
–L– STA. 637+00 TO STA. 638+37 RT
–SR5– STA. 55+75 TO STA. 57+06 LT
–Y206– STA. 24+67 TO STA. 25+50 LT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



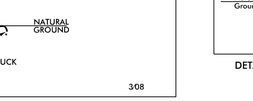
–L– STA. 435+50 TO STA. 437+00 RT
–L– STA. 470+50 TO STA. 473+50 LT
–L– STA. 472+50 TO STA. 477+00 RT
–L– STA. 554+50 TO STA. 555+50 RT
–SR5– STA. 78+50 TO STA. 79+00 RT
–Y201– STA. 21+90 TO STA. 28+50 LT
–Y203B– STA. 10+50 TO STA. 12+50 LT
–Y206– STA. 25+50 TO STA. 27+16 LT



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 BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 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.

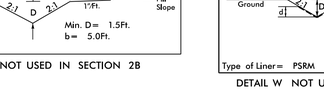
–L2B– STA. 477+43 RT

DETAIL H
TOE PROTECTION
(Not to Scale)



DETAIL H NOT USED IN SECTION 2B

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)

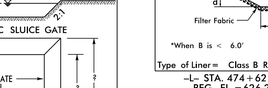


–L– STA. 453+50 TO STA. 455+00 MED
–L– STA. 490+00 TO STA. 491+00 MED
–L– STA. 530+00 TO STA. 532+50 MED
–L– STA. 583+00 TO STA. 585+00 MED
–L– STA. 588+00 TO STA. 592+50 MED
–L– STA. 608+50 TO STA. 610+50 MED
–L– STA. 618+50 TO STA. 622+50 MED
–L– STA. 634+50 TO STA. 635+50 MED

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)

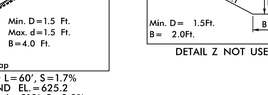
–Y204– STA. 13+50 RT; L=22', S=4.5%
BEG EL.=642.0, END EL.=641.0
–Y204– STA. 17+00 TO STA. 17+24 RT
L=38', S=2.1%, BEG EL.=643.8, END EL.=643.0
–SR5– STA. 64+88 LT; L=110', S=0.8%
BEG EL.=637.9, END EL.=637.0
–SR8– STA. 16+28 TO STA. 16+57 RT
L=54', S=2.4%, BEG EL.=645.3, END EL.=644.0

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



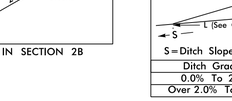
–Y202– STA. 14+15 LT; L=100', S=2.5%
BEG EL.=646.9, END EL.=644.4
–Y202– STA. 14+20 RT; L=273', S=0.3%
BEG EL.=644.0, END EL.=643.3
–Y202– STA. 28+75 LT, L=100', S=0.5%
BEG EL.=651.7, END EL.=651.2
–Y202– STA. 28+75 RT, L=100', S=6.1%
BEG EL.=658.1 END EL.=652.0
–L– STA. 629+50 LT; L=80', S=4.2%
BEG EL.=592.4, END EL.=589.0
–L– STA. 631+50 LT; L=55', S=2.9%
BEG EL.=590.8, END EL.=589.2
–Y201– 26+75 RT, L=115', S=0.3%
BEG EL.=634.4, END EL.=634.1
–L– STA. 556+00 LT; L=230', S=0.4%
BEG EL.=622.9, END EL.=622.0
–L– STA. 569+25 LT TO –SR9– 15+75 RT;
L=105', S=1.7%, BEG EL.=616.5, END EL.=614.5
–QRA– STA. 28+76 TO STA. 28+82 LT
L=18', S=0.6%, BEG EL.=621.0, END EL.=620.9
–SR5– STA. 78+25 LT; L=198', S=0.7%
BEG EL.=639.3, END EL.=638.0
–L– STA. 553+12 RT; L=112', S=6.6%
BEG EL.=631.7, END EL.=624.3

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



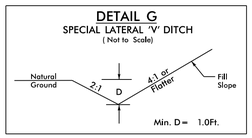
DETAIL L NOT USED IN SECTION 2B

DETAIL M
BERM DITCH
(Not to Scale)



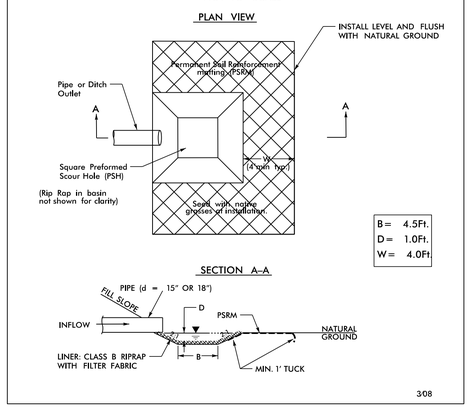
–L– STA. 615+00 TO STA. 618+00 RT
–L– STA. 532+00 TO STA. 534+40 RT

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



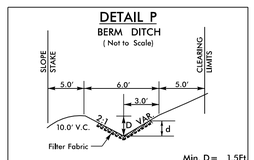
–Y208– STA. 18+00 TO STA. 19+00 RT

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE



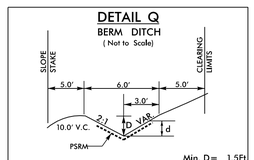
–L– STA. 426+00 LT
–L– STA. 484+95 RT

DETAIL P
BERM DITCH
(Not to Scale)



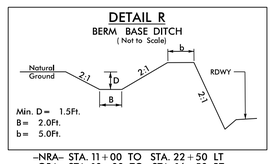
DETAIL P NOT USED IN SECTION 2B

DETAIL Q
BERM DITCH
(Not to Scale)



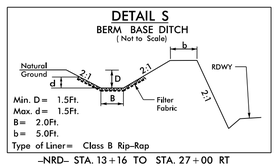
DETAIL Q NOT USED IN SECTION 2B

DETAIL R
BERM BASE DITCH
(Not to Scale)



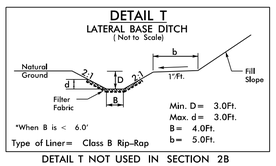
–NRA– STA. 11+00 TO STA. 22+50 LT
–QRA– STA. 10+00 TO STA. 16+50 RT
–L– STA. 550+50 TO STA. 551+25 LT
–L– STA. 547+00 TO STA. 553+93 RT

DETAIL S
BERM BASE DITCH
(Not to Scale)



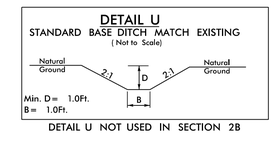
–NRD– STA. 13+16 TO STA. 27+00 RT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)



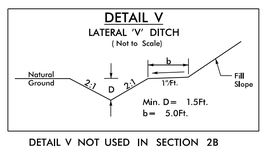
DETAIL T NOT USED IN SECTION 2B

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



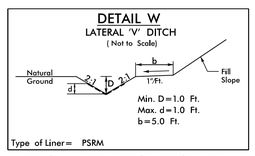
DETAIL U NOT USED IN SECTION 2B

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



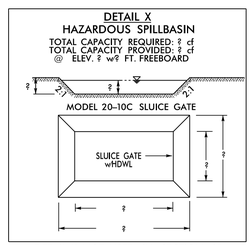
DETAIL V NOT USED IN SECTION 2B

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



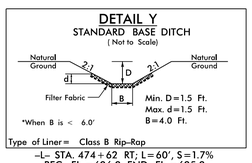
DETAIL W NOT USED IN SECTION 2B

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



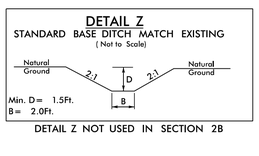
DETAIL X NOT USED IN SECTION 2B

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



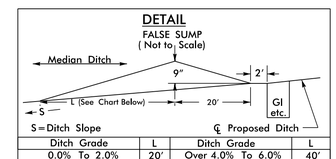
–L– STA. 474+62 RT; L=60', S=1.7%
BEG EL.=626.2, END EL.=625.2
–QRA– STA. 24+46 RT; L=218', S=2.3%
BEG EL.=620.9, END EL.=615.8
–Y201– STA. 28+15 LT, L=100', S=5.9%
BEG EL.=640.7, END EL.=634.8
–Y201– STA. 48+25 LT; L=196', S=3.2%
BEG EL.=646.0, END EL.=639.8

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



DETAIL Z NOT USED IN SECTION 2B

DETAIL
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'

9/29/2014
File: I:\Hydraulics\CADD\R3329_R2559_HYD_DitchDet_Sec02B.dgn
Pickett

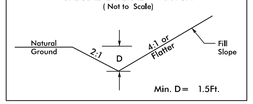
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

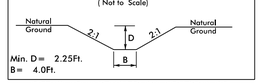
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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



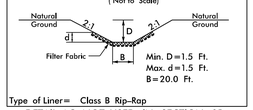
DETAIL AA NOT USED IN SECTION 2B

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



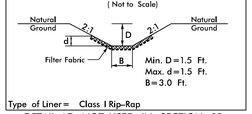
DETAIL AB NOT USED IN SECTION 2B

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



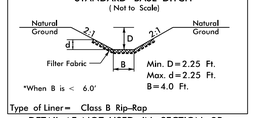
DETAIL AC NOT USED IN SECTION 2B

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



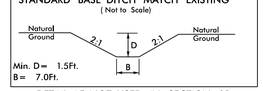
DETAIL AD NOT USED IN SECTION 2B

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



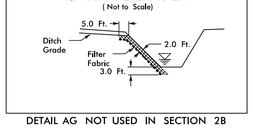
DETAIL AE NOT USED IN SECTION 2B

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



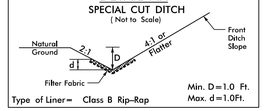
DETAIL AF NOT USED IN SECTION 2B

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



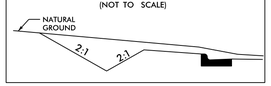
DETAIL AG NOT USED IN SECTION 2B

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



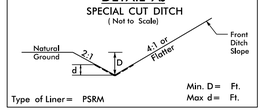
DETAIL AH NOT USED IN SECTION 2B

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



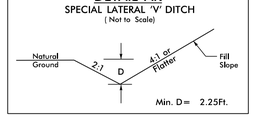
-QLD- STA. 12+12 TO STA. 16+85 RT
-Y203- STA. 18+00 TO STA. 30+00 LT

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



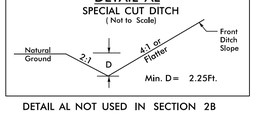
DETAIL AJ NOT USED IN SECTION 2B

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



DETAIL AK NOT USED IN SECTION 2B

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



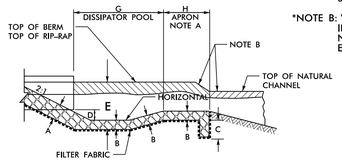
DETAIL AL NOT USED IN SECTION 2B

DETAIL AN
RIP-RAPPED ENERGY DISSIPATOR BASIN

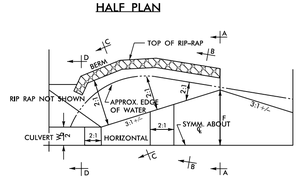
*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

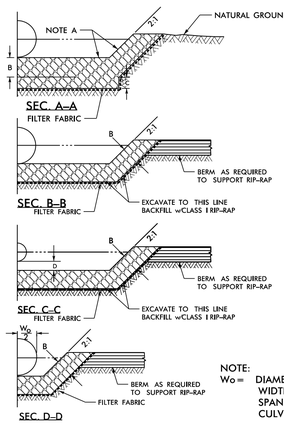
*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

℄ SECTION



HALF PLAN





NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE-ARCH CULVERTS

DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

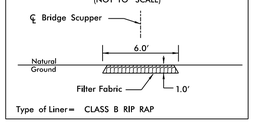
BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

*ALL DIMENSIONS APPROXIMATE IN FEET

5/05

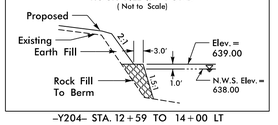
DETAIL AN NOT USED IN SECTION 2B

DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)



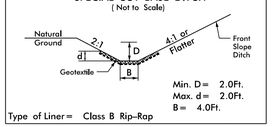
FROM STA. 511+14 TO STA. 511+50 RT.
CL. B RIP RAP=15 TONS, FF=25 SY
STA. 511+90 TO STA. 512+30 RT.
CL. B RIP RAP=13 TONS, FF=23 SY

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



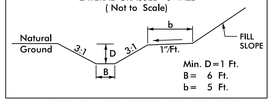
-Y204- STA. 12+59 TO 14+00 LT

DETAIL AP
SPECIAL CUT BASE DITCH
(Not to Scale)



DETAIL AP NOT USED IN SECTION 2B

DETAIL AQ
LATERAL GRASSED SWALE
(Not to Scale)



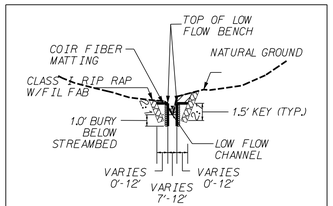
-L2B- STA. 499+00 TO STA. 511+61 LT
-L2B- STA. 515+00 TO STA. 517+00 LT
-L2B- STA. 524+50 TO STA. 526+00 LT
-Y204- STA. 32+00 TO STA. 33+50 LT

DETAIL AR
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)

Class I Rip Rap

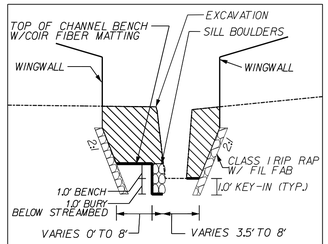
-L2B- STA. 432+80 LT, L=22', d=2.1'
-L2B- STA. 483+95 RT, L=18', d=1.2'
-L2B- STA. 591+18 LT, L=20', d=2.1'
-L2B- STA. 605+82 LT, L=24', d=2.6'

UT TO NORTH FORK CROOKED CREEK -L- STA. 424+11.5



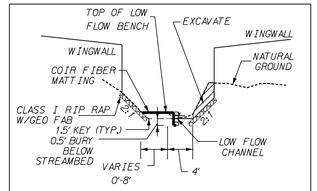
CULVERT INLET DETAIL (NTS)
LENGTH=65'

UT TO SOUTH FORK CROOKED CREEK -L- STA. 515+45



CULVERT INLET DETAIL (NTS)
LENGTH=21'

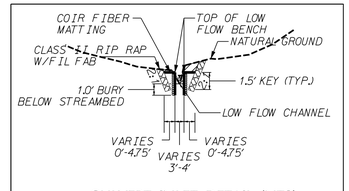
UT TO EAST FORK STEWARTS CREEK -L- STA. 586+22



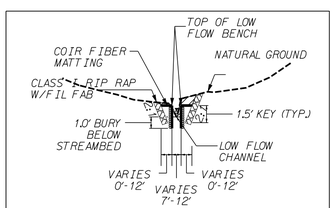
ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT INLET DETAIL (NTS)
LENGTH=66'

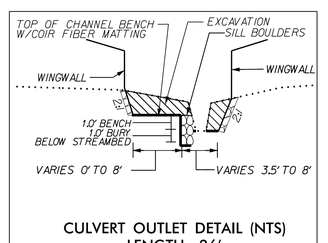
UT TO EAST FORK STEWARTS CREEK -L- STA. 613+68



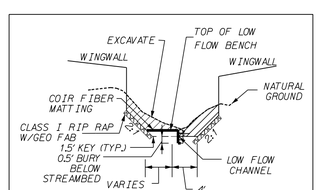
CULVERT INLET DETAIL (NTS)
LENGTH=25'



CULVERT OUTLET DETAIL (NTS)
LENGTH=57'

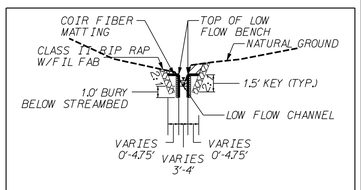


CULVERT OUTLET DETAIL (NTS)
LENGTH=26'



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH=93'



CULVERT OUTLET DETAIL (NTS)
LENGTH=23'

9/30/2014
R:\Hydraulics\CADD\R3329_R2559_HYD_DitchDet_Sec02B.dgn
FEGRUS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2B-2L
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

DETOUR PLAN

NAD 83

-Y204DET- POT Sta. 10+00.00

-Y204DET- PC Sta. 11+46.18

-Y204DET- PT Sta. 13+02.72

-Y204DET- PC Sta. 19+72.58

-Y204DET- PCC Sta. 22+10.59

-Y204DET- PT Sta. 23+51.77

-Y204DET- END CONSTRUCTION - POC Sta. 21+45.78

BEGIN CONSTRUCTION
-Y204DET- POC Sta. 12+04.35

10+00

15+00

20+00

N 16° 17' 34.2" W

N 11° 18' 35.3" W

GRADE TO DRAIN

SPECIAL CUT DITCH
SEE DETAIL A

DET 01

DET 02

25.00' TYP.

-Y204DET-

PI Sta 20+88.12	PI Sta 22+76.75
△ = 18° 44' 40.8" (RT)	△ = 6° 08' 45.9" (RT)
D = 8° 11' 06.4"	D = 4° 05' 33.2"
L = 229.01'	L = 150.18'
T = 115.54'	T = 75.16'
R = 700.00'	R = 1,400.00'
DS = 45 mph	DS = 45 mph
e = 0.06	e = 0.06

PI Sta 12+24.50
△ = 4° 58' 58.9" (RT)
D = 3° 10' 59.2"
L = 156.55'
T = 78.32'
R = 1,800.00'
DS = 45 mph
e = 0.06

FOR -Y204- ROADWAY SEE SHT. 28, 93, 94

PROPOSED GRADE

EXISTING GROUND

-Y204DET- STA.13+62.54
BEGIN GRADE
ELEV.=625.90

625.90

PI = 16+80.00
EL = 624.20'
VC = 420'
K = 360
DS = 78mph

(-)0.5368%

(-)1.7038%

-Y204DET- STA.20+19.11
END GRADE
ELEV.=618.42

618.42

(-) 2.4733%

BEGIN SP.CUT DITCH RT.
-Y204_DET- STA.20+34.66
EI = 615.98

END SP.CUT DITCH RT.
-Y204_DET- STA.21+84.66
EI = 612.27

670 660 650 640 630 620 610 600 590 580

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

-Y204DET-

8/17/99

$$$$$$TIME$$$$$$
$$$$$$DATE$$$$$$
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Users

8/17/99

-SR5-		-L-
PI Sta 41+73.12	PI Sta 47+04.47	PIs Sta 424+73.95
△ = 25° 51' 51.0" (RT)	△ = 15° 58' 52.8" (LT)	Θs = 0° 46' 39.3"
D = 3° 58' 43.9"	D = 3° 47' 39.9"	Ls = 190.00'
L = 650.04'	L = 421.18'	LT = 126.67'
T = 330.65'	T = 211.97'	ST = 63.33'
R = 1,440.00'	R = 1,510.00'	
SE = .04	SE = .04	
DS = 40mph	DS = 40mph	

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

MATCHLINE -SR5- STA. 41+00 SEE SHEET 21

MATCHLINE -L- STA. 416+00 SEE SHEET 21

MATCHLINE -SR5- STA. 54+50 SEE SHEET 23

MATCHLINE -L- STA. 430+00 SEE SHEET 23

-SR5- PRC Sta. 44+92.50

-L- TS Sta. 423+47.29

-SR5- PCC Sta. 49+13.68

-L- SC Sta. 425+37.29

-L- POT Sta. 417+99.82 (LB) =
-L- POT Sta. 418+32.16 (LA)

-L- POT Sta. 416+00.00

BEGIN SECTION 2B

-BL-30 PINC
194+63.83

R-3329-10 PINC
200+16.09

SARATOGA BLVD.

BONTERRA VILLAGE HOMEOWNERS ASSOCIATION INC
DB 5266 PG 834

PINE CREEK LAND COMPANY LLC
DB 5092 PG 88

VIVIAN S. HONEYCUTT TRUSTEE
DB 1815 PG 762

FUTURE WIDENING BY OTHERS

SPECIAL CUT DITCH SEE DETAIL A

PROP. 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

2 TONS CL B RIPRAP W/7 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

SEE CULVERT OUTLET DETAIL STA. 424+00

SEE CULVERT INLET DETAIL STA. 424+00

PREFORMED SCOUR HOLE SEE DETAIL N

PROP. 5' SIDEWALK

PROP. 2'-6" CURB & GUTTER

END PROP. 2'-6" CURB & GUTTER STA. 46+28.33

600' ACCELERATION LANE

300' TAPER

SR 1501 SEACREST SHORTCUT RD

FOR -L- PROFILE SEE SHT. 130
FOR -SR5- PROFILE SEE SHT. 202

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$TIME$$$$$
$$$$$DATE$$$$$
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Rkelly

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	23
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

-SR5-
PI Sta 59+63.51
△ = 19° 50' 57.4" (LT)
D = 0° 57' 17.7"
L = 2,078.61'
T = 1,049.83'
R = 6,000.00'
SE = .02
DS = 40mph

-L-
PI Sta 434+07.85
△ = 14° 10' 42.8" (LT)
D = 0° 49' 06.6"
L = 1,732.24'
T = 870.57'
R = 7,000.00'
SE = .03
DS = 70mph

PIs Sta 443+32.86
Es = 0° 46' 39.3"
Ls = 190.00'
LT = 126.67'
ST = 63.33'

-NRB-
PIs Sta 12+30.58
Es = 0° 54' 51.5"
Ls = 150.00'
LT = 100.00'
ST = 50.00'

PI Sta 17+05.08
△ = 10° 19' 18.8" (LT)
D = 1° 13' 08.6"
L = 846.71'
T = 424.50'
R = 4,700.00'
SE = .04
DS = 60mph

PIs Sta 21+77.29
Es = 0° 54' 51.5"
Ls = 150.00'
LT = 100.00'
ST = 50.00'

-NRC-
PIs Sta 14+34.72
Es = 0° 22' 14.7"
Ls = 110.00'
LT = 73.33'
ST = 36.67'

Es =
Ls =
LT
ST

NAD 83

MATCHLINE -SR5- STA. 54+50 SEE SHEET 22

MATCHLINE -L- STA. 430+00 SEE SHEET 22

MATCHLINE -SR5- STA. 68+00 SEE SHEET 24

MATCHLINE -L- STA. 444+00 SEE SHEET 24

MATCHLINE -NRC- STA. 18+00 SEE SHEET 24

-BL-31 PINC 209+80.18

-BL-32 PINC 215+66.96

-BL-33 PINC 222+03.18

-NRB- ST Sta. 10+00.00 = -L- POC Sta. 431+83.01 (47.00' LT)
Ø=01°34'11.8"

-NRB- TS Sta.11+30.58

-NRB- SC Sta. 12+80.58

-NRB- CS Sta. 21+27.29

-L- CS Sta. 442+69.53

-NRC- POT Sta. 10+00.00 = -L- POC Sta. 435+97.79 (47.00' RT)

-NRC- SC Sta. 14+71.39

-NRC- TS Sta. 13+61.39

-SR5-

-NRB-

-NRC-

-L-

S 36° 01' 33.0" E

S 34° 56' 19.7" E

N 29°16'34" W 348.64'

N 29°16'34" W 221.03'

S 29°16'34" E 149.97'

S 60°50'27" W 263.91'

N 60°50'27" E 445.06'

N 60°50'27" E 528.38'

S 60°51'03" W 264.54'

600' ACCELERATION LANE

500' DECELERATION LENGTH

FUTURE WIDENING BY OTHERS

PROP 48" WW FENCE

PROP.5' SIDEWALK

PROP.2'-6" CURB & GUTTER

STANDARD V DITCH SEE DETAIL J

2 TONS CL B RIPRAP W/7 SY FIL FAB

66 TONS CL I RIPRAP W/120 SY FIL FAB ON BANKS ONLY

15 TONS CL I RIPRAP W/30 SY FIL FAB

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL A

SP. CUT BASE DITCH SEE DETAIL F

OVERHEAD SIGN

NOTE: INSTALL 1 66" RCP AT -L- STA. 432+86 BURIED 1.0' BELOW STREAM BED. INSTALL SECOND 66" RCP 1.0' ABOVE STREAM BED.

267 VIVIAN S. HONEYCUTT TRUSTEE DB 1815 PG 762

270 CHRISTOPHER BATCHELOR AND WIFE, SHANNON C. BATCHELOR DB 2072 PG 604 PB H PG 308

271 GENE H. CLARK AND WIFE, JACKIE K. CLARK DB 296 PG 664 PB H PG 308

269 JOHN ROBERT CLARK AND WIFE, ANGIE CLARK DB 2097 PG 680 PB H PG 308

FOR -L- PROFILE SEE SHT. 130
FOR -SR5- PROFILE SEE SHTS. 202, 202A
FOR -NRB- PROFILE SEE SHT. 190
FOR -NRC- PROFILE SEE SHT. 191

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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$$$$$$DATE$$$$$$
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kevis

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	24
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

-SR5-

PI Sta 79+69.33
Δ = 114° 09' 13.8" (LT)
D = 16° 51' 06.1"
L = 677.20'
T = 524.76'
R = 340.00'
SE = 06
DS = 35mph

-NRC-

PI Sta 19+40.70
Δ = 5° 47' 46.5" (LT)
D = 0° 40' 26.8"
L = 859.89'
T = 430.31'
R = 8,500.00'
SE = 02
DS = 50mph

-NRA-

PI Sta 14+08.94
Δ = 1° 23' 07.8" (RT)
D = 0° 22' 55.1"
L = 363.12'
T = 181.31'
R = 15,000.00'
SE = 02
DS = 60mph

PI Sta 20+14.52
Δ = 6° 53' 09.1" (RT)
D = 0° 45' 50.2"
L = 901.35'
T = 451.22'
R = 7,500.00'
SE = 02
DS = 55mph

PI Sta 26+85.85
Δ = 4° 02' 39.8" (LT)
D = 1° 02' 30.3"
L = 388.23'
T = 194.20'
R = 5,500.00'
SE = 02
DS = 40mph

-NRB-

PI Sta 28+36.39
Gs = 2° 42' 20.3"
Ls = 170.00'
LT = 113.35'
ST = 56.68'

PI Sta 28+13.16
Δ = 8° 18' 24.4" (LT)
D = 3° 19' 59.2"
L = 269.35'
T = 135.01'
R = 1,800.00'
SE = 06
DS = 50mph

PI Sta 29+99.57
Gs = 2° 42' 20.3"
Ls = 170.00'
LT = 113.35'
ST = 56.68'

PI Sta 32+26.43
Gs = 1° 49' 21"
Ls = 170.00'
LT = 113.55'
ST = 56.86'

PI Sta 33+38.78
Δ = 14° 09' 34.3" (RT)
D = 12° 43' 56.6"
L = 112.87'
T = 56.89'
R = 450.00'
SE = 06
DS = 25mph

-Y201-

PI Sta 13+74.64
Δ = 6° 48' 24.6" (LT)
D = 2° 17' 30.6"
L = 384.27'
T = 192.5'
R = 2,500.00'
SE = 05
DS = 50mph

PI Sta 16+16.40
Gs = 1° 43' 01.9"
Ls = 150.00'
LT = 100.00'
ST = 50.00'

PI Sta 24+02.79
Gs = 5° 01' 52.1"
Ls = 200.00'
LT = 133.46'
ST = 66.74'

PI Sta 25+14.07
Δ = 4° 41' 04.5" (RT)
D = 6° 01' 52.1"
L = 79.3.7'
T = 39.69'
R = 950.00'
SE = 07
DS = 45mph

PI Sta 26+07.08
Gs = 4° 49' 29.7"
Ls = 160.00'
LT = 106.71'
ST = 53.37'

MATCHLINE –SR5– STA. 79+00 SEE SHEET 89

MATCHLINE –Y201– STA. 49+00 SEE SHEET 89

MATCHLINE –SR5– STA. 68+00 SEE SHEET 23

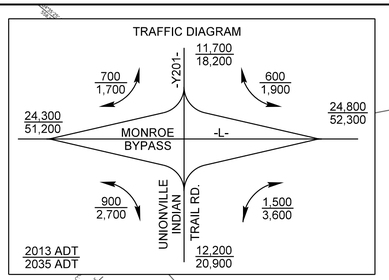
MATCHLINE –L– STA. 444+00 SEE SHEET 23

MATCHLINE –NRC– STA. 18+00 SEE SHEET 24

MATCHLINE –L– STA. 472+00 SEE SHEET 25

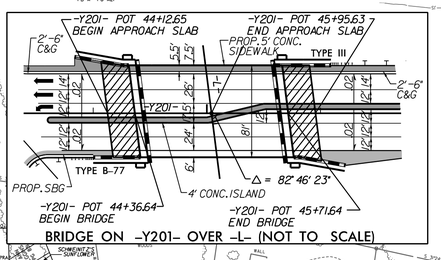
MATCHLINE –Y201– STA. 36+00 SEE SHEET 88

TRAFFIC DIAGRAM



NAD 83

BRIDGE ON –Y201– OVER –L– (NOT TO SCALE)



BEGIN CONSTRUCTION -Y202- POT Sta. 9+00.00

END CONSTRUCTION -Y202- POT Sta. 29+00.00

FUTURE DEVELOPMENT BY OTHERS

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY:
RK&K
RAMMEL KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 828-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

FOR –L– PROFILE SEE SHT. 101
FOR –SR5– PROFILE SEE SHT. 202A
FOR –SW5– PROFILE SEE SHT. 202
FOR –NRB– PROFILE SEE SHT. 189
FOR –NRA– PROFILE SEE SHT. 189
FOR –NRC– PROFILE SEE SHT. 191
FOR –NRD– PROFILE SEE SHT. 192
FOR –Y201– PROFILE SEE SHTS. 187, 188
FOR –Y202– PROFILE SEE SHT. 193

$$$$$$TIME$$$$$
9/23/2014
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dc.keen

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

-NRD-
PI Sta 13+84.08
△ = 4° 23' 56.7" (LT)
D = 0° 34' 22.6"
L = 767.78'
T = 384.08'
R = 10,000.00'
SE = .02
DS = 60mph

NAD 83

MATCHLINE -L- STA. 472+00 SEE SHEET 24

MATCHLINE -L- STA. 486+00 SEE SHEET 26

WOODS

(363) CO-OWNERSHIP: THE HAROLD & PAULINE FUNDERBURK LIVING TRUST & GAYLE M. TOLBERT
DB 3182 PG 123
DB 4113 PG 723

500' DECELERATION LENGTH

-NRA- POT Sta. 10+00.00 =
-L- POT Sta. 474+99.65 (47.00' LT)
Θ = 3°00'00"

-NRA- PC Sta. 12+27.57

+27.57 -NRA- 100.00'

-BL-38 PINC
261+12.76

-BL-39 PINC
268+97.58

15 TONS CL I RIPRAP W/30 SY FIL FAB
+00.00 -L- 130.00'

CHANNEL BLOCK SEE DETAIL O

2 TONS CL B RIPRAP W/7 SY FIL FAB

BERM BASE DITCH SEE DETAIL R

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

PROP. 48" WW FENCE

OVERHEAD SIGN

HW

PROP. SBG

15" CAAP 2 ELBOWS ROD & LUG

2GI

GRAU 350

CAT-1

MEDIAN V DITCH SEE DETAIL I

36" RCP-III

ES

-NRA-

N 40° 41' 48.0" W

S 43° 41' 48.0" E

-NRD-

-L-

475+00

480+00

485+00

15+00

SPECIAL CUT BASE DITCH SEE DETAIL F

PREFORMED SCOUR HOLE SEE DETAIL N

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

33 TONS CL I RIPRAP W/62 SY FIL FAB ON BANKS ONLY

+50.00 -L- 130.00', 175.00'

+00.00 -L- 130.00', 175.00'

TDE

REMOVE

+50.00 -NRD- 100.00'

+48.77 -L- 150.00'

+50.00 -L- 150.00'

+50.00 -L- 130.00'

-NRD- ST Sta. 10+00.00 =
-L- POT Sta. 477+48.77 (47.00' RT)

LATERAL BASE DITCH SEE DETAIL E

BERM BASE DITCH SEE DETAIL S

STANDARD BASE DITCH SEE DETAIL Y

300' TAPER

600' ACCELERATION LANE

S 50°28'52" E 462.05'

S 01°03'26" E 125.20'

NOTE: INSTALL 54" RCP AT -L- STA. 483+00 BURIED 1.0' BELOW STREAM BED. INSTALL TWO 42" RCP 1.0' ABOVE STREAM CHANNEL

(346) ZENOBIA ANN QUICK HEGGINS AND TERRY BENNY QUICK
DB 3496 PG 430
PB A PG A21

(362) ZENOBIA ANN QUICK HEGGINS
DB 4306 PG 831

INDIAN TRAIL TOWN LIMITS
UNION COUNTY

S 74°08'59" E 395.37'

N 08°26'03" W 227.79'

N 82°49'48" W 227.05'

N 45°29'48" W 200.00'

WELL

I.S.F.D. BLDG

EIP

WOODS

FOR -L- PROFILE SEE SHT. 132
FOR -NRA- PROFILE SEE SHT. 189
FOR -NRD- PROFILE SEE SHT. 192

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
8/17/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

NAD 83

MATCHLINE –L– STA. 486+00 SEE SHEET 25

MATCHLINE –L– STA. 500+00 SEE SHEET 27

-BL-40 PINC
277+91.37

℄ TOLL ZONE
–L– STA. 495+00

363
CO-OWNERSHIP:
THE HAROLD & PAULINE
FUNDERBURK LIVING TRUST
& GAYLE M. TOLBERT
DB 3182 PG 123
DB 4113 PG 723

365
FRANKLIN W. HOWEY, JR
DB 755 PG 490

WOODS

1 S MTL BARN

1 S F O RUIN

LATERAL BASE DITCH
SEE DETAIL D

+00.00 –L– 130.00'

+00.00 –L– 150.00'

PROP. 48" WW FENCE

FS
ELEV. 623.0

SPECIAL CUT DITCH
SEE DETAIL A

8 TONS CL B RIPRAP
W/21 SY FIL FAB

18" RCP-III

30" RCP-III

15" RCP-III

TYPE B-77

GRAU 350

2GI

2GI-A

FS

2601 2602 2603 2604 2605 2606 2607 2608 2609 2610

490+00

495+00

MEDIAN V DITCH
SEE DETAIL I

–L– S 43° 41' 48.0" E

1 TON CL B RIPRAP
W/5 SY FIL FAB

GRADE TO DRAIN

300' TAPER

CAT-1

S 01°11'26" E
852.26'

FOR –L– PROFILE SEE SHT. 132

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
8/17/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	27
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-

PIs Sta 502+25.70	PI Sta 512+80.46
Θs = 0° 20' 53.0"	Δ = 10° 47' 59.1" (LT)
Ls = 130.00'	D = 0° 32' 07.7"
LT = 86.67'	L = 2,016.85'
ST = 43.33'	T = 1,011.42'
	R = 10,700.00'
	SE = .02
	DS = 70mph

NAD 83

N 16°45'57" E
1013.81'

TOP 602.45
LID BOLTED SHUT

FSMH

8" PVC

TOP 602.99
INV (N) 599.04
INV (S) 599.15

365
FRANKLIN W. HOWEY, JR.
DB 755 PG 490

371
THE TY-PAR REALTY, INC., PROFIT SHARING PLAN, ET AL
DB 3974 PG 66

N 87°43'53" W
1087.93'

-BL-41 PINC
286+66.33

MATCHLINE -L- STA. 500+00 SEE SHEET 26

MATCHLINE -L- STA. 514+00 SEE SHEET 28

+39.04 -L- 150.00'
+69.04 -L- 150.00'
+85.00 150.00'
+60.00 150.00'
+60.00 75.00'
+85.00 75.00'
+60.00 75.00'
+60.00 130.00'
+39.04 -L- 120.00'
+85.00 -L- 130.00'

300' TAPER

LATERAL GRASS SWALE SEE DETAIL AQ

-L- TS Sta. 501+39.04

-L- SC Sta. 502+69.04

PROP. 48" WW FENCE

3 TONS CL B RIPRAP W/10 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

2 CAMP BOWIS RIPRAP & LUG

CAT-1

TYPE M350

GRAU 350

GRADE TO DRAIN

SCOUR PROTECTION SEE DETAIL AO

LATERAL V DITCH SEE DETAIL B

BEG 48" WW FENCE

END 48" WW FENCE

TYPE B-77

TYPE B-77 FS

PROP. SBG

15" RCP-III

18" RCP-III

2GI

S 43° 41' 48.0" E

505+00

510+00

-BL-42 PINC
295+85.93

SOUTH FORK CROOKED CREEK

WOODS

FOR -L- PROFILE SEE SHT. 133

-L- POC 510+60.87
BEGIN APPROACH SLAB

-L- POC 510+85.04
BEGIN BRIDGE

-L- POC 512+55.00
END BRIDGE

-L- POC 512+79.17
END APPROACH SLAB

Δ= 90° 00' 00"

-L- OVER SOUTH FORK CROOKED CREEK (NOT TO SCALE)

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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kevis

REVISIONS

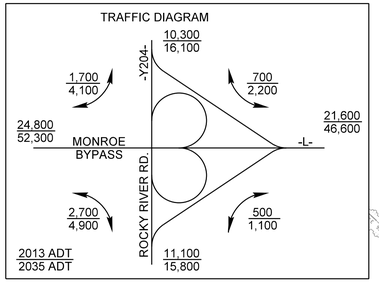
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

TRAFFIC DIAGRAM



MATCHLINE -Y204- STA. 36+50 SEE SHEET 94

MATCHLINE -SR7- STA. 12+00 SEE SHEET 94

MATCHLINE -L- STA. 514+00 SEE SHEET 27

MATCHLINE -L- STA. 542+50 SEE SHEET 29

MATCHLINE -L- STA. 19+00 SEE SHEET 93

-SR7- PT Sta. 12+69.44

-QRA- PT Sta. 31+69.88

-QRA- CS Sta. 27+04.82

-QRA- ST Sta. 24+11.43

-QRA- CS Sta. 22+21.43

-QRA- TS Sta. 25+34.82

-QLA- CS Sta. 18+41.56

-QLA- ST Sta. 19+19.56

-QLA- SC Sta. 12+20.00

-QLA- TS Sta. 10+00.00 = -L- POT Sta. 529+48.71 (47.00' LT)

-QLD- ST Sta. 10+00.00 = -L- POT Sta. 533+89.77 (47.00' RT)

-QLD- SC Sta. 13+00.00

-QLD- CS Sta. 15+98.56

-QLD- ST Sta. 17+48.56

-QRD- CS Sta. 20+38.27

-QRD- ST Sta. 22+58.27

-L- CS Sta. 522+85.89

-L- ST Sta. 524+15.89

-L- POT Sta. 528+70.18 = -Y204- POT Sta. 29+40.75

-Y204- PC Sta. 34+17.59

-QLA- POT Sta. 24+46.20

-Y204- POT Sta. 34+42.52

-RRR-N-RAB- PC Sta. 10+00.00

-RRR-N-RAB- PT Sta. 13+00.02

-Y204- POT Sta. 34+24.84

CENTER OF ROUNDABOUT
-QRA- POT Sta. 37+46.65
-Y204- PC Sta. 34+17.59
-QLA- POT Sta. 24+46.20
-Y204- POT Sta. 34+42.52
-RRR-N-RAB- PC Sta. 10+00.00
-RRR-N-RAB- PT Sta. 13+00.02
-Y204- POT Sta. 34+24.84

CENTER OF ROUNDABOUT
-QLD- POT Sta. 18+59.18
-Y204- PT Sta. 20+08.21
-QRD- POT Sta. 23+38.66
-Y204- POC Sta. 19+78.11

-RRR-S-RAB- PC Sta. 10+00.00
-RRR-S-RAB- PT Sta. 13+62.85
-Y204- POC Sta. 19+50.46

NOTE: INVERT AT 3827 TO BE RAISED 1.0' ABOVE DITCH TO PROVIDE STORMWATER DETENTION

NOTE: DESIGN IN PROGRESS, AREA TO PROVIDE STORMWATER DETENTION

A

D

R-3329-14 PINC 317+57.74

BY204- PINC 39+77.27

-BL-43 PINC 307+07.96

-Y204- POT 28+00.34
BEGIN APPROACH SLAB
TYPE B-77

-Y204- POT 28+23.75
BEGIN BRIDGE

Δ = 141° 04' 25"

-Y204- POT 30+57.75
END BRIDGE

-Y204- POT 30+81.16
END APPROACH SLAB

TYPE B-77

BRIDGE ON -Y204- OVER -L- (NOT TO SCALE)

-QLD-

Pis Sta 12+04.65	Pi Sta 14+17.50	Pis Sta 16+49.08	Pis Sta 523+29.22
Bs = 37° 22' 00.5"	Δ = 74° 22' 34.0" (RT)	Bs = 15° 4' 00.3"	Bs = 17° 20' 53.0"
Ls = 300.00'	D = 24° 54' 40.4"	Ls = 150.00'	Ls = 130.00'
Lt = 204.65'	L = 298.56'	Lt = 100.56'	Lt = 86.67'
St = 104.24'	T = 174.50'	St = 50.5'	St = 43.33'
	R = 230.00'		
	SE = .08		
	DS = 30mph		

-QLA-

Pi Sta 11+48.46	Pi Sta 32+50.53	Pi Sta 18+92.07	-RRR-S-RAB-	-RRR-N-RAB-
Bs = 27° 24' 08.4"	Δ = 154° 50' 14.1" (LT)	Bs = 15° 4' 00.3"	Pi Sta 10+00.00	Pi Sta 10+00.00
Ls = 220.00'	D = 24° 54' 40.4"	Ls = 150.00'	Δ = 360° 00' 00.0" (LT)	Δ = 359° 59' 59.9" (LT)
Lt = 148.46'	L = 620.56'	Lt = 100.56'	D = 99° 8' 48.5"	D = 159° 59' 28.2"
St = 74.91'	T = 1,030.53'	St = 50.5'	L = 362.85'	L = 300.02'
	R = 230.00'		T = 0.00'	T = 0.00'
	SE = .08		R = 57.75'	R = 47.75'
	DS = 30 mph			

-QRA-

Pi Sta 29+49.73	Pis Sta 26+48.27	Pis Sta 22+18.78	Pis Sta 18+71.77
Δ = 44° 24' 35.4" (LT)	Bs = 8° 07' 00.8"	Bs = 3° 01' 36.2"	Δ = 22° 33' 01.4" (RT)
D = 9° 32' 51.5"	Ls = 170.00'	Ls = 190.00'	D = 3° 01' 59.2"
L = 465.06'	Lt = 113.45'	Lt = 126.69'	L = 708.62'
T = 244.96'	St = 56.78'	St = 63.35'	T = 358.95'
R = 600.00'			R = 1,800.00'
SE = .08			SE = .07
DS = 40mph			DS = 60mph

-QRD-

Pis Sta 21+11.66	Pi Sta 16+45.76
Bs = 5° 15' 07.6"	Δ = 39° 04' 10.2" (LT)
Ls = 220.00'	D = 4° 46' 28.7"
Lt = 146.73'	L = 818.27'
St = 73.39'	T = 425.76'
	R = 1,200.00'
	SE = .08
	DS = 60mph

-Y204-

Pi Sta 16+36.93	Pi Sta 37+53.26
Δ = 5° 00' 30.7" (LT)	Δ = 3° 46' 56.5" (LT)
D = 17° 40' 28.6"	D = 17° 40' 28.6"
L = 743.03'	L = 561.12'
T = 371.75'	T = 280.66'
R = 8,500.00'	R = 8,500.00'
SE = .02	SE = .02
DS = 50 mph	DS = 50mph

-L-

Pis Sta 523+29.22
Bs = 17° 20' 53.0"
Ls = 130.00'
Lt = 86.67'
St = 43.33'

-RRR-S-RAB-

Pi Sta 10+00.00
Δ = 360° 00' 00.0" (LT)
D = 99° 8' 48.5"
L = 362.85'
T = 0.00'
R = 57.75'

-RRR-N-RAB-

Pi Sta 10+00.00
Δ = 359° 59' 59.9" (LT)
D = 159° 59' 28.2"
L = 300.02'
T = 0.00'
R = 47.75'

FOR -L- PROFILE SEE SHT. 132, 134
FOR -Y204- PROFILE SEE SHT. 195, 196
FOR -QLA- PROFILE SEE SHT. 198
FOR -QRA- PROFILE SEE SHT. 197
FOR -QLD- PROFILE SEE SHT. 199
FOR -QRD- PROFILE SEE SHT. 200

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY :
RKK
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0113 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	29
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

MATCHLINE –L– STA. 542+50 SEE SHEET 28

MATCHLINE –L– STA. 556+00 SEE SHEET 30

-BL-44 PINC
327+79.91

-QRA- SC Sta. 15+12.81

+12.81 -QRA-
100.00'

-QRA- ST Sta. 13+22.81

500' DECELERATION LENGTH

-QRA- POT Sta. 10+00.00 =
-L- POT Sta. 550+49.96 (47.00' LT)
Δ=3°00'00"

+50.00 -L-
120.00'

+00.00 -L-
140.00'

BERM BASE DITCH
SEE DETAIL R

PROP. 48" WW FENCE

SPECIAL CUT DITCH
SEE DETAIL A

27' TYP.

OVERHEAD SIGN

15 TONS CL I RIPRAP
W/30 SY FIL FAB

20 TONS CL I RIPRAP
W/39 SY FIL FAB

LATERAL BASE DITCH
SEE DETAIL D

15+00

N 52° 11' 33.1" W

545+00

S 55° 11' 33.1" E

550+00

555+00

GRAU 350

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

42" RCP-III

SPECIAL CUT BASE DITCH
SEE DETAIL F

-BL-45 PINC 337+17.37

+00.00 -L-
130.00'

+80.00 -L-
140.67'

+50.00 -L-
150.00'

PDE

600' ACCELERATION LANE

300' TAPER

+90.00 -L-
190.00'

+10.00 -L-
205.00'

STANDARD BASE DITCH
SEE DETAIL K

+00.00 -QRD-
83.00'

+20.00 -QRD-
100.00'

-QRD- SC Sta. 12+20.00

-QRD- TS Sta. 10+00.00 =
-L- POT Sta. 547+53.79 (47.00' RT)

N. 24°W/E
234.86'

S. 25°17'22" W
382.57'

N64°22'36"W 857.64'

5' WW FENCE

AXLE

HYD

SHED

WOODS

RUINS

402
MARY ANN SHEPLEY
DB 1660 PG 451

403
JACK C. WINCHESTER
AND WIFE
RUTH A. WINCHESTER
DB 3779 PG 148

404
TIMOTHY MCDOW
AND WIFE
BRENDA TERRELL MCDOW
DB 1338 PG 394

405
KENNETH R. MCDOW
AND WIFE
TERESA H. MCDOW
DB 901 PG 167

406
HURLEY LONG
AND WIFE,
PAULINE LONG
DB 175 PG 192

N 44°00'52" W
599.42'

N 44°00'52" W
299.72'

REBAR

S 24°39'21" W
300.03'

S79°08'56"E
1052.97'

FS ELEV. 629.96

-QRA-	-QRD-
PIs Sta 14+49.50	PIs Sta 11+46.72
Θs = 3°01' 26.2"	Θs = 5°15' 07.6"
Ls = 190.00'	Ls = 220.00'
LT = 126.69'	LT = 146.73'
ST = 63.35'	ST = 73.39'

FOR –L– PROFILE SEE SHT. 134
FOR –QRA– PROFILE SEE SHT. 197
FOR –QRD– PROFILE SEE SHT. 198

PLANS PREPARED BY :

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FLEWIS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

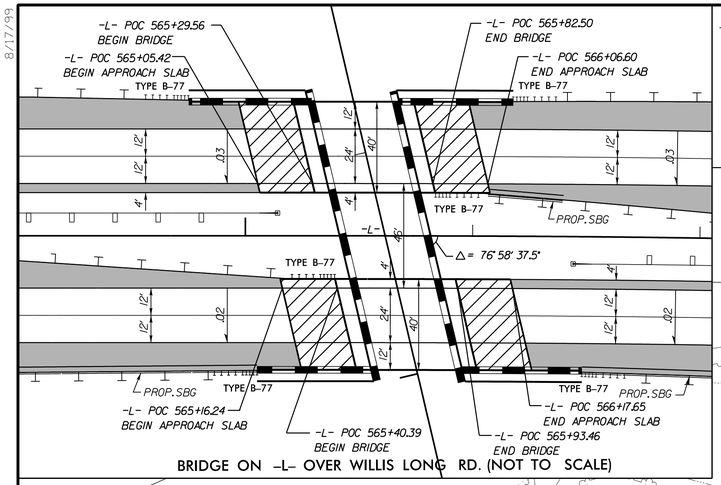
-L-

PIs Sta 566+68.78
Θs = 1° 25' 05.6"
Ls = 250.00'
LT = 166.67'
ST = 83.34'

-Y208-

PI Sta 11+86.00
Δ = 0° 55' 33.0" (LT)
D = 0° 42' 58.3"
L = 129.27'
T = 64.64'
R = 8,000.00'
SE = NC
DS = 50mph

PI Sta 16+80.07
Δ = 0° 23' 57.7" (RT)
D = 0° 42' 58.3"
L = 55.76'
T = 27.88'
R = 8,000.00'
SE = NC
DS = 50mph



BRIDGE ON -L- OVER WILLIS LONG RD. (NOT TO SCALE)

-Y208- POT Sta. 21+00.68
END CONSTRUCTION
-Y208- POT Sta. 20+85.00

403 JACK C. WINCHESTER AND WIFE RUTH A. WINCHESTER DB 3779 PG 148

404 TIMOTHY MCDOW AND WIFE BRENDA TERRELL MCDOW DB 1338 PG 394

407 RONALD COLIN HOUGH AND WIFE PEGGY C. HOUGH DB 333 PG 741

408 CYNTHIA JOYCE LONG THOMAS AND HUSBAND, NORMAN CONWAY THOMAS DB 333 PG 739

406 HURLEY LONG AND WIFE, PAULINE LONG DB 175 PG 192

406 HURLEY LONG REVOCABLE TRUST DB 4145 PG 391

FOREST HILLS BAPTIST CHURCH NO DEED FOUND

-SR9- POT Sta. 10+00.00
-Y208- POT Sta. 19+28.87 = -SR9- POT Sta. 10+09.11
-SR9- PC Sta. 11+40.58
-SR9- PRC Sta. 14+78.28
-Y208- PT Sta. 17+07.95
-Y208- PC Sta. 16+52.18
-L- POS Sta. 565+61.47 = -Y208- POT Sta. 15+62.34
-L- TS Sta. 565+02.11
-L- SC Sta. 567+52.11
-BL-46 PINC 343+23.08
-BL-47 PINC 350+30.51
BEGIN CONSTRUCTION -Y208- POT Sta. 12+75.00
-Y208- PT Sta. 12+50.63

MATCHLINE -L- STA. 556+00 SEE SHEET 29

MATCHLINE -L- STA. 570+00 SEE SHEET 31

STANDARD BASE DITCH SEE DETAIL K
LATERAL BASE DITCH SEE DETAIL D
LATERAL BASE DITCH SEE DETAIL E
LATERAL V DITCH SEE DETAIL B
SPECIAL LAT V DITCH SEE DETAIL G
SPECIAL CUT DITCH SEE DETAIL A

2 TONS CL B RIPRAP W/7 SY FIL FAB
8 TONS CL B RIPRAP W/21 SY FIL FAB
5 TONS CL B RIPRAP W/14 SY FIL FAB

15" CAAP 2 ELBOWS ROD & LUG
15" RCP-III
24" RCP-IV
30" RCP-III
42" RCP-III

PROP. 48" WW FENCE
BEG 48" WW FENCE
END 48" WW FENCE
4' SPT RAIL FENCE
4' CL FENCE
5' WW FENCE

PROP. SBG
REMOVE
TYPE B-77
TYPE M350
GRAU 350
GRAU 350 TYPE B-77

FOR -L- PROFILE SEE SHT. 135
FOR -SR9- PROFILE SEE SHT. 199
FOR -Y208- PROFILE SEE SHT. 201

PLANS PREPARED BY :
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FOR
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-L-		-SR9-	
PI Sta 572+33.57	PIs Sta 577+95.47	PI Sta 13+17.83	PI Sta 16+84.32
△ = 10° 53' 31.7" (RT)	Θs = 1° 25' 05.6"	△ = 42° 59' 51.2" (RT)	△ = 23° 17' 03.1" (LT)
D = 1° 08' 04.5"	Ls = 250.00'	D = 12° 43' 56.6"	D = 5° 43' 46.5"
L = 960.02'	LT = 166.67'	L = 337.70'	L = 406.39'
T = 481.46'	ST = 83.34'	T = 177.25'	T = 206.04'
R = 5,050.00'		R = 450.00'	R = 1,000.00'
SE = .04		SE = .06	SE = .04
DS = 70mph		DS = 30mph	DS = 30mph

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

AYC

NAD 83

MATCHLINE -L- STA. 570+00 SEE SHEET 30

MATCHLINE -L- STA. 582+50 SEE SHEET 32

MATCHLINE -SR9-STA. 29+00 SEE SHEET 32

-SR9- PT Sta. 18+84.67

-BL-48 PINC
358+78.44

-BL-49 PINC
366+85.16

S 41° 53' 38.0" E

S 41° 27' 50.3" E

-L- CS Sta. 577+12.13

-L- ST Sta. 579+62.13

525°36'24"E
474.00'

N25°35'10"W
976.67'

S 41° 53' 38.0" E
1,000.00'

N33°53'00"E
548.03'

408
CYNTHIA JOYCE LONG THOMAS AND HUSBAND, NORMAN CONWAY THOMAS
DB 333 PG 739

409
THE HURLEY LONG REVOCABLE TRUST
DB 4145 PG 391

410
AYCOTH FAMILY TRUST
DB 5304 PG 860

LATERAL V DITCH SEE DETAIL B

+15.70 -SR9- 42.72'

+84.67 -SR9- 30.00'

+00.00 -SR9- 45.00'

+50.00 -SR9- 38.00'

16.67' TYP.

63' TYP.

+00.00 -L- 100.00'

+62.13 -L- 90.00'

+12.13 -L- 130.00'

+62.13 -L- 140.00'

GRAU 350

PROP. 48" WW FENCE

2 TONS CL B RIPRAP W/7 SY FIL FAB

3106

15" CAAP

3105 FS

2GI

3103

15" RCP-III

3102 CA-1

15" CAAP 2 ELBOWS ROD & LUG

SPECIAL CUT DITCH SEE DETAIL A

3104 2 TONS CL B RIPRAP W/7 SY FIL FAB

PROP. SBC

5' WW FENCE

GATE

WOODS

SHED

MTL CAN

GUY

SHED

CMU SHED

MH POLE

EIP

WELL

FOR -L- PROFILE SEE SHT. 135
FOR -SR9- PROFILE SEE SHT. 199, 200

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FOR
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kkevans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

MATCHLINE –SR9–STA. 29 + 00 SEE SHEET 31

MATCHLINE –L– STA. 582 + 50 SEE SHEET 31

MATCHLINE –L– STA. 596 + 00 SEE SHEET 33

410 COTH FAMILY TRUST DB 5304 PG 860

412 FRANK PHUNG AND WIFE, SYLVIA PHUNG DB 4187 PG 241

411 THOMAS RAY POPLIN AND WIFE, JUDY H. POPLIN DB 2079 PG 825

413 THOMAS M. AYCOTH

414 JAMES RAY MILLS AND WIFE TERRIE DARLENE MILLS DB 401 PG 309

415 LEROY L. PRESLAR AND WIFE DORIS S. PRESLAR DB 185 PG 39

-SR9- POT Sta. 30+88.32

-BL-50 PINC 375+06.80

-BL-51 PINC 380+50.88

PDE

S 41° 53' 38.0" E

S 41° 27' 50.3" E

585+00

590+00

595+00

30+00

+27.00 -SR9- 110.00'

+70.00 -SR9- 30.00'

+65.88 -SR9- 38.00'

30+42.35 25.00' LT

+50.00 -L- 150.00',165.00'

+35.00 -L- 150.00',165.00'

+00.00 -L- 150.00'

+09.01 150.00'

+00.00 -L- 90.00'

+00.00 -L- 130.00'

+50.00 140.00'

+50.00 135.00'

+00.00 -L- 130.00'

PROP. 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

SEE CULVERT OUTLET DETAIL STA. 586+00

SEE CULVERT INLET DETAIL STA. 586+00

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL E

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

5 TONS CL B RIPRAP W/14 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

40 TONS CL I RIPRAP W/75 SY FIL FAB ON BANKS ONLY

2 ELBOWS ROD & LUG

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

24" RCP-III

18" RCP-III

15" CAAP

15" RCP-III

60" RCP-III BURIED

12" x 7" RCBC

2@10'x7' RCBC

CAT-1

PROP. SBG

GRAU 350

WOODS

MTL CHICKEN HOUSE

SHED

GRAVEL

UNIONVILLE TOWN LIMITS

WATER PUMP

U/G GAS TANK

WOOD POST

MTL CANOPY

ISFD

FOR –L– PROFILE SEE SHT. 135, 136
FOR –SR9– PROFILE SEE SHT. 200

PLANS PREPARED BY :
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900 RIDGEFIELD DRIVE SUITE 350
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FOR
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Plans

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

MATCHLINE –L– STA. 596+00 SEE SHEET 32

MATCHLINE –L– STA. 610+00 SEE SHEET 34

411 THOMAS RAY POPLIN AND WIFE, JUDY H. POPLIN DB 2079 PG 825

411 THOMAS RAY POPLIN AND WIFE, JUDY H. POPLIN DB 2079 PG 825

418 DARRIN J. FITCH AND WIFE SUSAN D. FITCH DB 751 PG 860

419 SHANNON SADLER BRIAN BLANCHARD DB 1480 PG 607 PB F PG 537

420 BRADLEY MAURICE HENSON MARY ALLYSON SPURRIER DB 1368 PG 538 PB F PG 537

421 BRUCE MARX AND WIFE LINDA L. MARX DB 1422 PG 537 PB F PG 537

418 DARRIN J. FITCH AND WIFE SUSAN D. FITCH DB 751 PG 860

422 DAVID E. HATMAKER DB 1335 PG 771 PB F PG 537

423 RICKY MALCOMB AND WIFE ROXANNE MALCOMB DB 1343 PG 277 PB F PG 537

417 JULIA LEE SECREST DEESE DB 134 PG 247

UNIONVILLE TOWN LIMITS

PROP. 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

5 TONS CL B RIPRAP W/14 SY FIL FAB

8 TONS CL B RIPRAP W/21 SY FIL FAB

+00.00 –L– 130.00', 150.00'

TDE

REMOVE, GRADE TO DRAIN

+50.00 –L– 130.00', 150.00'

+00.00 –L– 130.00'

2 TONS CL B RIPRAP W/7 SY FIL FAB

20 TONS CL I RIPRAP W/73 SY FIL FAB ON BANKS ONLY

LATERAL V DITCH SEE DETAIL B

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

2 TONS CL B RIPRAP W/7 SY FIL FAB

15" CAAP 2 ELBOWS ROD & LUG

SPECIAL CUT DITCH SEE DETAIL A

2 TONS CL B RIPRAP W/7 SY FIL FAB

600+00

605+00

–L– S 41° 27' 50.3" E

15" RCP-III

39" RCP-III

2GI FS

PROP. SBG

CAAP CAT-1

2 ELBOWS ROD & LUG

GRAU 350

HW

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

2 TONS CL B RIPRAP W/7 SY FIL FAB

PROP. 48" WW FENCE

+00.00 –L– 130.00'

+00.00 –L– 150.00'

ROCK N32°36'31"W 75.01'

N32°36'31"W 220.75'

N71°08'53"E 237.45'

N67°22'39"E 108.54'

S32°36'32"E 221.85'

236.20' S26°56'57"E

EIP

EIS

ROCK

PILES

OPEN STORAGE AREA

WOODS

SHED

ISFD

DECK

POOL

WATER PUMP

SEPTIC TANK

WELL

STEPS

CLOTHES LINE

GRAVEL

DOG PEN

CONC

MTL POLE

SLIDE

BIRD BATH & FOUNTAIN

FLAG POLE

FLOWER BED

RIPRAP

S24°12'15"E 290.31'

N67°17'21"E 97.16'

S24°43'18"E 274.28'

S24°41'37"E 277.64'

S43°48'11"E 274.89'

N67°17'21"E 135.68'

N67°03'12"E 286.54'

S82°57'08"E 289.85'

N67°08'19"E 304.33'

S24°47'30"W 259.50'

152.21' N32°51'52"W

50IL

STA. 596+00 BACK

STA. 596+00 AHEAD

STA. 610+00 BACK

STA. 610+00 AHEAD

FOR –L– PROFILE SEE SHT. 136

PLANS PREPARED BY :

RK&K

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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8/27/2014
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E.Ellis

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

8/17/99

MATCHLINE –L– STA. 610+00 SEE SHEET 33

MATCHLINE –L– STA. 624+00 SEE SHEET 35

MATCHLINE –Y206– STA. 24+00 SEE SHEET 35

NAD 83

POPLIN ROAD

CLEAR CREEK ROAD

–CUL3– POT Sta. 15+69.46

–CUL3– 15+00 N 65°34'50"E

–CUL3– POT Sta. 12+54.72 END CONSTRUCTION

–Y206– POT Sta. 27+81.68

–Y206– POT Sta. 27+00.00 END CONSTRUCTION

–Y206– PT Sta. 24+31.35

–L– POT Sta. 610+41.01=

–CUL3– POT Sta. 10+00.00

–L– TOLL ZONE STA. 618+00

615+00

620+00

S 41° 27' 50.3" E

N 8°22'13.5"W

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL E

MEDIAN V DITCH SEE DETAIL I

REMOVE

TDE

PROP. 48" WW FENCE

PROP. SBG

GRADE TO DRAIN

TYPE B-77

BERM DITCH SEE DETAIL M

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

SEE CULVERT OUTLET DETAIL STA. 613+67

SEE CULVERT INLET DETAIL STA. 613+67

48 TONS CL I RIPRAP W/89 SY FIL FAB ON BANKS ONLY

15 TONS CL B RIPRAP W/37 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

2 ELBOWS ROD & LUG

GRAU 350

CAT-1

BRIANNE EVANS GORDON
DB 4390 PG 15
PB F PG 537

CHARLES R. EVERHART
WANDA L. SHUFF
DB 5267 PG 309
PB F PG 537

DAVID MICHAEL CANIPE AND WIFE, HEATHER CANIPE
DB 5209 PG 490
PB F PG 537

KEVIN BLANCHARD AND WIFE, ANDREA N. MULLIS
DB 1454 PG 389
PB F PG 537

PATRICK J. WALSH AND WIFE, LINDA M. WALSH
DB 1340 PG 884
PB F PG 537

MICHAEL GRAHAM AND WIFE MARSHA GRAHAM
DB 3999 PG 232
PB C PG 222

RICHLAND A. PLYLER AND WIFE CHERYL A. PLYLER
DB 3911 PG 228
PB C PG 509

AMY H. CAMPBELL
DB 3370 PG 345
PB D PG 807

BARRY C. WILLIAMS AND WIFE AMY L. WILLIAMS
DB 1531 PG 267
PB G PG 425

JAMES R. PRICE, II AND WIFE TRACY K. PRICE
DB 1243 PG 548
PB C PG 509

JAMES R. PRICE, II AND WIFE, TRACY K. PRICE
DB 1093 PG 625
PB C PG 222

JAMES R. PRICE, II
DB 446 PG 303
PB C PG 222

FOR –L– PROFILE SEE SHT. 136, 137
FOR –Y206– PROFILE SEE SHT. 201

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$TIME$$$$$
$$$$$USER$$$$$
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Kelly

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

-Y206-	-CUL4-
PI Sta 20+61.06	PI Sta 14+96.96
Δ = 31° 05' 43.5" (RT)	Δ = 5° 40' 23.5" (LT)
D = 4° 05' 33.2"	D = 1° 16' 03.4"
L = 759.80'	L = 447.55'
T = 389.51'	T = 223.96'
R = 1,400.00'	R = 4,520.00'
SE = .06	
DS = 50mph	

NAD 83

MATCHLINE -Y206- STA. 24+00 SEE SHEET 34

MATCHLINE -L- STA. 624+00 SEE SHEET 34

MATCHLINE -L- STA. 12+00 SEE SHEET 36

MATCHLINE -L- STA. 635+00 SEE SHEET 36

MATCHLINE SEE SHEET 96

JOHN VANN WILLIAMS AND WIFE VIVIAN B. WILLIAMS
DB 1531 PG 267
PB G PG 425

FRANCES W. HELMS
DB 1531 PG 271
PB G PG 425

JAMES R. PRICE, II AND WIFE, TRACY K. PRICE
DB 1243 PG 548
PB C PG 509

MICHAEL GRAHAM AND WIFE MARSHA GRAHAM
DB 3999 PG 232
PB C PG 222

TERRY DALE HELMS
DB 237 PG 765

JUNIOR HINSON AND WIFE LOUISE L. HINSON
DB 121 PG 253

JAMES R. PRICE, II AND WIFE TRACY K. PRICE
DB 1093 PG 625
PB C PG 222

WILLIAM HEATH DAVIS AND WIFE GLADYS HOLMES DAVIS
DB 186 PG 668

-BL-54 PINC
420+41.54
+60.00 -Y206-
65.00',95.00'

+00.00 -Y206-
65.00',95.00'

+71.55 -Y206-
70.00'

-Y206- PC Sta. 16+71.55

+10.00 -Y206-
65.00',120.00'

+45.00 -Y206-
65.00',120.00'

+78.00 -Y206-
60.00'

+75.00 -L-
140.00'

-L- POT Sta. 626+46.11=
-CUL4- PT Sta. 17+20.55

-CUL4- PC Sta. 14+34.82
BEGIN CONSTRUCTION

+00.00 -L-
140.00'

+00.00 -L-
266.73'

+40.00 -CUL4-
30.00'

+15.00 -L-
140.00'

+00.00 -L-
140.00'

15+00 -Y206-

20+00

625+00

630+00

15+19.85
25.5' LT
R=35

15+00

N 39° 26' 57.0" W

S 41° 27' 50.3" E

S 37°15'10" E
499.10'

N28°47'20"W
270.83'

S 45°24'55" W
214.56'

N26°03'28"W
449.15'

POPLIN ROAD

POPLIN RD.

PROP. 48" WW FENCE

4"WW FENCE

4"MTL FENCE

GRAU 350

11 TONS CL B RIPRAP W/28 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

5 TONS CL B RIPRAP W/14 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL K

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

18" RCP-III

24" RCP-III

15" RCP-III

GENERAL 20' CITY OF MONROE PUBLIC UTILITY EASEMENT

ISFD

ISBD

MTL CANOPY

MTL CHICKEN HOUSES

FUEL TANKS

WOODS

WOOD POST

MTL POLE

WOOD POLE

FOR -L- PROFILE SEE SHT. 137
FOR -Y206- PROFILE SEE SHT. 200

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$TIME$$$$$
$$$$$DIR$$$$$\Roadway\Proj\Plan Sheets\Sec2b\R3329_R2559_RDY_PSH_035.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

PLANS PREPARED BY :
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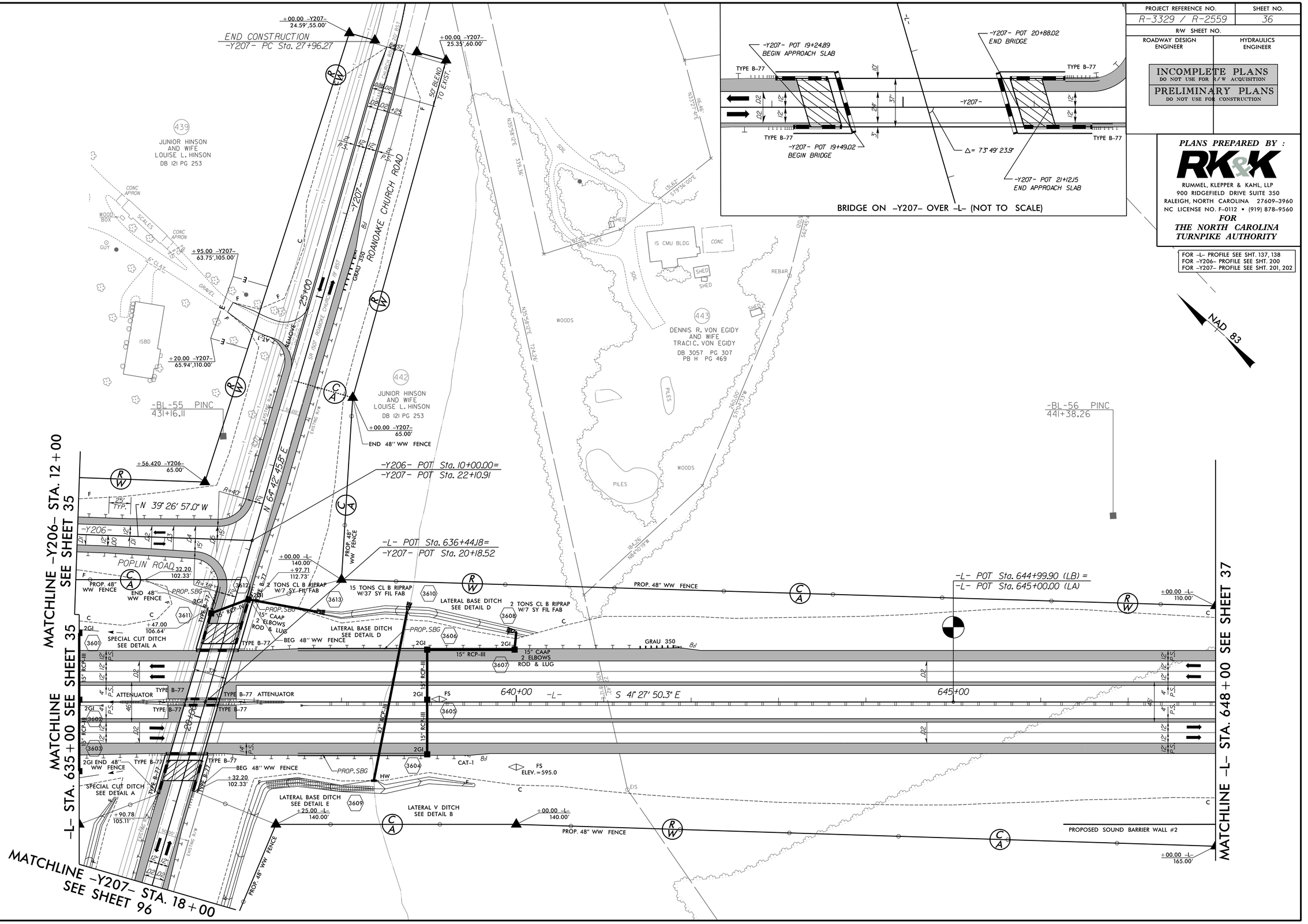
FOR -L- PROFILE SEE SHT. 137, 138
FOR -Y206- PROFILE SEE SHT. 200
FOR -Y207- PROFILE SEE SHT. 201, 202

NAD 83



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FEatures

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	88
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

-Y201-
PI Sta. 32+25.00
Δ = 9° 37' 17.7" (LT)
D = 1°16' 23.7"
L = 755.68'
T = 378.73'
R = 4,500.00'
SE = .03
DS = 50mph

NAD 83

BEGIN CONSTRUCTION
-Y201- PC Sta. 22+50.00

-Y201- PC Sta. 28+46.27

-BY201-7 PINC
57+25.68

R-3329-12 PINC
47+56.01

MATCHLINE -Y201- STA. 36+00 SEE SHEET 24

FUTURE DEVELOPMENT BY OTHERS

FOR -Y201- PROFILE SEE SHT. 187

320 SARDIS BAPTIST CHURCH
DB 4154 PG 155

331 DIMITRIOS P. HONDROS & WIFE KONSTANTINA HONDROS, DEMETRE KOURAKOS & WIFE DIMITRA KOURAKOS, ANDRIGOULA "FOTINI HONDROS & SOFIA J. HONDROS
DB 4772 PG 503

330 LARRY A. JOHNSON AND WIFE LISA W. JOHNSON
DB 477 PG 667
PB B PG 178B

329 KENNETH A. HOYLE AND WIFE SHIRLEY J. HOYLE
DB 403, PG 72
PB B, PG 178B

315 GARY L. VAUGHN AND WIFE, ROSE G. VAUGHN
DB 392 PG 260
PB B PG 178-B

326 TESTAMENTARY TRUST FOR THE BENEFIT OF DONNA MARIE STAMEY
DB 5316 PG 879

339 DAVID ZANE SMITH AND WIFE SHELLEY S. SMITH
DB 3654 PG 217
PB E PG 410

340 POPLAR ASSOCIATES, LLC AND RMP-STINSON, LLC
DB 4578 PG 191

437.5' UNIFORM TAPER (LANE SHIFT)

600' TAPER LANE DROP

150' TAPER

SPECIAL CUT BASE DITCH SEE DETAIL F

SPECIAL CUT BASE DITCH SEE DETAIL A

STANDARD BASE DITCH SEE DETAIL Y

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

STANDARD BASE DITCH SEE DETAIL K

5 TONS CL B RIPRAP W/14 SY FIL FAB

15 TONS CL B RIPRAP W/42 SY FIL FAB

50' BLEND TO EXIST.

PROP. 2'-6" CURB & GUTTER

PROP. 5' SIDEWALK

PROP. 48" WW FENCE

END 48" WW FENCE

UNIONVILLE-INDIAN TRAIL ROAD

SR 1527 SCOTT LONG RD

N 63° 09' 06.6" E 25+00

S 03°48'43" W 124.72'

249.29' S 52°16'48" W

S 48°16'48" W 129.12'

S 48°16'48" W 144.76'

N 88°47'27" W 200.01'

S 61°42'47" W 236.29'

N 29°44'05" W 131.67'

N 29°44'05" W 288.93'

S 27°25'38" W 206.04'

S 57°49'45" E 338.21'

N 03°48'43" E 281.82'

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8/27/2014
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kevins

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900 RIDGEFIELD DRIVE SUITE 350
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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	89
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

-SW1-

PI Sta 10+48.59	PI Sta 13+15.33	PI Sta 14+56.97
△ = 34° 22' 49.7" (LT)	△ = 40° 23' 51.7" (LT)	△ = 91° 15' 08.0" (RT)
D = 114° 35' 29.6"	D = 229° 10' 59.2"	D = 381° 58' 18.7"
L = 30.00'	L = 17.63'	L = 23.89'
T = 15.47'	T = 9.20'	T = 15.33'
R = 50.00'	R = 25.00'	R = 15.00'

-Y201-

PI Sta 60+13.05
△ = 66° 43' 59.3" (RT)
D = 3° 02' 51.5"
L = 2,189.66'
T = 1,238.06'
R = 1,880.00'
SE = .04
DS = 50mph

-Y203-

PI Sta 11+72.93
△ = 19° 48' 05.8" (RT)
D = 6° 09' 39.0"
L = 321.41'
T = 162.32'
R = 930.00'
SE = .04
DS = 50mph

-SR5- PT Sta. 81+21.77 25' BLEND TO EXIST.
+00.00 -SR5- 29.89',60.00'
+00.00 -SR5- 30.11',60.00'
N 17° 42' 11.5" E
POPLIN ROAD
END CONSTRUCTION -SR5- STA. 83+00.00
SPECIAL CUT DITCH SEE DETAIL A
-SR5- POT Sta. 79+17.94 = -SW1- POC Sta. 10+00.00
+21.77 -SR5- 60.00'
LATERAL DITCH SEE DETAIL B
END PROP. 2'-6" CURB & GUTTER STA. 79+47.71
MATCHLINE -SR5- STA. 79+00 SEE SHEET 24
-SW1- PC Sta. 10+33.12
-SW1- PT Sta. 10+63.12
-SW1- PC Sta. 13+06.14
-SW1- PT Sta. 13+23.76
-SW1- PC Sta. 14+41.64
-SW1- PT Sta. 14+65.53
-SW1- POT Sta. 14+89.91 = -Y201 POC Sta. 52+75.44
S 21° 13' 52.4" E
S 72° 05' 08.6" E
N 67° 30' 59.7" E
300' TAPER
60' TAPER
600' TAPER (LANE DROP)
END 48" WW FENCE
BEG 48" WW FENCE
+53.11 -Y201- 80.05'
+75.00 -Y201- 110.00'
+50.00 -Y201- 75.00'
+90.00 -Y201- 100.00'
+00.00 -Y201- 75.00',100.00'
+50.00 -Y201- 75.00',90.00'
2 TONS CL B RIPRAP W/7 SY FIL FAB
5 TONS CL B RIPRAP W/14 SY FIL FAB
PROP. 2'-6" CURB & GUTTER
PROP. 5' SIDEWALK
PROP. 48" WW FENCE
GRAU 350
UNIONVILLE-INDIAN TRAIL ROAD 60+00
-Y201- 55+00
-BY201-5 PINC 24+66.06
-BY201-4 PINC 20+25.22
-Y203- POT Sta. 10+00.00= -Y201- POC Sta. 61+12.16
-Y203- PC Sta. 10+10.60
437.5' UNIFORM TAPER
MATCHLINE -Y201- STA. 49+00 SEE SHEET 24
MATCHLINE -Y201- STA. 62+00 SEE SHEET 90
MATCHLINE -Y203- STA. 12+00 SEE SHEET 91
SPECIAL CUT DITCH SEE DETAIL A
LATERAL BASE DITCH SEE DETAIL D
PROP. 2'-6" CURB & GUTTER LATERAL BASE DITCH SEE DETAIL D
PROP. 1'-6" CURB & GUTTER
SPECIAL CUT DITCH SEE DETAIL A
LATERAL BASE DITCH SEE DETAIL D
+35.17 -NWA- 105.00'
22.59 -Y201- 243.24'
10.85 -Y201- 144.18'
+00.00 -Y203- 80.00'
+00.00 -Y203- 70.00'
CAT-1
R=50'
R=275'
15" RCP-III
18" RCP-III
8" PVC
4" P.S.L.
DI
8901
8902
8903
8904
8905
8906
8907
8908
8909
8910
8908
8909
2.44%
2.45%
2.43%
2.40%
2.41%
2.42%
S 82°17'58" W 183.05'
S 87°21'02" E 217.00'
S 17°56'46" E 18.21'
S 17°56'46" E 163.26'
S 72°44'13" E 163.26'
S 05°36'38" E 163.57'
S 84°14'48" E 255.82'
N 18°13'12" W 109.10'
N 88°52'41" E 332.38'
N 18°13'12" W 255.86'
S 25°18'22" E 363.55'
S 03°04'47" W 332.36'
S 03°04'47" W 335.04'
N 00°28'48" E 223.52'
N 00°04'42" W 332.36'
N 01°42'37" W 440.96'
S 88°20'29" E 73.77'
N 00°28'48" E 254.60'
N 41° 15' 46.6" E
S 72°05'08.6" E 228.82'
N 72°05'08.6" W 228.07'
S 17°54'47" W 7.28'
S 17°54'47" W 7.28'
S 72°05'08.6" E 228.82'
S 72°05'08.6" E 228.82'
S 72°05'08.6" E 228.82

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	90
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

-Y201- POT Sta. 74+68.89

END CONSTRUCTION
-Y201- POT Sta. 73+00.00

-BY201-2 PINC
9+27.38

-BY201-1 POT
5+00.00

-BY201-3 PINC
14+52.44

-Y201- PT Sta. 69+64.65

MATCHLINE -Y201- STA. 62+00
SEE SHEET 89

UNIONVILLE-INDIAN TRAIL ROAD

SPECIAL CUT DITCH
SEE DETAIL A

50' BLEND TO EXIST.

RETAIN

437.5' UNIFORM TAPER

S 59° 44' 11.8" E

65+00

10+00

MARSHALL R. RUSHING AND WIFE, MARILYN B. RUSHING
DB 216 PG 772
PB 5 PG 124

WILLIAM C. YORK AND WIFE, BARBARA R. YORK
DB 216 PG 169
PB 5 PG 124

JOSEPH W. TILLMAN AND WIFE, DEBORAH TILLMAN
PB 5 PG 124

FANNIE B. SPEER
DB 269 PG 101
PB 5 PG 124

MARLENE EASON MATHESON
DB 737 PG 748

MARLENE EASON MATHESON
DB 737 PG 748

JERRY WELCH ALEXANDER AND WIFE, MARY FRANCES ALEXANDER
DB 669 PG 697
DB 5188 PG 572

REECE E. ALEXANDER AND WIFE, CORNELIA H. ALEXANDER
DB 162 PG 605

ALEXANDER WIFE, A. ALEXANDER
PG 605

CAROL FINCH BOYD
DB 3774 PG 160

SYBIL J. BOYD
DB 3776 PG 8

ANNA C. KIKER
DB 175 PG 316

FOR -Y201- PROFILE SEE SHT. 188

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
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$$$$$$TIME$$$$$
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	91
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

-Y203-
PI Sta 21+60.83
△ = 38° 44' 59.7" (LT)
D = 5° 43' 46.5"
L = 676.31'
T = 351.66'
R = 1,000.00'
SE = .04
DS = 50mph

-Y203- STA. 12+00 SEE SHEET 89

-Y203- STA. 26+00 SEE SHEET 92

MATCHLINE

INDIAN TRAIL TOWN LIMITS

293 JOSEPH TIMOTHY EASON
DB 5261 PG 403

281 JAMES H. FRIZZELL AND WIFE, MARY E. FRIZZELL
DB 725 PG 416

280 DONALD P. SMITH AND WIFE MARY FORBIS SMITH
DB 484 PG 357

292 MARLENE EASON MATHESON
DB 737 PG 748

279 MARY FORBIS SMITH
DB 352 PG 581

PROP. 2'-6" CURB & GUTTER

LATERAL BASE DITCH SEE DETAIL D

+90.00 -Y203- 90.00'

-Y203- PC Sta. 18+09.17

2 TONS CL B RIPRAP W/7 SY FIL FAB

-Y203- PT Sta. 24+85.48

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL AI

+85.48 -Y203- 60.00'

+53.87 -Y203- 60.00'

PROP. 5' SIDEWALK

SPECIAL CUT DITCH SEE DETAIL A

+85.48 -Y203- 70.00'

2 TONS CL B RIPRAP W/7 SY FIL FAB

-Y203- PT Sta. 13+32.01

+00.00 -Y203- 70.00'

5 TONS CL B RIPRAP W/14 SY FIL FAB

LATERAL V DITCH SEE DETAIL B

+00.00 -Y203- 75.00'

SPECIAL CUT DITCH SEE DETAIL A

+80.00 -Y203- 70.00'

POPLIN ROAD

WOODS

SODOM

FOR -Y203- PROFILE SEE SHT. 194

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$TIME$$$$$
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	92
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

MATCHLINE -Y203- STA. 26+00 SEE SHEET 91

POPLIN ROAD

SR 1508 POPLIN RD 6" BST

S 42° 41' 30.6" W

END CONSTRUCTION -Y203B- POT Sta. 13+50.00

50' BLEND TO EXIST

RETAIN

+20.00 -Y203B- 30.25',50.00'
SPECIAL CUT DITCH SEE DETAIL A

45 TONS CL I RIPRAP W/90 SY FIL FAB

-Y203B- POT Sta. 13+63.80

SPECIAL CUT DITCH SEE DETAIL A

+00.00 -Y203B- 29.70',50.00'

-Y203B- PT Sta. 11+99.50

REMOVE

SPECIAL CUT BASE DITCH SEE DETAIL F

+15.00 -Y203- 75.15'

5 TONS CL B RIPRAP W/14 SY FIL FAB

PROP. 5' SIDEWALK

PROP. 2'-6" CURB & GUTTER

+72.81 -Y203- 54.91'

N 14° 41' 07.3" W

+28.41 -Y203- 65.00'

SPECIAL CUT DITCH SEE DETAIL A

2 TONS CL B RIPRAP W/7 SY FIL FAB

-Y203- PC Sta. 28+28.41

-Y203B- PC Sta. 10+00.00=
-Y203- POC Sta. 30+99.63

+75.00 -Y203- 55.00'

PROP. 5' SIDEWALK

END PROP. 2'-6" CURB & GUTTER STA. 32+00.00 LT

GRADE TO DRAIN

+00.00 -Y203- 56.87'

+75.00 -Y203- 55.00'

+00.00 -Y203- 70.00'

SPECIAL CUT DITCH SEE DETAIL A

+75.00 -Y203- 55.00'

-Y203- POT Sta. 37+11.41

REMOVE 22' 24 TONS CL B RIPRAP W/63 SY FIL FAB

+25.00 -Y203- 55.00'

50' BLEND TO EXIST

+00.00 -Y203- 55.00'

+25.45 -Y203- 29.56'

SPECIAL CUT DITCH SEE DETAIL A

+00.00 -Y203- 30.17',55.00'

-Y203- PT Sta. 35+23.43

END CONSTRUCTION -Y203- POT Sta. 37+00.00

N 28° 08' 07.3" W

35+00

30+00

WILLIAM M. NICCOLAI, JR. AND WIFE, AMY NICCOLAI
DB 4781 PG 301
PB 6 PG 94

DONALD P. SMITH AND WIFE MARY FORBIS SMITH
DB 484 PG 357

GAY DOUGLAS PRIVETTE AND WIFE JANICE W. PRIVETTE
DB 980 PG 723

MARY FORBIS SMITH
DB 352 PG 581

GAY D. PRIVETTE AND WIFE, JANICE W. PRIVETTE
DB 396 PG 940
DB 396 PG 945

BONTERRA VILLAGE HOMEOWNERS ASSOCIATION, INC.
DB 5266 PG 834
PB H PG 605

ANDREW W. TURNER & WIFE SARAH Y. TURNER
PID#0702401G
5807 POPLIN RD.
DB 209 PG 490

JAMES A. SILVUS
DB 571 PG 773

EULA PRICE
DB 154 PG 473

-Y203-	-Y203B-
PI Sta 31+93.05	PI Sta 11+05.40
Δ = 42° 49' 08.9" (RT)	Δ = 45° 43' 20.6" (LT)
D = 6° 09' 39.0"	D = 22° 55' 05.9"
L = 695.02'	L = 199.50'
T = 364.64'	T = 105.40'
R = 930.00'	R = 250.00'
SE = .04	SE = .04
DS = 50mph	DS = 30mph

FOR -Y203- PROFILE SEE SHT. 194
FOR -Y203B- PROFILE SEE SHT. 193

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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-SR8-	-DR2_2B-	
PI Sta 10+90.00	PI Sta 10+59.00	PI Sta 13+36.32
△ = 91° 40' 40.9" (LT)	△ = 90° 00' 04.4" (RT)	△ = 65° 03' 44.3" (LT)
D = 95° 29' 34.7"	D = 143° 14' 22.0"	D = 143° 14' 22.0"
L = 96.01'	L = 62.83'	L = 45.42'
T = 61.78'	T = 40.00'	T = 25.51'
R = 60.00'	R = 40.00'	R = 40.00'
SE = 0.02	SE = 0.02	SE = 0.02
DS = 15 MPH	DS = 15 MPH	DS = 15 MPH

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	93
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

394 VIRGINIA M. TYSON
DB 1299 PG 46
PB C PG 361

393 B. IVAN SECREST
DB 358 PG 630

392 B. IVAN SECREST
DB 358 PG 630

391 W. N. JARMAN AND WIFE, JEANETTE B. JARMAN
DB 190 PG 42

390 KIM D. KILLET
DB 4728 PG 478

399 IRON PEDDLERS II, LLC
DB 4576 PG 461

IRON PEDDLERS II, LLC
DB 4576 PG 458

397 DECOY TRUCKING, INC.
DB 412 PG 196

396 DECOY TRUCKING, INC
DB 416 PG 517
PB C PG 36

400 DECORATIVE CREATIONS, INC.
DB 1277 PG 627

-DR2_2B- PC Sta. 10+19.00
-DR2_2B- PT Sta. 10+81.83
-DR2_2B- PC Sta. 13+10.80
-DR2_2B- PT Sta. 13+56.23
-DR2_2B- POT Sta. 14+04.37
-BY204-6 PINC 50+85.08
-BY204-5 PINC 46+05.18
-BY204-7 PINC 57+89.97
-Y204- POT Sta. 10+00.00
-Y204- POT Sta. 10+75.00
-Y204- PC Sta. 11+65.18
-SR8- POT Sta. 10+00.00≈
-DR2_2B- POT Sta. 10+00.00≈
-Y204- POT Sta. 12+25.00
-SR8- PC Sta. 10+28.22
-SR8- PT Sta. 11+24.22
-SR8- POT Sta. 16+96.83

MATCHLINE -Y204- STA. 19+00 SEE SHEET 28

ROCKY RIVER ROAD

BEGIN CONSTRUCTION

ROCK FILL IN POND SEE DETAIL AM

5 TONS CL B RIPRAP W/14 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

SPECIAL CUT DITCH SEE DETAIL A

STANDARD V DITCH SEE DETAIL J

PROP. 48" WW FENCE

50' BLEND TO EXIST.

BEG 48" WW FENCE

END 48" WW FENCE

10' CITY OF MONROE GENERAL PUBLIC UTILITY EASEMENT

FOR -Y204- PROFILE SEE SHT. 195

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	94
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

-Y204-

PIs Sta 41+47.07	PI Sta 43+16.12	Pls Sta 44+84.73
Θs = 3° 28' 43.2"	△ = 9° 10' 50.9" (RT)	Θs = 3° 28' 43.2"
Ls = 170.00'	D = 4° 05' 33.2"	Ls = 170.00'
LT = 113.36'	L = 224.33'	LT = 113.36'
ST = 56.69'	T = 112.41'	ST = 56.69'
	R = 1,400.00'	
	SE = EXIST	
	DS = 50mph	

-SR7-

PI Sta 11+84.72
△ = 83° 28' 34.5" (RT)
D = 38° 11' 49.9"
L = 218.54'
T = 133.82'
R = 150.00'
SE = 0.06
DS = 25mph

NAD 83

GREGORY B. AUSTIN AND WIFE, CANDICE R. AUSTIN
DB 3555 PG 843
PB F PG 948

LEROY M. POLITOWICZ AND WIFE, SHERRI R. POLITOWICZ
DB 1369 PG 469
PB F PG 948

PHILLIP A. RANDAZZO
DB 1615 PG 536

JARRED A. FREEMAN
DB 3176 PG 566

CO-OWNERSHIP:
THE HAROLD & PAULINE FUNDERBURK LIVING TRUST
& GAYLE M. TOLBERT
DB 3182 PG 123
DB 4113 PG 723

LARRY LEE LEONARD AND WIFE JEAN S. LEONARD
CRAIG LEE LEONARD AND WIFE, JEAN C. LEONARD
DB 4973 PG 331

CRAIG LEE LEONARD AND WIFE, JEAN C. LEONARD
LARRY LEE LEONARD AND WIFE, JEAN S. LEONARD
DB 1227 PG 417

JOE C. LITTLE
DB 1973 PG 50

CRAIG L. LEONARD AND WIFE JEAN LEONARD
LARRY L. LEONARD AND WIFE JEAN S. LEONARD
DB 753 PG 480

HARRY A. STROUD AND WIFE, C. JACKIE STROUD
DB 1683 PG 120

-BY204-3 PINC
18+26.05

-BY204-4 PINC
23+89.05

-SR7- POT Sta. 10+00.00=
-Y204- POC Sta. 39+68.46

-Y204- POC Sta. 42+53.72

-Y204- POT Sta. 50+03.84

-Y204- CS Sta. 44+28.04

-Y204- ST Sta. 45+98.04

-Y204- CS Sta. 40+33.72

-Y204- SC Sta. 42+03.72

-SR7- PC Sta. 10+50.90

-DR1_2B- POT Sta. 11+72.57

-DR1_2B- POT Sta.10+00.00=
-SR7- POC Sta.11+31.69

ROCKY RIVER ROAD

MATCHLINE -Y204- STA. 38+50 SEE SHEET 28

MATCHLINE -SR7- STA. 12+00 SEE SHEET 28

FOR -Y204- PROFILE SEE SHT. 196
FOR -SR7- PROFILE SEE SHT. 196

PLANS PREPARED BY :

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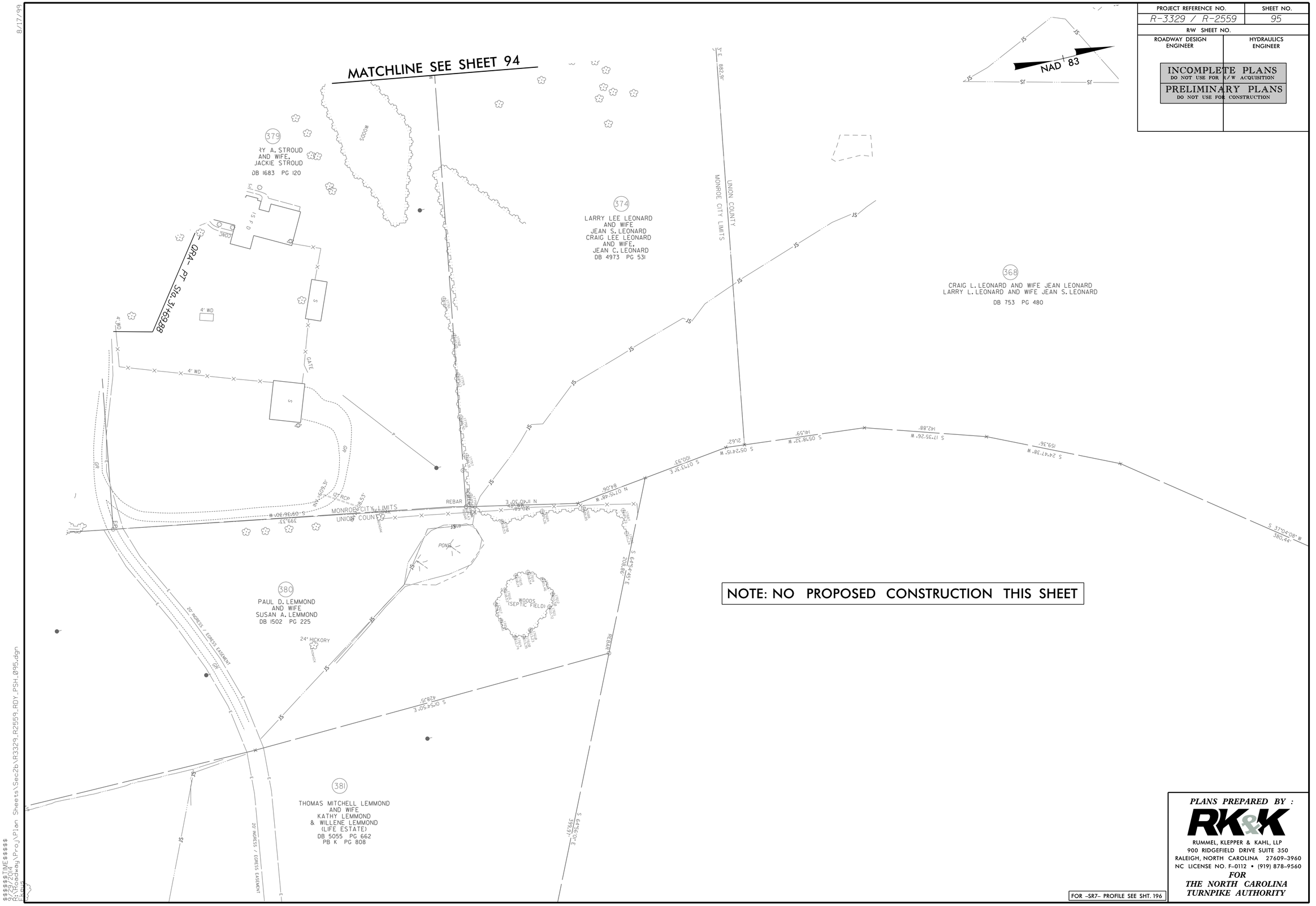
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	95
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTE: NO PROPOSED CONSTRUCTION THIS SHEET

FOR -SR7- PROFILE SEE SHT. 196

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kevin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	96
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

-Y207-
PI Sta 12+94.88
△ = 4° 43' 18.4" (RT)
D = 1° 08' 45.3"
L = 412.05'
T = 206.14'
R = 5,000.00'
SE = .02
DS = 40mph

NAD 83

S 75°18'14" W 204.55'

S 46°06'28" W 288.22'

SEACREST SHORTCUT RD.

EVELYN FRANKS & JOHN G. FRANKS ZEZECH
DB 1623 PG 667

JAMES C. & QUN BURGESS
DB 4245 PG 855

JOYCE FUNDERBURK
DB 4535 PG 769

JESSE PAUL & YVONNE MA CAMPBELL
DB 1137 PG 448

PATRICK A. & GAYLE B. SECREST
DB 426 PG 777

PATRICK A. & GAYLE B. SECREST
DB 526 PG 308

RODNEY ALAN & MELINDA T. SECREST
DB 1618 PG 131

DARRELL B. & MARTHA ANN G. CATRON
DB 404 PG 820

JAMES D. & KAREN M. CAMPBELL
DB 4974 PG 411

LEWIS H. POLITOWICZ SR.
DB 1202 PG 702

JUNIOR HINSON AND WIFE LOUISE L. HINSON
DB 121 PG 253

S 58°16'07" W 267.95'

S 58°16'07" W 267.79'

N 32°20'00" W 1334.4'

N 32°47'34" W 1334.00'

N 59° 59' 27.4" E

N 64° 42' 45.8" E

-Y207- POT Sta. 10+00.00

-Y207- PC Sta. 10+88.73

-Y207- PT Sta. 15+00.79

BEGIN CONSTRUCTION -Y207- POT Sta. 10+12.00
1.5" PAVEMENT OVERLAY

50' BLEND TO EXIST.

ROANOAKE CHURCH ROAD

GRAU 350

REMOVE

25' TYP.

LATERAL V DITCH SEE DETAIL B BEG 48" WW FENCE

PROP. 48" WW FENCE

END 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

5 TONS CL B RIPRAP W/14 SY FIL FAB

+60.00 -Y207- 225.00'

+65.00 -Y207- 25.32',50.00'

+00.00 -Y207- 50.00'

+00.79 -Y207- 72.00'

+65.00 -Y207- 24.69',50.00'

+50.00 -Y207- 50.00'

+90.00 -Y207- 50.00',75.00'

+40.00 -Y207- 50.00',75.00'

+00.79 -Y207- 69.56'

+00.00 -Y207- 87.95'

MATCHLINE -Y207- STA. 18+00 SEE SHEET 36

MATCHLINE SEE SHEET 35

FOR -Y207- PROFILE SEE SHT. 201

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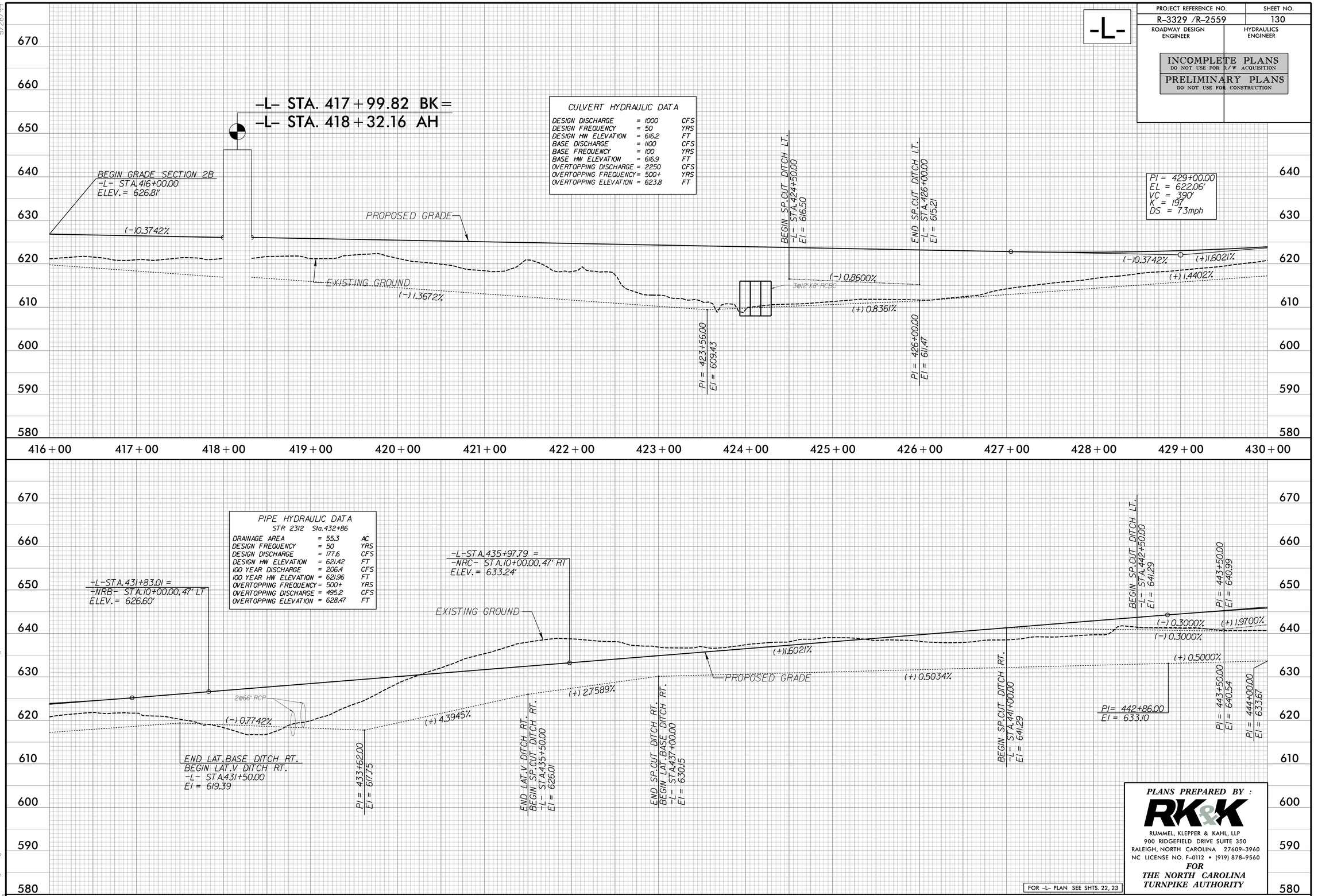
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	130
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -L- PLAN SEE SHTS. 22, 23

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Pkelly

5/28/99

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	131
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 446+00.00
EL = 649.30'
VC = 630'
K = 262
DS = 71mph

(+)1.9700%
(+)11.6021%
(−)0.8000%
(+) 0.6200%
(+) 0.3000%
(−) 0.4243%
(+) 3.4400%
(−) 0.7400%
(+) 0.3000%

EXISTING GROUND
PROPOSED GRADE

-L-STA.455+90.28 =
-Y201- STA.451+04.14
ELEV.= 641.38'

PI = 444+00.00
EI = 633.67'

END SP.CUT DITCH LT.
-L- STA.444+50.00
EI = 642.96

END LAT.BASE DITCH RT.
-L- STA.445+50.00
EI = 638.83

PI = 447+00.00
EI = 641.59

BEGIN SP.CUT DITCH LT.
-L- STA.449+00.00
EI = 646.28

END SP.CUT DITCH LT.
-L- STA.450+00.00
EI = 646.90

BEGIN MED.V DITCH
-L- STA.453+50.00
EI = 640.23

PI = 454+00.000
EI = 639.860

END SP.CUT DITCH RT.
-L- STA.454+00.00
EI = 638.62

END MED.V DITCH
-L- STA.455+00.00
EI = 640.6

444+00 445+00 446+00 447+00 448+00 449+00 450+00 451+00 452+00 453+00 454+00 455+00 456+00 457+00 458+00

600 610 620 630 640 650 660 670 680 690

EXISTING GROUND
PROPOSED GRADE

PI = 471+00.00
EL = 629.30'
VC = 1,200'
K = 1060
DS > 80mph

(−) 0.7400%
(−) 0.5800%
(+) 0.3000%
(+) 0.3000%
(−)0.8000%
(+)0.3319%
(−) 0.3000%

BEGIN SP.CUT DITCH RT.
-L- STA.463+50.00
EI = 631.10

BEGIN SP.CUT DITCH LT.
-L- STA.465+50.00
EI = 629.45

PI = 466+50.000
EI = 628.87 LT.
EI = 628.88 RT.

END SP.CUT DITCH LT.
-L- STA.469+00.00
EI = 629.62

END SP.CUT DITCH RT.
EI = 629.63

BEGIN SP.CUT BASE DITCH LT.
-L- STA.470+50.00
EI = 625.65

FOR -L- PLAN SEE SHT. 24

458+00 459+00 460+00 461+00 462+00 463+00 464+00 465+00 466+00 467+00 468+00 469+00 470+00 471+00 472+00

580 590 600 610 620 630 640 650 660 670

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5/28/99

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	132
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 481+00.00
EL = 632.62'
VC = 800'
K = 659
DS > 80mph

PIPE HYDRAULIC DATA
STR 2507 Sta.483+00

DRAINAGE AREA	= 62.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 199.8	CFS
DESIGN HW ELEVATION	= 622.21	FT
100 YEAR DISCHARGE	= 232.2	CFS
100 YEAR HW ELEVATION	= 623.13	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 423.5	CFS
OVERTOPPING ELEVATION	= 630.35	FT

-L- STA. 474+99.65 =
-NRA- STA. 10+00.00, 47' LT
ELEV. = 630.82'

-L- STA. 477+48.77 =
-NRD- STA. 10+00.00, 47' RT
ELEV. = 631.44'

BEGIN SP.CUT BASE DITCH RT.
-L- STA. 472+50.00
El = 625.59

PROPOSED GRADE

EXISTING GROUND

(+)0.3319%

(-) 0.3000%

(-) 1.0323%

(-) 2.8333%

(-) 0.2733%

(-) 0.3333%

(-) 1.0343%

(+) 0.5248%

54" &2@42" RCP

END SP.CUT BASE DITCH LT.
BEGIN LAT.BASE DITCH LT.
-L- STA.473+50.00
El = 624.75

PI = 474+00.000
El = 624.60

PI = 474+62.000
El = 623.96 LT.
El = 624.95 RT.

PI = 476+00.000
El = 620.05

BEGIN MED.V DITCH
-L- STA.476+50.00
El = 628.27

END SP.CUT BASE DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA.477+00.00
El = 624.24

END MED.V DITCH
-L- STA.478+00.00
El = 628.68

PI = 482+15.00
El = 618.00

END LAT.BASE DITCH RT.
-L- STA.484+00.00
El = 617.00

(+)0.5248%

(-) 0.5700%

(-)0.8817%

(-) 0.3920%

(-) 0.3500%

(-) 2.0800%

℄ TOLL ZONE 4-1 &4-2
-L-STA. 495+00.00

END LAT.BASE DITCH LT.
-L- STA.488+00.00
El = 621.07

BEGIN MED.V DITCH
-L- STA.490+00.00
El = 621.17

END MED.V DITCH
-L- STA.491+00.00
El = 620.60

BEGIN SP.CUT DITCH LT.
-L- STA.494+75.00
El = 615.82

END SP.CUT DITCH LT.
-L- STA.496+00.00
El = 615.33

BEGIN SP.CUT DITCH RT.
-L- STA.496+50.00
El = 614.38

END SP.CUT DITCH RT.
-L- STA.497+50.00
El = 614.03

BEGIN LAT.BASE SWALE LT.
-L- STA.499+00.00
El = 608.03

PI = 499+50.00
El = 606.99

FOR -L- PLAN SEE SHTS. 25, 26

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	133
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BRIDGE HYDRAULIC DATA
STR NA Sta. 511+71

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5300	CFS
DESIGN HW ELEVATION	= 610.4	FT
100 YEAR DISCHARGE	= 6800	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 610.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 14500	CFS
OVERTOPPING ELEVATION	= 615.3	FT

PI = 503+00.00
EL = 613.22'
VC = 500'
K = 301
DS > 80mph

PROPOSED GRADE

SOUTH FORK CROOKED CREEK

NAT GRND RT

NAT GRND LT

EXISTING GROUND

(−)0.8817%

(+)0.7778%

(−) 0.5005%

(−) 1.9087%

(−) 0.3500%

(−) 3.0447%

(−) 0.3000%

(−) 2.4450%

PI = 503+15.65
EI = 605.16

PI = 504+00.00
EI = 603.55

PI = 507+00.00
EI = 602.50

PI = 508+50.00
EI = 597.93

END LAT. BASE SWALE LT.
-L- STA. 511+61.00
EI = 597.00

BEGIN LAT. V DITCH RT.
-L- STA. 513+00.00
EI = 608.57

660 650 640 630 620 610 600 590 580 570

500+00 501+00 502+00 503+00 504+00 505+00 506+00 507+00 508+00 509+00 510+00 511+00 512+00 513+00 514+00

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 460	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 610.0	FT
BASE DISCHARGE	= 500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 610.5	FT
OVERTOPPING DISCHARGE	= 3350	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 623.6	FT

PROPOSED GRADE

(+)0.7778%

(2) 8'x8' RCBC

24" RCP

(−) 2.4456%

(−) 1.8571%

(+) 1.3000%

(+) 5.2467%

(+) 1.6000%

(+) 2.2568%

EXISTING GROUND

END LAT. V DITCH RT.
BEGIN LAT. BASE DITCH RT.
PI = 515+00.00
EI = 603.68

END LAT. BASE DITCH RT.
-L- STA. 516+12.00
EI = 601.60

BEGIN LAT. BASE SWALE LT.
-L- STA. 516+00.00
EI = 603.70

END LAT. BASE SWALE LT.
-L- STA. 517+00.00
EI = 605.00

BEGIN LAT. BASE DITCH RT.
-L- STA. 519+25.00
EI = 607.81

PI = 524+00.00
EI = 618.53

BEGIN LAT. BASE SWALE LT.
-L- STA. 524+50.00
EI = 622.15

END LAT. BASE DITCH RT.
-L- STA. 525+50.00
EI = 626.40

END LAT. BASE SWALE LT.
-L- STA. 526+00.00
EI = 624.55

660 650 640 630 620 610 600 590 580 570

514+00 515+00 516+00 517+00 518+00 519+00 520+00 521+00 522+00 523+00 524+00 525+00 526+00 527+00 528+00

FOR -L- PLAN SEE SHTS. 27, 28

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FOR
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$$$$$$TIME$$$$$$
$$$$$$DATE$$$$$$
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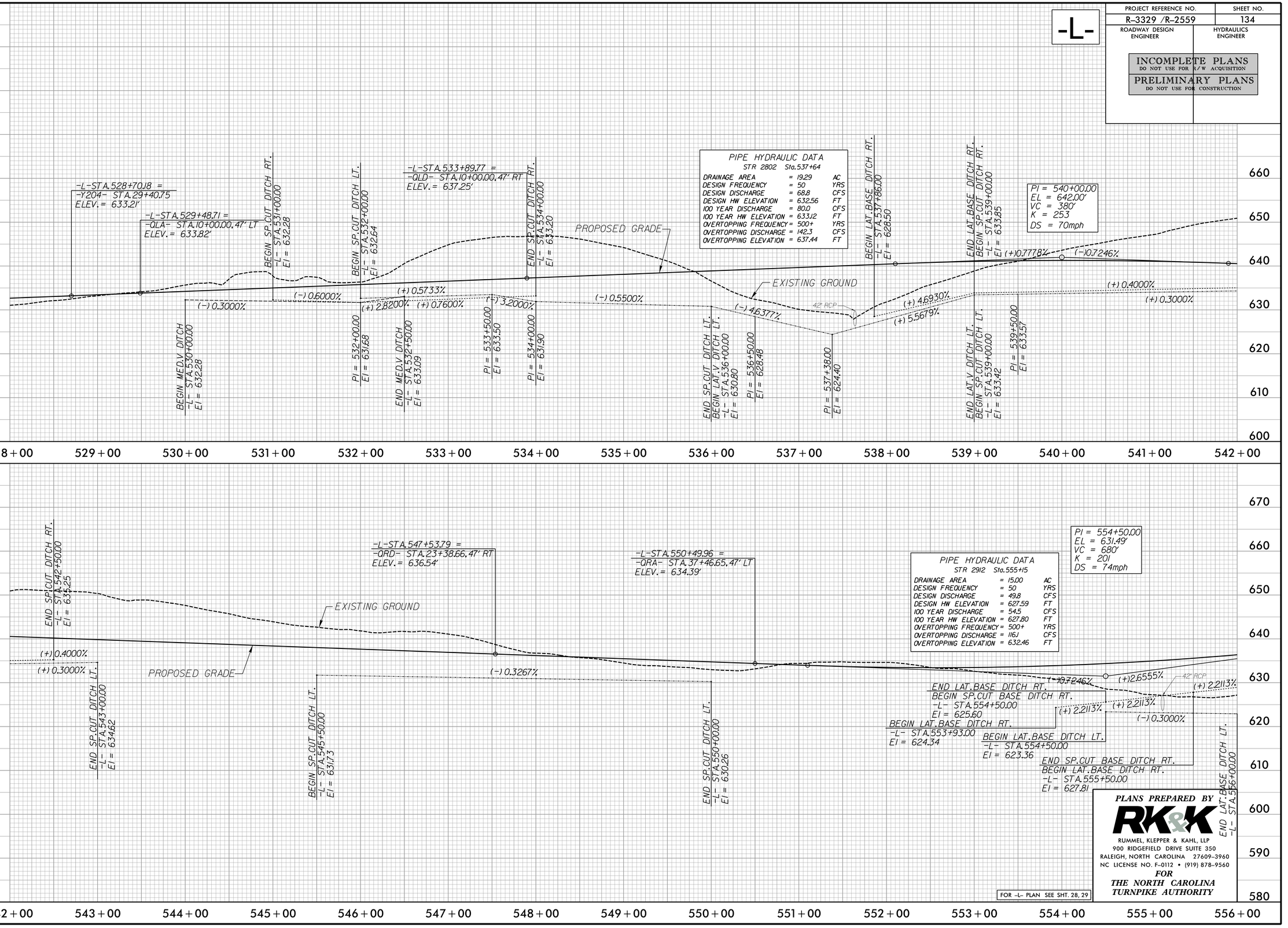
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	134
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



FOR -L- PLAN SEE SHT. 28, 29

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	135
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- STA. 565+61.47 =
-Y208- STA. 15+62.34
ELEV. = 649.57'

PI = 565+80.00
EL = 661.50'
VC = 1,580'
K = 260
DS = 71mph

(+)2.6555%
(-)3.4159%
PROPOSED GRADE
EXISTING GROUND
30" RCP
24" RCP

(+) 2.2113%
(-) 2.3000%
(-) 2.9099%
(-) 2.2174%
(-) 0.3067%
(+) 0.3967%
(-) 0.5000%
(+) 1.0000%
(-) 3.4545%
(+) 0.9091%

EI = 622.91
BEGIN LAT. BASE DITCH LT.
-L- STA. 556+25.00
EI = 622.84

PI = 557+00.00
EI = 622.61

END LAT. BASE DITCH RT.
BEGIN LAT. V DITCH RT.
-L- STA. 558+00.00
EI = 633.34

END LAT. V DITCH RT.
BEGIN LAT. BASE DITCH RT.
-L- STA. 559+10.00
EI = 630.81

PI = 560+00.00
EI = 623.80

END LAT. BASE DITCH LT.
-L- STA. 561+61.00
EI = 620.23

END LAT. BASE DITCH RT.
-L- STA. 562+32.00
EI = 621.44

BEGIN LAT. BASE DITCH LT.
-L- STA. 566+50.00
EI = 626.00

BEGIN LAT. BASE DITCH RT.
-L- STA. 566+50.00
EI = 623.50

PI = 567+50.00
EI = 623.00

PI = 569+25.00
EI = 616.50

END LAT. BASE DITCH RT.
-L- STA. 569+50.00
EI = 625.00

556+00 557+00 558+00 559+00 560+00 561+00 562+00 563+00 564+00 565+00 566+00 567+00 568+00 569+00 570+00

680 670 660 650 640 630 620 610 600 590

660 650 640 630 620 610 600 590 580 570

570+00 571+00 572+00 573+00 574+00 575+00 576+00 577+00 578+00 579+00 580+00 581+00 582+00 583+00 584+00

(+) 0.9091%
(+) 1.2833%
(-)3.4159%
(+)0.4039%
(-) 0.3000%
(-) 0.3000%
(-) 5.1200%

END LAT. BASE DITCH LT.
-L- STA. 572+00.00
EI = 619.00

BEGIN LAT. BASE DITCH RT.
-L- STA. 573+00.00
EI = 618.00

END LAT. BASE DITCH RT.
BEGIN SP. CUT DITCH RT.
-L- STA. 575+00.00
EI = 620.57

END SP. CUT DITCH RT.
-L- STA. 576+00.00
EI = 621.85

PI = 580+00.00
EL = 612.99'
VC = 1,000'
K = 262
DS > 80mph

BEGIN SP. CUT DITCH RT.
-L- STA. 582+50.00
EI = 610.88

BEGIN MED. V DITCH
-L- STA. 583+00.00
EI = 611.90
BEGIN SP. CUT DITCH LT.
EI = 610.77

PI = 584+00.00
EI = 611.500 MED.
EI = 610.47 LT.

FOR -L- PLAN SEE SHTS. 30, 31, 32

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-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	136
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
STR 3201 Sta.591+21

DRAINAGE AREA	= 23.60	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 79.9	CFS
DESIGN HW ELEVATION	= 610.24	FT
100 YEAR DISCHARGE	= 92.9	CFS
100 YEAR HW ELEVATION	= 610.80	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 173.2	CFS
OVERTOPPING ELEVATION	= 614.65	FT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 606.2	FT
BASE DISCHARGE	= 650	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 606.5	FT
OVERTOPPING DISCHARGE	= 1295	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 614.7	FT

PI = 596+00.00
EL = 619.46'
VC = 1,760'
K = 775
DS > 80mph

PI = 584+00.00
EI = 611.600 MED.
EI = 610.47 LT.

END MED.V DITCH
-L- STA.585+00.00
EI = 611.94
END SP.CUT DITCH LT.
EI = 610.81
BEGIN LAT.BASE DITCH LT.
-L- STA.585+50.00
EI = 603.40

PI = 585+00.00
EI = 599.73

END SP.CUT DITCH RT.
BEGIN LAT.BASE DITCH RT.
-L- STA.584+00.00
EI = 603.20

END LAT.BASE DITCH RT.
-L- STA.586+00.00
EI = 603.20

PI = 586+50.00
EI = 598.11

END LAT.BASE DITCH LT.
-L- STA.587+75.00
EI = 595.61

BEGIN MED.V DITCH
-L- STA.588+00.00
EI = 613.11
BEGIN SP.CUT DITCH RT.
EI = 611.85

PI = 589+00.000
EI = 612.50

PI = 589+50.000
EI = 614.060

BEGIN LAT.V DITCH LT.
-L- STA.591+18.00
EI = 600.73

END SP.CUT DITCH RT.
BEGIN LAT.V DITCH RT.
-L- STA.590+50.00
EI = 609.61

PI =591+25.000
EI = 606.00

END LAT.V DITCH LT.
-L- STA.591+70.00
EI = 601.00

PI =592+00.000
EI = 606.63

END MED.V DITCH
-L- STA.592+50.00
EI = 613.16
BEGIN SP.CUT DITCH LT.
EI = 610.06

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA.593+00.00
EI = 609.00

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA.593+00.00
EI = 609.00

END SP.CUT DITCH LT.
-L- STA.595+00.00
EI = 610.81

END SP.CUT DITCH RT.
-L- STA.595+50.00
EI = 610.61

EXISTING GROUND
PROPOSED GRADE

(+) 0.3400%
(+) 0.3400%
(-) 5.2900%
(-) 3.4700%
(+) 3.4700%
(-) 2.0000%
(+) 0.6333%
(+) 0.6500%
(-) 2.8889%
(-) 0.3000%
(-) 2.8889%
(+) 0.8400%
(+) 0.5192%
(+) 2.3700%
(+) 0.3000%
(+) 0.6440%
(+)0.4039%
(-)1.8657%

12'X7' RCBC
2ø36" RCP
48" RCP

660 650 640 630 620 610 600 590 580 570

584+00 585+00 586+00 587+00 588+00 589+00 590+00 591+00 592+00 593+00 594+00 595+00 596+00 597+00 598+00

PIPE HYDRAULIC DATA
STR 3301 Sta.605+35

DRAINAGE AREA	= 41.25	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 155.4	CFS
DESIGN HW ELEVATION	= 595.80	FT
100 YEAR DISCHARGE	= 180.6	CFS
100 YEAR HW ELEVATION	= 596.45	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 248.6	CFS
OVERTOPPING ELEVATION	= 598.55	FT

PI = 607+50.00
EL = 598.00'
VC = 540'
K = 249
DS > 80mph

BEGIN LAT.BASE DITCH LT.
-L- STA.598+00.00
EI = 608.54
BEGIN LAT.V DITCH RT.
EI = 608.54

BEGIN SP.CUT DITCH RT.
-L- STA.599+50.00
EI = 608.00

END SP.CUT DITCH RT.
-L- STA.600+00.00
EI = 606.31

END LAT.V DITCH RT.
-L- STA.598+68.00
EI = 605.15

END LAT.BASE DITCH LT.
-L- STA.600+20.00
EI = 600.25

BEGIN LAT.V DITCH RT.
-L- STA.604+25.00
EI = 591.50

PI = 604+89.000
EI = 590.20

BEGIN LAT.V DITCH LT.
-L- STA.605+00.00
EI = 589.00

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH LT.
-L- STA.605+45.00
EI = 592.00

PI = 605+82.000
EI = 587.73

END LAT.V DITCH LT.
BEGIN SP.CUT DITCH LT.
-L- STA.606+20.00
EI = 588.50

BEGIN MED.V DITCH
-L- STA.608+50.00
EI = 595.81

-L-STA.610+41.01 =
-CUL3- STA.10+00.00
ELEV. = 598.89'

PI = 609+50.000
EI = 595.60 RT.
EI = 595.51 MED.

PI = 609+50.000
EI = 592.09

END MED.V DITCH
-L- STA.610+50.00
EI = 595.84 MED.
EI = 594.91 LT.

EXISTING GROUND
PROPOSED GRADE

(-) 4.9863%
(-) 3.7682%
(-) 3.3800%
(+) 3.2143%
(-) 2.0312%
(-) 1.5488%
(+) 2.0263%
(-)1.8657%
(+)0.3042%
(+) 0.8889%
(+) 1.0879%
(-) 0.3000%
(+) 0.3300%
(+) 2.8200%
(-) 0.5000%
(-) 1.8400%

30" RCP
72" RCP

FOR -L- PLAN SEE SHT. 32, 33, 34

640 630 620 610 600 590 580 570 560 550

598+00 599+00 600+00 601+00 602+00 603+00 604+00 605+00 606+00 607+00 608+00 609+00 610+00 611+00 612+00

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	137
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

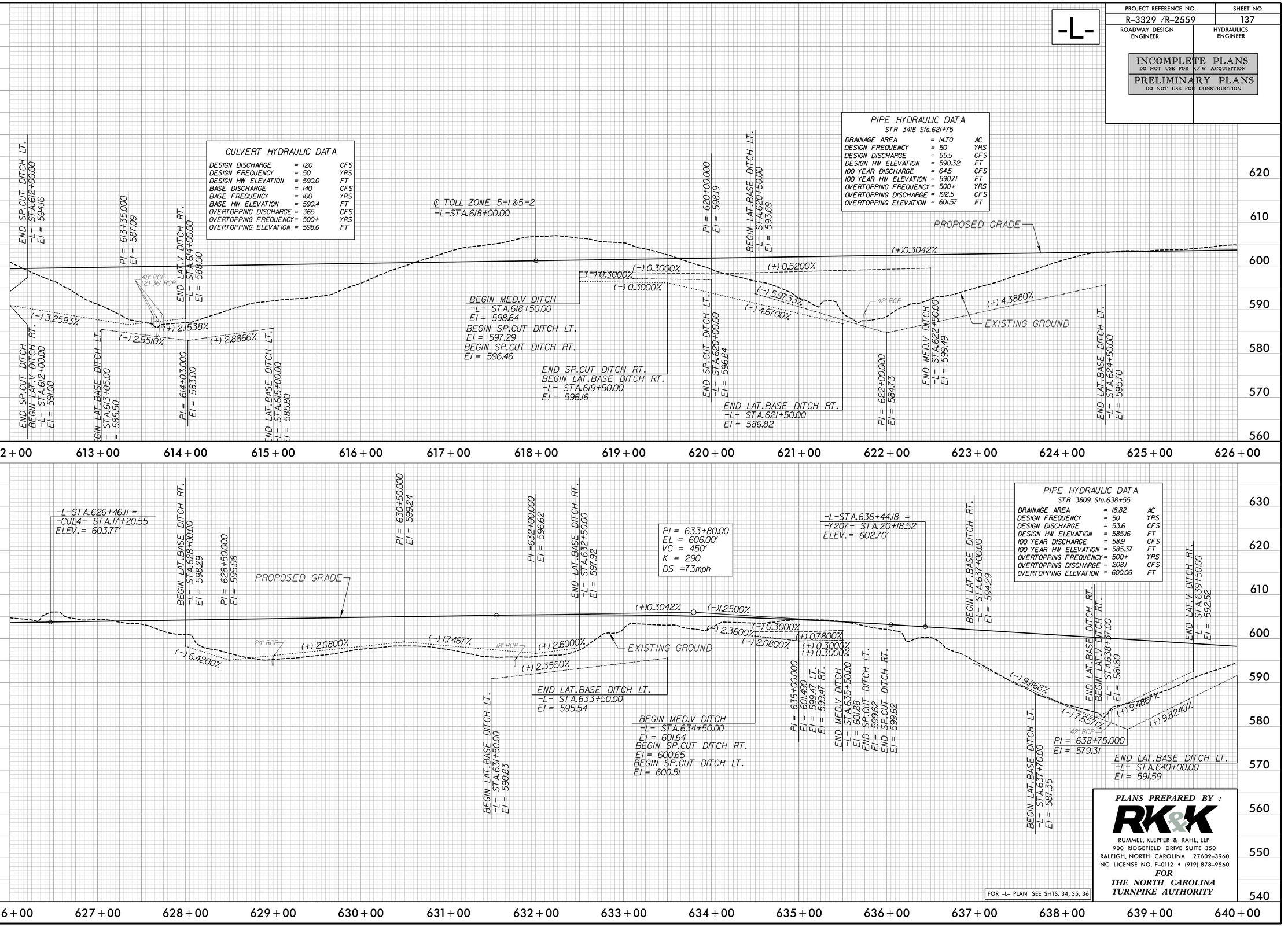
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 120	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 590.0	FT
BASE DISCHARGE	= 140	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 590.4	FT
OVERTOPPING DISCHARGE	= 365	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 598.6	FT

PIPE HYDRAULIC DATA
STR 3418 Sta.621+75

DRAINAGE AREA	= 14.70	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55.5	CFS
DESIGN HW ELEVATION	= 590.32	FT
100 YEAR DISCHARGE	= 64.5	CFS
100 YEAR HW ELEVATION	= 590.71	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 192.5	CFS
OVERTOPPING ELEVATION	= 601.57	FT



PIPE HYDRAULIC DATA
STR 3609 Sta.638+55

DRAINAGE AREA	= 18.82	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 53.6	CFS
DESIGN HW ELEVATION	= 585.16	FT
100 YEAR DISCHARGE	= 58.9	CFS
100 YEAR HW ELEVATION	= 585.37	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 208.1	CFS
OVERTOPPING ELEVATION	= 600.06	FT

FOR -L- PLAN SEE SHTS. 34, 35, 36

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	138
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PRELIMINARY PLANS
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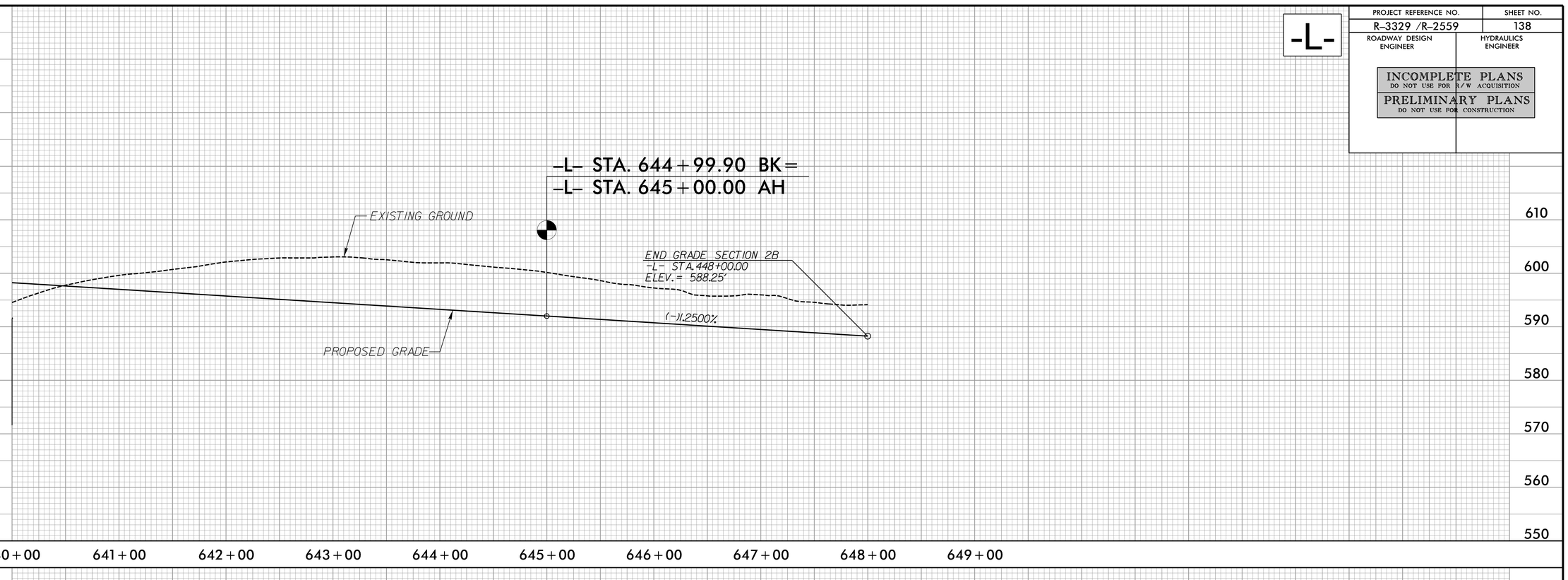

FOR -L- PLAN SEE SHT. 36

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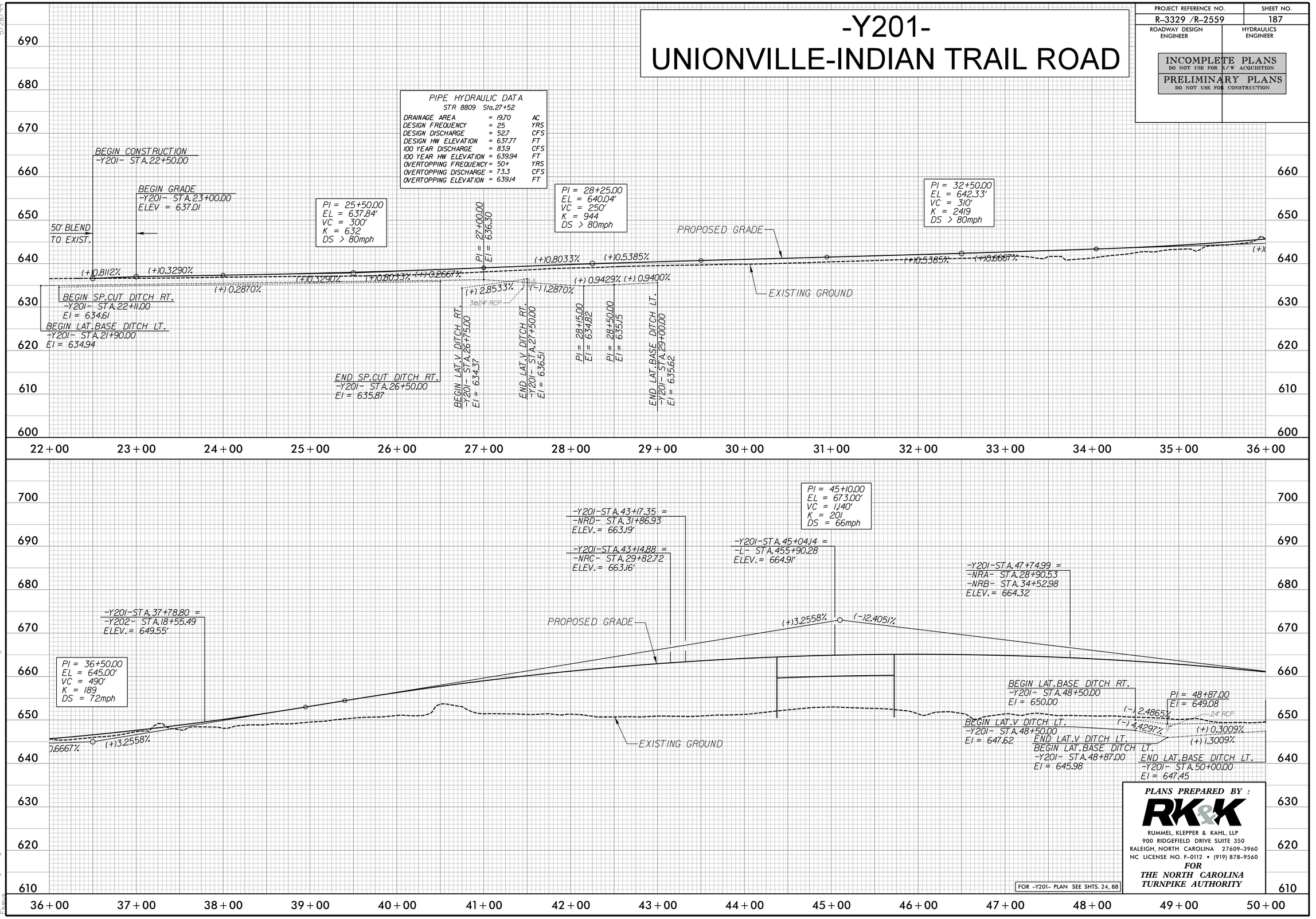
-Y201-
UNIONVILLE-INDIAN TRAIL ROAD

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	187
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PLANS PREPARED BY :

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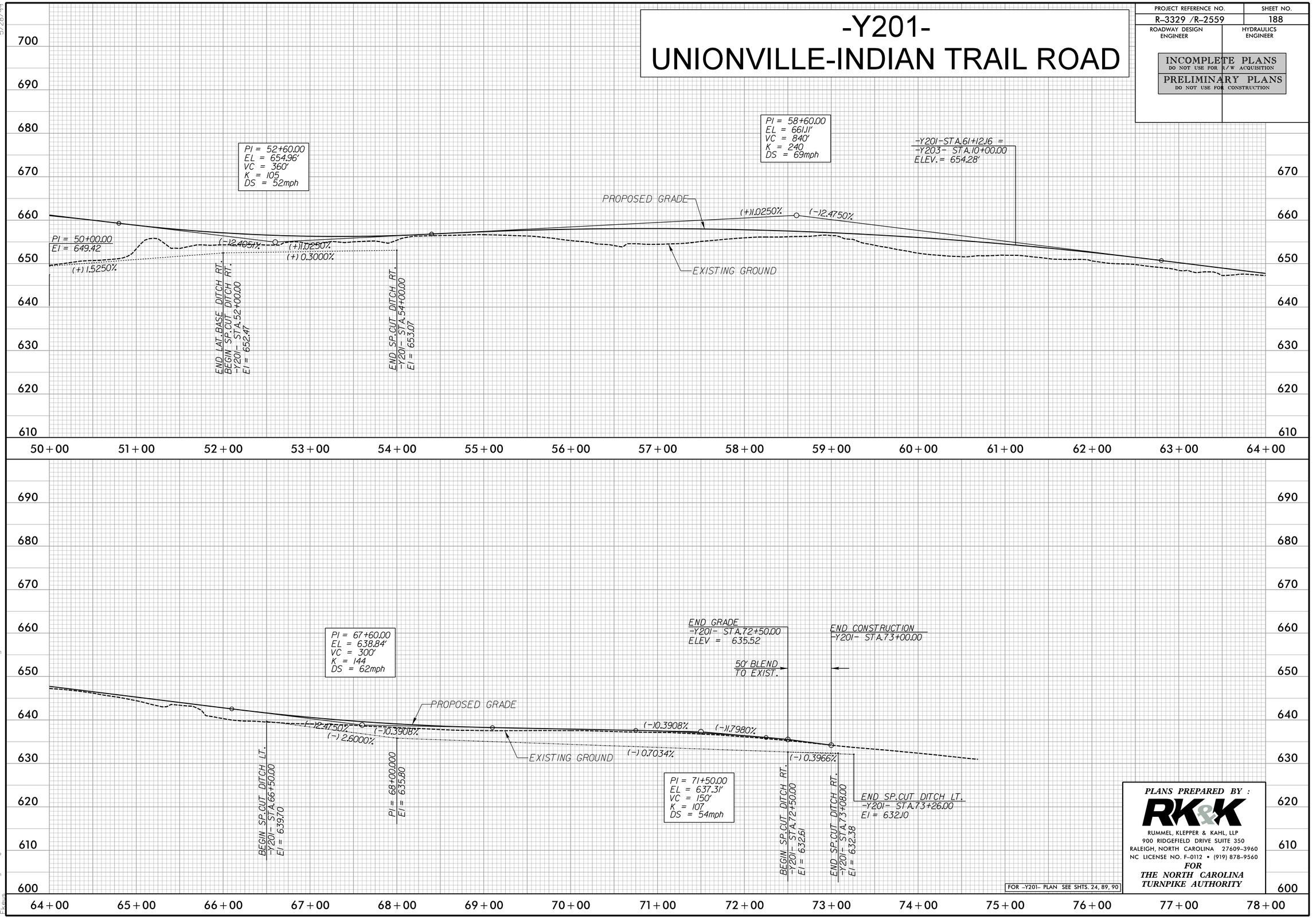
-Y201-
UNIONVILLE-INDIAN TRAIL ROAD

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	188
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y201- PLAN SEE SHTS. 24, 89, 90

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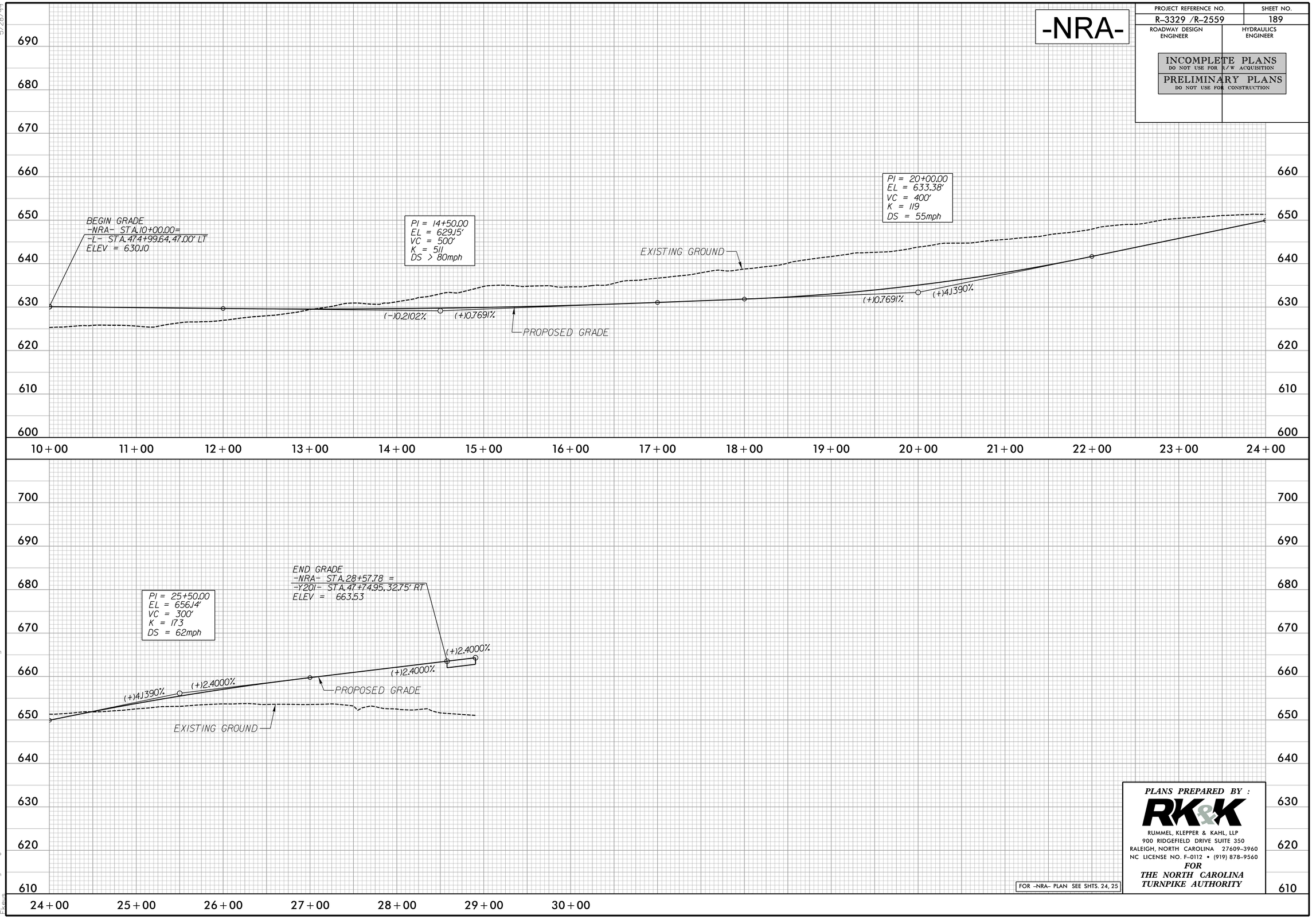
-NRA-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	189
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -NRA- PLAN SEE SHTS. 24, 25

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	190
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 14+50.00
EL = 632.50'
VC = 300'
K = 3989
DS > 80mph

BEGIN GRADE
-NRB- STA. 10+00.00
-L2B- STA. 431+83.01, 47.00' LT
ELEV = 625.52

EXISTING GROUND

(+)1.5514%

(+)1.4762%

PROPOSED GRADE

PI = 29+00.00
EL = 653.90'
VC = 280'
K = 96
DS = 50mph

(+)1.4762%

(+)4.3817%

PI = 32+20.00
EL = 667.93'
VC = 360'
K = 62
DS = 45mph

END GRADE
-NRB- STA. 34+18.23=
-Y201- STA. 47+74.74, 34.75' LT
ELEV = 665.15

(+)4.3817%

(-)1.4000%

(-)1.4000%

(-)2.4000%

PROPOSED GRADE

EXISTING GROUND

FOR -NRB- PLAN SEE SHTS. 23, 24

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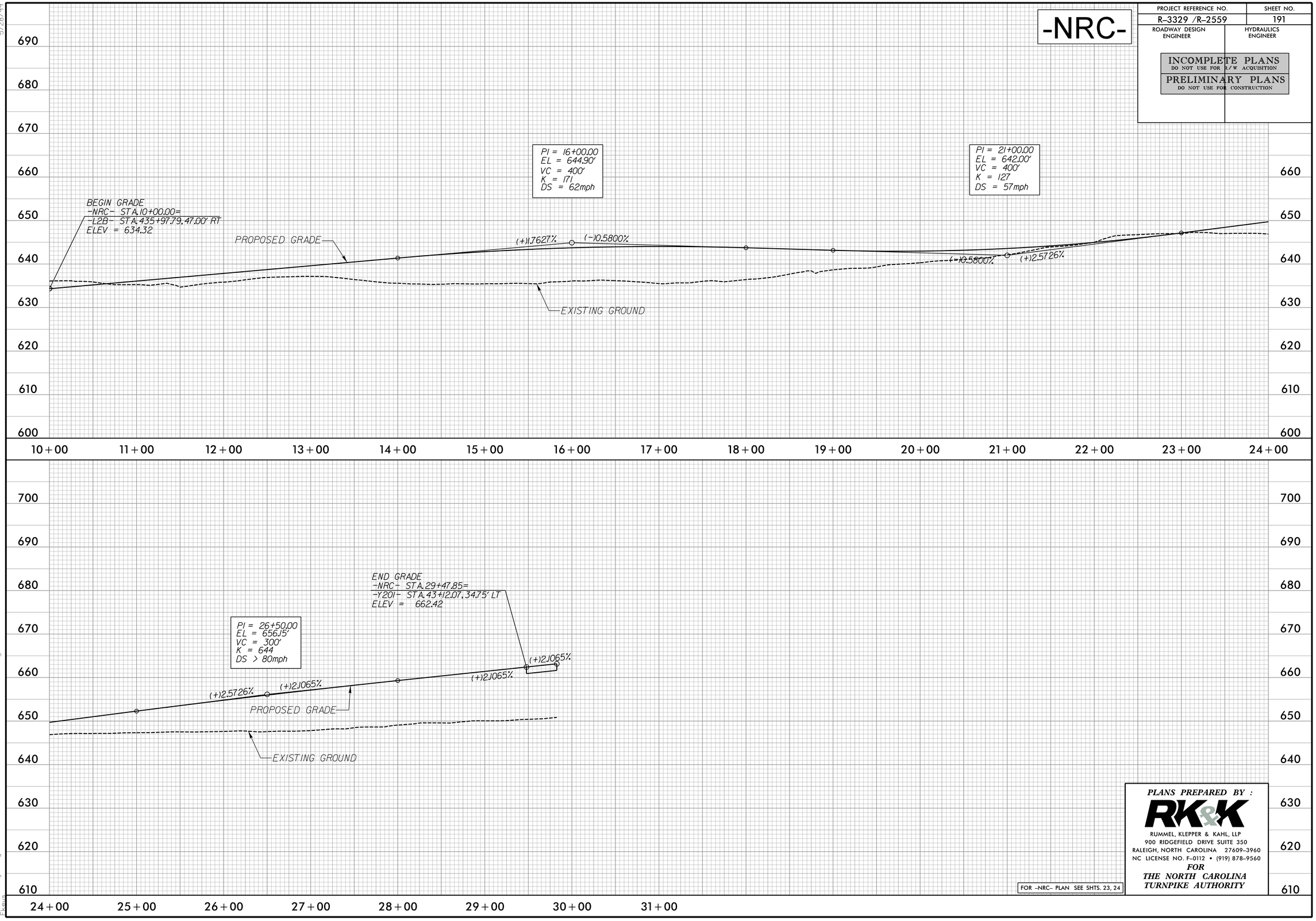
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	191
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -NRC- PLAN SEE SHTS. 23, 24

PLANS PREPARED BY :

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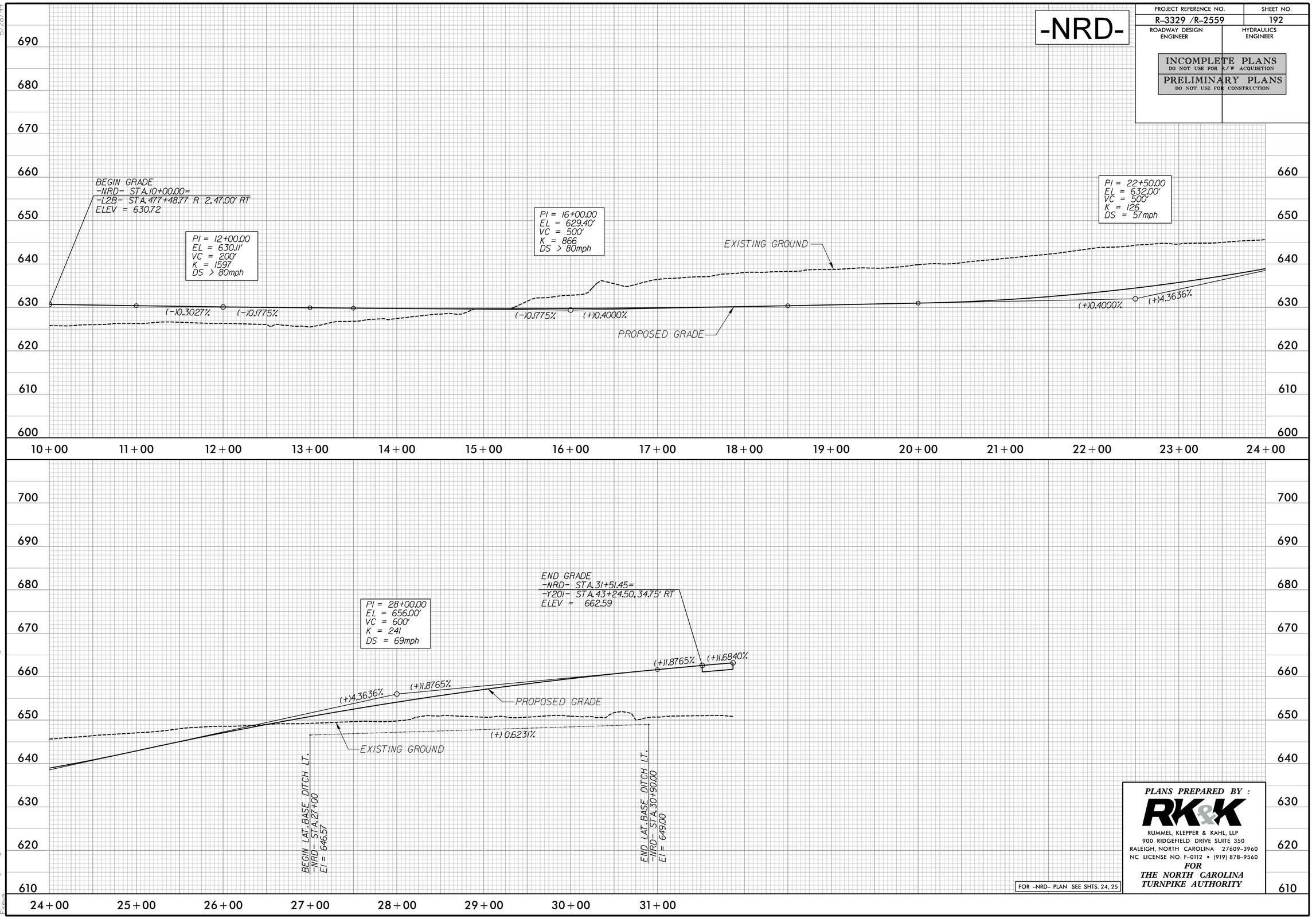
-NRD-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	192
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -NRD- PLAN SEE SHTS. 24, 25

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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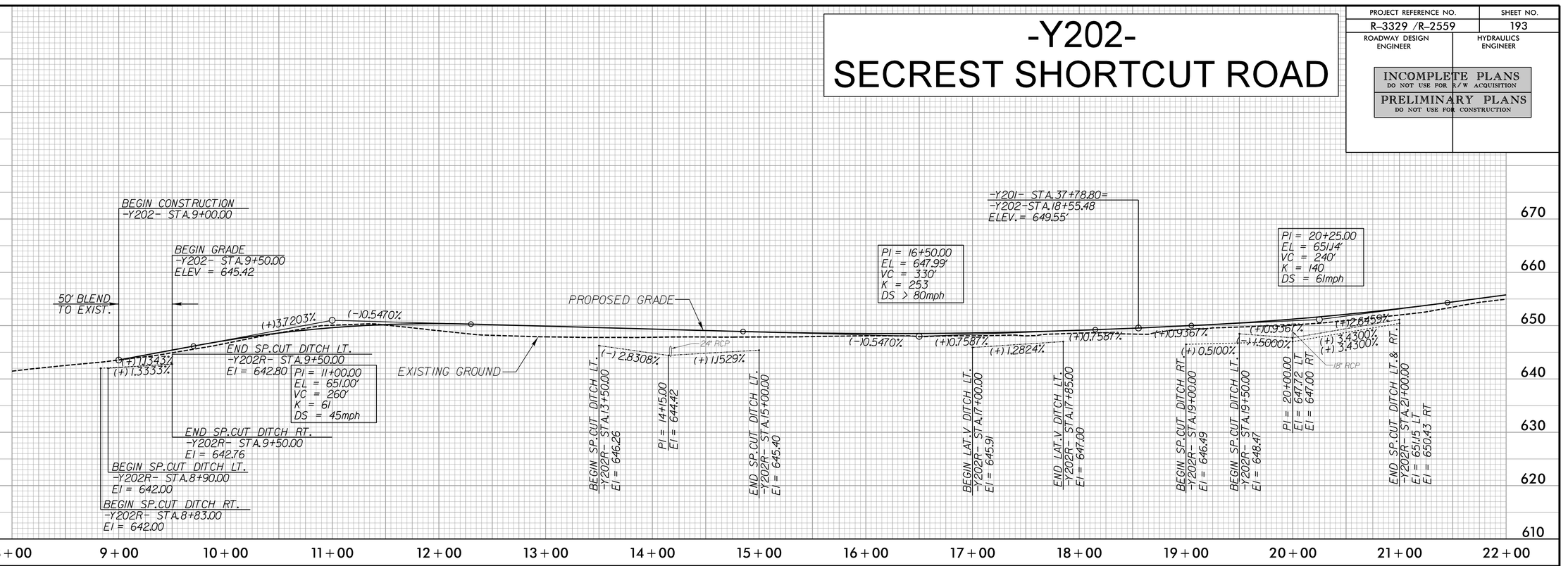
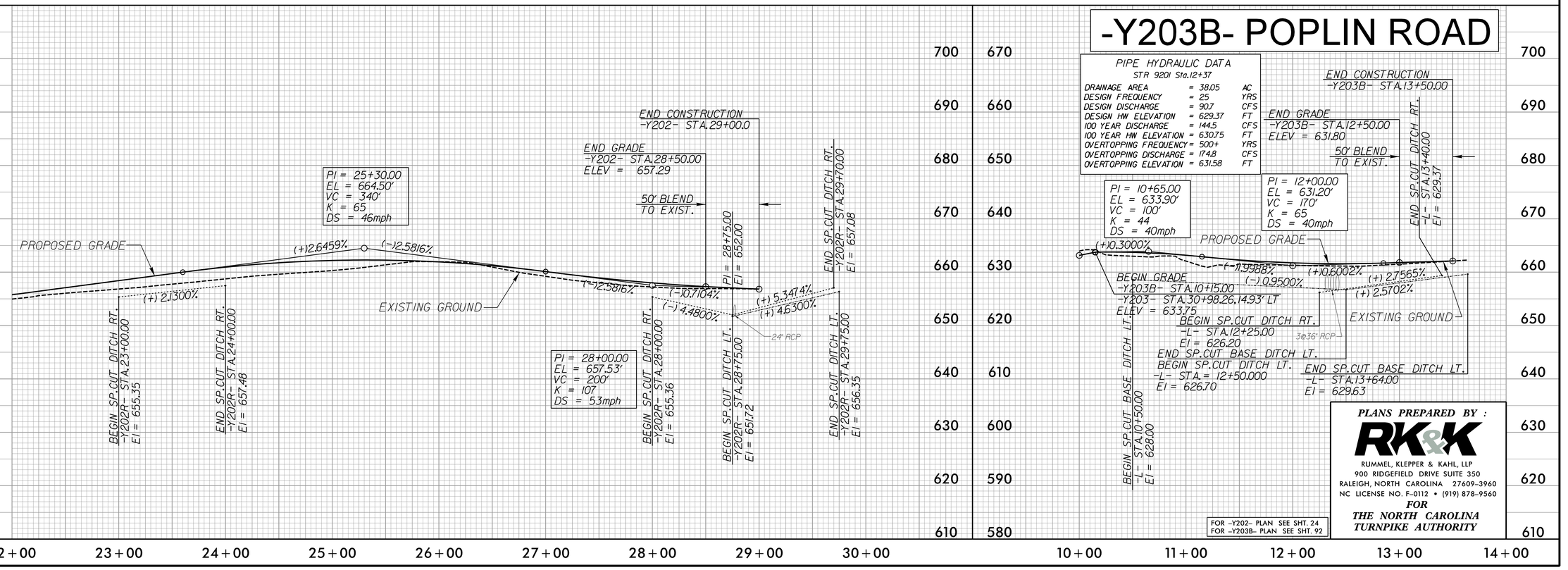
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	193
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y202-
SECREST SHORTCUT ROAD





PLANS PREPARED BY :

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-Y203-
POPLIN ROAD

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	194
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-Y203- STA.10+20.00=
-Y201- STA.61+12.20.20.00' LT
ELEV = 655.08

PI = 11+50.00
EL = 657.68'
VC = 260'
K = 68
DS = 46mph

(+)3.9964%
(+)2.0000%
(-)11.8486%
PROPOSED GRADE
(-) 2.2727%
EXISTING GROUND
(-) 0.3030%
(+) 0.3143%
24" RCP
(+) 0.6423%
(+) 0.8257%
(-)1.4000%
(-)11.8486%
(-)0.3139%

BEGIN LAT.BASE DITCH LT.
-L- STA.10+70.00
EL = 648.00

PI = 14+00.000
EL = 640.50

BEGIN LAT.V DITCH RT.
-L- STA.15+67.00
EL = 639.50

PI = 15+65.000
EL = 640.00

PI = 16+00.000
EL = 640.11

END LAT.BASE DITCH LT.
BEGIN SP.BACK OF CURB CUT DITCH
-L- STA.18+00.00
EL = 641.76

PI = 19+50.00
EL = 643.00

END LAT.V DITCH RT.
-L- STA.19+50.00
EL = 641.96

PI = 23+50.00
EL = 635.50'
VC = 1,500'
K = 977
DS > 80mph

BEGIN SP.CUT DITCH RT.
-L- STA.23+50.00
EL = 636.82

700 690 680 670 660 650 640 630 620 610

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

670 660 650 640 630 620 610 600 590 580

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

(-) 3.8200%
(-) 0.7800%
(-) 0.5714%
(-) 1.0000%
EXISTING GROUND
PROPOSED GRADE
24" RCP
(-) 3.8500%
(-) 2.0500%
(+) 2.7379%
(+) 1.2500%
3@30" RCP
(-)0.3139%

PI = 24+50.000
EL = 636.00 LT.
EL = 633.00 RT.

PI = 28+00.000
EL = 634.00

END SP.BACK OF CURB CUT DITCH LT.
-L- STA.30+00.00
EL = 632.00

END SP.CUT DITCH RT.
-L- STA.29+50.00
EL = 629.10

-Y203B- STA.10+00.00=
-Y203-STA.30+99.63
ELEV.= 633.15'

BEGIN SP.CUT DITCH LT.
-L- STA.35+00.00
EL = 630.25

BEGIN SP.CUT DITCH RT.
-L- STA.35+00.00
EL = 628.85

END SP.CUT DITCH LT.
-L- STA.37+03.00
EL = 629.22

END CONSTRUCTION
-Y203- STA.37+00.00

END GRADE
-Y203- STA.36+50.00
ELEV = 631.42

50' BLEND
TO EXIST.

PI = 36+00.000
EL = 626.80 RT.
EL = 626.40 LT.

END SP.CUT DITCH RT.
-L- STA.36+92.00
EL = 627.95

PIPE HYDRAULIC DATA
STR 9205 Sta.36+00

DRAINAGE AREA	= 23.45	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 61.6	CFS
DESIGN HW ELEVATION	= 629.05	FT
100 YEAR DISCHARGE	= 98.0	CFS
100 YEAR HW ELEVATION	= 629.88	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 133.1	CFS
OVERTOPPING ELEVATION	= 631.1	FT

FOR -Y203- PLAN SEE SHTS. 89, 91, 92

PLANS PREPARED BY :
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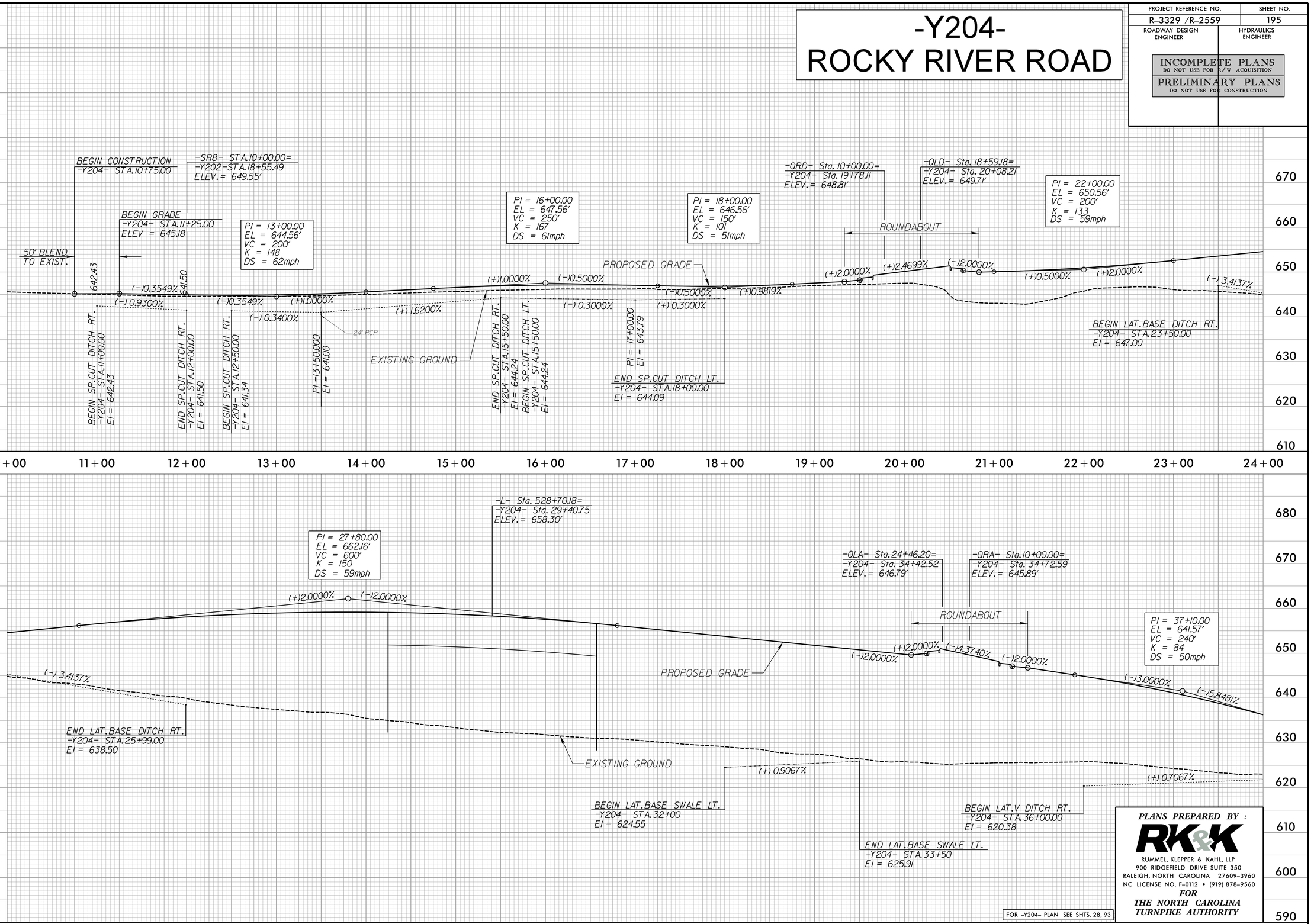
-Y204-
ROCKY RIVER ROAD

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	195
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y204- PLAN SEE SHTS. 28, 93

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-Y204-
ROCKY RIVER ROAD

-SR8-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	196
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SR7- Sta. 10+00.00=
-Y204- Sta. 39+68.46
ELEV.= 627.34'

PI = 39+90.00
EL = 625.20'
VC = 320'
K = 109
DS = 53mph

END GRADE
-Y204- STA. 42+03.72
ELEV = 618.99

50' BLEND TO EXIST.

END CONSTRUCTION
-Y204- STA. 42+53.72

BEGIN SP. CUT DITCH LT.
-Y204- STA. 42+00.00
EI = 617.49

END SP. CUT DITCH LT.
-Y204- STA. 42+84.00
EI = 615.81

PROPOSED GRADE

(-)5.8481%

(-)2.9052%

(+) 0.7067%

(-)2.9052%

(-)3.4000%

(-) 2.0000%

(-) 2.2019%

END LAT. V DITCH RT.
-Y204- STA. 39+00.00
EI = 622.50

EXISTING GROUND

BEGIN SP. CUT DITCH RT.
-Y204- STA. 42+00.00
EI = 615.63

END SP. CUT DITCH RT.
-Y204- STA. 43+04.00
EI = 613.34

BEGIN GRADE
-SR8- STA. 10+00.00=
-Y204- STA. 12+25.00
ELEV = 644.84

PI = 10+60.00
EL = 643.88'
VC = 100'
K = 37
DS = 30mph

PROPOSED GRADE

18" RCP

18" RCP

(-)1.6000%

(+)1.1000%

(+) 1.0909%

(-) 0.6000%

(+)1.1000%

(+)3.5000%

(+)3.5000%

(+) 2.5099%

(-)0.5272%

(-) 0.3158%

PI = 12+80.00
EL = 646.30'
VC = 100'
K = 42
DS = 32mph

END CONSTRUCTION
-SR8- STA. 16+50.00
ELEV = 648.38

EXISTING GROUND

BEGIN SP. CUT DITCH LT.
-SR8- STA. 10+50.00
EI = 641.34

PI =11+38.000
EI = 642.30

PI =11+88.000
EI = 642.00

PI =13+90.000
EI = 647.07

PI = 13+80.00
EL = 649.80'
VC = 100'
K = 25
DS = 33mph

END SP. CUT DITCH LT.
-SR8- STA. 15+42.00
EI = 646.59

-SR7-

BEGIN GRADE
-SR7- STA. 10+00.00=
-Y204- STA. 39+68.46
ELEV = 627.34

PI = 14+00.00
EL = 623.10'
VC = 200'
K = 120
DS = 56mph

END CONSTRUCTION
-SR7- STA. 15+75.00
ELEV = 624.15

PROPOSED GRADE

(-)1.0600%

(-)1.0600%

(+)0.6000%

(-) 0.7797%

EXISTING GROUND

BEGIN SP. CUT DITCH RT.
-SR7- STA. 13+23.00
EI = 621.57

END SP. CUT DITCH RT.
-SR7- STA. 15+50.00
EI = 619.80

FOR -Y204- PLAN SEE SHTS. 28, 94
FOR -SR7- PLAN SEE SHTS. 94, 95
FOR -SR8- PLAN SEE SHT. 93

PLANS PREPARED BY :
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-QRA-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	197
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

680 670 660 650 640 630 620 610 600 590

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

BEGIN GRADE
-QRA- STA.10+00.00=
-L- STA.550+49.96 (47.00' LT)
ELEV = 633.67

PI = 14+50.00
EL = 636.40'
VC = 500'
K = 1633
DS > 80mph

EXISTING GROUND

(+)0.6062%

(+)0.3000%

PROPOSED GRADE

PI = 19+50.00
EL = 637.90'
VC = 260'
K = 140
DS = 58mph

(+)0.3000%

(-)0.8733%

BEGIN SP.CUT DITCH RT.
-QRA- STA.19+50.00
EI = 632.48

END SP.CUT DITCH
BEGIN LAT.BASE DITCH RT.
-QRA- STA.20+00.00
EI = 630.65

(-)11.5603%

(-)3.7500%

(-)3.6533%

(-)1.7630%

(-)1.2389%

BEGIN SP.CUT DITCH LT.
-QRA- STA.17+50.00
EI = 634.62

END SP.CUT DITCH LT.
BEGIN LAT.V DITCH LT.
PI = 20+50.00
EI = 632.00

PI = 21+00.000
EI = 627.00

PI = 22+50.00
EI = 624.50

PI = 23+63.00
EI = 623.10

PIPE HYDRAULIC DATA
STR 2828 Sta.28+85

DRAINAGE AREA	= 12.15	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 46.6	CFS
DESIGN HW ELEVATION	= 624.47	FT
100 YEAR DISCHARGE	= 54.2	CFS
100 YEAR HW ELEVATION	= 624.87	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 104.2	CFS
OVERTOPPING ELEVATION	= 629.70	FT

PI = 26+80.00
EL = 626.51'
VC = 540'
K = 105
DS = 52mph

END LAT.BASE DITCH
-QRA- STA.24+46.00
EI = 620.90

48" RCP

(+)0.8605%

(-)1.7630%

(-)1.5603%

END LAT.V DITCH LT.
BEGIN SP.CUT DITCH LT.
-QRA- STA.25+50.00
EI = 624.71

PI = 27+00.00
EI = 626.00

(+)3.5751%

(-)2.8523%

END SP.CUT DITCH LT.
BEGIN LAT.V DITCH LT.
-QRA- STA.28+00.00
EI = 623.15

36" RCP

END LAT.V DITCH LT.
-QRA- STA.28+76.00
EI = 620.98

EXISTING GROUND

PI = 31+00.00
EL = 641.53'
VC = 300'
K = 126
DS = 56mph

(+)3.5751%

(+)1.2009%

PROPOSED GRADE

END GRADE
-QRA- STA.36+81.65=
-Y204- STA.34+39.94 (56.21' RT)
ELEV = 648.51

FOR -QRA- PLAN SEE SHTS. 28, 29

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	198
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-QLA-

BEGIN GRADE
-QLA- STA.10+00.00=
-L- Sta.529+48.71 (47.00' LT)
ELEV = 633.10

PI = 10+75.00
EL = 633.87'
VC = 150'
K = 125
DS = 56mph

BEGIN LAT.V DITCH LT.
-QLA- STA.12+05.00
EI = 623.00

PI = 12+90.00
EL = 633.50'
VC = 280'
K = 179
DS = 69mph

PIPE HYDRAULIC DATA
STR 2827 Sta.16+54

DRAINAGE AREA	= 9.84	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 40.6	CFS
DESIGN HW ELEVATION	= 624.66	FT
100 YEAR DISCHARGE	= 44.3	CFS
100 YEAR HW ELEVATION	= 624.92	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 120.9	CFS
OVERTOPPING ELEVATION	= 634.06	FT

END LAT.V DITCH LT.
-QLA- STA.16+50.00
EI = 621.52

END GRADE
-QLA- STA.24+01.73=
-Y204- STA.34+20.19 (38.45' RT)
ELEV = 648.95

PROPOSED GRADE

(+)11.0267%
(-)0.1721%
(-)0.1721%
(+)1.3897%
(-) 0.3326%
36" RCP
EXISTING GROUND

680 670 660 650 640 630 620 610 600 590

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

-QRD-

BEGIN GRADE
-QLA- STA.10+00.00=
-L- STA.547+53.79 (47.00' RT)
ELEV = 635.82

PI = 11+80.00
EL = 637.09'
VC = 150'
K = 166
DS = 61mph

PI = 13+70.00
EL = 636.71'
VC = 230'
K = 360
DS > 80mph

PI = 16+50.00
EL = 637.94'
VC = 330'
K = 263
DS > 80mph

PIPE HYDRAULIC DATA
STR 2801 Sta.19+55

DRAINAGE AREA	= 12.67	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 48.8	CFS
DESIGN HW ELEVATION	= 637.84	FT
100 YEAR DISCHARGE	= 56.8	CFS
100 YEAR HW ELEVATION	= 638.50	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 0.0	CFS
OVERTOPPING ELEVATION	= 0.0	FT

BEGIN GRADE
-QRD- STA.22+53.15
ELEV = 648.16

PROPOSED GRADE

EXISTING GROUND

(+)0.7053%
(-)0.2000%
(-)0.2000%
(+)0.4383%
(+)0.4383%
(+)11.6950%
(-) 0.5782%
(-)3.9296%
36" RCP
(+) 6.8481%

BEGIN SP.CUT DITCH RT.
-QRD- STA.15+00.00
EI = 635.25

BEGIN LAT.V DITCH LT.
-QRD- STA.19+00.00
EI = 637.09
END SP.CUT DITCH RT.
BEGIN LAT.V DITCH RT.
-QRD- STA.19+00.00
EI = 632.94

END LAT.V DITCH RT.
-QRD- STA.19+41.00
EI = 632.70

END LAT.V DITCH LT.
BEGIN LAT.BASE DITCH LT.
-QRD- STA.19+71.00
EI = 634.30

END LAT.V DITCH LT.
-QRD- STA.20+50.00
EI = 639.71

FOR -QLA- PLAN SEE SHT. 28
FOR -QRD- PLAN SEE SHTS. 28, 29

PLANS PREPARED BY :
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680 670 660 650 640 630 620 610 600

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

$$$$$$TIME$$$$$$
8/23/2014
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-QLD-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	199
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

690 680 670 660 650 640 630 620 610 600

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00

BEGIN GRADE
-QLD- STA.10+00.00=
-L- STA.533+89.77 (47.00' RT)
ELEV = 636.53

PI = 12+00.00
EL = 637.94'
VC = 250'
K = 184
DS = 64mph

PI = 14+50.00
EL = 636.30'
VC = 250'
K = 49
DS = 35mph

END GRADE
-QLD- STA.17+84.18=
-Y204- STA.20+08.21 (75.00' RT)
ELEV = 648.68

PI = 16+75.00
EL = 646.30'
VC = 200'
K = 89
DS = 50mph

PROPOSED GRADE

(+)0.7040%
(-)0.6552%
(-)0.3077%
(+)4.4428%
(+)2.1832%
(+) 3.3761%

EXISTING GROUND

BEGIN SP.CUT DITCH RT.
-QLD- STA.10+10.00
EI = 633.20

END SP.CUT DITCH RT.
BEGIN SP.BACK OF CURB CUT DITCH RT.
-QLD- STA.12+12.00
EI = 632.58

PI = 14+00.000
EI = 632.00

END SP.BACK OF CURB CUT DITCH RT.
BEGIN SP.CUT DITCH RT.
-QLD- STA.16+85.00
EI = 641.62

END SP.CUT DITCH
-QLD- STA.17+35.00
EI = 643.31

-SR9-

670 660 650 640 630 620 610 600 590 580

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

PI = 15+60.00
EL = 617.00'
VC = 340'
K = 93
DS = 49mph

PI = 22+00.00
EL = 631.00'
VC = 250'
K = 93
DS = 51mph

BEGIN GRADE
-SR9- STA.10+19.00=
-Y208- STA.19+27.78
ELEV = 625.02

PROPOSED GRADE

EXISTING GROUND

(+)2.1875%
(-)0.5000%
(-)1.4828%
(-) 2.7733%
(+)2.1875%
(+)1.7885%
(+) 1.1567%
(+) 3.4389%
(+) 3.0601%

30" RCP

BEGIN LAT.V DITCH RT.
-SR9- STA.15+00.00
EI = 616.58

PI = 15+75.00
EI = 614.50

BEGIN LAT.V DITCH LT.
-SR9- STA.15+66.00
EI = 613.95

PI = 17+00.00
EI = 615.50

PI = 17+50.00
EI = 617.80

END LAT.V DITCH LT.
-SR9- STA.18+57.90
EI = 620.93

END LAT.V DITCH RT.
-SR9- STA.19+09.80
EI = 622.69

FOR -QLD- PLAN SEE SHT. 28
FOR -SR9- PLAN SEE SHTS. 30,31

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
8/23/2014
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kevin

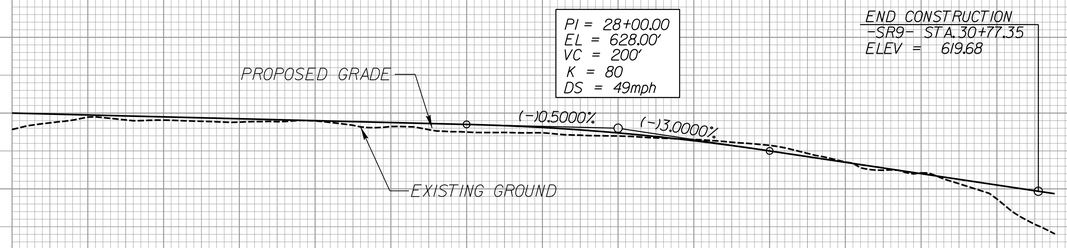
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	200
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

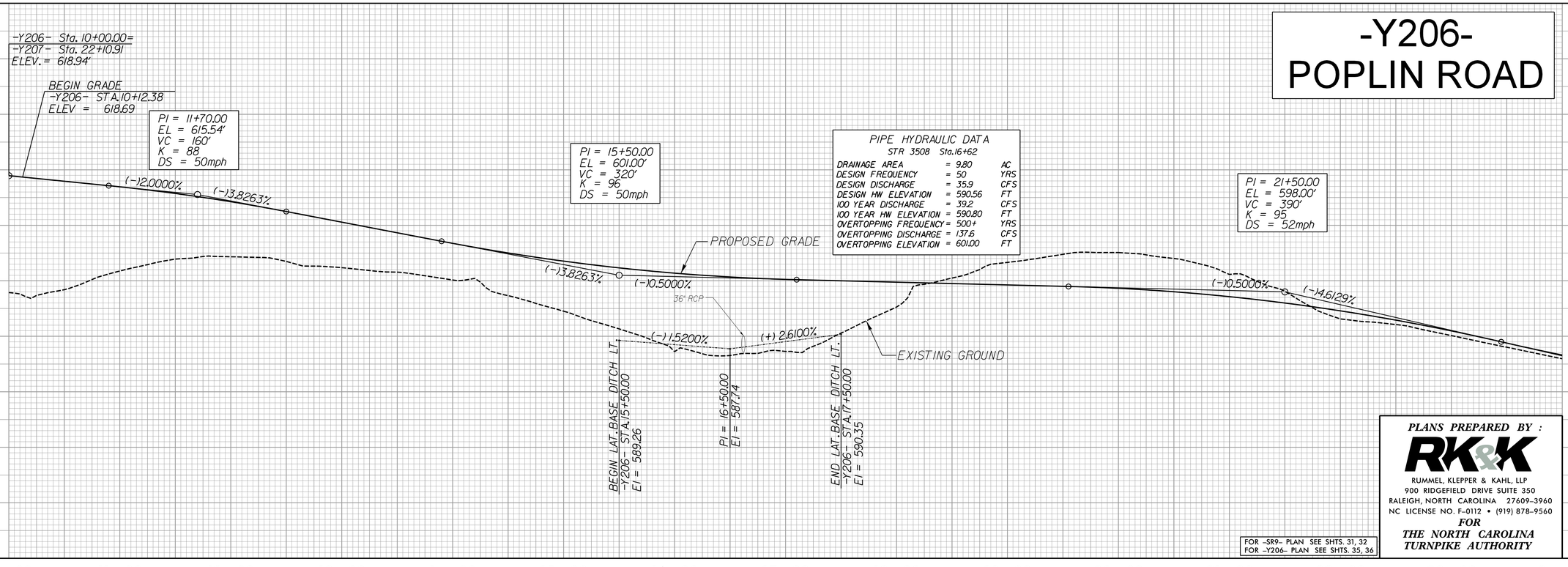
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-SR9-



-Y206- POPLIN ROAD



FOR -SR9- PLAN SEE SHTS. 31, 32
FOR -Y206- PLAN SEE SHTS. 35, 36

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$$$$$$TIME$$$$$
5/27/2014
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	201
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y206- POPLIN ROAD

PI = 24+60.00
EL = 583.70'
VC = 230'
K = 98
DS = 50mph

END GRADE
-Y206- STA. 26+50.00
ELEV = 579.41

END CONSTRUCTION
-Y206- STA. 27+00.00

PROPOSED GRADE

50' BLEND TO EXIST.

(-)4.6129%

(-)12.2579%

(-)1.6988%

(-)1.1970%

BEGIN LAT. BASE DITCH LT.
-Y206- STA. 24+67.00
EI = 579.84

END LAT. BASE DITCH LT.
BEGIN SP. CUT BASE DITCH
-Y206- STA. 25+50.00
EI = 578.43

EXISTING GROUND

END SP. CUT BASE DITCH LT.
-Y206- STA. 27+16.00
EI = 576.44

-Y208- WILLIS LONG ROAD

PIPE HYDRAULIC DATA
STR 3017 Sta. 20+62

DRAINAGE AREA	= 61.53	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 102.7	CFS
DESIGN HW ELEVATION	= 617.67	FT
100 YEAR DISCHARGE	= 125.3	CFS
100 YEAR HW ELEVATION	= 618.59	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 214.5	CFS
OVERTOPPING ELEVATION	= 624.17	FT

BEGIN CONSTRUCTION
-Y208- STA. 12+75.00

BEGIN GRADE
-Y208- STA. 13+25.00

50' BLEND TO EXIST.

3 INCH PAVEMENT OVERLAY

625.31

END CONSTRUCTION
-Y208- STA. 20+00.00

END GRADE
-Y208- STA. 19+50.00

50' BLEND TO EXIST.

PROPOSED GRADE

(-)0.7120%

(-)1.3900%

EXISTING GROUND

BEGIN SP. CUT DITCH RT.
-Y208- STA. 13+00.00
EI = 624.39

END SP. CUT DITCH RT.
-Y208- STA. 14+25.00
EI = 623.50

BEGIN SP. CUT DITCH RT.
-Y208- STA. 17+00.00
EI = 625.31

END SP. CUT DITCH RT.
BEGIN SP. LAT. V DITCH RT.
-Y208- STA. 18+00.00
EI = 623.92

END SP. LAT. V DITCH RT.
-Y208- STA. 19+00.00
EI = 622.53

42" RCP

24" RCP

-Y207- ROANOKE CHURCH ROAD

PI = 20+00.00
EL = 639.00'
VC = 800'
K = 62
DS = 45mph

-L- Sta. 636+44.18=
-Y207- Sta. 20+18.52
ELEV. = 625.76'

(+)4.7504%

(-)8.1448%

BEGIN CONSTRUCTION
-Y207- STA. 10+12.00

1.5" PAVEMENT OVERLAY

50' BLEND TO EXIST.

BEGIN GRADE
-Y207- STA. 12+00.00
ELEV = 602.64

PI = 13+00.00
EL = 605.75'
VC = 160'
K = 97
DS = 50mph

(+)3.1024%

(+)4.7504%

(+) 2.1700%

(-) 4.5933%

PI = 16+50.000
EI = 602.09

PI = 17+00.000
EI = 601.68

END LAT. BASE DITCH LT.
-Y207- STA. 18+84.00
EI = 602.35

PROPOSED GRADE

(-) 0.8200%

(+) 0.3641%

24" RCP

EXISTING GROUND

(-) 0.7960%

BEGIN LAT. V DITCH LT.
-Y207- STA. 14+00.00
EI = 606.81

END LAT. V DITCH LT.
BEGIN LAT. BASE DITCH LT.
-Y207- STA. 15+00.00
EI = 608.98

BEGIN LAT. BASE DITCH RT.
-Y207- STA. 17+00.00
EI = 596.28

END LAT. BASE DITCH RT.
-Y207- STA. 19+50.00
EI = 594.29

FOR -Y206- PLAN SEE SHT. 34
FOR -Y207- PLAN SEE SHTS. 36, 96

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-Y207-
ROANOKE CHURCH ROAD

PI = 26+00.00
EL = 590.13'
VC = 220'
K = 82
DS = 45mph

PROPOSED GRADE

END GRADE
-Y207- STA. 27+46.27
ELEV = 582.15

END CONSTRUCTION
-Y207- STA. 27+96.27

50' BLEND TO EXIST.

(-)8.1448%

(-)5.4557%

EXISTING GROUND

630 620 610 600 590 580 570 560 550 540

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00

-SW1-

PROJECT REFERENCE NO. R-3329 /R-2559 | SHEET NO. 202

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 10+50.00
EL = 645.86'
VC = 50'

PI = 14+50.00
EL = 659.21'
VC = 50'

BEGIN GRADE
-SW1- STA. 10+00.00=
-SR5- STA. 75+65.10, 14.00' RT
ELEV = 644.86

PROPOSED GRADE

END GRADE
-SW1- STA. 14+58.93=
-Y201- STA. 52+75.00, 46.29' LT
ELEV = 658.41

(+)2.0000%

(+)3.3380%

(+)3.3380%

(-)2.0000%

EXISTING GROUND

700 690 680 670 660 650 640 630 620 610

590 580 570 560 550 540 530

10+00 11+00 12+00 13+00 14+00

-SR5-

BEGIN GRADE
-SR5 STA. 41+00.00
-L2B- STA. 416+06.59, 239.00' LT
ELEV = 623.59

BEGIN SP. CUT DITCH RT.
-SR5- STA. 44+14.00
E1 = 618.24

(-) 0.3029%

END SP. CUT DITCH RT.
-SR5- STA. 47+21.00
E1 = 617.31

PI = 49+70.00
EL = 617.00'
VC = 300'
K = 107
DS = 52mph

(-)0.7576%

(+)2.0548%

PROPOSED GRADE

EXISTING GROUND

640 630 620 610 600 590 580 570 560 550

41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00

FOR -Y207- PLAN SEE SHT. 36
FOR -SW-1- PLAN SEE SHT. 24
FOR -SR5- PLAN SEE SHTS. 22, 23

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-SR5-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	202A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 57+00.00
EL = 632.00'
VC = 300'
K = 342
DS = 77 mph

(+)2.0548%

(+)1.1765%

(+) 1.0305%

END LAT.BASE DITCH LT.
-SR5- STA.57+06.00
EI = 615.45

BEGIN LAT.BASE DITCH LT.
-SR5- STA.55+75.00
EI = 614.10

EXISTING GROUND

PROPOSED GRADE

680 670 660 650 640 630 620 610 600 590

55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00

-SR5-

PIPE HYDRAULIC DATA
STR 2438 Sta.78+25

DRAINAGE AREA	= 10.64	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 40.0	CFS
DESIGN HW ELEVATION	= 642.49	FT
100 YEAR DISCHARGE	= 46.4	CFS
100 YEAR HW ELEVATION	= 643.03	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 67.9	CFS
OVERTOPPING ELEVATION	= 645.36	FT

PI = 74+00.00
EL = 652.00'
VC = 530'
K = 178
DS =63mph

(+)1.1765%

(−)1.8000%

EXISTING GROUND

PROPOSED GRADE

(−) 1.6143%

PI = 78+25.00
EI = 639.77

(−)1.8000%

(+)1.8800%

(+) 1.3360%

2@24" RCP

PI = 79+00.00
EL = 643.00'
VC = 240'
K = 65
DS = 40mph

(+)1.8800%

(−)0.6538%

(+) 0.9927%

(+) 0.5507%

(−)0.6538%

(+) 0.4444%

PI = 81+00.00
EL = 646.76'
VC = 160'
K = 63
DS = 45mph

END CONSTRUCTION
-SR5- STA.83+00.00

END GRADE
-SR5- STA.82+75.00
ELEV = 645.62

25' BLEND TO EXIST.

PI = 81+00.00
EI = 642.50

END LAT.V DITCH LT.
-SR5- STA.82+95.00
EI = 642.90

END LAT.BASE DITCH
-SR5- STA.83+25.00
EI = 643.50

BEGIN LAT.BASE DITCH RT.
-SR5- STA.76+85.00
EI = 642.03

BEGIN LAT.V DITCH LT.
-SR5- STA.78+25.00
EI = 639.33

END LAT.BASE DITCH RT.
BEGIN SP.CUT DITCH
-SR5- STA.79+50.00
EI = 641.01

680 670 660 650 640 630 620 610 600 590

69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00

FOR -SR5- PLAN SEE SHTS. 23, 24, 89

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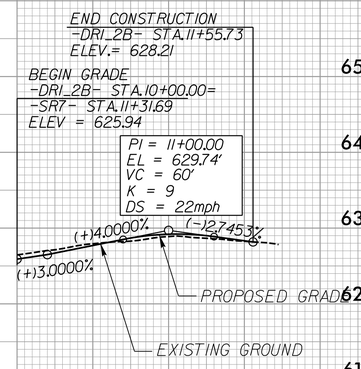
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	202B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DR1-



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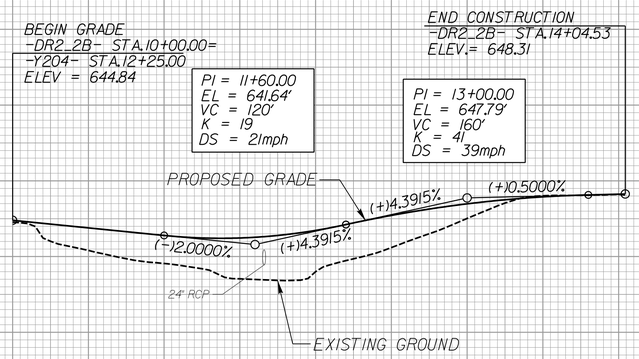

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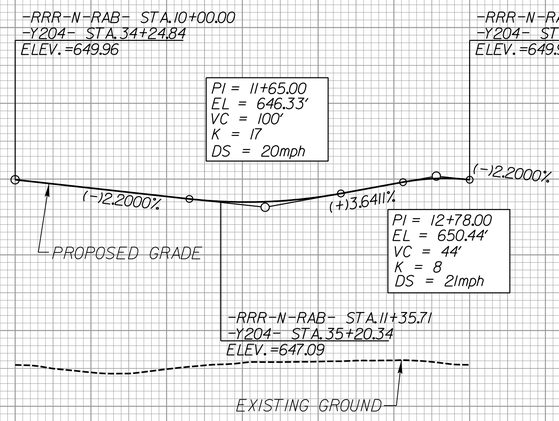
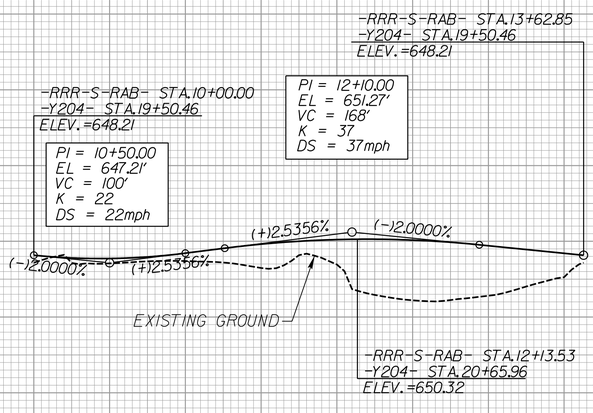


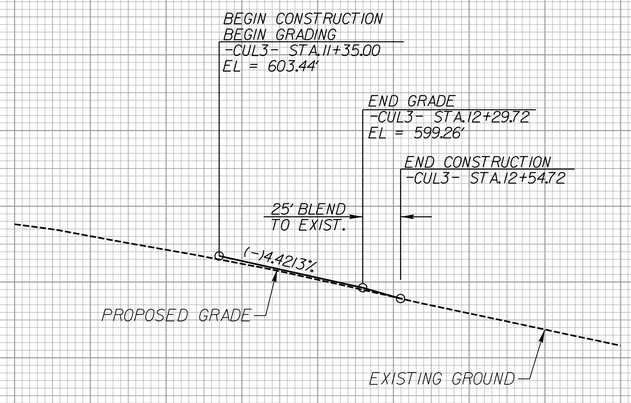
-Y204- (ROCKY RIVER ROAD) NORTH ROUNDABOUT
CENTER ISLAND PROFILE

-S_RAB-

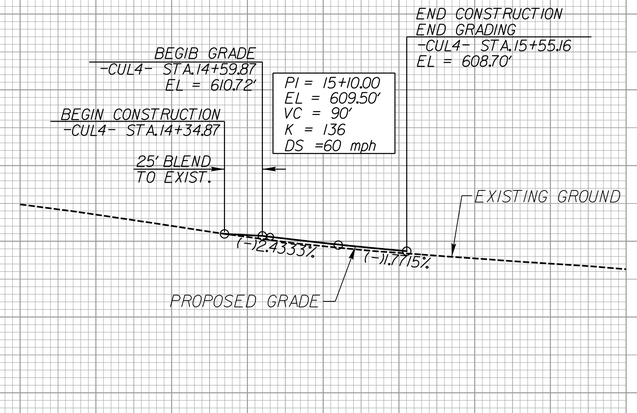


-Y204- (ROCKY RIVER ROAD) SOUTH ROUNDABOUT
CENTER ISLAND PROFILE

-CUL3-



-CUL4-



FOR -Y204- PLAN SEE SHTS. 28, 94
FOR -SR7- PLAN SEE SHTS. 94, 95
FOR -SR8- PLAN SEE SHT. 93

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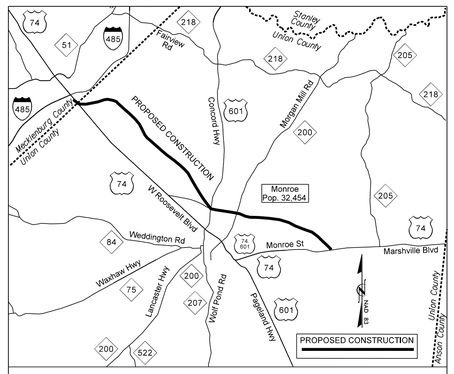
09/08/49

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

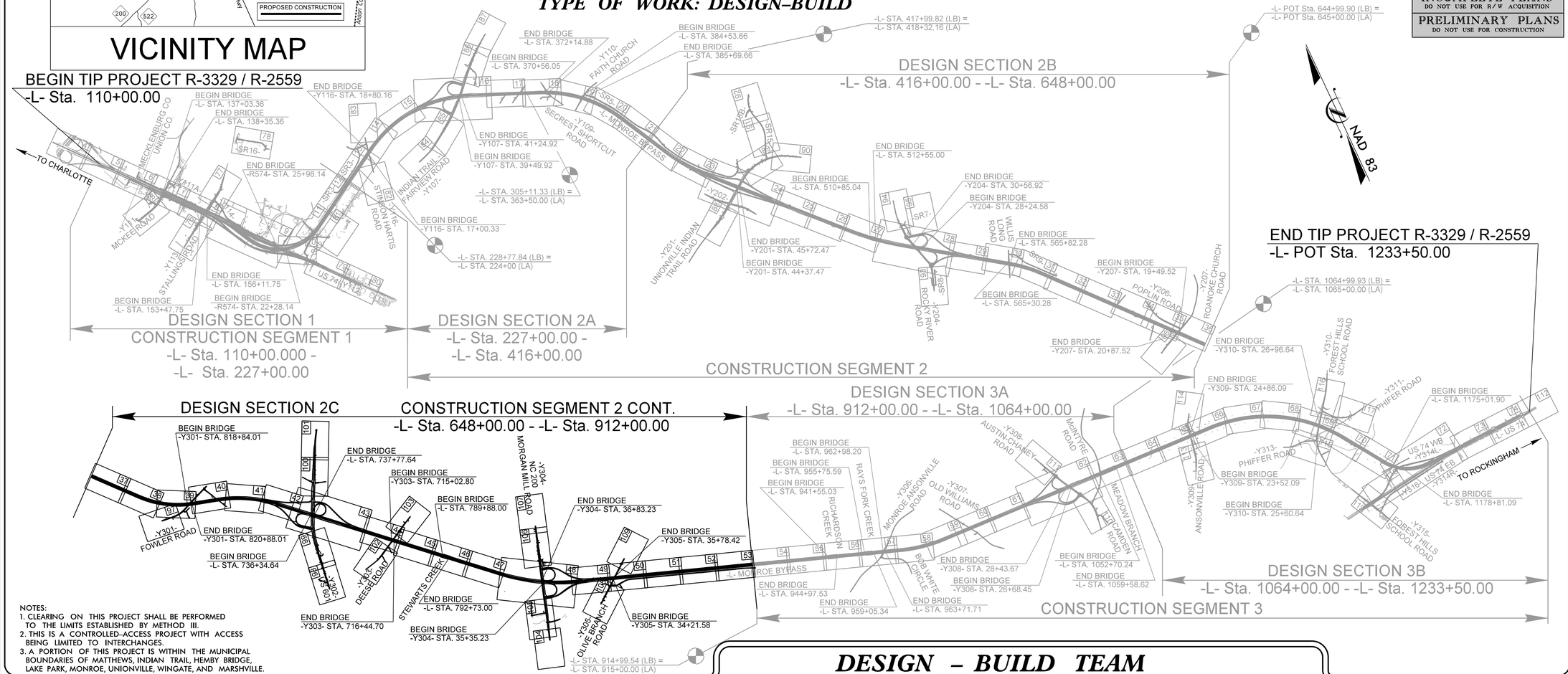
LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD

PERMIT APPLICATION
SUBMITTAL NO. S-099
DATE: 10-01-2014

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

DESIGN - BUILD TEAM

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 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE 74 BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

9/30/2014
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01/20/11

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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 — 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 — 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 — 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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

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
- 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 — HH
- 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
- 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 — ?UTL
- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

A1	9'' PORTLAND CEMENT CONCRETE PAVEMENT	D11	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.	J1	PROPOSED 6" AGGREGATE BASE COURSE
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	J2	PROPOSED 8" AGGREGATE BASE COURSE
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.	E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J3	PROPOSED 9" AGGREGATE BASE COURSE
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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	J4	PROPOSED 10" AGGREGATE BASE COURSE
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E4	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J5	PROPOSED VARIABLE DEPTH AGGREGATE BASE COURSE
C5	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.	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" OR GREATER THAN 5.5" IN DEPTH.	K1	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8" OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7"
C6	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 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E6	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ YD
C7	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E7	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB & GUTTER
C8	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E8	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R2	1'-6" CONCRETE CURB & GUTTER
C9	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	E9	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R3	SHOULDER BERM GUTTER
C10	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS.PER SQ. YD.	E10	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	CONCRETE EXPRESSWAY GUTTER
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E11	PROP. APPROX. 6.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	5" MONOLITHIC CONCRETE ISLAND, KEYED IN
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E12	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.	R6	SINGLE FACED CONCRETE BARRIER
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E13	PROP. APPROX. 9" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R7	DOUBLE FACED CONCRETE BARRIER (TYPE T, T1, T2)
D4	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 2.5" OR GREATER THAN 4" IN DEPTH.	E14	PROP. APPROX. 10.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R8	RUMBLE STRIPS
D5	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E15	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	S	4" CONCRETE SIDEWALK
D6	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E16	PROP. APPROX. 3.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 199 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
D7	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E17	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT
D8	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 2.5" OR GREATER THAN 4" IN DEPTH.	E18	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" OR GREATER THAN 5.5" IN DEPTH.	V	SPLIT SEAL
D9	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E19	PROP. APPROX. 12.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 712.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	W	WEDGING
D10	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	G1	8" CEMENT TREATED AGGREGATE BASE COURSE	Z	NON WOVEN FIBERGLASS/POLYESTER INTERLAYER PAVING MAT

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

$$$$$TIME$$$$$
6/2/2014
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6/2/99

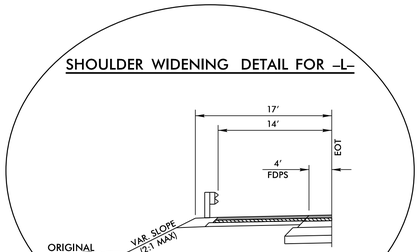
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

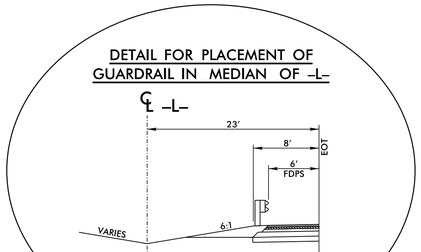
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
C6	VAR. DEPTH S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
D7	3″ I19.0C
D8	VAR. DEPTH I19.0C
E2	4″ B25.0B
E6	3″ B25.0C
E7	4″ B25.0C
E9	5.5″ B25.0C
E18	VAR. DEPTH B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI
T	EARTH
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING

SHOULDER WIDENING DETAIL FOR –L–



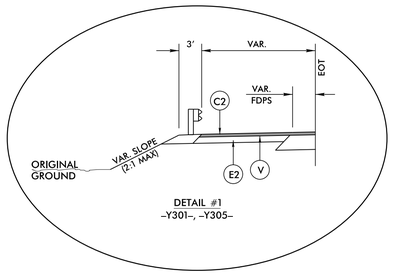
USE PARTIAL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)

DETAIL FOR PLACEMENT OF GUARDRAIL IN MEDIAN OF –L–

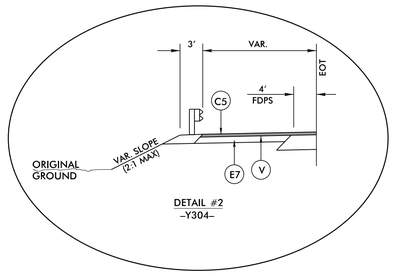


USE FULL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)

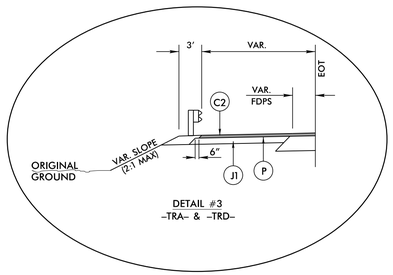
SHOULDER WIDENING DETAILS FOR Y–LINES & RAMPS



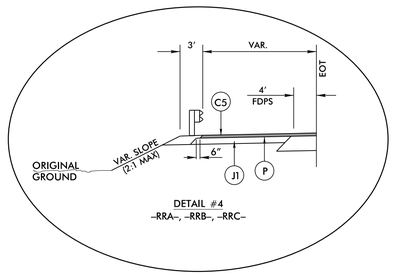
DETAIL #1
–Y301–, –Y305–



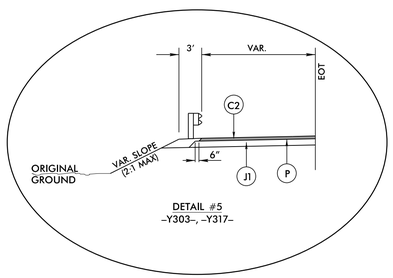
DETAIL #2
–Y304–



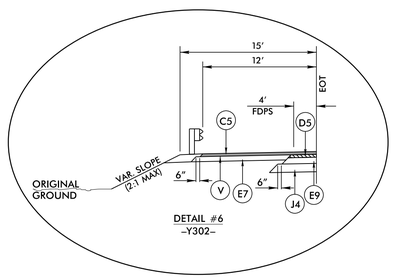
DETAIL #3
–TRA– & –TRD–



DETAIL #4
–RRA–, –RRB–, –RRC–

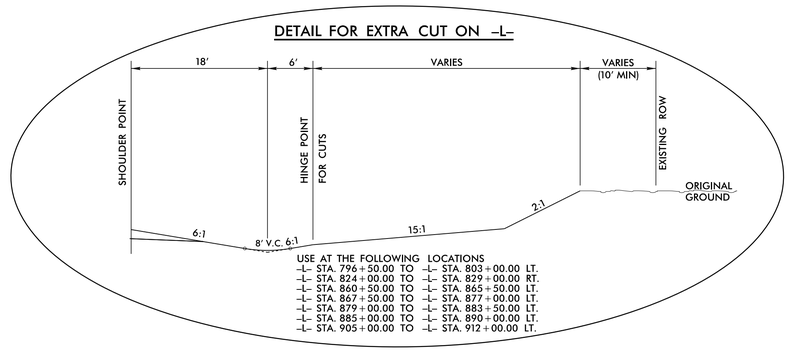


DETAIL #5
–Y303–, –Y317–



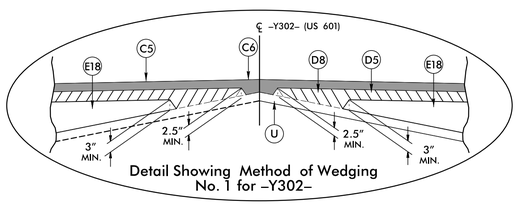
DETAIL #6
–Y302–

DETAIL FOR EXTRA CUT ON –L–

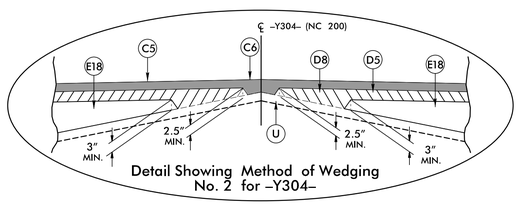


USE AT THE FOLLOWING LOCATIONS
–L– STA. 796+50.00 TO –L– STA. 803+00.00 LT.
–L– STA. 824+00.00 TO –L– STA. 829+00.00 RT.
–L– STA. 860+50.00 TO –L– STA. 865+50.00 LT.
–L– STA. 867+50.00 TO –L– STA. 877+00.00 LT.
–L– STA. 879+00.00 TO –L– STA. 883+50.00 LT.
–L– STA. 885+00.00 TO –L– STA. 890+00.00 LT.
–L– STA. 905+00.00 TO –L– STA. 912+00.00 LT.

WEDGING DETAILS



Detail Showing Method of Wedging
No. 1 for –Y302–



Detail Showing Method of Wedging
No. 2 for –Y304–

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
$$$$$$DATE$$$$$
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Files

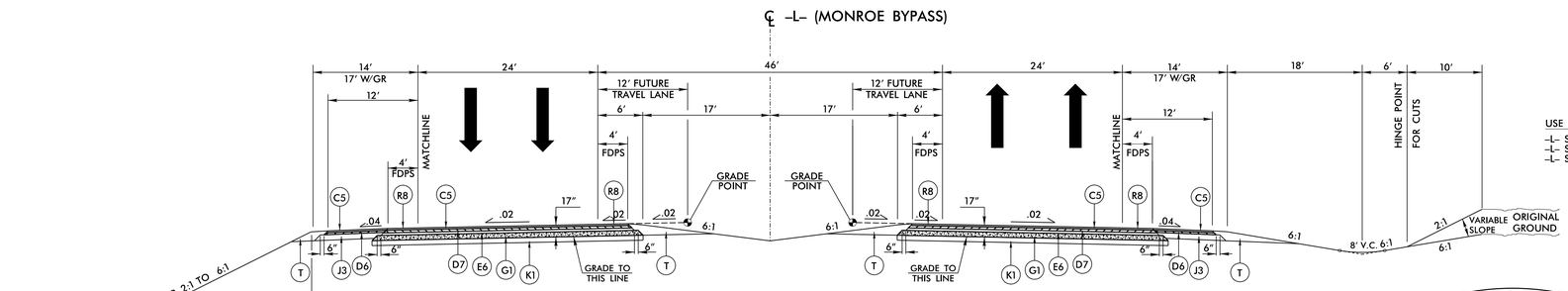
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

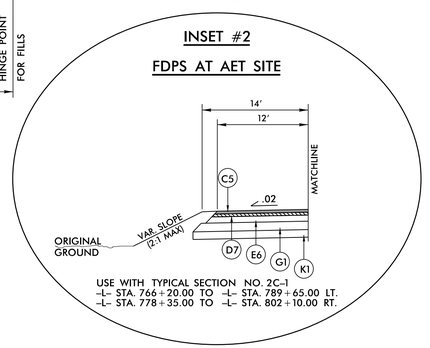
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E6	3″ B25.0C
E7	4″ B25.0C
E9	5.5″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI
R8	RUMBLE STRIPS
T	EARTH
U	EXISTING PAVEMENT
W	WEDGING

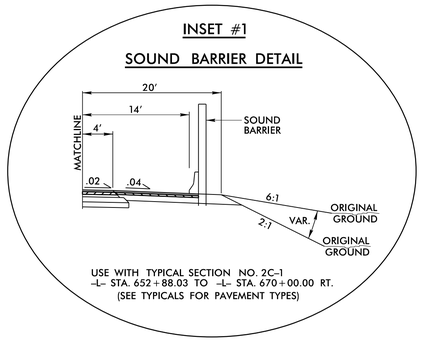


USE TYPICAL SECTION NO. 2C–1
–L– STA. 648+00.00 TO 736+33.94 (BEGIN BRIDGE LT)
–L– STA. 737+77.94 (END BRIDGE LT) TO 790+07.30 (BEGIN BRIDGE LT)
–L– STA. 792+77.30 (END BRIDGE LT) TO 830+00.00

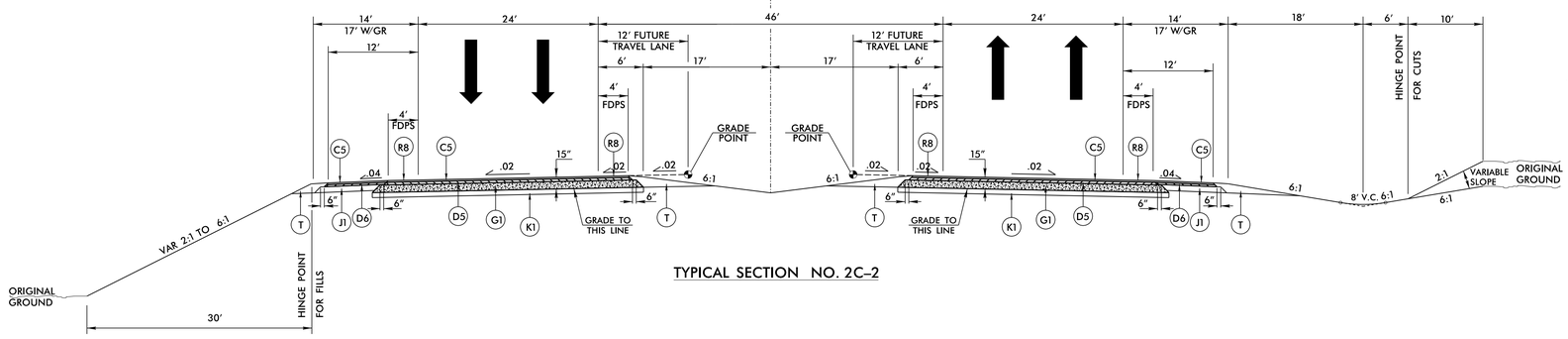
TYPICAL SECTION NO. 2C–1



USE WITH TYPICAL SECTION NO. 2C–1
–L– STA. 766+20.00 TO –L– STA. 789+65.00 LT.
–L– STA. 778+35.00 TO –L– STA. 802+10.00 RT.

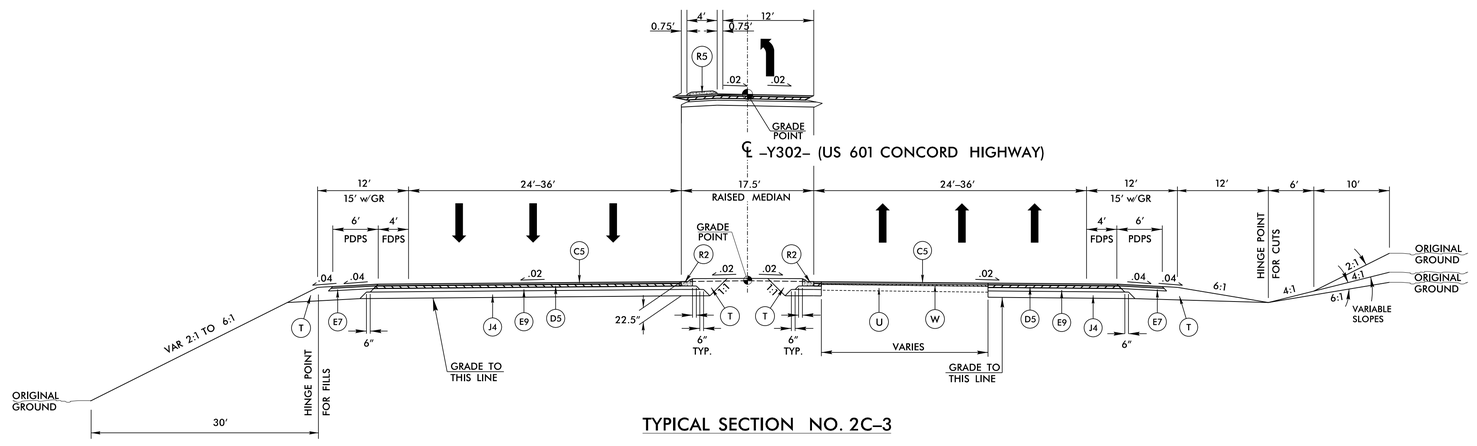


USE WITH TYPICAL SECTION NO. 2C–1
–L– STA. 652+88.03 TO –L– STA. 670+00.00 RT.
(SEE TYPICALS FOR PAVEMENT TYPES)



USE TYPICAL SECTION NO. 2C–2
–L– STA. 830+00.00 TO 912+00.00

TYPICAL SECTION NO. 2C–2



USE TYPICAL SECTION NO. 2C–3
–Y302– STA. 98+35.00 TO 161+45.00

TYPICAL SECTION NO. 2C–3

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609–3960
NC LICENSE NO. F–0112 • (919) 878–9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$TIME$$$$$
6/2/2014
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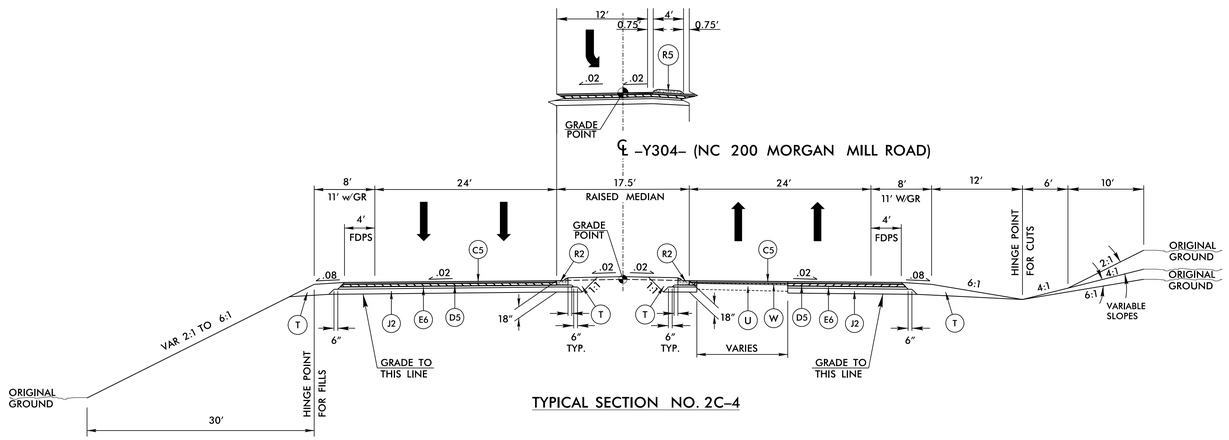
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

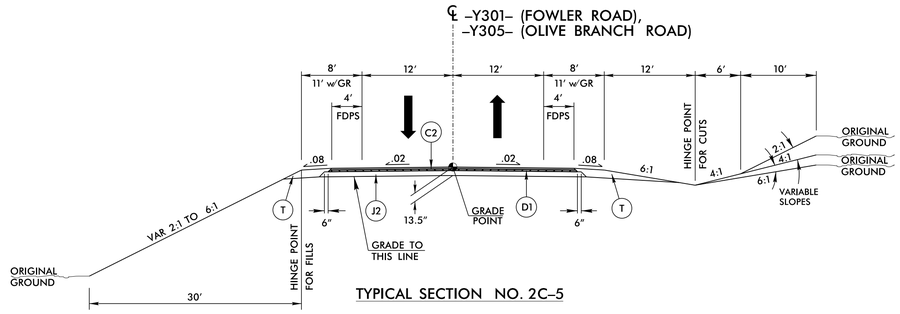
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E6	3″ B25.0C
E7	4″ B25.0C
E9	5.5″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI
T	EARTH
U	EXISTING PAVEMENT
W	WEDGING



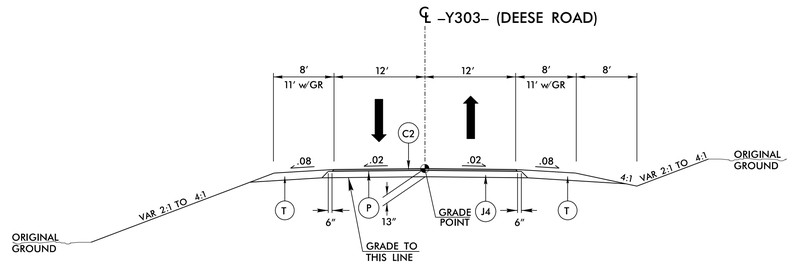
TYPICAL SECTION NO. 2C–4

USE TYPICAL SECTION NO. 2C–4
–Y304– STA. 13+19.93 TO 35+35.23 (BEGIN BRIDGE)
–Y304– STA. 36+83.23 (END BRIDGE) TO 58+00.00



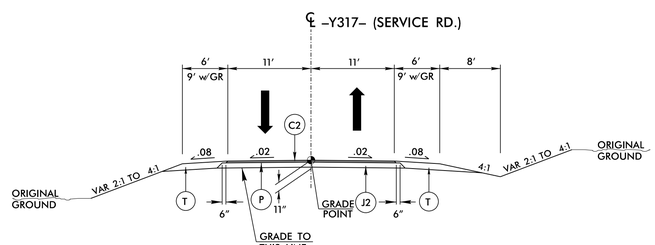
TYPICAL SECTION NO. 2C–5

USE TYPICAL SECTION NO. 2C–5
–Y301– STA. 807+00.00 TO 818+84.69 (BEGIN BRIDGE)
–Y301– STA. 820+88.69 (END BRIDGE) TO 829+50.00
–Y305– STA. 23+50.00 TO 34+21.00 (BEGIN BRIDGE)
–Y305– STA. 35+79.00 (END BRIDGE) TO 43+50.00



TYPICAL SECTION NO. 2C–6

USE TYPICAL SECTION NO. 2C–6
–Y303– STA. 705+50.00 TO 715+03.07 (BEGIN BRIDGE)
–Y303– STA. 716+59.93 (END BRIDGE) TO 727+20.00



TYPICAL SECTION NO. 2C–7

USE TYPICAL SECTION NO. 2C–7
–Y317– STA. 10+12.00 TO 66+75.82

PLANS PREPARED BY :

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
$$$$$$DATE$$$$$$
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Files

6/2/99

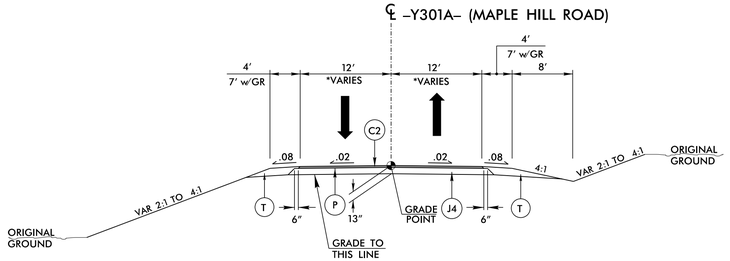
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E6	3″ B25.0C
E7	4″ B25.0C
E9	5.5″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI
T	EARTH
U	EXISTING PAVEMENT
W	WEDGING

℄ –Y301A– (MAPLE HILL ROAD)

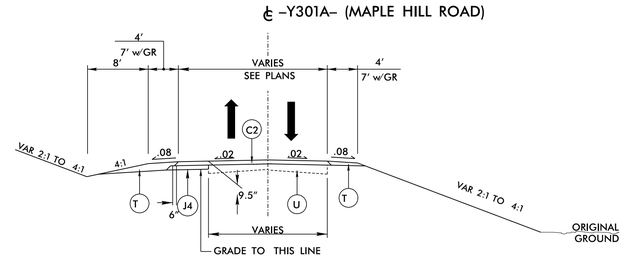


TYPICAL SECTION NO. 2C–8

USE TYPICAL SECTION NO. 2C–8
–Y301A– STA. 10+00.00 TO 11+88.48
*–Y301A– STA. 19+46.89 TO 20+32.66

OVERLAY EXISTING ONLY FROM:
–Y301A– STA. 11+88.48 TO 14+26.53

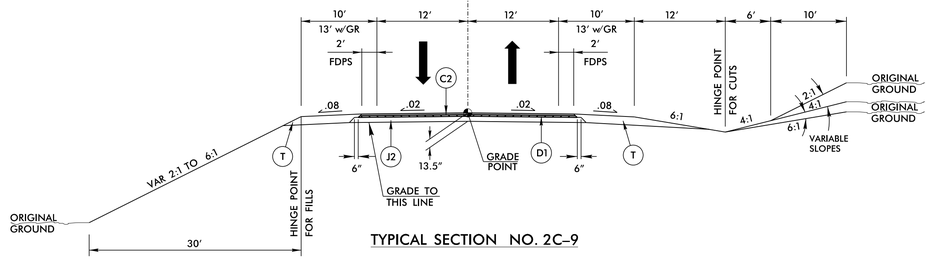
℄ –Y301A– (MAPLE HILL ROAD)



TYPICAL SECTION NO. 2C–8A

USE TYPICAL SECTION NO. 2C–8A
–Y301A– STA. 19+46.32 TO 20+32.66

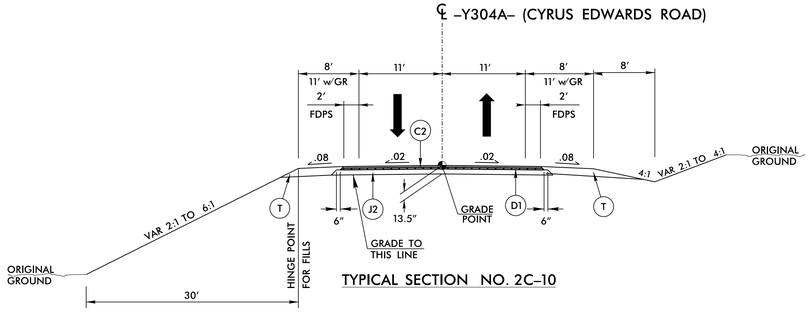
℄ –Y302A– (RIDGE ROAD),
–Y302B– (BAUCOM DEESE ROAD)



TYPICAL SECTION NO. 2C–9

USE TYPICAL SECTION NO. 2C–9
–Y302A– STA. 11+58.74 TO 13+98.28
–Y302B– STA. 12+78.32 TO 14+95.82

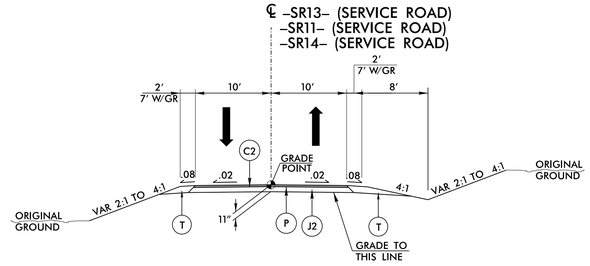
℄ –Y304A– (CYRUS EDWARDS ROAD)



TYPICAL SECTION NO. 2C–10

USE TYPICAL SECTION NO. 2C–10
–Y304A– STA. 10+00.00 TO 15+09.37

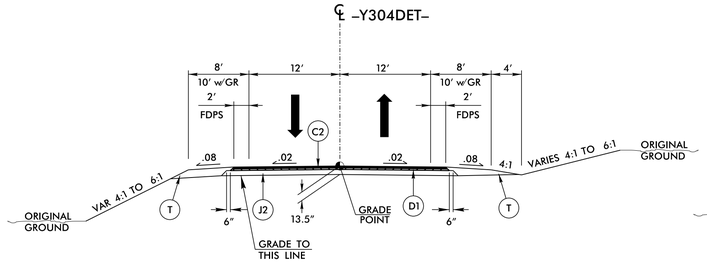
℄ –SR13– (SERVICE ROAD)
–SR11– (SERVICE ROAD)
–SR14– (SERVICE ROAD)



TYPICAL SECTION NO. 2C–11

USE TYPICAL SECTION NO. 2C–11
–SR13– STA. 10+00.00 TO 15+31.14
–SR11– STA. 10+00.00 TO 13+51.46
–SR14– STA. 10+00.00 TO 13+25.57

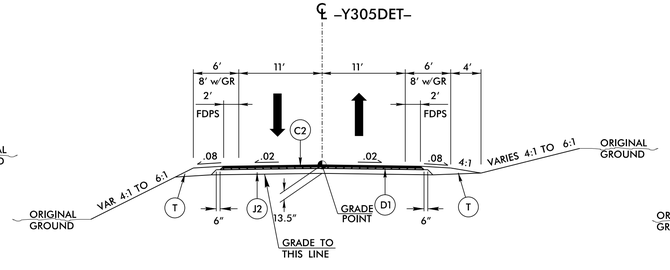
℄ –Y304DET–



TYPICAL SECTION NO. 2C–12

USE TYPICAL SECTION NO. 2C–12
–Y304DET– STA. 10+00.00 TO 41+34.18

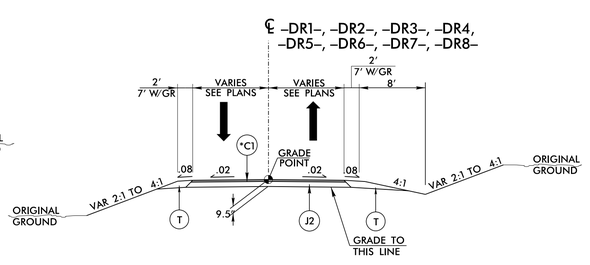
℄ –Y305DET–



TYPICAL SECTION NO. 2C–13

USE TYPICAL SECTION NO. 2C–13
–Y304DET– STA. 10+00.00 TO 32+51.21

℄ –DR1–, –DR2–, –DR3–, –DR4,
–DR5–, –DR6–, –DR7–, –DR8–



TYPICAL SECTION NO. 2C–14

USE TYPICAL SECTION NO. 2C–14
* –DR1– STA. 10+05.00 TO 12+91.68
* –DR2– STA. 10+11.00 TO 11+90.40
–DR3– STA. 10+20.00 TO 12+04.23
–DR4– STA. 10+12.00 TO 13+36.63
–DR5– STA. 10+12.00 TO 12+10.00
–DR6– STA. 10+12.00 TO 12+80.00
–DR7– STA. 10+12.00 TO 11+30.00
–DR8– STA. 10+12.00 TO 11+40.00

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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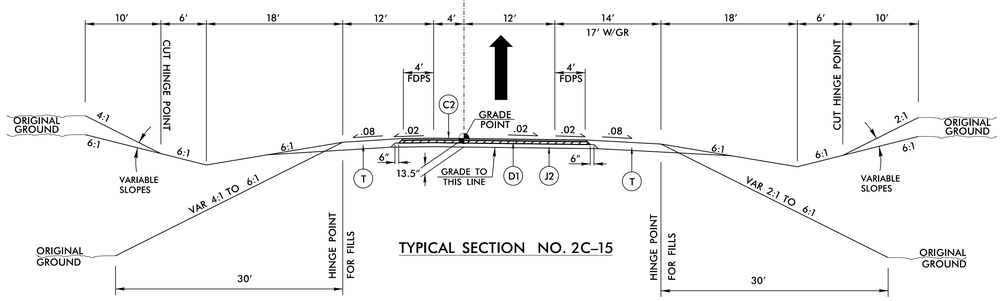
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2F
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
D7	3″ I19.0C
E2	4″ B25.0B
E6	3″ B25.0C
E7	4″ B25.0C
E9	5.5″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
J3	9″ ABC
J4	10″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	.35 PRIME COAT
R1	2′-6″ C & G
R2	1′-6″ C & G
R5	5″ MCI
T	EARTH
U	EXISTING PAVEMENT
W	WEDGING

℄ RAMPS TRA, TRD (NC 200)

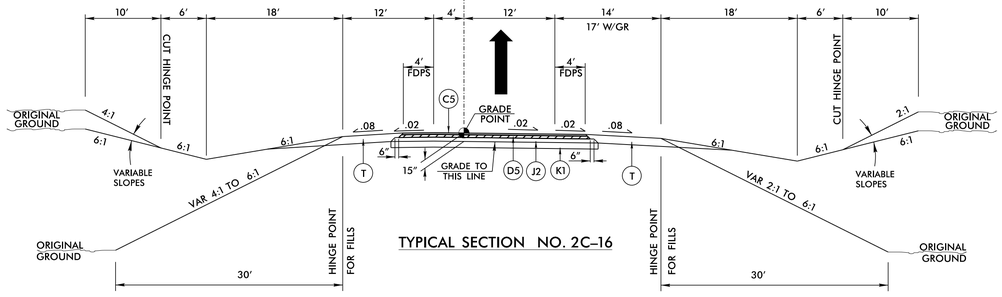


TYPICAL SECTION NO. 2C–15

USE TYPICAL SECTION NO. 2C–15
–TRA– STA 10+00.00 TO 31+37.15
–TRD– STA 10+00.00 TO 27+85.21

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–TRA– STA 10+00.00 TO 14+84.34
–TRD– STA 10+00.00 TO 13+90.07

℄ RAMPS RRA, RRB, RRC (US 601)



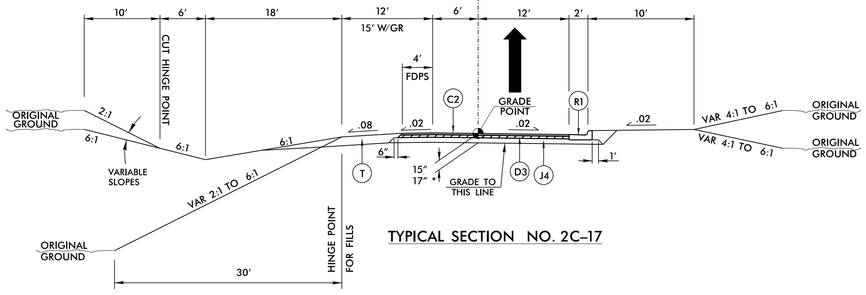
TYPICAL SECTION NO. 2C–16

USE TYPICAL SECTION NO. 2C–16
–RRA– STA 10+00.00 TO 31+92.23
–RRB– STA 10+00.00 TO 31+14.20
–RRC– STA 10+00.00 TO 32+32.67

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–RRA– STA 10+00.00 TO 14+71.18
–RRB– STA 10+00.00 TO 15+35.23
–RRC– STA 10+00.00 TO 14+91.19

NOTE: USE –Y302– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–RRB– STA 29+59.77 TO 31+14.20

℄ LOOPS TLA, TLD (NC 200)

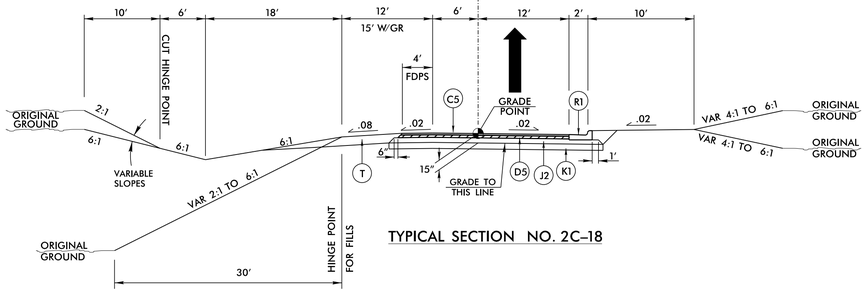


TYPICAL SECTION NO. 2C–17

USE TYPICAL SECTION NO. 2C–17
–TLA– STA 10+00.00 TO 22+07.31
–TLD– STA. 10+00.00 TO 20+92.30

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–TLA– STA 10+00.00 TO 12+49.77
–TLD– STA. 10+00.00 TO 12+46.73

℄ LOOPS RLA, RLC (US 601)



TYPICAL SECTION NO. 2C–18

USE TYPICAL SECTION NO. 2C–18
–RLA– STA 10+00.00 TO 23+31.25
–RLC– STA 10+00.00 TO 23+40.84

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–RLA– STA 10+00.00 TO 12+16.57
–RLC– STA 10+00.00 TO 12+16.57

NOTE: USE –Y302– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–RLA– STA 21+20.74 TO 23+31.25

PLANS PREPARED BY :
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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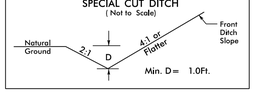
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2G
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

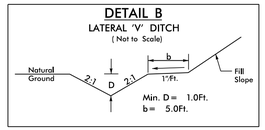
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.0Ft.

–L2C– STA. 673+50 TO STA. 678+00 LT
–L2C– STA. 681+00 TO STA. 684+50 RT
–L2C– STA. 707+00 TO STA. 708+50 RT
–L2C– STA. 707+00 TO STA. 709+00 LT
–L2C– STA. 715+50 TO STA. 721+50 RT
–L2C– STA. 795+50 TO STA. 796+00 LT
–L2C– STA. 818+26 TO STA. 819+50 LT
–L2C– STA. 821+50 TO STA. 829+50 RT
–L2C– STA. 822+00 TO STA. 829+00 LT
–L2C– STA. 835+00 TO STA. 838+50 RT
–L2C– STA. 872+00 TO STA. 874+50 LT
–L2C– STA. 895+00 TO STA. 897+25 LT
–RRA– STA. 24+00 TO STA. 27+50 RT
–RRB– STA. 26+00 TO STA. 28+80 RT
–RRC– STA. 18+13.62 TO STA. 20+00 LT
–TRA– STA. 20+00 TO STA. 21+00 LT
–Y301– STA. 806+40 TO STA. 807+00 RT
–Y301– STA. 829+50 TO STA. 830+15 LT
–Y302– STA. 141+13 TO STA. 142+00 RT
–Y302– STA. 141+75 TO STA. 142+50 LT
–Y302– STA. 161+00 TO STA. 161+45 LT & RT
–Y302A– STA. 11+60 TO STA. 13+00 LT
–Y302A– STA. 11+60 TO STA. 12+75 RT
–Y302B– STA. 11+00 TO STA. 14+00 RT
–Y302B– STA. 12+00 TO STA. 14+20 LT
–Y302C– STA. 10+85 TO STA. 11+70 RT
–Y303– STA. 706+50 TO STA. 707+50 LT
–Y303– STA. 727+20 TO STA. 728+65 RT
–Y304– STA. 13+19.93 TO STA. 15+20 LT
–Y304– STA. 19+00 TO STA. 19+50 RT
–Y305– STA. 42+50 TO STA. 43+60 RT
–SR13– STA. 13+00 TO STA. 15+00 RT

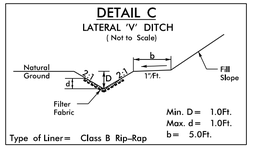
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)



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

–L2C– STA. 820+50 TO STA. 821+50 LT
–L2C– STA. 877+60 TO STA. 879+00 LT
–L2C– STA. 900+00 TO STA. 901+00 LT
–TRA– STA. 25+00 TO STA. 27+50 RT
–Y301– STA. 811+46 TO STA. 814+50 RT
–Y302– STA. 103+77.79 TO STA. 104+74.17 RT
–Y302– STA. 118+50 TO STA. 119+50 RT
–Y303– STA. 713+50 TO STA. 714+90 RT

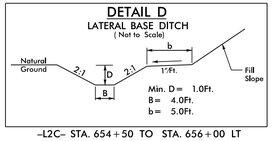
DETAIL C
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.
Max. d= 1.0Ft.
b= 5.0Ft.
Type of Liner= Class B Rip–Rap

–Y303– STA. 710+00 TO STA. 711+05 LT
–Y303– STA. 711+18 TO STA. 713+50 RT

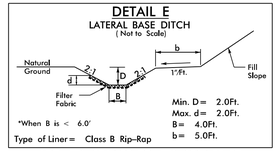
DETAIL D
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0Ft.
B= 4.0Ft.
b= 5.0Ft.

–L2C– STA. 654+50 TO STA. 656+00 LT
–L2C– STA. 670+00 TO STA. 672+00 LT
–L2C– STA. 692+50 TO STA. 694+00 LT
–L2C– STA. 698+00 TO STA. 705+20 LT
–L2C– STA. 701+00 TO STA. 703+00 RT
–L2C– STA. 741+69 TO STA. 744+00 RT
–L2C– STA. 758+55 TO STA. 763+00 RT
–L2C– STA. 782+50 TO STA. 785+50 RT
–L2C– STA. 784+50 TO STA. 785+50 LT
–L2C– STA. 793+30 TO STA. 797+00 RT
–L2C– STA. 807+12 TO STA. 811+00 LT
–L2C– STA. 853+00 TO STA. 855+40 RT
–L2C– STA. 853+00 TO STA. 857+50 LT
–L2C– STA. 867+18 TO STA. 870+18 RT
–L2C– STA. 896+40 TO STA. 898+50 RT
–L2C– STA. 898+00 TO STA. 900+00 LT
–RLA– STA. 10+00 TO STA. 13+48.04 LT
–TLA– STA. 15+00 TO STA. 17+50 LT
–TRD– STA. 17+64 TO STA. 20+00 RT
–TRD– STA. 20+77 TO STA. 23+00 RT
–Y301– STA. 810+50 TO STA. 813+00 LT
–Y301A– STA. 13+50 TO STA. 15+00 LT
–Y302– STA. 111+10 TO STA. 115+00 LT
–Y302– STA. 124+00 TO STA. 126+50 LT
–Y302– STA. 129+40 TO STA. 131+00 RT
–Y302– STA. 133+75 TO STA. 138+00 RT
–Y303– STA. 717+00 TO STA. 720+20 RT (b Varies, see plans)
–Y304– STA. 28+00 TO STA. 35+00 LT
–Y305– STA. 29+00 TO STA. 31+70 LT

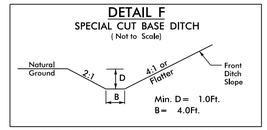
DETAIL E
LATERAL BASE DITCH
(Not to Scale)



Min. D= 2.0Ft.
Max. d= 2.0Ft.
B= 4.0Ft.
b= 5.0Ft.
*When B is < 6.0'
Type of Liner= Class B Rip–Rap

–L2C– STA. 654+00 TO STA. 656+88 RT
–L2C– STA. 663+50 TO STA. 670+00 LT
–L2C– STA. 890+50 TO STA. 892+95 LT
–Y301– STA. 811+00 TO STA. 813+00 LT
–Y302– STA. 133+98 TO STA. 134+83 LT
–TRD– STA. 17+65 TO STA. 20+75 LT

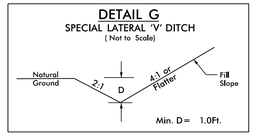
DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D= 1.0Ft.
B= 4.0Ft.

–L2C– STA. 690+50 TO STA. 692+50 LT
–L2C– STA. 897+25 TO STA. 898+00 LT
–RRA– STA. 30+00 TO STA. 31+00 RT
–Y301– STA. 806+40 TO STA. 810+50 LT

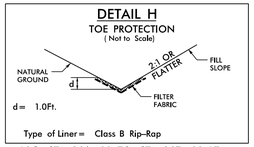
DETAIL G
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.

–L2C– STA. 838+50 TO STA. 839+77 RT
–Y302– STA. 98+50 TO STA. 110+10 LT
–Y302– STA. 108+50 TO STA. 110+80 RT
–Y302– STA. 150+50 TO STA. 151+84 RT
–Y304– STA. 13+19.93 TO STA. 15+20 RT
–Y304– STA. 19+00 TO STA. 20+00 LT
–Y304– STA. 21+35 TO STA. 23+00 LT
–Y304– STA. 21+50 TO STA. 24+00 RT
–Y304– STA. 42+40 TO STA. 43+80 LT
–Y304– STA. 51+00 TO STA. 52+64 LT
–Y304– STA. 51+00 TO STA. 52+82 RT
–Y304– STA. 56+00 TO STA. 57+50 RT

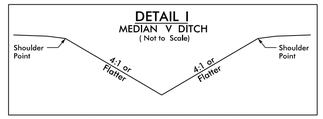
DETAIL H
TOE PROTECTION
(Not to Scale)



d= 1.0Ft.
Type of Liner= Class B Rip–Rap

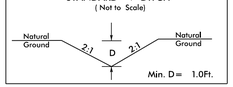
–L2C– STA. 866+00 TO STA. 867+00 LT
–TRA– STA. 15+30 TO STA. 16+55 RT
–Y302– STA. 126+50 TO STA. 127+30 LT
–Y302– STA. 133+95 TO STA. 136+55 LT
–Y301A– STA. 19+43 TO STA. 19+90 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



–L2C– STA. 675+00 TO STA. 677+00 CL
–L2C– STA. 690+50 TO STA. 693+00 CL
–L2C– STA. 707+00 TO STA. 708+50 CL
–L2C– STA. 782+50 TO STA. 783+50 CL
–L2C– STA. 795+00 TO STA. 799+00 CL
–L2C– STA. 827+00 TO STA. 829+00 CL
–L2C– STA. 831+00 TO STA. 835+00 CL
–L2C– STA. 872+50 TO STA. 874+00 RT
–L2C– STA. 893+00 TO STA. 897+50 CL
–L2C– STA. 892+50 TO STA. 896+70 RT
–L2C– STA. 899+50 TO STA. 902+50 RT

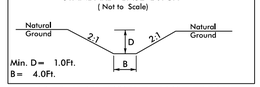
DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.

DETAIL J NOT USED IN SECTION 2C

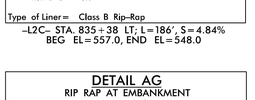
DETAIL K
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.0Ft.
B= 4.0Ft.

–L2C– STA. 665+00 LT; L=150', S=2.82%
BEG EL=558.26, END EL=554.03
–L2C– STA. 776+00 RT; L=115', S=0.35%
BEG EL=556.1, END EL=555.7
–L2C– STA. 817+00 LT; L=80', S=4.00%
BEG EL=549.5, END EL=546.3
–L2C– STA. 855+40 RT; L=150', S=0.65%
BEG EL=547.0, END EL=546.0
–RLC– STA. 17+00 TO 20+55 LT; L=340', S=0.44%
BEG EL=568.5, END EL=567.0
–Y304– STA. 15+20 RT; L=165', S=0.22%
BEG EL=580.0, END EL=579.6

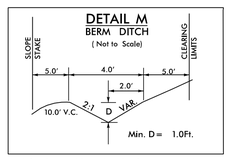
DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.5Ft.

–L2C– STA. 767+50 TO STA. 768+00 RT
–Y302– STA. 138+00 TO STA. 140+00 RT

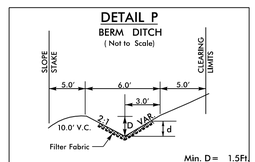
DETAIL M
BERM DITCH
(Not to Scale)



Min. D= 1.0Ft.

–L2C– STA. 702+50 TO STA. 714+00 RT
–L2C– STA. 713+00 TO STA. 721+00 LT
–L2C– STA. 859+40 TO STA. 864+00 LT
–L2C– STA. 866+10 TO STA. 873+20 LT
–L2C– STA. 905+30 TO STA. 909+50 LT
–RRA– STA. 18+00 TO STA. 22+75 RT

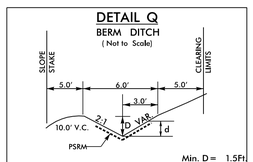
DETAIL P
BERM DITCH
(Not to Scale)



Min. D= 1.5Ft.
Max. d= 1.5Ft.
Type of Liner= Class B Rip–Rap

DETAIL P NOT USED IN SECTION 2C

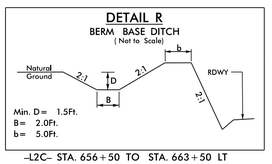
DETAIL Q
BERM DITCH
(Not to Scale)



Min. D= 1.5Ft.
Max. d= 1.5Ft.
Type of Liner= PSRM

–RRB– STA. 15+00 TO STA. 20+45 LT

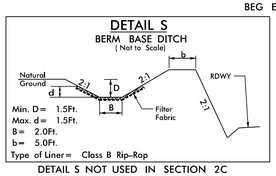
DETAIL R
BERM BASE DITCH
(Not to Scale)



Min. D= 1.5Ft.
B= 2.0Ft.
b= 5.0Ft.

–L2C– STA. 656+50 TO STA. 663+50 LT

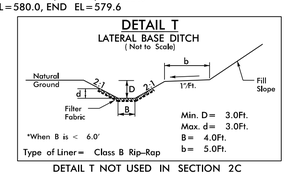
DETAIL S
BERM BASE DITCH
(Not to Scale)



Min. D= 1.5Ft.
Max. d= 1.5Ft.
B= 2.0Ft.
b= 5.0Ft.
Type of Liner= Class B Rip–Rap

DETAIL S NOT USED IN SECTION 2C

DETAIL T
LATERAL BASE DITCH
(Not to Scale)

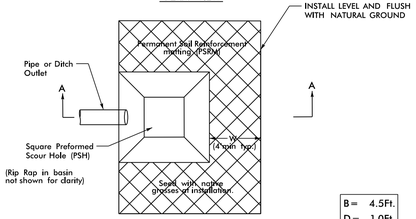


Min. D= 3.0Ft.
Max. d= 3.0Ft.
B= 4.0Ft.
b= 5.0Ft.
*When B is < 6.0'
Type of Liner= Class B Rip–Rap

DETAIL T NOT USED IN SECTION 2C

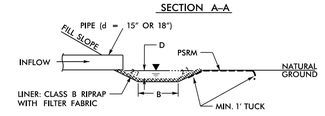
PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE

PLAN VIEW



B= 4.5Ft.
D= 1.0Ft.
W= 4.0Ft.

SECTION A–A



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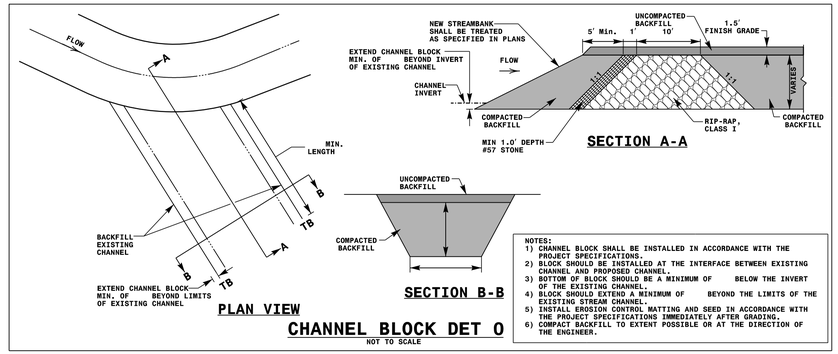
–L2C– STA. 659+50 RT
–L2C– STA. 671+00 RT
–Y317– STA. 57+00 RT



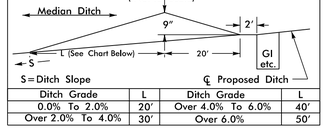
PLAN VIEW

CHANNEL BLOCK DET 0
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 BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 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.

–L2C– STA. 654+26 RT
–L2C– STA. 701+25 RT

DETAIL
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'

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)

Min. D= 1.0Ft.
B= 1.0Ft.

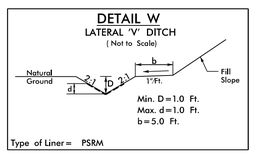
DETAIL U NOT USED IN SECTION 2C

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

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

–Y302– STA. 104+74.17 TO STA. 108+50 RT
–Y302– STA. 116+00 TO STA. 118+50 RT
–Y303– STA. 707+50 TO STA. 710+00 LT
–Y317– STA. 11+60 TO STA. 16+88.38 LT

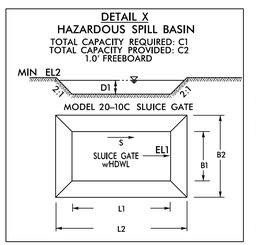
DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



Min. D=1.0 Ft.
Max. d=1.0 Ft.
b=5.0 Ft.
Type of Liner= PSRM

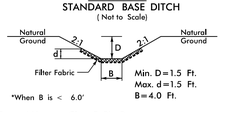
–L2C– STA. 819+50 TO STA. 821+50 LT
–Y305– STA. 26+77.73 TO STA. 29+00 LT

DETAIL X
HAZARDOUS SPILL BASIN
TOTAL CAPACITY REQUIRED: C1
TOTAL CAPACITY PROVIDED: C2
1.0' FREEBOARD



–L2C– 818+00 LT
C1=8996cf C2=9016cf EL1=552.9' EL2=558.0'
D1=4.0' L1=65.0' L2=81.0'
B1=22.0' B2=38.0' S=0.30%
–L2C– 807+00 LT
C1=11454cf C2=11952cf EL1=525.0' EL2=530.2'
D1=4.0' L1=60.0' L2=76.0'
B1=35.0' B2=51.0' S=0.30%
–L2C– 786+50 RT
C1=15074cf C2=16192cf EL1=532.0' EL2=537.2'
D1=4.0' L1=75.0' L2=91.0'
B1=40.0' B2=62.0' S=0.30%
–L2C– 793+00 RT
C1=11980cf C2=12015cf EL1=518.0' EL2=522.2'
D1=3.0' L1=75.0' L2=87.0'
B1=43.0' B2=55.0' S=0.30%
–TRD– 14+50 LT
C1=2760cf C2=3024cf EL1=555.8' EL2=559.0'
D1=2.0' L1=40.0' L2=48.0'
B1=30.0' B2=38.0' S=0.30%
–TRD– 20+25 RT
C1=2532cf C2=2916cf EL1=561.4' EL2=535.5'
D1=3.0' L1=30.0' L2=46.0'
B1=20.0' B2=36.0' S=0.30%
–TRA– 22+25 LT
C1=21602cf C2=36963cfEL1=547.5' EL2=552.0'
D1=4.0' L1=183.0' L2=199.0'
B1=59.0' B2=75.0' S=0.30%

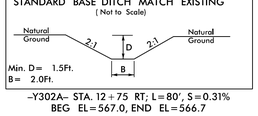
DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=4.0 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip–Rap

–L2C– STA. 835+38 LT; L=186', S=4.84%
BEG EL=557.0, END EL=548.0

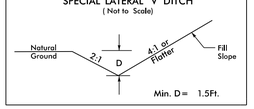
DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



Min. D= 1.5Ft.
B= 2.0Ft.

–Y302A– STA. 12+75 RT; L=80', S=0.31%
BEG EL=567.0, END EL=566.7

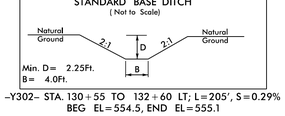
DETAIL AA
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.5Ft.

–Y304– STA. 20+85 TO STA. 21+50 RT

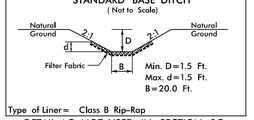
DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.25Ft.
B= 4.0Ft.

–Y302– STA. 130+55 TO 132+60 LT; L=205', S=0.29%
BEG EL=554.5, END EL=555.1

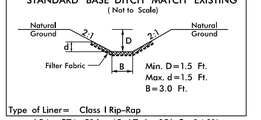
DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=20.0 Ft.
Type of Liner= Class B Rip–Rap

DETAIL AC NOT USED IN SECTION 2C

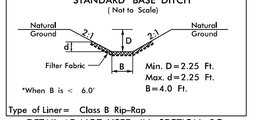
DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



Min. D=1.5 Ft.
Max. d=1.5 Ft.
B=3.0 Ft.
Type of Liner= Class I Rip–Rap

–L3A– STA. 916+49 LT; L=18', S=14.1%
BEG EL=515.24, END EL=512.7

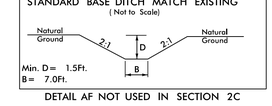
DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



Min. D=2.25 Ft.
Max. d=2.25 Ft.
B=4.0 Ft.
*When B is < 6.0'
Type of Liner= Class B Rip–Rap

DETAIL AE NOT USED IN SECTION 2C

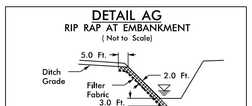
DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



Min. D= 1.5Ft.
B= 7.0Ft.

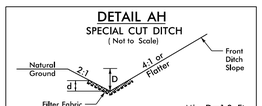
DETAIL AF NOT USED IN SECTION 2C

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



DETAIL AG NOT USED IN SECTION 2C

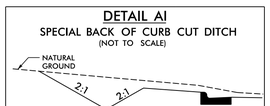
DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



Min. D=1.0 Ft.
Max. d=1.0Ft.
Type of Liner= Class B Rip–Rap

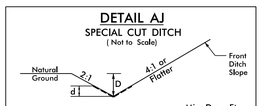
DETAIL AH NOT USED IN SECTION 2C

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



–RLA– STA. 15+00 TO STA. 20+18.58 LT
–TLA– STA. 11+98.24 TO STA. 15+00 LT
–TLD– STA. 12+27.70 TO STA. 15+50 RT

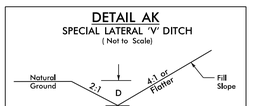
DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



Min. D= Ft.
Max d= Ft.
Type of Liner= PSRM

DETAIL AJ NOT USED IN SECTION 2C

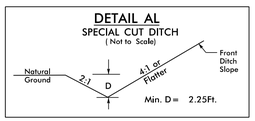
DETAIL AK
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 2.25Ft.

DETAIL AK NOT USED IN SECTION 2C

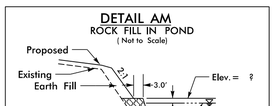
DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 2.25Ft.

DETAIL AL NOT USED IN SECTION 2C

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



–L2C– STA. 848+25 TO 850+07 RT
–Y302– STA. 151+80 TO STA. 152+78 RT
–Y304– STA. 52+75 LT

9/29/2014
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

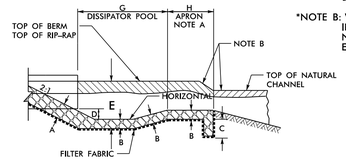
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

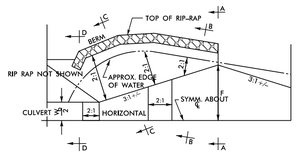
DETAIL AN

RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION



HALF PLAN



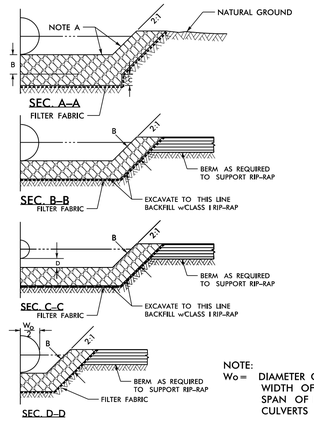
DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	4.0							
B	3.0							
C	1.0							
D	1.25							
E	6.75							
F	6.3							
G	12.5							
H	6.3							

BASIN #	LOCATION (AT OUTLET)
1	–L– STA. 791+20 RT
2	
3	
4	
5	
6	
7	
8	

*ALL DIMENSIONS APPROXIMATE IN FEET

*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



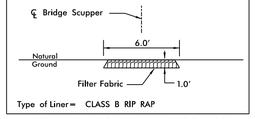
NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

5/05

DETAIL AN NOT USED IN SECTION 2C

DETAIL AO

SCOUR PROTECTION
(NOT TO SCALE)

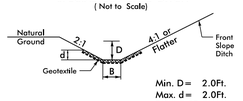


Type of Liner = CLASS B RIP RAP

DETAIL AO NOT USED IN SECTION 2C

DETAIL AP

SPECIAL CUT BASE DITCH
(Not to Scale)



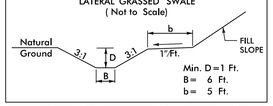
Min. D = 2.0Ft.
Max. d = 2.0Ft.
B = 4.0Ft.

Type of Liner = Class B Rip-Rap

DETAIL AP NOT USED IN SECTION 2C

DETAIL AQ

LATERAL GRASSED SWALE
(Not to Scale)

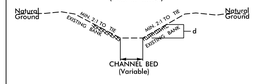


Min. D = 1 Ft.
B = 6 Ft.
b = 5 Ft.

DETAIL AQ NOT USED IN SECTION 2C

DETAIL AR

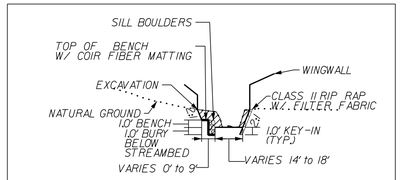
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)



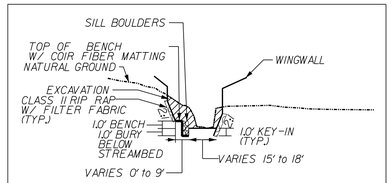
Class I Rip Rap

–L2C– STA. 656+88 RT, L=12', d=1.4'
–L2C– STA. 738+81 RT, L=24', d=4.0'
–L2C– STA. 816+70 LT, L=16', d=0.5'
–L2C– STA. 840+88 LT, L=22', d=1.0'
–TRA– STA. 19+02 LT, L=22', d=0.6'
–TRD– STA. 18+33 LT, L=20', d=0.5'
–L2C– STA. 865+99 LT, L=5', d=0.8'
–L2C– STA. 867+16 RT, L=14', d=2.5'
–L2C– STA. 893+69 RT, L=28', d=4'
–L2C– STA. 903+89 LT, L=5', d=1.7'
–L2C– STA. 903+89 RT, L=18', d=1.4'

EAST FORK
STEWARTS CREEK
–L– STA. 669+12

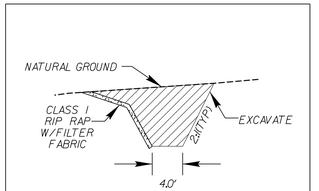


CULVERT INLET DETAIL (NTS)
LENGTH = 42'



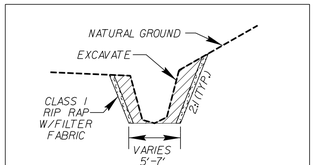
CULVERT OUTLET DETAIL (NTS)
LENGTH = 34'

UT TO
STEWARTS CREEK
–L– STA. 702+70



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

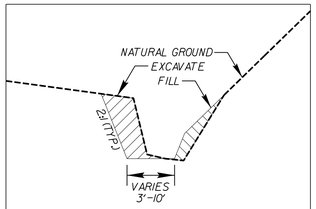
CULVERT INLET DETAIL (NTS)
LENGTH = 30'



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

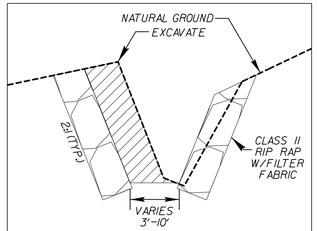
CULVERT OUTLET DETAIL (NTS)
LENGTH = 39'

UT TO
STEWARTS CREEK
–L– STA. 805+89



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT INLET DETAIL (NTS)
LENGTH = 33'



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH = 49'

10/1/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-21
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

DETOUR PLAN

NAD 83

-Y304DET- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y304DET- POC Sta. 12+13.45

N 17° 43' 38.1" E

-Y304DET- PC Sta. 12+00.00

-Y304DET- PT Sta. 14+92.56

-Y304DET- PC Sta. 17+48.56

-Y304DET- PT Sta. 20+41.13

N 33° 32' 27.8" E

N 17° 43' 38" E

FOR TEMPORARY DETOUR

MATCHLINE -Y304DET-
STA. 21+00 SEE SHEET 2C-2J

FOR -Y304DET- PROFILE SEE SHT. 2C-2L
FOR -Y304- ROADWAY SEE SHT. 48, 105, 106, 107

-Y304DET-

PI Sta 13+47.22
△ = 15° 48' 49.7" (RT)
D = 5° 24' 18.9"
L = 292.56'
T = 147.22'
R = 1,060.00'
DS = 55 mph
e = 0.06

-Y304DET-

PI Sta 18+95.78
△ = 15° 48' 49.7" (LT)
D = 5° 24' 18.9"
L = 292.56'
T = 147.22'
R = 1,060.00'
DS = 55 mph
e = 0.06

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

$$$$$$TIME$$$$$
$$$$$$DATE$$$$$
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ESRI

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2J
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

DETOUR PLAN

NAD 83

MATCHLINE –Y304DET– SEE SHEET 2C–2I
STA. 21+00

MATCHLINE –Y304DET– SEE SHEET 2C–2K
STA. 31+00

–Y304DET– PC Sta. 30+93.05

25+00 30+00

N 17° 43' 38.1" E

–Y304DET–

–TLA–

–TLD–

15+00

MORGAN MILL ROAD

NC 200 MORGAN MILL RD

NCDOT DB 1840 PG 851

NCDOT DB 289 PG 578

NCDOT DB 950 PG 122

PUE

R/W

C/A

FOR –Y304DET– PROFILE SEE SHT. 2C–2L
FOR –Y304– ROADWAY SEE SHT. 48, 105, 106, 107

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
$$$$$$ZONE$$$$$$
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ekeus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2K
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

DETOUR PLAN

NAD 83

-Y304DET-
PI Sta 37+88.83
△ = 15° 48' 49.7" (RT)
D = 5° 24' 18.9"
L = 292.56'
T = 147.22'
R = 1,060.00'
DS = 55 mph
e = 0.06

MATCHLINE -Y304DET-
STA. 31+00 SEE SHEET 2C-2J

-Y304DET- PT Sta. 33+85.62

-Y304DET- PC Sta. 36+41.62

-Y304DET- PT Sta. 39+34.18

-Y304DET- POT Sta. 41+34.18

END CONSTRUCTION
-Y304DET- POT Sta. 40+70.29

-Y304DET-
PI Sta 32+40.27
△ = 15° 48' 49.7" (LT)
D = 5° 24' 18.9"
L = 292.56'
T = 147.22'
R = 1,060.00'
DS = 55 mph
e = 0.06

FOR -Y304DET- PROFILE SEE SHT. 2C-2L
FOR -Y304- ROADWAY SEE SHT. 48, 105, 106, 107

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
$$$$$$ZOOM$$$$$$
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kevis

5/28/99

MORGAN MILL ROAD -Y304DET-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	2C-2L
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-Y304DET- STA 13+51.24
ELEV.= 581.97'

PI = 17+80.60
EL = 584.39'
VC = 300'
K = 117
DS = 56 mph

PROPOSED GRADE

(+)0.5621%

(-)2.0000%

EXISTING GROUND

630 620 610 600 590 580 570 560 550 540

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

PI = 25+00.00
EL = 570.00'
VC = 400'
K = 118
DS = 56 mph

(-)2.0000%

(+)1.3953%

PI = 29+30.00
EL = 576.00'
VC = 420'
K = 116
DS = 55 mph

(+)1.3953%

(-)2.2333%

PROPOSED GRADE

EXISTING GROUND

PI = 33+33.00
EL = 567.00'
VC = 310'
K = 116
DS = 55 mph

(-)2.2333%

(+)0.4338%

EXISTING GROUND

END GRADE
-Y304DET- STA 37+81.68
ELEV.= 569.36'

PI = 36+68.18
EL = 568.45'
VC = 165'
K = 452
DS = 55 mph

(+)0.4338%

(+)0.7988%

PROPOSED GRADE

620 610 600 590 580 570 560 550 540 530

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

FOR -Y304DET- PLAN
SEE SHT. 2C-2I, 2C-2J & 2C-2K

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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Ekevis

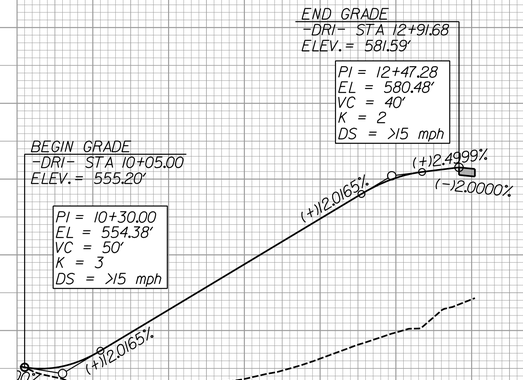
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	2C-2M
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

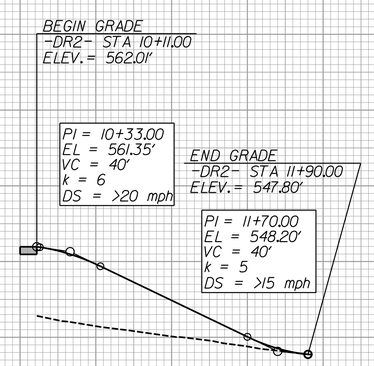
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DR1-



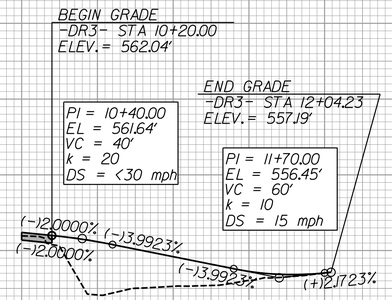
FOR -DRI- PLAN SEE SHT. 39

-DR2-



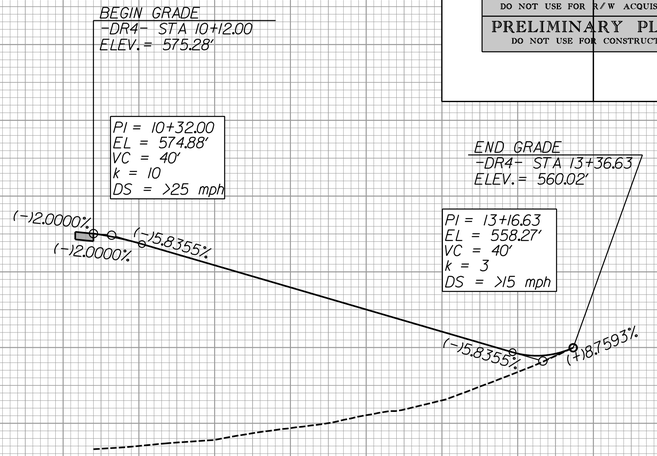
FOR -DR2- PLAN SEE SHT. 50

-DR3-



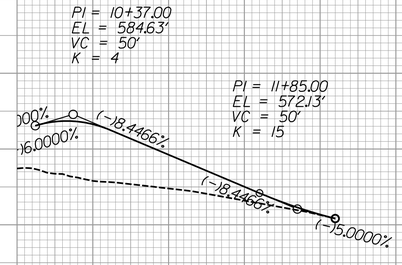
FOR -DR3- PLAN SEE SHT. 99

-DR4-



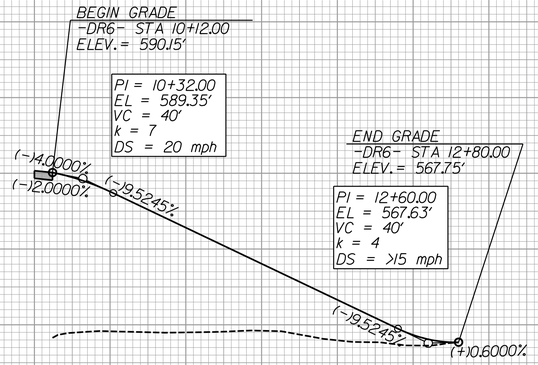
FOR -DR4- PLAN SEES. 49 AND 50

-DR5-



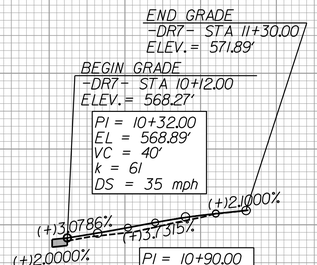
FOR -DR5- PLAN SEE SHT. 102

-DR6-



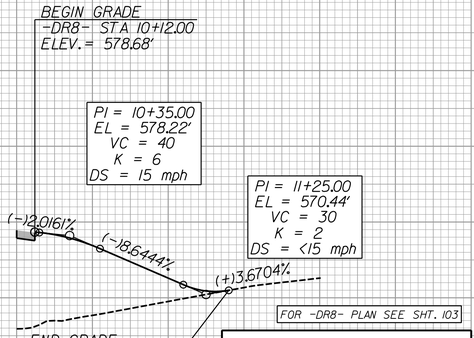
FOR -DR6- PLAN SEES. 44 AND 102

-DR7-



FOR -DR7- PLAN SEE SHT. 106

-DR8-



FOR -DR8- PLAN SEE SHT. 103

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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RLKeis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-2N
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

DETOUR PLAN

NAD 83

MATCHLINE –Y305DET– STA. 22+00 SEE SHEET 2C-2O

–Y305DET–

PI Sta 18+01.09
△ = 13° 59' 54.7" (RT)
D = 5° 43' 46.5"
L = 244.32'
T = 122.77'
R = 1,000.00'
DS = 50 mph
e = 0.06

–Y305DET–

PI Sta 13+22.77
△ = 13° 59' 54.7" (LT)
D = 5° 43' 46.5"
L = 244.32'
T = 122.77'
R = 1,000.00'
DS = 50 mph
e = 0.06

–Y305DET– PC Sta. 12+00.00
BEGIN CONSTRUCTION
–Y305DET– POC Sta.12+46.64
–Y305DET– PT Sta. 14+44.32
–Y305DET– PC Sta. 16+78.32
–Y305DET– PT Sta. 19+22.64
15+00
20+00
25+00
30+00
N 52° 07' 02.7" E
N 38° 07' 08.0" E
S 37° 52' 57.3" E
–Y305– 66.31'
+67.76
21.67' TYP.
48.32'
TURKEY HOUSE
TURKEY HOUSE
ISBKD
ISBKD
8" CITY OF MONROE WATERLINE EASEMENT
EXISTING R/W
PUE
SR 1005 WAXHAW BRANCH RD 22.5' BST
SR 1005
NCDOT DB 1440 PG 449
NCDOT DB 1764 PG 371
MONROE CITY LIMITS
UNION COUNTY
S 52°11'38" W 218.00'
N 52°05'48" E 393.70'
S 53°44'45" W 114.17'
N 52°07'44" E 264.00'
N 37°52'16" W 365.75'
S 37°52'16" E 387.43'
N 37°52'16" W 387.43'
N 37°48'22" W 199.93'
N 32°30'24" W 249.35'
N 37°01'09" W 228.01'
N 23°52'50" W 355.96'
N 58°45'12" W 324.00'
N 81°14'24" W 324.00'
N 80°02'24" W 355.18'
N 58°45'12" W 324.00'
N 52°07'44" E 264.00'
N 41°25'16" W 365.75'
855+00
–L–
8" PVC
8" DIP
8" PVC DR-DIP
SSMH
TOP 550.73
LID BOLTED SHUT
TOP 543.24
INV (NW) 533.84
INV (NE) 531.34
INV (SE) 530.44
TOP 536.45
INV (NW) 527.55
INV (SE) 527.25
TOP 532.00
LID BOLTED SHUT
15" RCP
12" RCP
15" CMP
20" DIP
2" PE
MB
T FO
SS
W
E
C
F
GR
B
ISBKD
PNTR
SSMH

FOR –Y305DET– PROFILE SEE SHT. 2C-2P
FOR –Y305– ROADWAY SEE SHT. 50, 108, 109

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	2C-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

DETOUR PLAN

MATCHLINE –Y305DET–
STA. 22+00 SEE SHEET 2C-2N

NAD 83

–Y305DET–

PI Sta 25+20.32
△ = 16° 09' 57.5" (RT)
D = 8° 54' 38.5"
L = 181.42'
T = 91.32'
R = 643.00'
DS = 45 mph
e = 0.06

–Y305DET– PT Sta. 26+10.42

–Y305DET– PC Sta. 28+44.42

–Y305DET– PT Sta. 30+25.84

–Y305DET– PC Sta. 24+29.00

END CONSTRUCTION
–Y305DET– POT Sta.29+81.62

–Y305DET–

PI Sta 29+35.74
△ = 16° 09' 57.5" (LT)
D = 8° 54' 38.5"
L = 181.42'
T = 91.32'
R = 643.00'
DS = 45 mph
e = 0.06

FOR –Y305DET– PROFILE SEE SHT. 2C–2P
FOR –Y305– ROADWAY SEE SHT. 50, 108, 109

PLANS PREPARED BY :
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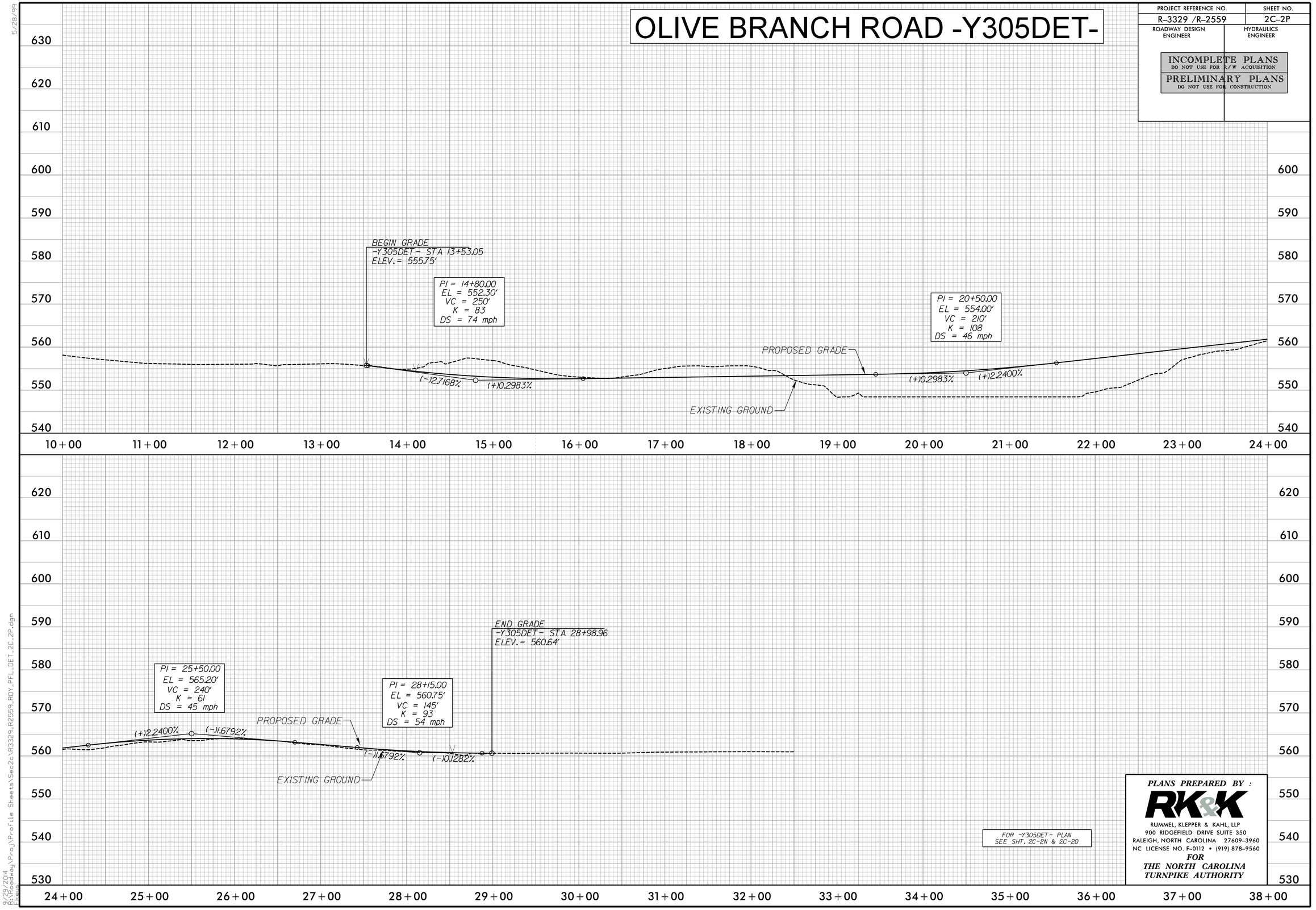
OLIVE BRANCH ROAD -Y305DET-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	2C-2P
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y305DET- PLAN
SEE SHT. 2C-2N & 2C-20

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Ekaus

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

MATCHLINE –L– STA. 648+00 SEE SHEET 36

MATCHLINE –L– STA. 662+00 SEE SHEET 38

BEGIN SECTION 2C
–L– POT Sta. 648+00.00

+00.00
110.00'

+50.00
110.00'

+50.00
120.00'

+00.00
165.00'

+00.00
140.00'

2 TONS CL B RIPRAP
W/7 SY FIL FAB

LATERAL BASE DITCH
SEE DETAIL D

BERM BASE DITCH
SEE DETAIL R

PROP 48" WW FENCE

PROPOSED SOUND BARRIER WALL #2

GATE

CHANNEL BLOCK
SEE DETAIL O

8 TONS CL B RIPRAP
W/21 SY FIL FAB

REMOVE

LATERAL BASE DITCH
SEE DETAIL E

BANK STABILIZATION
AT PIPE OUTLET
SEE DETAIL AR

15 TONS CL I RIPRAP
W/30 SY FIL FAB
ON BANKS ONLY

PROPOSED SOUND BARRIER WALL #2
PSH
SEE DETAIL N

TYPE B-77

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

15" RCP-III

2GI

2GI-A

2GI-D

FS

HW

650+00

655+00

660+00

–L–

S 41° 27' 50.3" E

S 36° 29' 37.3" E

BL-57 PNC 451+91.91

LEROY J. HINSON
AND WIFE
MARY L. HINSON
DB 449 PG 170

DONALD WINCHESTER PRICE
DARLENE PRICE
DB 4099 PG 391
PB 1 PG 948

CHERYL NAPIER
DB 4675 PG 673
PB 3 PG 80

ERIC PEREZ AND
DEBBIE DRAKE
DB 1888 PG 835
PB 3 PG 80

JAMES A. HANDY
AND WIFE
MARY ANN HANDY
DB 751 PG 74
PB D PG 729

UNIONVILLE TOWN LIMITS
UNION COUNTY

FOR –L– PROFILE SEE SHT. 139

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FOR
THE NORTH CAROLINA
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8/27/2014
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E.Ellis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	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

-L-	
PIs Sta. 668+69.74	PI Sta. 679+07.18
Θs = 2° 47' 21.8"	△= 27° 03' 08.1" (LT)
Ls = 370.00'	D = 1° 30' 28.0"
LT = 246.70'	L = 1,794.17'
ST = 123.36'	T = 914.13'
	R = 3,800.00'
	DS = 70 MPH
	e = 0.06

NAD 83

MATCHLINE -L- STA. 662+00 SEE SHEET 37

MATCHLINE -L- STA. 676+00 SEE SHEET 39

-L- TS Sta. 666+23.04

-L- SC Sta. 669+93.04

448 DONALD WINCHESTER PRICE, DARLENE PRICE, DB 4099 PG 391, PB 1 PG 948

457 ANTHONY BRENT FOWLER, DB 5506, PAGE 267

456 RONALD DAVID FOWLER AND WIFE CATHERINE K. FOWLER, DB 5506 PG 273

781 CATHY FOWLER PRESSLEY AND HUSBAND KENNETH W. PRESSLEY, DB 5506, PAGE 270

450 JAMES LESTER MULLIS AND WIFE, JOSEPHINE F. MULLIS, DB 834 PG 340, PB 3 PG 80

451 ADDIE M. STRAWN, DB 281 PG 112, PB 3 PG 80

452 JANICE P. SIMPSON, CHAD L. SIMPSON, AND SUZANNE S. BAUCOM, DB 5469 PG 76

UNIONVILLE TOWN LIMITS
UNION COUNTY

PROPERTY LINE IS CENTER OF CREEK

BL-58 PINC 461+55.19

S 41° 27' 50.3" E

665+00

670+00

675+00

BERM BASE DITCH SEE DETAIL R

STANDARD BASE DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

PROP 48" WW FENCE

BEG 48" WW FENCE

END 48" WW FENCE

SEE CULVERT INLET DETAIL -L- STA. 669+12

SEE CULVERT OUTLET DETAIL -L- STA. 669+12

PROPOSED SOUND BARRIER WALL #2

TYPE B-77 BEG. SBG 670+00

END SBG 672+50

END SBG 671+05

PSH SEE DETAIL N

30" RCP-III

15" RCP-III

GRAU 350

CAT-1 BEG. SBG 664+50

2 TONS CL B RIPRAP W/7 SY FIL FAB

5 TONS CL B RIPRAP W/14 SY FIL FAB

3@9'X12' RCBC

15" CAAP 2 ELBOWS ROD & LUG

FOR -L- PROFILE SEE SHT. 139

PLANS PREPARED BY :
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
8/17/2014
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8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	39
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

BRIDGE ON –Y301– OVER –L– (NOT TO SCALE)

–L–

PI Sta. 679+07.18
Δ= 27° 03' 08.1" (LT)
D = 1° 30' 28.0"
L = 1,794.17'
T = 914.13'
R = 3,800.00'
DS = 70 MPH
e = 0.06

PIs Sta. 689+10.58
Θs = 2° 47' 21.8"
Ls = 370.00'
LT = 246.70'
ST = 123.36'

–Y301–

PI Sta. 814+45.28
Δ= 28° 48' 37.4" (LT)
D = 5° 27' 24.3"
L = 527.98'
T = 269.70'
R = 1,050.00'
DS = 50 MPH
e = 0.06

PI Sta. 823+04.85
Δ = 2° 10' 35.9" (RT)
D = 0° 43' 40.9"
L = 298.98'
T = 149.51'
R = 7,870.00'
DS = 50 MPH
e = NC

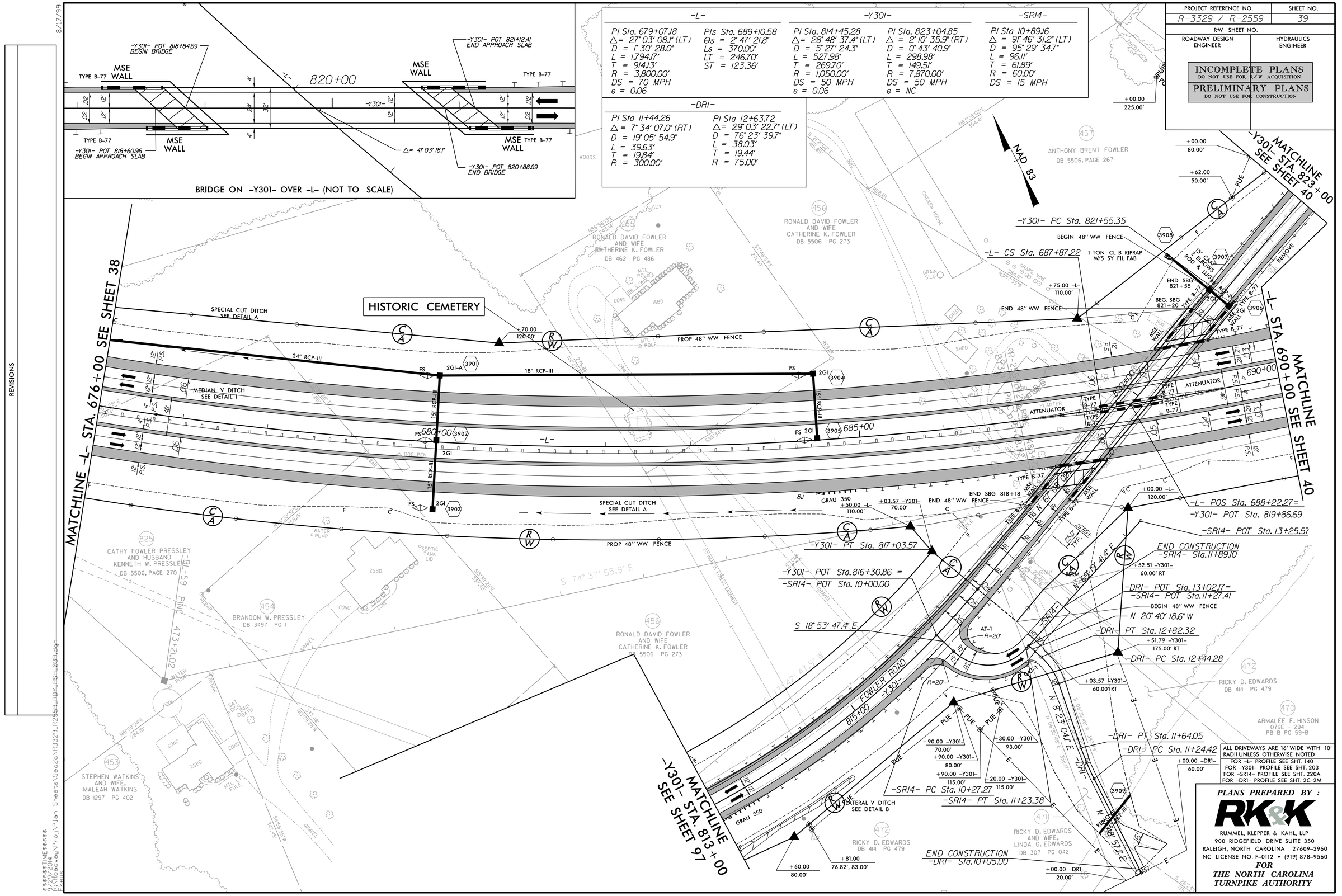
–SR14–

PI Sta 10+89.16
Δ = 91° 46' 31.2" (LT)
D = 95° 29' 34.7"
L = 96.11'
T = 61.89'
R = 60.00'
DS = 15 MPH

–DR1–

PI Sta 11+44.26
Δ = 7° 34' 07.0" (RT)
D = 19° 05' 54.9"
L = 39.63'
T = 19.84'
R = 300.00'

PI Sta 12+63.72
Δ= 29° 03' 22.7" (LT)
D = 76° 23' 39.7"
L = 38.03'
T = 19.44'
R = 75.00'



ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED
FOR –L– PROFILE SEE SHT. 140
FOR –Y301– PROFILE SEE SHT. 203
FOR –SR14– PROFILE SEE SHT. 220A
FOR –DR1– PROFILE SEE SHT. 2C-2M

PLANS PREPARED BY :
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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$$$$$$DATE$$$$$$
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kevin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	40
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

-Y301A-

PI Sta. 16+57.19	PI Sta. 20+70.77
Δ = 0° 48' 30.0" (RT)	Δ = 3° 51' 14.0" (LT)
D = 0° 06' 52.5"	D = 3° 09' 55.9"
L = 705.39'	L = 121.75'
T = 352.70'	T = 60.90'
R = 50,000.00'	R = 1,810.00'
DS = 50 MPH	DS = 50 MPH
e = NC	e = 0.05

-L-

PIs Sta. 699+67.28	PI Sta. 711+06.30
θs = 1° 25' 05.6"	Δ = 23° 36' 54.2" (RT)
Ls = 250.00'	D = 1° 08' 04.5"
LT = 166.67'	L = 2081.41'
ST = 83.34'	T = 1055.69'
	R = 5050.00'
	DS = 70 MPH
	e = 0.04

-Y301-

PI Sta. 823+04.85
Δ = 2° 10' 35.9" (RT)
D = 0° 43' 40.9"
L = 298.98'
T = 149.51'
R = 7,870.00'
DS = 50 MPH
e = NC

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -L- PROFILE SEE SHT. 140
FOR -Y301- PROFILE SEE SHT. 203
FOR -Y301A- PROFILE SEE SHT. 220

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

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$$$$$$Date$$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	41
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

-L-
PI Sta. 711+06.30
△ = 23° 36' 54.2" (RT)
D = 1° 08' 04.5"
L = 2,081.41'
T = 1,055.69'
R = 5,050.00'
DS = 70 MPH
e = 0.04

MATCHLINE -L- STA. 703+00 SEE SHEET 40

MATCHLINE -L- STA. 717+00 SEE SHEET 42

462 EDWARD LEE FOWLER DB 260 PG 021

479 DENNIS W. CANTILE DB 5594 PG 91

WOODS

TIE EXIST. DITCH TO LATERAL BASE DITCH

LATERAL BASE DITCH SEE DETAIL D

REMOVE 36" RCP. GRADE SLOPES TO MATCH EXISTING

SEE CULVERT INLET DETAIL -L- STA. 702+70

+50.00 120.00'

300' TAPER

580' ACCELERATION LENGTH

+00.00 120.00'

+00.00 140.00'

PROP 48" WW FENCE

BDO

18" CAAP 2 ELBOWS ROD & LUG

BERM DITCH SEE DETAIL M

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

-L-

RRB- POT Sta. 10+00.00 (47.00' LT)
-L- POC STA. 716+09.84

705+00

710+00

715+00

GRAU 350

13" RCP-III

18" RCP-III

24" RCP-III

36" RCP-III

42" RCP-III

4004 2GI

4101 2GI

4102 2GI

4103 2GI-A

4104 BDO

4105 BDO

4106 2GI

4107 2GI

4108 2GI-A

CAT-1

END SBG 703+43

TIE BERM DITCH TO LATERAL BASE DITCH

49.3' DECELERATION LENGTH

+00.00 170.00'

+00.00 155.00'

+80.00 170.00'

+00.00 155.00'

478 NCDOT DB 1546 PG 315

477 MICHAEL WAYNE FOWLER AND WIFE, CYNTHIA P. FOWLER DB 5506 PG 276

476 MICHAEL WILSON PARKER AND WIFE, CRYSTAL PARKER DB 615 PG 509

DOUGLAS V. FOWLER DB 911 PG 814

ISFD

POOL

25FD

SR 1502 MAPLE HILL RD

EXISTING R/W

FOR -L- PROFILE SEE SHTS. 140 & 203

PLANS PREPARED BY :

RK&K

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9/29/2014
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FOR –L– PROFILE SEE SHT. 141
FOR –RRB– PROFILE SEE SHT. 208
FOR –RRC– PROFILE SEE SHT. 209

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	42
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

–L–

PI Sta. 711+06.30
Δ = 23° 36' 54.2" (RT)
D = 1° 08' 04.5"
L = 2,081.41'
T = 1,055.69'
R = 5,050.00'
DS = 70 MPH
e = 0.04

PIs Sta. 722+15.36
Θs = 1° 25' 05.6"
Ls = 250.00'
LT = 166.67'
ST = 83.34'

–RRB–

PIs Sta 16+59.36
Θs = 1° 20' 12.9"
Ls = 140.00'
LT = 93.34'
ST = 46.67'

PI Sta 19+27.98
Δ = 8° 27' 45.6" (LT)
D = 1° 54' 35.5"
L = 443.10'
T = 221.96'
R = 3,000.00'
DS = 60 mph
e = 0.05

PIs Sta 21+95.80
Θs = 1° 20' 12.9"
Ls = 140.00'
LT = 93.34'
ST = 46.67'

–RRC–

PIs Sta. 12+77.42
Θs = 5° 15' 07.6"
Ls = 220.00'
LT = 146.73'
ST = 73.39'

PI Sta. 15+94.43
Δ = 22° 57' 47.8" (RT)
D = 4° 46' 28.7"
L = 480.94'
T = 243.74'
R = 1,200.00'
DS = 60 MPH
e = 0.08

PIs Sta. 19+05.02
Θ s = 5° 15' 07.6"
Ls = 220.00'
LT = 146.73'
ST = 73.39'

MATCHLINE –L– STA. 717+00 SEE SHEET 41

MATCHLINE –L– STA. 731+00 SEE SHEET 43

MATCHLINE –RRC– STA. 22+50 SEE SHEET 43

MATCHLINE –RRB– STA. 25+00 SEE SHEET 43

DENNIS W. CANTILE
DB 5594 PG 91

601 CENTER, LLC
DB 3268 PG 354

NCDOT
DB 1546 PG 315

MICHAEL WAYNE FOWLER
AND WIFE,
CYNTHIA P. FOWLER
DB 5506 PG 276

MELDONIA F. SIMPSON
DB 482 PG 236

ANDREW J. FOWLER
AND
RUBY H. FOWLER
PC B PG 376B

–RRB– TS Sta. 15+66.03
–RRB– SC Sta. 17+06.03
–RRB– CS Sta. 21+49.13
–RRB– ST Sta. 22+89.13
–RRC– TS Sta. 11+30.69
–RRC– SC Sta. 13+50.69
–RRC– CS Sta. 18+31.63
–RRC– ST Sta. 20+51.63
–RRC– PT Sta. 10+00.00 (47.00' RT)=
–L– POC Sta. 717+68.91
Δ = 4° 00' 00.0"
–L– CS Sta. 721+32.02
–L– ST Sta. 723+82.02

BERM DITCH SEE DETAIL M
BERM DITCH SEE DETAIL Q
TIE BERM DITCH TO EXIST. SWALE
SPECIAL CUT DITCH SEE DETAIL A
PROP 48" WW FENCE
300' TAPER
493' DECELERATION LENGTH
1350' ACCELERATION LENGTH
15" COMP ELBOWS ROD & TUG
S 55° 24' 02.9" E
S 49° 10' 53.4" E
S 47° 38' 36.8" E
S 15° 42' 50.4" E
N 37° 56' 16" W 435.44'
N 55° 44' 21" W 143.91'
S 65° 22' 11" E 175.81'
S 53° 19' 04" E 143.75'
S 09° 54' 38" E 357.17'
REBAR
25 ELEC
Rs=7463.90'
+00.00 120.00'
+00.00 95.00'
+50.00 90.00'
+00.00 –RRC– 108.27'
+50.69 100.00'
+14.71 97.79'
+31.63 100.00'
+51.63 90.00'
+40.69
+54.03
+56.45
+67.02
+67.90
27.8' TYP.
27.5' TYP.
28.0' TYP.
62.5' TYP.
FS
CAT-1
BDO
2GI
2GI-A
18" RCP-III
24" RCP-III
30" RCP-III
36" RCP-III
15" RCP-III
4201
4202
4203
4204
4205
4206
4207
4208
4209
4210
4211
478
479
480
481
477
494
720+00
725+00
730+00
15+00
20+00
16:1
4' P.S.
12' P.S.
16' P.S.
8:1
46'
C
A
RW

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	43
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE –Y302– STA. 136+00 SEE SHEET 100

MATCHLINE –RRB– STA. 25+00 SEE SHEET 42

MATCHLINE –L– STA. 731+00 SEE SHEET 42

MATCHLINE –RRC– STA. 22+50 SEE SHEET 42

MATCHLINE –Y302– STA. 121+00 SEE SHEET 99

MATCHLINE –L– STA. 758+00 SEE SHEET 44

–RLA–

Pis Sta, 11+48.46	Pi Sta, 16+29.76	Pis Sta, 22+31.76
Gs = 27° 24' 08.4"	Δ = 2° 52' 29" 59.2" (LT)	Gs = 18° 41' 00.3"
Ls = 230.00'	D = 24° 54' 40.4"	Ls = 150.00'
LT = 148.46'	L = 96.25'	LT = 100.56'
ST = 74.97'	T = 48.57'	ST = 50.51'
	R = 230.00'	
	DS = 30 MPH	
	e = 0.08	

–RRA–

Pis Sta, 13+10.04	Pi Sta, 16+18.74	Pis Sta, 19+24.16	Pis Sta, 25+47.31	Pi Sta, 27+47.50	Pis Sta, 29+42.61
Gs = 3° 56' 20.7"	Δ = 16° 44' 22.2" (RT)	Gs = 3° 56' 20.7"	Gs = 8° 01' 00.9"	Δ = 28° 59' 38.2" (LT)	Gs = 8° 01' 00.9"
Ls = 230.00'	D = 3° 34' 54.6"	Ls = 230.00'	Ls = 170.00'	D = 3° 34' 57.5"	Ls = 170.00'
LT = 146.70'	L = 467.45'	LT = 146.70'	LT = 113.45'	L = 281.98'	LT = 113.45'
ST = 219.95'	T = 235.40'	ST = 73.37'	ST = 56.78'	T = 143.65'	ST = 56.78'
	R = 1600.00'			R = 600.00'	
	DS = 60 MPH			DS = 40 MPH	
	e = 0.06			e = 0.08	

–Y302–

Pis Sta, 121+54.73	Pis Sta, 127+18.45
Δ = 15° 19' 03.7" (RT)	Gs = 2° 08' 54.9"
D = 1° 35' 29.6"	Ls = 270.00'
L = 953.01'	LT = 180.01'
T = 479.31'	ST = 90.01'
R = 3,600.00'	
DS = 60 MPH	
e = 0.05	

–RRB–

Pis Sta, 28+90.76	Pi Sta, 29+58.86	Pis Sta, 30+28.78
Gs = 31° 02' 06.8"	Δ = 24° 34' 45.9" (LT)	Gs = 31° 02' 06.8"
Ls = 130.00'	D = 47° 44' 47.3"	Ls = 130.00'
LT = 88.04'	L = 51.48'	LT = 88.04'
ST = 44.58'	T = 26.14'	ST = 44.58'
	R = 120.00'	
	DS = 20 MPH	
	e = 0.08	

–RLC–

Pis Sta, 11+48.46	Pi Sta, 18+29.04	Pis Sta, 18+26.98
Gs = 27° 24' 08.4"	Δ = 136° 31' 20.5" (LT)	Gs = 18° 41' 00.3"
Ls = 230.00'	D = 24° 54' 40.4"	Ls = 150.00'
LT = 148.46'	L = 556.47'	LT = 100.56'
ST = 74.97'	T = 609.04'	ST = 50.51'
	R = 230.00'	
	DS = 30 MPH	
	e = 0.08	

–RRC–

Pis Sta, 24+03.85	Pi Sta, 25+68.37	Pis Sta, 27+30.84
Θ s = 8° 01' 00.9"	Δ = 20° 24' 13.8" (LT)	Θ s = 8° 01' 00.9"
Ls = 170.00'	D = 9° 32' 57.5"	Ls = 170.00'
LT = 113.45'	L = 213.67'	LT = 113.45'
ST = 56.78'	T = 107.98'	ST = 56.78'
	R = 600.00'	
	DS = 40 MPH	
	e = 0.08	

–L– POT 736+33.95
BEGIN BRIDGE
–L– POT 736+09.82
BEGIN APPROACH SLAB
–L– POT 736+22.81
BEGIN APPROACH SLAB
–L– POT 736+46.94
BEGIN BRIDGE
–L– POT 737+77.95
END BRIDGE
–L– POT 738+02.08
END APPROACH SLAB
–L– POT 737+90.94
END BRIDGE
–L– POT 738+15.07
END APPROACH SLAB
MSE WALL
TYPE B-77
Δ = 7° 41' 13.0"
BRIDGE ON –L– OVER –Y302– (NOT TO SCALE)

A

B

C

TRAFFIC DIAGRAM

	–Y302–	
24,100 / 48,300		
1,900 / 6,400		700 / 2,900
21,600 / 46,600	–L– MONROE BYPASS	16,500 / 35,200
6,100 / 11,600		2,200 / 3,700
2013 ADT / 2035 ADT	US 601	29,800 / 54,300

GRAPHIC SCALE
50 25 0 50 100
PLANS

FOR –L– PROFILE SEE SHTS. 141 & 142
FOR –Y302– PROFILE SEE SHTS. 204 & 205
FOR –RLA– PROFILE SEE SHT. 207
FOR –RLC– PROFILE SEE SHT. 210
FOR –RRA– PROFILE SEE SHT. 307
FOR –RRB– PROFILE SEE SHT. 308
FOR –RRC– PROFILE SEE SHT. 309

PLANS PREPARED BY:
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	44
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

-DR6-

PI Sta 11+57.07	PI Sta 10+38.08
△ = 18° 10' 35.7" (RT)	△ = 20° 48' 47.3" (RT)
D = 38° 11' 49.9"	D = 57° 17' 44.8"
L = 47.59'	L = 36.33'
T = 23.99'	T = 18.37'
R = 150.00'	R = 100.00'

MATCHLINE -L- STA. 758+00 SEE SHEET 43

MATCHLINE -L- STA. 772+00 SEE SHEET 45

MATCHLINE -Y303- STA. 719+00 SEE SHEET 103

MATCHLINE -Y303- STA. 712+00 SEE SHEET 102

RICHARD LEE PURSER
DB 408 PG 196

CHRISTOPHER LEE PURSER AND WIFE, BRANDI ELKS PURSER
DB 4517 PG 239

NCDOT
DB 2086 PG 843

NCDOT DB 1546 PG 312

EVERETTE E. HATLEY
DB 159 PG 340

PROP 48" WW FENCE

EXISTING R/W

WOODS

POND

UNION COUNTY

-L- POT Sta. 769+66.50 =
-Y303- POT Sta. 715+73.32

-DR6- POT Sta. 10+00.00=
-Y303- POT Sta. 712+39.63

-DR6- PC Sta. 10+19.71

-DR6- PT Sta. 10+56.04

-DR6- PC Sta. 11+33.01

2 TONS CL B RIPRAP W/7 SY FIL FAB

612' DECELERATION LENGTH

LATERAL BASE DITCH SEE DETAIL D

5 TONS CL B RIPRAP END 48" WW FENCE W/16 SY FIL FAB

2 TONS CL B RIPRAP W/2 SY FIL FAB

FILL W/ FLOWABLE FILL

15" CAAP
2 ELBOWS
ROD & LUG

BEGIN 48" WW FENCE

2 SCUPPERS AT 6' CENTERS BOTH SIDES OF BRIDGE

TYPE B-77

ATTENUATOR

SCUPPERS

GRAU 350

SPECIAL CUT DITCH SEE DETAIL L

END 48" WW FENCE

LATERAL V DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL C

TYPE B-77 MSE WALL

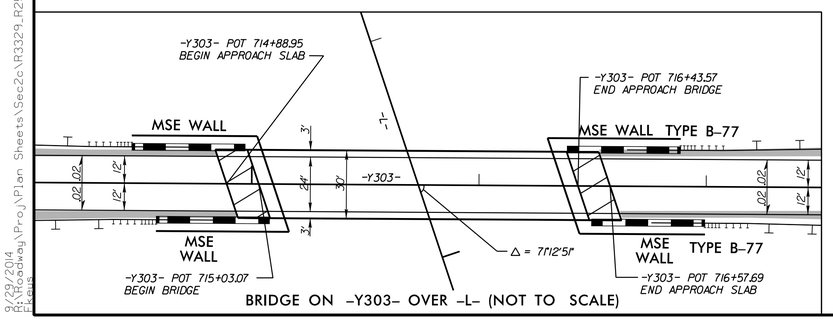
ABOVE GROUND SEWER

UNDERGROUND TELEPHONE

UNDERGROUND ELECTRIC

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -L- PROFILE SEE SHTS. 142 & 143
FOR -Y303- PROFILE SEE SHTS. 210 & 211
FOR -DR6- PROFILE SEE SHT. 2C-2M



BRIDGE ON -Y303- OVER -L- (NOT TO SCALE)

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	45
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

MATCHLINE –L– STA. 772+00 SEE SHEET 44

MATCHLINE –L– STA. 786+00 SEE SHEET 46

548 LANEY LAND DEVELOPMENT DB 1921 PG 163

551 BRANDON K. BRELEWSKI DB 5562 PG 703

549 NCDOT DB 1861 PG 223 DB 1861 PG 226

561 DAWN H. STEGALL DB 3279 PG 581 PC H FILE 790

554 DENNIS M. NANCE AND HENRY H. NANCE DB 4044 PG 748 PC H FILE 790

555 DAWN H. STEGALL DB 3279 PG 581 PC H FILE 790

556 DENNIS M. NANCE AND HENRY H. NANCE DB 3632 PG 776 PC H FILE 790

WOODS

-BL-18 PINC

-BL-19 PINC

-BL-20 PINC

10' 48" WW 720+10.00

PROP 48" WW FENCE

+67.58 180.44'

+25.00 205.00' 235.00'

PUE

C TOLL ZONE -L- Sta. 784+00.00

TOLL GANTRY -L- Sta. 783+75.00

TOLL GANTRY -L- Sta. 784+25.00

LATERAL BASE DITCH SEE DETAIL D TYPE B-77

MEDIAN V DITCH SEE DETAIL I

TYPE B-77

GRADE TO DRAIN TYPE B-77

GRADE TO DRAIN

GRAU 350

2GI

18" RCP-III

15" RCP-III

STANDARD BASE DITCH SEE DETAIL K

3 TONS CL B RIPRAP W/10 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

BDO

LATERAL BASE DITCH SEE DETAIL D

18" CAAP 2 ELBOWS ROD & LUG

+64.26 170.45'

+45.00 180.45'

+70.00 180.45'

PROP 48" WW FENCE

8" STEEL

DUKE POWER EXISTING 66' R/W

UNION ELECTRIC CO

775+00

780+00 -L-

785+00

S 47° 38' 36.8" E

S 49° 36.5' E

S 30° 57' 42" E

S 66° 13' 15.5" E

N 44°04'23" E 260.19'

S 57°50'06" W 60.25'

S 12°26'37" E 153.38'

S 42°21'23" W 380.00'

FOR –L– PROFILE SEE SHT. 143
FOR AET SITE INFORMATION SEE SHT. AET-6

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FOR
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	46
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

MATCHLINE –L– STA. 786+00 SEE SHEET 45

MATCHLINE –L– STA. 800+00 SEE SHEET 47

561
DAWN H. STEGALL
DB 3279 PG 581
PC H FILE 790

562
NCDOT
DB 3107 PG 056

556
DENNIS M. NANCE
AND
HENRY H. NANCE
DB 3632 PG 776
PC H FILE 790

565
SELMA BARBEE ESTATE
DB 469 PG 190
DB 5325, 781

566
BOVA CORPORATION
DB 452 PG 683

WOODS

EXISTING R/W

PROP 48" WW FENCE

-BL-22 PINC

-BL-23 PINC

-BL-24 PINC

-L-

-Y1-

-Y2-

STEWARTS CREEK

S 47° 38' 36.8" E

N 17°23'00" E 459.98'

N 21°07'30" W 792.40'

S 81°43'28" E 270.44'

S 78°46'20" E 53.37'

N 85°28'20" E 65.10'

N 85°56'50" E 41.41'

N 17°23'15" E 99.96'

GRAU 350
11 TONS CL B RIPRAP W/28 SY FIL FAB
4507

BEG. SBG 788+46
50.0'
TYPE B-77
FS
2GI 4603
END SBG 789+11
END 48" WW FENCE

15" RCP-III

36" RCP-III

4604
2 TONS CL B RIPRAP W/7 SY FIL FAB

+50.00
170.00'

PROP 48" WW FENCE

+20.00
170.00'

4605
SLUICE GATE

36" RCP-III

4606

HAZARDOUS SPILL BASIN
SEE DETAIL X

PUE

+50.00
180.45', 225.00'

+70.00
180.45', 235.00'

+30.00
285.00'

11 TONS CL B RIPRAP W/28 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

+22.00
311.00'

BEGIN 48" WW FENCE
ENERGY DISSIPATOR BASIN
SEE DETAIL AN

30" RCP-III
4617

SLUICE GATE 4616

+15.00
170.45'

8" STEEL

+11.31
170.45', 180.45'

HAZARDOUS SPILL BASIN
SEE DETAIL X
4615

LATERAL BASE DITCH
SEE DETAIL D
LINE ENTRANCE TO BASIN
W/CLASS B RIPRAP
–L– 793+30–793+50 RT
4610

2 TONS CL B RIPRAP
W/7 SY FIL FAB

8 TONS CL B RIPRAP
W/21 SY FIL FAB

GRAU 350

BEG. SBG 792+30
END SBG 794+00

15" CAAP
2 ELBOWS
ROD & LUG
4614

15" RCP-III
4613

30" RCP-III

2GI

TYPE B-77

+30.00
180.45'

+00.00
95.00'

BEG. SBG 793+23

SPECIAL CUT DITCH
SEE DETAIL A

4612
2GI
FS
24" RCP-III
4608 2GI

END SBG 795+51
GRAU 350
2GI 4607

15" RCP-III

795+00

TYPE M350

16:1
2GI 4609

MEDIAN V DITCH
SEE DETAIL I

2GI 4611

+55.00
100.00'

END 48" WW FENCE

BEG. SBG
789+39

END SBG
790+03

2GI
CAT-1
FS
TYPE B-77
4601

GRAU 350

14' P.S.

12' P.S.

6' P.S.

46'

40'

4' P.S.

8:1

.02

780+00

TYPE B-77

2GI 50.0'

FS

TYPE B-77

15" RCP-III

+55.00
180.45'

TYPE B-77

BEG. SBG 793+23

TYPE B-77

790+00

-L-

4' P.S.

2GI 4611

FOR –L– PROFILE SEE SHTS. 143 & 144

-L- POT 789+83.61
BEGIN APPROACH SLAB

-L- POT 790+07.30
BEGIN BRIDGE

-L- POT 792+77.30
END BRIDGE

-L- POT 793+00.99
END APPROACH SLAB

-L- POT 789+45.01
BEGIN APPROACH SLAB

-L- POT 789+68.70
BEGIN BRIDGE

Δ= 130° 00' 00"

-L- POT 792+38.70
END BRIDGE

-L- POT 792+62.40
END APPROACH SLAB

BRIDGE ON –L– OVER STEWARTS CREEK (NOT TO SCALE)

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	47
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

MATCHLINE –L– STA. 800+00 SEE SHEET 46

MATCHLINE –L– STA. 814+00 SEE SHEET 48

562
NCDOT
DB 3107 PG 056

567
DONALD MILLARD BAUCOM
AND WIFE,
JOYCE D. BAUCOM
DB 145 PG 271

566
BOVA CORPORATION
DB 452 PG 683

566
BOVA CORPORATION
DB 474 PG 264

WOODS

PROP 48" WW FENCE

EXISTING R/W

+60.00
180.45'

+50.00
180.45'

+40.00
180.45'

+00.00
180.45'

HAZARDOUS SPILL BASIN
SEE DETAIL X

SEE CULVERT
OUTLET DETAIL
–L– STA. 805+89

SPRING BOX NECCESSITY TO
BE DETERMINED IN FIELD
2 TONS CL B RIPRAP
W/7 SY FIL FAB
ON BANKS ONLY

SPRING BOX

15" RCP–III

END 48" WW FENCE

BEG. SBG 804+00

CAT–1

2GI (4707)

SLUICE
GATE
(4708)

30" RCP–III

(4709)

8 TONS CL B
RIPRAP W/21 SY
FIL FAB
FENCE

(4706)

30" CAAP
2 ELBOWS
ROD & LUG

BEGIN 48" WW FENCE

2GI (4705)

LATERAL BASE DITCH
SEE DETAIL D
LINE ENTRANCE TO BASIN
W/CLASS B RIPRAP
–L– 807+12–807+50 LT

END SBG 810+50

GRAU 350

–L– TS Sta. 812+14.50

–L–

805+00

S 47° 35' 15.6" E

S 47° 33' 43" E

S 47° 10' 11.3" E

S 47° 38' 36.8" E

810+00

S 47° 52' 18" E

24" RCP–III

10'X8' RCBC

2GI–A (4704)

2GI–A (4702)

FS

GRAU 350

2GI
(4710)
BEG. SBG
803+50

END 48" WW FENCE
SEE CULVERT
INLET DETAIL
–L– STA. 805+89

BEGIN 48" WW FENCE

END SBG 807+25

CAT–1

2GI (4703)

+67.83

(4701)

63.3'
TYP.

16:1

8:1

12' P.S.

4' P.S.

46'

.02

.01

.00

S 40°21'48" W
521.29

–L–
PIs Sta. 813+41.17
Θs = 0° 42' 43.1"
Ls = 190.00'
LT = 126.67'
ST = 63.33'
DS = 70 MPH
e = 0.03

FOR –L– PROFILE SEE SHT. 144

PLANS PREPARED BY :

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9/29/2014
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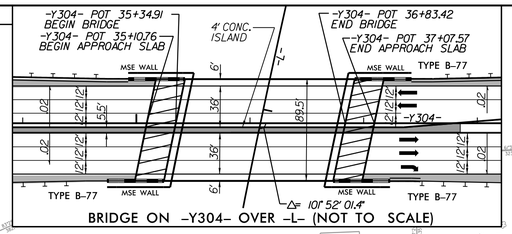
E.Kelly

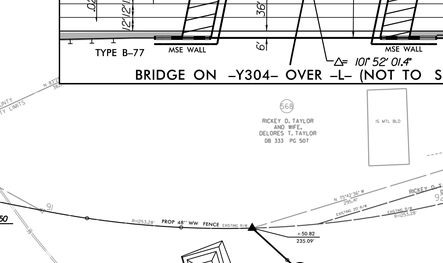
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



BRIDGE ON -Y304- OVER -L- (NOT TO SCALE)



-L-

PI Sta. 813+44.17	PI Sta. 828+55.49
Δ = 17° 42' 43.1"	Δ = 21° 29' 35.9" (LT)
D = 17° 44' 58.0"	D = 17° 44' 58.0"
Ls = 150.00'	L = 286.86'
Lt = 125.67'	T = 1,620.58'
St = 63.33'	R = 1,645.00'
	DS = 70 MPH
	e = 0.03

-TRA-

PI Sta. 15+90.61	PI Sta. 20+26.67	PI Sta. 23+82.64	PI Sta. 26+18.98	PI Sta. 28+48.55	PI Sta. 12+04.65	PI Sta. 18+93.03
Δ = 27° 29' 20.2" (RT)	Δ = 4° 50' 53.2"	Δ = 5° 30' 33.2"	Δ = 26° 52' 43.3" (LT)	Δ = 5° 10' 33.2"	Δ = 37° 00' 00.5"	Δ = 18° 41' 00.3"
D = 4° 24' 26.5"	Ls = 220.00'	Ls = 150.00'	D = 7° 00' 44.2"	Ls = 150.00'	Ls = 300.00'	Ls = 150.00'
L = 532.95'	Lt = 146.72'	Lt = 100.05'	L = 365.91'	Lt = 100.05'	Lt = 204.65'	Lt = 100.56'
T = 270.27'	St = 73.38'	St = 50.04'	T = 186.75'	St = 50.04'	St = 104.24'	St = 50.53'
R = 1,300.00'			R = 780.00'			
DS = 60 MPH			DS = 40 MPH			
e = 0.08			e = 0.07			

-TRD-

PI Sta. 14+52.30	PI Sta. 17+53.13	PI Sta. 21+65.77	PI Sta. 23+28.89	PI Sta. 24+90.45	PI Sta. 11+76.33	PI Sta. 17+86.75
Δ = 20° 15' 45.8" (LT)	Δ = 4° 50' 53.2"	Δ = 5° 39' 15.1"	Δ = 15° 56' 09.0" (RT)	Δ = 5° 39' 15.1"	Δ = 32° 23' 04.5"	Δ = 18° 41' 00.3"
D = 4° 24' 26.5"	Ls = 220.00'	Ls = 150.00'	D = 7° 32' 20.1"	Ls = 150.00'	Ls = 260.00'	Ls = 150.00'
L = 459.11'	Lt = 146.72'	Lt = 100.05'	L = 224.68'	Lt = 100.05'	Lt = 176.33'	Lt = 100.56'
T = 232.30'	St = 73.38'	St = 50.05'	T = 113.17'	St = 50.05'	St = 89.39'	St = 50.53'
R = 1,300.00'			R = 760.00'			
DS = 60 MPH			DS = 40 MPH			
e = 0.08			e = 0.07			

-TLA-

PI Sta. 18+57.29	PI Sta. 15+47.65	PI Sta. 17+86.75
Δ = 155° 08' 50.2" (LT)	Δ = 118° 38' 15.7" (RT)	Δ = 18° 41' 00.3"
D = 24° 54' 40.4"	D = 24° 54' 40.4"	Ls = 150.00'
L = 540.55'	L = 476.24'	Lt = 100.56'
T = 557.29'	T = 387.65'	St = 50.53'
R = 230.00'	R = 230.00'	
DS = 30 MPH	DS = 30 MPH	
e = 0.08	e = 0.08	

-TLD-

PI Sta. 11+76.33	PI Sta. 15+47.65	PI Sta. 17+86.75
Δ = 32° 23' 04.5"	Δ = 118° 38' 15.7" (RT)	Δ = 18° 41' 00.3"
D = 24° 54' 40.4"	D = 24° 54' 40.4"	Ls = 150.00'
Ls = 260.00'	L = 476.24'	Lt = 100.56'
Lt = 176.33'	T = 387.65'	St = 50.53'
St = 89.39'	R = 230.00'	
	DS = 30 MPH	
	e = 0.08	

MATCHLINE -Y304- STA. 43+00 SEE SHEET 106
MATCHLINE -L- STA. 814+00 SEE SHEET 48
MATCHLINE -TRA- STA. 18+00 SEE SHEET 49
MATCHLINE -L- STA. 847+00 SEE SHEET 49
MATCHLINE -TRD- STA. 6+00 SEE SHEET 49
MATCHLINE -Y304- STA. 28+00 SEE SHEET 105
A
D
-L- SC Sta. 814+04.50
-L- ST Sta. 815+00
-L- POC Sta. 830+12.36=
-Y304- POT Sta. 36+09.16
520 DECELERATION LENGTH
-Y304- POT Sta. 41+18.12=
-TRA- PT Sta. 31+37.15
-Y304- POT Sta. 40+84.12=
-TLA- PT Sta. 22+07.51
-TRA- CS Sta. 27+98.51
-TRA- ST Sta. 25+48.51
-TRA- TS Sta. 29+29.80
-TRA- SC Sta. 29+49.80
-TRA- CS Sta. 31+13.22
-TRA- ST Sta. 31+27.22
-TLA- CS Sta. 18+42.52
-TLA- ST Sta. 19+92.52
-TLA- SC Sta. 13+00.00
-TLA- ST Sta. 10+00.00 147.01' LT=
-L- POC 831+00.70
-TLD- ST Sta. 10+20.00 147.01' RT=
-L- POC 832+22.19
-TLD- SC Sta. 12+60.00
-TLD- CS Sta. 17+36.24
-TLD- ST Sta. 18+86.24
-Y304- POT Sta. 30+27.34 =
-TLD- PT Sta. 20+92.30
-Y304- POT Sta. 29+83.34 =
-TRD- PT Sta. 27+85.21
-TRD- ST Sta. 25+90.40
-TRD- SC Sta. 22+15.72
-TRD- TS Sta. 20+65.72
-TRD- CS Sta. 18+15.72
-TRD- ST Sta. 16+65.72
-TRD- CS Sta. 6+73.25
-TRD- ST Sta. 6+83.25
N 72° 16' 21.9" W
N 34° 22' 32.3" W
PROP. 48" WW. FENCE
PROP. 2-4'C & G
PROP. 6' CONC. SIDEWALK
PROP. 5' CONC. SIDEWALK
PROP. 10' CONC. SIDEWALK
PROP. 8' CONC. SIDEWALK
PROP. 6' CONC. SIDEWALK
PROP. 4

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	49
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

-L-

PI Sta. 828+55.49
Δ = 21° 29' 35.8" (LT)
D = 0° 44' 58.0"
L = 2,867.86'
T = 1,450.98'
R = 7,645.00'
DS = 70 MPH
e = 0.03

PIs Sta. 843+35.69
Θs = 0° 42' 43.1"
Ls = 190.00'
LT = 126.67'
ST = 63.33'

-TRA-

PIs Sta. 13+47.07
Θs = 4° 50' 53.2"
Ls = 220.00'
LT = 146.72'
ST = 73.38'

PI Sta. 16+90.61
Δ = 23° 29' 20.2" (RT)
D = 4° 24' 26.5"
L = 532.95'
T = 270.27'
R = 1,300.00'
DS = 60 MPH
e = 0.08

-TRD-

PIs Sta. 11+46.72
Θs = 4° 50' 53.2"
Ls = 220.00'
LT = 146.72'
ST = 73.38'

PI Sta. 14+52.30
Δ = 20° 15' 45.8" (LT)
D = 4° 24' 26.5"
L = 459.75'
T = 232.30'
R = 1,300.00'
DS = 60 MPH
e = 0.08

MATCHLINE -TRA- STA. 18+00 SEE SHEET 48

MATCHLINE -L- STA. 842+00 SEE SHEET 48

MATCHLINE -TRD- STA. 16+00 SEE SHEET 48

MATCHLINE -L- STA. 856+00 SEE SHEET 50

MATCHLINE -Y305-

607 JOSEPH H. PORTER AND WIFE, LENELL B. PORTER DB 923 PG 308

617 JOSEPH H. PORTER AND WIFE, LENELL B. PORTER DB 1466 PG 54

619 NCDOT DB 1527 PG 540

627 JAMES C. MCCOLLUM AND WIFE, ELIZABETH C. MCCOLLUM DB 354 PG 540 DB 3807 PG 214

634 NCDOT DB 1401 PG 549

622 HAROLD J. BAUCOM AND WIFE, OLLIE G. BAUCOM DB 3198 PG 302

623 HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM DB 1453 PG 414

633 WILLIE DEAN BAUCOM DB 309 PG 82

-L- CS Sta. 842+72.36

-TRA- SC Sta. 14+20.34

-TRA- TS Sta. 12+00.34

-TRA- PT 10+00.00 (47.00' LT)
-L- POT 850.00

-L- ST Sta. 844+62.36

-TRA- N 67° 33' 38.8" W

S 70° 33' 38.8" E

-TRD- BEG. SBG 10+00

-TRD- SC Sta. 12+20.00

-TRD- ST Sta. 10+00.00 (47.00' RT)
-L- POT Sta. 847+29.18

PROP 48" WW FENCE

TOE PROTECTION SEE DETAIL H

CUT /FILL TRANSITION 2 TONS CL B RIPRAP W/7 SY FIL FAB

PROP. 4' EXPRESSWAY GUTTER

620' DECELERATION LENGTH

LATERAL BASE DITCH SEE DETAIL D

8 TONS CL B RIPRAP W/21 SY FIL FAB

GRAU 350

END SBG 844+25

2 TONS CL B RIPRAP W/7 SY FIL FAB

SLUICE GATE

HAZARDOUS SPILL BASIN SEE DETAIL X

ROCK FILL IN POND SEE DETAIL AM

580' ACCELERATION LENGTH

300' TAPER

GRAU 350 5 TONS CL B RIPRAP W/14 SY FIL FAB

STANDARD BASE DITCH SEE DETAIL K

DRAIN POND

GRADE TO DRAIN

SEE SHEET 108

TURKEY HOUSE

TURKEY HOUSE

FOR -L- PROFILE SEE SHTS. 145 & 146
FOR -TRA- PROFILE SEE SHT. 213
FOR -TRD- PROFILE SEE SHT. 216
FOR -DR4- PROFILE SEE SHT. 2C-2M

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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
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Ekeus

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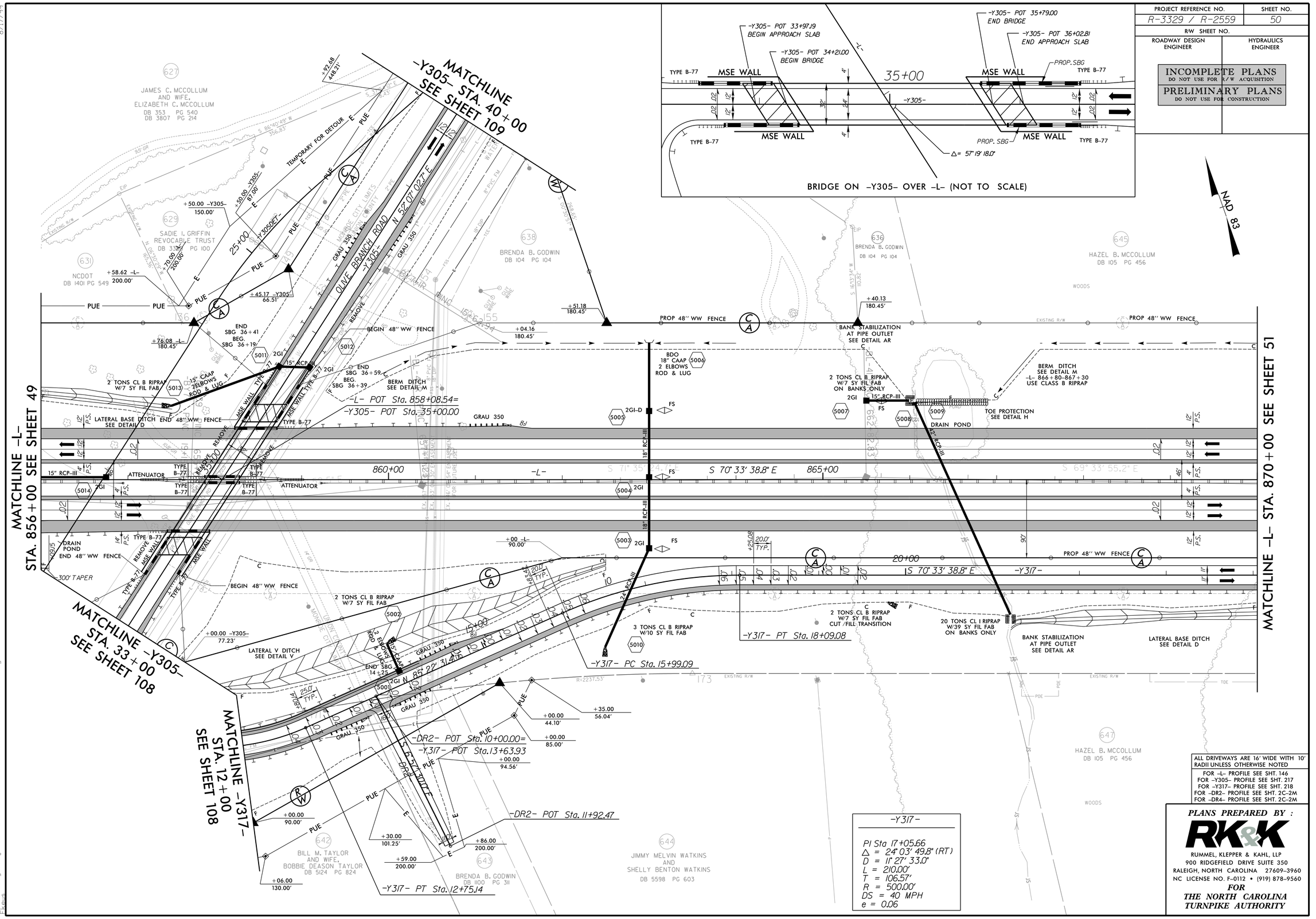
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE ON -Y305- OVER -L- (NOT TO SCALE)

NAD 83



ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -L- PROFILE SEE SHT. 146
FOR -Y305- PROFILE SEE SHT. 217
FOR -Y317- PROFILE SEE SHT. 218
FOR -DR2- PROFILE SEE SHT. 2C-2M
FOR -DR4- PROFILE SEE SHT. 2C-2M

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	51
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

MATCHLINE –L– STA. 870+00 SEE SHEET 50

MATCHLINE –L– STA. 884+00 SEE SHEET 52

645
HAZEL B. MCCOLLUM
DB 105 PG 456

#56

EXISTING R/W

BERM DITCH
SEE DETAIL M

PROP 48" WW FENCE

GATE

UNDERGROUND ELECTRIC
18" DIP

105 ft

5106 BDO

30" CAAP
2 ELBOWS
ROD & LUG

2GI 5107

-BL-42 PINC

-BL-43 PINC

TIE EXIST. DITCH
TO PROP. CUT DITCH

SPECIAL CUT DITCH
SEE DETAIL A

5102

LATERAL V DITCH
SEE DETAIL B

5101 HW

12' P.S.

30" RCP-III

30" RCP-IV

.02

2GI 5108

FS 2GI-D 5103

875+00

S 71° 03' 58.5" E

-L-

S 70° 33' 38.8" E

880+00

46'

4' P.S.

36" RCP-III

36" RCP-IV

2GI 5109

FS 2GI-D 5104

MEDIAN V DITCH
SEE DETAIL I

25+00

30+00

35+00

S 70° 33' 38.8" E

-Y317-

PROP 48" WW FENCE

90°

11'

GRAU 350

8d

5105

GPES

11 TONS CL B
RIPRAP W/28 SY
FIL FAB

5110

LATERAL BASE
DITCH SEE
DETAIL D

8 TONS CL B RIPRAP
W/21 SY FIL FAB

2 TONS CL B RIPRAP
W/7 SY FIL FAB
CUT /FILL TRANSITION

11 TONS CL B RIPRAP
W/28 SY FIL FAB

F C

#174

EXISTING R/W

WOODS

10A SOIL

647
HAZEL B. MCCOLLUM
DB 105 PG 456

30' CITY OF MONROE
PUBLIC UTILITY EASEMENT

TOE

FOR –L– PROFILE SEE SHTS. 146 & 147
FOR –Y317– PROFILE SEE SHT. 218

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	52
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

MATCHLINE –L– STA. 884+00 SEE SHEET 51

MATCHLINE –L– STA. 898+00 SEE SHEET 53

HAZEL B. MCCOLLUM
DB 105 PG 456

ROBERT H. MORRISON
DB 3708 PG 636

WOODS

EXISTING R/W

PROP 48" WW FENCE

-BL-44 PINC 686+63.88

-BL-45 PINC

-BL-46 PINC 695+25.39

LATERAL BASE DITCH
SEE DETAIL E

END 48" WW FENCE

+65.00
180.45'

+45.00
180.45'

BEGIN 48" WW FENCE

SPECIAL CUT DITCH
SEE DETAIL A

SPECIAL CUT
BASE DITCH
SEE DETAIL F

BDO 5205

24" CAAP
2 ELBOWS
ROD & LUG

2GI-D 5206

24" RCP-III

885+00

FS

2GI-D 5207

S 72° 18' 43.1" E

S 69° 49' 43.9" E

S 70° 33' 38.8" E

890+00

-L-

895+00

S 72° 23' 53.8" E

MEDIAN V DITCH
SEE DETAIL I

2GI-D 5208

40+00

PROP 48" WW FENCE

S 70° 33' 38.8" E

-Y317-

45+00

50+00

2 TONS CL B RIPRAP
W/7 SY FIL FAB
CUT /FILL TRANSITION

2GI-D 5209 CPES 5 TONS CL B RIPRAP
W/14 SY FIL FAB

2GI 5210

18" RCP-III

15" RCP-III

2GI 5211

2GI 5212

GRAU 350

18" CAAP
2 ELBOWS
ROD & LUG

5213

CAT-1

HW 5214

BURIED 1.0

84" RCP-III

BANK STABILIZATION
AT PIPE OUTLET
SEE DETAIL AR

57 TONS CL I RIPRAP
W/104 SY FIL FAB
ON BANKS ONLY

GRAU 350

2GI 5201

36" RCP-III

2GI 5202

2GI 5203

LATERAL BASE DITCH
SEE DETAIL D

11 TONS CL B RIPRAP
W/28 SY FIL FAB 5204

EXISTING R/W

WOODS

+82.95
262.47'

+09.20
291.99'

+15.00
426.32'

+65.00
458.92'

SET BACK CHANNEL TO
EXISTING DIMENSIONS

REMOVE
24" RCP

N 37°21'24" W
20.00'

N 37°21'24" W
152.00'

S 70°33'38" W
336.40'

N 37°21'24" W
38.20'

HAZEL B. MCCOLLUM
DB 105 PG 456

HARRY MEYERS
DB 270 PG 775

ROBERT H. MORRISON
DB 3708 PG 636

FOR –L– PROFILE SEE SHT. 147
FOR –Y317– PROFILE SEE SHT. 219

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Features

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	53
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

MATCHLINE –L– STA. 898+00 SEE SHEET 52

MATCHLINE –L– STA. 912+00 SEE SHEET 54

ROBERT H. MORRISON
DB 3708 PG 636

WOODS

EDWARDS TIMBER COMPANY, INC.
DB 607 PG 680
DB 766 PG 521

S 36°18'03" E
900.30'

S 82°38'03" E
346.64'

N 01°08'03" W
50.49'

END SECTION 2C
-L- POT Sta. 912+00.00

EXISTING R/W

PROP 48" WW FENCE

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

5301

BDO

BERM DITCH SEE DETAIL M

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

2 TONS CL B RIPRAP W/7 SY FIL FAB ON BANKS ONLY

15" CAAP
2 ELBOWS
ROD & LUG

15" RCP-III

5308 HW

CAT-1

5303

FS

2GI

5302

GRAU 350

-BL-47 PINC

-BL-48R PINC

-BL-49 PINC

-BL-50 PINC

699+36.62

699+16.22

702+84.86

703+60.04

900+00

905+00

910+00

-L-

S 70° 33' 38.8" E

16:1

5305

5304

MEDIAN V DITCH SEE DETAIL I

PROP 48" WW FENCE

55+00

60+00

65+00

-Y317-

S 70° 33' 38.8" E

5307

PSH SEE DETAIL N

33 TONS CL I RIPRAP W/62 SY FIL FAB ON BANKS ONLY

CUT /FILL TRANSITION 2 TONS CL B RIPRAP W/7 SY FIL FAB

CUT /FILL TRANSITION 2 TONS CL B RIPRAP W/7 SY FIL FAB

-Y317- PC Sta. 61+14.34

176

177

159

TCE

PIPE

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

EDWARDS TIMBER COMPANY
DB 607 PG 680

ROBERT H. MORRISON
DB 3708 PG 636

-Y317-

PI Sta 63+71.94
△ = 5° 38' 22.7" (RT)
D = 1° 05' 43.9"
L = 514.79'
T = 257.60'
R = 5,230.00'
DS = 40 mph
e = 0.06

FOR –L– PROFILE SEE SHTS. 147 & 148
FOR –Y317– PROFILE SEE SHT. 219

PLANS PREPARED BY :
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	97
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

BEGIN CONSTRUCTION
-Y301- POC Sta. 807+00.00

+00.00
20.77', 60.00'

453
STEPHEN WATKINS
AND WIFE,
MALEAH WATKINS
DB 1297 PG 402

SPECIAL CUT BASE DITCH
SEE DETAIL F

50' BLEND
TO EXIST.

S 85° 24' 58.0" E
-Y301- PT Sta. 807+85.91

+85.91
60.00'

SPECIAL CUT BASE DITCH
SEE DETAIL F

+00.00
60.00'

+75.59
70.00'

-Y301- PC Sta. 811+75.59

456
RONALD DAVID FOWLER
AND WIFE
CATHERINE K. FOWLER
DB 5506 PG 273

825
CATHY FOWLER PRESSLEY
AND HUSBAND
KENNETH W. PRESSLEY
DB 5506, PAGE 270

9702
2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL D

9703
18" RCP-III

BEG. SBC
812+00
GRAU 350
2GI

15" CAAP
2 ELBOWS
ROD & LUG

810+00

REMOVE
-Y301-

FOWLER ROAD

S 84° 03' 13.4" E

RETAIN

RETAIN

EXIST.

SPECIAL CUT DITCH
SEE DETAIL A

+85.91
60.00'

25.0'
TYP.

+69.56

+00.00
19.23', 60.00'

+20.59

25.0'
TYP.

R=20'

9704
REMOVE

LATERAL V DITCH
SEE DETAIL B

15" RCP-III

+80.00
60.00', 80.00'

+20.00
80.00', 100.00'

+00.00
73.08'

+55.00
79.81', 100.00'

MATCHLINE
-Y301- STA. 813+00 SEE SHEET 39

811+22+24.37

472
RICKY D. EDWARDS
DB 414 PG 479

473
TIM M. EDWARDS
AND WIFE,
DONNA W. EDWARDS
DB 396 PG 446

474
TIMMY M. EDWARDS
DB 414 PG 481
PB B PG 59-B

WOODS

WATER PUMP

POOL

REBAR

SAT DISH

BIRD BATH

CONC

2SBD

MTL L/P POLE

GRAVEL

EXISTING R/W

6" STEEL

4" STEEL

-BY301-3 POT 30+16.94

-Y301-

PI Sta. 806+92.34	PI Sta. 814+45.28
△ = 1° 21' 44.6" (RT)	△ = 28° 48' 37.4" (LT)
D = 0° 43' 40.9"	D = 5° 27' 24.3"
L = 187.13'	L = 527.98'
T = 93.57'	T = 269.70'
R = 7,870.00'	R = 1,050.00'
DS = 50 MPH	DS = 50 MPH
e = NC	e = 0.06

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y301- PROFILE SEE SHT. 203

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FOR
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$$$$$$TIME$$$$$
8/17/2014
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Features

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	98
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

-Y302C- POT Sta. 13+90.42

BEGIN CONSTRUCTION
-Y302C- POT Sta.10+92.97

-Y302C- PT Sta. 10+70.35

-Y302C- PC Sta. 10+18.64

N 45° 03' 52.6" W

720' UNIFORM TAPER

525' MEDIAN TAPER

720' UNIFORM TAPER

3 TONS CL B RIPRAP W/10 SY FIL FAB

SP. LAT. V DITCH SEE DETAIL G

SP. LAT. V DITCH SEE DETAIL G

SP. LAT. V DITCH SEE DETAIL G

SP. LAT. V DITCH SEE DETAIL G

18" RCP-IV

15" RCP-III

REMOVE

100+00

105+00

N 7° 54' 18.1" E

US 601
-Y302-

EXIST. 22.25' PAVEMENT WIDTH

RETAIN SYSTEM

50' BLEND TO EXIST.

26.7' TYP.

-Y302- POT Sta. 98+35.00

-Y302- POT Sta. 101+26.06=
-Y302C- POT Sta. 10+00.00

-BY1- POT 60+12.30

NCGS "QUIK"

LATERAL V DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL V

MATCHLINE -Y302- STA. 108+00 SEE SHEET 99

-Y302C

PI Sta 10+45.43
Δ = 37° 01' 49.2" (RT)
D = 71° 37' 11.0"
L = 51.70'
T = 26.79'
R = 80.00'

345 CITY OF MONROE DB 3088 PG 213

JAMES GRANT DUNCAN III DB 4096 PG 833

352 TRINITY BAPTIST CHURCH DB 696 PG 199

449 TRINITY BAPTIST CHURCH DB 244 PG 586

488 JAMES MARSHALL MULLIS DB 241 PG 745

526 OLIVER EUGENE BARBEE DB 444 PG 502

527 JAMES DALE WITMORE NO DEED FOUND

526 OLIVER EUGENE BARBEE DB 444 PG 502

524 BILLY W. CANUPP III AND WIFE, SUSAN E. CANUPP DB 542 PG 036

525 EUGENE MITCHELL BARBEE AND WIFE, KATHLEEN H. BARBEE DB 435 PG 129

OLIVER EUGENE BARBEE DB 252 PG 075

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y302- PROFILE SEE SHT. 204
FOR -Y302C- PROFILE SEE SHT. 220

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
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8/29/2014
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Kevin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	99
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

-Y302-

PIs Sta. 116+08.76	PIs Sta. 121+54.73
Θ_s = 1° 35' 29.6"	Δ = 15° 10' 03.7"(RT)
Ls = 200.00'	D = 1° 35' 29.6"
LT = 133.34'	L = 953.01'
ST = 66.67'	T = 479.31'
DS = 60 MPH	R = 3,600.00'
e = 0.05	DS = 60 MPH
	e = 0.05

MATCHLINE -Y302- STA. 108+00 SEE SHEET 98

MATCHLINE -Y302- STA. 121+00 SEE SHEET 43

S 62°28'45" W 603.38'

N 82°34'25" E 602.13'

N 87°50'48" W 62.55'

S 14°21'02" W 201.20'

S 14°42'44" W 179.25'

S 07°38'52" W 205.12'

S 07°02'31" W 44.31'

S 07°26'38" W 106.00'

S 16°26'40" W 179.87'

N 85°53'33" W 186.22'

S 07°52'58" W 156.12'

N 82°28'49" W 161.17'

N 82°28'49" W 161.17'

S 83°39'00" E 362.39'

N 89°23'17" E 307.50'

S 06°30'00" E

N 62°38'15" E 197.00'

N 62°38'15" E 787.00'

S 86°36'47" E 157.39'

S 85°20'49" E 175.59'

S 17°52'22" W 332.00'

S 15°32'25" W 143.20'

S 27°07'50" E 635.30'

S 17°22'38" E 277.36'

S 82°42'17" E 4.27'

S 82°42'17" E 4.27'

S 82°42'17" E 362.39'

S 82°42'17" E 362.39'

S 82°42'17" E 362.39

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	100
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

MATCHLINE –Y302– STA. 136+00 SEE SHEET 43

MATCHLINE –Y302– STA. 150+00 SEE SHEET 101

–Y302A– POT Sta. 9+00.00

–Y302A– PC Sta. 11+69.08

–Y302A– PT Sta. 13+02.28

–Y302A– POT Sta. 13+98.28

BEGIN CONSTRUCTION
–Y302A– POT Sta. 11+58.74
S 36° 51' 45.7" E

–Y302A– S 36° 51' 45.7" E RIDGE RD

–Y302B– POT Sta. 14+95.56 =
–Y302– POT – Sta.140+63.89

–Y302B– PT Sta. 14+65.04

–Y302B– PC Sta. 13+16.85

END CONSTRUCTION
–Y302B– POT Sta.12+78.32

–Y302B– POT Sta. 10+00.00

–Y302– POT – Sta. 145+00.00

–Y302– PT Sta. 147+27.67

S 44° 29' 41.1" E

N 26° 48' 46.3" E

N 72° 30' 00.0" W

S 17° 30' 00.0" E

US 601

RIDGE RD

BAUCOM DEFESE RD

UNIONVILLE TOWN LIMITS
MONROE CITY LIMITS

20' CITY OF MONROE GENERAL PUBLIC UTILITY EASEMENT

601 CENTER, LLC
DB 3660 PG 461

601 CENTER, LLC
DB 3268 PG 354

LESLIE BROMFIELD
DB 632 PG 374

CMSB FAMILY PROPERTIES, LLC
DB 3821 PG 213

W. NEWELL HELMS AND WIFE, PAT B. HELMS
DB 613 PG 427
DB 396 PG 223

LEROY J. PITTMAN AND WIFE, PATRICIA D. PITTMAN
DB 5101 PG 336

STERLING TRUST COMPANY & PATRICIA D. PITTMAN
DB 3592 PG 330
PC 1 PG 348

PHOEBAH H. JOYNER AND SPOUSE, JAMES D. JOYNER
DB 4388 PG 571
PC E FILE 09

PHOEBAH H. JOYNER AND SPOUSE, JAMES D. JOYNER
DB 4394 PG 454
PC E FILE 09

RAFE BROMFIELD AND WIFE, COLETTE BROMFIELD
DB 1442 PG 754

BLAND W. FOWLER
87E -432

JACK LANE FUNDERBURK AND WIFE, SHARON FUNDERBURK
DB 1348 PG 30

CROMER L. CARELOCK AND WIFE, GLADYS CARELOCK
DB 381 PG 553

LAWRENCE A. SIMPSON AND WIFE, DONNIE H. SIMPSON
DB 507 PG 706

–RRB–

PI Sta. 28+39.76	PIs Sta. 30+04.20
Δ = 46° 17' 29.6" (LT)	Θs = 14° 19' 26.2"
D = 19° 05' 54.9"	Ls = 150.00'
L = 242.38'	LT = 100.33'
T = 128.24'	ST = 50.30'
R = 300.00'	DS = 50 MPH
DS = 50 MPH	e = 0.08
e = 0.08	

–Y302A–

PI Sta 12+35.78	
Δ = 7° 37' 55.4" (LT)	
D = 5° 43' 46.5"	
L = 133.20'	
T = 66.70'	
R = 1,000.00'	
DS = 15 MPH	
e = NC	

–Y302B–

PI Sta 13+91.10	
Δ = 9° 06' 37.5" (RT)	
D = 6° 08' 51.4"	
L = 148.19'	
T = 74.25'	
R = 932.00'	
DS = 15 MPH	
e = NC	

FOR –Y302– PROFILE SEE SHT. 205
FOR –Y302A– PROFILE SEE SHT. 206
FOR –Y302B– PROFILE SEE SHT. 220
FOR –RRB– PROFILE SEE SHT. 208

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	101
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

-Y302-

PIs Sta. 154+05.26	PI Sta. 158+04.17	PIs Sta. 161+88.70
Θs = 0° 38' 03.4"	Δ = 7° 34' 37.8" (RT)	Θs = 0° 25' 22.3"
Ls = 120.00'	D = 1° 03' 25.6"	Ls = 80.00'
LT = 80.00'	L = 716.78'	LT = 53.33'
ST = 40.00'	T = 358.91'	ST = 26.67'
	R = 5,420.00'	
	DS = 60 MPH	
	e = 0.03	

MATCHLINE -Y302- STA. 150+00 SEE SHEET 100

525' MEDIAN TAPER

CUT /FILL TRANSITION
2 TONS CL B RIPRAP
W/7 SY FIL FAB

+25.26
85.00'

CUT /FILL TRANSITION
2 TONS CL B RIPRAP
W/7 SY FIL FAB

10102

24" RCP-III

40.0'
F TYP

45.26

150' TAPER

+45.26
70.00'

+45.00

+00.00
85.00'

+00.00
85.00'

+00.00
70.00'

PUE

EXISTING R/W

COLLAR

N 26° 48' 46.3" E

8" PVC

155+00

US 601
-Y302-

160+00

US 601 CONCORD HWY 24' BST

REMOVE

ROCK FILL IN POND
SEE DETAIL AM

RETAIN

18" RCP-III

15" RCP-III

10103

REMOVE

PPESC

+49.89
60.00', 74.54'

SP. LAT. V DITCH
SEE DETAIL G

10107

PDE

3 TONS CL B RIPRAP
W/11 SY FIL FAB
+00.00
85.00'

CUT /FILL
TRANSITION
2 TONS CL B
RIPRAPW/7 SY
FIL FAB

POND

-Y302- TS Sta. 153+25.26

-Y302- SC Sta. 154+45.26

720' UNIFORM TAPER

+45.26
59.56', 80.00'

SPECIAL CUT DITCH
SEE DETAIL A

+75.00
49.84', 70.00'

+68.78

26.0'

50' BLEND
TO EXIST.

+150.00

SPECIAL CUT DITCH
SEE DETAIL A

+75.00
50.15', 80.00'

END CONSTRUCTION
-Y302- POC Sta. 161+45.00

498
CMSB FAMILY PROPERTIES, LLC
DB 3821 PG 213

501
LAWRENCE A. SIMPSON
AND WIFE,
DONNIE H. SIMPSON
DB 507 PG 706

500
RALPH D. KEZIAH
AND WIFE,
MARY JOLENE KEZIAH
DB 480 PG 840

499
CMSB FAMILY PROPERTIES, LLC
DB 3821 PG 213

S 81°17'09" E
547.38

S 81°17'09" E
533.72

PLACED BY DIS

ISFD
PORCH
WELL
BENCH
WOODS
GUY
EXIST

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y302- PROFILE SEE SHTS. 205 & 206

PLANS PREPARED BY :

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$$$$$$TIME$$$$$$
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Kevin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	102
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

535
MARY ALICE BROOKS
DB 81 PG 181

533
EVERETTE E. HATLEY
DB 159 PG 340

560
GAIL BILLINGSLEY HOWARD
AND HUSBAND,
G. E. HOWARD

559
GUS AND DEANE BILLINGSLEY
REVOCABLE TRUST
DB 1534 PG 242

558
THELMA H. HATLEY
AND HUSBAND,
EVERETTE E. HATLEY
DB 463 PG 233

557
SHARON ELOISE HELMS
DB 363 PG 432

BEGIN CONSTRUCTION
-Y303- POC Sta. 705+50.00

-Y303- PT Sta. 708+43.53

-DR5- POT Sta. 10+00.00=
-Y303- POC Sta. 708+32.9

-DR5- PC Sta. 10+29.22

-DR5- PT Sta. 10+58.52

-DR6- PT Sta. 11+80.66

-DR6- PC Sta. 12+07.37

-DR6- PT Sta. 12+42.33

-DR6- PC Sta. 12+58.06

-DR6- PT Sta. 12+71.53

END CONSTRUCTION
-DR5- POT Sta. 12+10.18

-DR5- PC Sta. 12+18.60

-DR5- PT Sta. 12+40.00

-DR5- POT Sta. 13+24.98

END CONSTRUCTION
-DR6- POT Sta. 12+80.06

MATCHLINE -Y303- STA. 712+00 SEE SHEET 44

SPECIAL CUT DITCH
SEE DETAIL A

LATERAL V DITCH
SEE DETAIL V

LATERAL V DITCH
SEE DETAIL C

FILL W/ FLOWABLE FILL

8 TONS CL B RIPRAP W/21 SY FIL FAB

50' BLEND TO EXIST. 8'

15' CITY OF MONROE
GENERAL PUBLIC UTILITY EASEMENT

POT 27+66.28

-Y303-	-DR5-		-DR6-		
PI Sta. 706+49.33	PI Sta 11+48.47	PI Sta 10+45.23	PI Sta 12+25.03	PI Sta 12+64.96	PI Sta 11+57.07
△ = 15° 36' 37.9" (LT)	△ = 1° 36' 08.4" (RT)	△ = 22° 23' 12.8" (RT)	△ = 20° 01' 50.1" (LT)	△ = 30° 52' 56.7" (LT)	△ = 18° 10' 35.7" (RT)
D = 3° 05' 49.5"	D = 19° 05' 54.9"	D = 76° 23' 39.7"	D = 57° 17' 44.8"	D = 229° 10' 59.2"	D = 38° 11' 49.9"
L = 504.04'	L = 8.39'	L = 29.30'	L = 34.96'	L = 13.48'	L = 47.59'
T = 253.59'	T = 4.20'	T = 14.84'	T = 17.66'	T = 6.91'	T = 23.99'
R = 1,850.00'	R = 300.00'	R = 75.00'	R = 100.00'	R = 25.00'	R = 150.00'
DS = 60 MPH					
e = 0.06					

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y303- PROFILE SEE SHT. 210

FOR -DR5- PROFILE SEE SHT. 2C-2M
FOR -DR6- PROFILE SEE SHT. 2C-2M

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tkeis

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	103
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

MATCHLINE -Y303- STA. 719+00 SEE SHEET 44

UNION COUNTY

UNIONVILLE TOWN LIMITS

SCOTT EUGENE ANDERSON
DB 1080 PG 646

SCOTT ANDERSON
AND WIFE,
ROBIN ANDERSON
DB 1191 PG 133
PC F FILE 397

RAFAEL TELLO
DB 1569 PG 840

RAFAEL TELLO
DB 1569 PG 840
WOODS

-DR8- POT Sta. 10+00.00=
-Y303- POT Sta. 720+40.00

END CONSTRUCTION
-Y303- POT Sta. 727+20.00

50' BLEND
TO EXIST.

5 TONS CL B RIPRAP
W/14 SY FIL FAB

END 48" WW FENCE
723+50.00 -Y303-

+50
66.48'

+00.00
100.00'

+15.00
90.00'

+36.81
66.20'

+23.00
66.77'

+10.49
70.65'

S 28° 51' 27.6" E

720+00

725+00

N 62° 29' 21.8" E

N 61° 08' 32.4" E

GRAU 350

REMOVE 24" RCP III

REMOVE 15" RCP III

REMOVE 20' R

RETAIN

15" RCP III

24" CMP

18" RCP

8" PVC

4" VINYL RAIL

EXISTING R/W

WLB

TCE

POND

WOODS

HOTBOX

DUE

DUE

DUE

DUE

SPECIAL CUT DITCH
SEE DETAIL A

+27 -Y303-
36.23'

85.00 -Y303-
50.00'

+68.19 -Y303-
40.00'

+76.85 -Y303-
29.46', 40.00', 49.00'

+08.28
60.56'

-DR8- PC Sta. 10+20.15

-Y303- PC Sta. 722+33.48

-DR8- PT Sta. 10+35.54

END CONSTRUCTION
-DR8- POT Sta. 11+40.00

LATERAL BASE
DITCH SEE
DETAIL D

END 48" WW FENCE
720+10.00 -Y303-

10' CITY OF MONROE
GENERAL PUBLIC UTILITY EASEMENT
-Y303- PT Sta. 724+49.38

TYRONE L. HAIRSTON
AND WIFE,
ANOLIA G. HAIRSTON
DB 4697 PG 476

CHARLES A. FRAZITA
AND WIFE,
DEBORA L. FRAZITA
DB 4248 PG 616

RONNIE DEAN MEDLIN
AND WIFE,
MARY ANN MEDLIN
DB 3986 PG 521

JAMES A. DAY
AND WIFE,
GLENDA G. DAY
DB 4003 PG 511

KEVIN F. WHITE
AND WIFE,
RISTA C. WHITE
DB 4440 PG 333

SUSAN R. EVANS
DB 3988 PG 729

CLANEY LAND DEVELOPMENT
DB 1921 PG 163

DUKE POWER EXISTING 66' R/W

N 38°58'20" E
350.60

S 50°56'54" W
135.00'

N 25°05'17" E
135.01'

S 30°43'30" W
386.98'

-Y303-	-DR8-
PI Sta. 723+41.44	PI Sta. 10+27.87
△ = 1° 34' 18.7" (RT)	△ = 11° 45' 43.6" (RT)
D = 0° 43' 40.9"	D = 76° 23' 39.7"
L = 215.91'	L = 15.40'
T = 107.96'	T = 7.73'
R = 7,870.00'	R = 75.00'
DS = 60 MPH	
e = NC	

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y303- PROFILE SEE SHT. 211

FOR -DR8- PROFILE SEE SHT. 2C-2M

PLANS PREPARED BY :

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$$$$$$2014
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kevin

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	104
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

8/17/99

NAD 83

MATCHLINE –Y304– STA. 22+00 SEE SHEET 105

585 WILLIAM R. MELTON, JR

584 WILLIAM R. MELTON, JR

583 RAYMOND G. SMITH DB 4573 PG 662

349 RAYMOND G. SMITH DB 4573 PG 662

582 DORIS B. TARLTON DB 290 PG 509

581 MORGAN MILL ROAD BAPTIST CHURCH DB 1148 PG 713

781

616 HARRY & JEAN MYERS DB 4573 PG 662

615 MAVIS DEESE DEW DB 1546 PG 275

614 GERALDINE B. WILLIAMS NO REFERENCE FOUND

613 PHYLLIS A. KENDALL AND HUSBAND, TIMOTHY C. WALSH DB 715 PG 473

I S BK CHURCH

STORMWATER BMP

MORGAN MILL ROAD

CYRUS EDWARDS RD

BEGIN CONSTRUCTION
–Y304– POT Sta. 13+19.93

END CONSTRUCTION
–Y304A– POT Sta. 15+09.37

–Y304– POT Sta. 20+27.41=
–Y304A– POT Sta. 10+00.00

–Y304A– PC Sta. 11+23.08

–Y304A– PT Sta. 13+59.41

–Y304A–

PI Sta 12+41.80
△ = 13° 32' 27.2" (LT)
D = 5° 43' 46.5"
L = 236.33'
T = 118.72'
R = 1,000.00'
DS = 30 mph
e = 0.04

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y304– PROFILE SEE SHT. 211

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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$$$$$$TIME$$$$$$
8/17/2016
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kevis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	105
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

-SR13-
PI Sta 12+30.45
△ = 10° 40' 39.2" (RT)
D = 5° 43' 46.5"
L = 186.36'
T = 93.45'
R = 1,000.00'
DS = 20 mph
e = 0.02

CONSTRUCTION
-SR13- POT Sta. 16+09.90

-SR13- POT Sta. 10+00.00
-SR15- POT Sta.15+70.19

-SR13- PC Sta. 11+37.00

-SR13- PT Sta. 13+23.36

END CONSTRUCTION
-SR13- POT Sta. 15+13.71

-Y304- POT Sta.23+96.78
-SR15- POT Sta. 10+00.00

MATCHLINE -Y304- STA. 22+00
SEE SHEET 104

MATCHLINE -Y304- STA. 28+00
SEE SHEET 48

612 RODNEY L. PIERCE AND WIFE, KANDY R. PIERCE DB 634 PG 523

581 MORGAN MILL ROAD BAPTIST CHURCH DB 1148 PG 713

680 WAYNE L. BARRINGER AND WIFE, JOHNSIE A. BARRINGER DB 343 PG 351

578 OLIN E. SMITH AND WIFE, SHERRY R. SMITH DB 617 PG 113 PC F FILE 167

579 CYNTHIA A. SCOTT AND HUSBAND JOHN MORGAN SCOTT, IV DB 1004 PG 497 PC F PG 803 FILE 167

576 OLIN E. SMITH AND WIFE, SHERRY R. SMITH DB 617 PG 113 PC F FILE 167

577 OLIN E. SMITH AND WIFE, SHERRY R. SMITH DB 617 PG 113 PC F FILE 167

612 RODNEY L. PIERCE AND WIFE, KANDY R. PIERCE DB 634 PG 523

MORGAN MILL ROAD -Y304-

-SR15-

-Y304DET-

-L-

-Y304-

-SR13-

-SR15-

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y304- PROFILE SEE SHTS. 211 & 212
FOR -SR13- PROFILE SEE SHT. 220A
FOR -SR15- PROFILE SEE SHT. 220A

PLANS PREPARED BY :

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8/17/2014
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Plans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	106
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

MATCHLINE -Y304- STA. 43+00 SEE SHEET 48

MATCHLINE -Y304- STA. 56+00 SEE SHEET 107

MONROE CITY LIMITS
UNION COUNTY

UNION COUNTY
MONROE CITY LIMITS

592 VANN J. LOVE AND WIFE, MARTHA G. LOVE DB 4582 PG 300

592 VANN J. LOVE AND WIFE, MARTHA G. LOVE DB 4582 PG 300

588 PAMELA W. HILTON AND HUSBAND, JERRY RAY HILTON DB 3291 PG 81 DB 294 PG 278

586 LARRY & ANNA WHITLEY DB 298 PG 715

567 DONALD MILLARD BAUCOM AND WIFE, JOYCE D. BAUCOM DB 145 PG 271

591 OWEN W. MONTGOMERY AND WIFE LINDA B. MONTGOMERY DB 470 PG 849

590 BARBARA A. TICE DB 597 PG 569

589 PAMELA W. HILTON AND HUSBAND, JERRY RAY HILTON DB 3219 PG 81

587 PAMELA W. HILTON AND HUSBAND, JERRY RAY HILTON DB 689 PG 167

598 JAMES T. TAYLOR DB 265 PG 457

599 DEAN T. WHITLEY DB 265 PG 455

600 JAMES ADAM WHITLEY DB 217 PG 214

601 JAMES T. TAYLOR AND WIFE, EDITH A. TAYLOR DB 191 PG 477

602 JAMES T. TAYLOR AND WIFE, EDITH A. TAYLOR DB 249 PG 73

603 WALTER V. DEAN AND WIFE, LUCILLE G. DEAN DB 119 PG 616

604 ANTHONY SPIERINGS AND WIFE, BRENDA SPIERINGS DB 1077 PG 33

605 ANTHONY SPIERINGS AND WIFE, BRENDA SPIERINGS DB 414 PG 493

606 TOMMY HONEYCUTT, JR. DB 4070 PG 417

-Y304- PT Sta. 44+63.99 =
-SRII- POT Sta. 10+00.00

END C/A
END 48" WW FENCE

SP. LAT. V DITCH SEE DETAIL G
2 TONS CL B RIPRAP W/ P.S. FIL FAB

END SBG 43+90

15" CAAP
2 ELBOWS
ROD & LUG

C/A GRAU 350

MORGAN MILL ROAD

45+00 -Y304-

50+00

N 17° 43' 38.1" E

MORGAN MILL ROAD 55+00

-Y304-

-Y304DET-

CAT-1

GRADE TO DRAIN -SRII-

-SRII- PC Sta. 10+44.75

-SRII- PT Sta. 11+39.00

-DR7- POT Sta. 10+00.00=
-SRII- POT Sta.12+3.31

END CONSTRUCTION
-DR7- POT Sta. 11+33.19

PINC 11+52.67

720' UNIFORM TRANSITION (LANE DROP)

150' UNIFORM TAPER

530' MEDIAN TAPER

ROCK FILL IN POND SEE DETAIL AM

FILL W/ FLOWABLE FILL

5 TONS CL B RIPRAP W/14 SY FIL FAB

SP. LAT. V DITCH SEE DETAIL G

15" RCP-III PPES

24" RCP-III

REMOVE

RETAIN

EXISTING R/W

POND

CANOPY

COVERED PORCH

BK STEPS

ISFD

2SFD

CONC

GR

WD

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y304- PROFILE SEE SHTS. 212 & 213
FOR -DR7- PROFILE SEE SHT. 2C-2M

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
$$$$$$ZONE$$$$$$
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	107
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

MATCHLINE –Y304– STA. 56+00 SEE SHEET 106

+05.00
70.00'
+40.00
90.00'
+75.00
90.00'
CUT /FILL TRANSITION
2 TONS CL B RIPRAP
W/7 SY FIL FAB
+00.00
50.00'
55.0'
15" RCP-III
(1070)
PPES
REMOVE
MORGAN MILL RD
22' PVMT
N 17° 43' 38.1" E
FILL W/
FLOWABLE
FILL
(0702)
50' BLEND
TO EXIST
SP. LAT. V DITCH
SEE DETAIL G
33.5'
16.5'
+12.73
75.00'
+05.00
50.00', 65.00'
+40.00
29.81', 50.00', 65.00'
PDE
5 TONS CL B RIPRAP
W/14 SY FIL FAB
24" RCP
RETAIN
12' CMP
+22.32
30.19'
–Y304–
–Y304– POT Sta. 58+00.00
END CONSTRUCTION

586
LARRY & ANNA WHITLEY
DB 298 PG 715

598
JAMES T. TAYLOR
DB 265 PG 457

597
DELWYN T. GADDY
DB 448 PG 13

S 60°17'28" E
380.59'
N 36°48'02" E
58.01'

UNION COUNTY
MONROE CITY LIMITS
PLACED BY GIS

WOODS
CONC
MTL POST
GUY
T FO
2" PE
8" DIP
MB
HW
12" CMP
IS BK D
LANDSCAPE AREA
4' SPLIT RAIL
8" IRON
12" RCP
6' P.C.

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y304– PROFILE SEE SHT. 213

PLANS PREPARED BY :
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RUMMEL, KLEPPER & KAHL, LLP
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$$$$$$TIME$$$$$$
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	108
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

MATCHLINE -L-
SEE SHEET 49

-DR4- POT Sta. 13+76.20
-DR4- PT Sta. 13+39.88
END CONSTRUCTION
-DR4- POC Sta. 13+34.00
-DR4- PC Sta. 13+28.02
-DR4- PT Sta. 13+00.06
-DR4- PC Sta. 11+32.15

MATCHLINE -Y305- STA. 33+00 SEE SHEET 50

MATCHLINE -Y317- STA. 12+00 SEE SHEET 50

BEGIN CONSTRUCTION
-Y305- POT Sta. 23+50.00

-DR4- POT Sta. 11+32.15 =
-Y305- POT Sta. 31+46.50

-Y305- POT Sta. 31+94.13 =
-Y317- POT Sta. 10+00.00

-Y317- PC Sta. 10+17.65

DONALD CHANEY
DB 1340 PG 415

765
HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM
DB 1453 PG 414

623
HAROLD J. BAUCOM AND WIFE, OLLIE V. BAUCOM
DB 1453 PG 414

635
WILLIE DEAN BAUCOM, ET ALS
DB 1440 PG 876

633
WILLIE DEAN BAUCOM
DB 309 PG 82

634
NCDOT
DB 1477 PG 525

642
HILL CEMETERY
NO DEED FOUND

BILL M. & BOBBIE DEASON TAYLOR
DB 5124 PG 824

642
BILL M. TAYLOR AND WIFE, BOBBIE DEASON TAYLOR
DB 5124 PG 824

VANN JUNIOR & MARTHA LOVE
DB 1485 PG 764

ISBKD
WD CANOPY
SPECIAL CUT DITCH SEE DETAIL A
50' BLEND TO EXIST.
REMOVE
RETAIN
TEMPORARY FOR DETOUR
PUE
15" RCP-III
PPES
GRAU -350
LATERAL V DITCH SEE DETAIL W
LATERAL BASE DITCH SEE DETAIL D
STANDARD BASE DITCH SEE DETAIL K
DRAIN POND
GRADE TO DRAIN
18" RCP-III
BEG CA
BEG 48" WW FENCE
GRAU 350
FILL W/ FLOWABLE FILL
8' CITY OF MONROE WATERLINE EASEMENT
2 TONS CL B RIPRAP W/7 SY FIL FAB CUT /FILL TRANSITION
11 TONS CL B RIPRAP W/28 SY FIL FAB
36" RCP-V
BEG 36G 10+74.15
END 36G 12+25.54
OLIVE BRANCH ROAD -Y305-
OLIVE BRANCH RD
15" CMP
20" DIP
8" PVC
18" DIP
8" PVC GAS
2" UNKNOWN
48" WD RAIL
2" PE
EXISTING R/W
S 48° 23' 43.1" W
N 52° 07' 02.7" E
S 37° 52' 57.3" E
S 52° 49' 20" E
S 48° 23' 43.1" W
N 37° 27' 49" W 1051'
S 27° 44' 37" E 387.28'
N 37° 57' 45" W 82.57'
N 35° 13' 45" W 961.15'
N 60° 14' 37" E 203.73'
S 52° 11' 38" W 218.00'
N 37° 08' 16" W 78.98'
N 37° 48' 22" W 249.61'
N 37° 29' 06" W 36.39'
N 37° 52' 32" W 200.10'
N 37° 09' 30" W 228.80'
N 41° 25' 16" W 365.75'
S 41° 25' 16" E 365.54'
S 40° 30' 09" E 271.20'
N 52° 07' 44" E 264.00'
N 85° 10' 38.4" W
S 53° 44' 45" W 114.17'
N 37° 48' 22" W
N 37° 20' 24" W 249.97'
N 37° 20' 24" W 36.39'
S 52° 49' 20" E
N 52° 07' 02.7" E
25+00
28+57.76
30+00
+95.10 55.00'
+95.09 30.61'
+92.40 55.00'
+90.81 29.33'
+00.00 55.00'
+30.00 55.00'
+30.00 90.00'
+65.00 62.31'
+09.00 80.00'
+00.00 111.00'
+00.00 -Y305- 100.00'
+11.00 -DR4- 15.14'
+10 -DR4- 20.65'
+45 -DR4- 10.00'
+40 -DR4- 10.00'
+45.00 -DR4- 30.00'
+65.00 -DR4- 50.00'
+00.00 165.00'
+28.02 -DR4- 30.00'
+28.6' TYP.
+57.14
+20.00 80.00'
+75.00 80.00'
+00.00 55.00'
+55.00 55.00'
+95.00 85.00'
+60.98 55.00', 65.07'
+77.06 -Y317- 103.58'
+15.33 145.00'
+50.00 100.00'
+52.00 140.00'
+64.31 -Y305- 100.00'
+67.76 -Y305- 66.31'
+30.75
+10.575
R=65'
R=60'
.017/ft
.02/ft
.04/ft
.06/ft
.08/ft
.10/ft
.12/ft
.14/ft
.16/ft
.18/ft
.20/ft
.22/ft
.24/ft
.26/ft
.28/ft
.30/ft
.32/ft
.34/ft
.36/ft
.38/ft
.40/ft
.42/ft
.44/ft
.46/ft
.48/ft
.50/ft

-Y317-
PI Sta 11+58.06
△ = 56° 44' 31.3" (LT)
D = 22° 02' 12.6"
L = 257.49'
T = 140.41'
R = 260.00'
DS = 40 mph
e = 0.06

-DR4-	
PI Sta 12+21.41	PI Sta 13+33.97
△ = 48° 06' 09.2" (LT)	△ = 11° 19' 28.2" (RT)
D = 28° 38' 52.4"	D = 95° 29' 34.7"
L = 167.91'	L = 11.86'
T = 89.26'	T = 5.95'
R = 200.00'	R = 60.00'

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y305- PROFILE SEE SHT. 217

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

$$$$$$TIME$$$$$$
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RLKelly

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	109
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

MATCHLINE –Y305– STA. 40+00 SEE SHEET 50

626
JOE P. MCCOLLUM, JR.
AND WIFE,
NOLA H. MCCOLLUM
DB 931 PG 600

625
JOE P. MCCOLLUM, JR.
AND WIFE,
NOLA H. MCCOLLUM
DB 106 PG 207

348
NON-BUILDABLE LOT
PC C, PAGE 219

624
ROBIN DELBERT BOWMAN
AND
ALICIA ALICE OYOLA
DB 4955 PG 130

637
NCDOT
DB 1031 PG 835

636
BRENDA B. GODWIN
DB 104 PG 104

645
HAZEL B. MCCOLLUM
DB 105 PG 456

END 48" WW FENCE
+50.00
66.62'
+55.00
87.00'
+75.00
66.63'
PUE
+52.65
30.0' TYP.
2 TONS CL B RIPRAP W/7 SY FIL FAB CUT/FILL TRANSITION
40+00
REMOVE
N 52°07'02.7" E
51°18'01.3" W
SPECIAL CUT DITCH SEE DETAIL A
+58.83
30.0' TYP.
50' BLEND TO EXIST.
+57.74
64.61'
END 48" WW FENCE
END CONSTRUCTION
–Y305– POT Sta.43+50.00
R-2559B-8 POT 5+00.00
HELMS POND RD
SR 1006 OLIVE BRANCH RD 22.5' BST
MONROE CITY LIMITS
UNION COUNTY
WOODS
ISFD
IS BK D
BK COLUMNS
LANDSCAPE AREA
TELEPHONE BOXES
S 58°57'29" W 266.44'
S 39°46'46" E 151.67'
S 39°46'46" E 165.60'
S 36°27'04" E 382.15'
S 06°00'02" W 565.18'
S 16°13'34" W 101.82'

ALL DRIVEWAYS ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y305– PROFILE SEE SHT. 217

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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5/28/99

-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	139
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN SECTION 2C
-L- STA 648+00.00
ELEV. = 588.25'

BEGIN LAT. BASE DITCH LT.
-L- STA.654+50.00
EI = 573.81

END LAT. BASE DITCH LT.
-L- STA.656+00.00
EI = 571.73

PROPOSED GRADE

(-)10.3000%

(-)11.3900%

(-)12.8300%

36" RCP

EXISTING GROUND

(-)11.2500%

(-)10.9420%

BEGIN LAT. BASE DITCH RT.
PI = 654+00.000
EI = 571.53

PI = 654+50.000
EI = 571.38

END LAT. BASE DITCH RT.
PI = 656+88.000
EI = 564.63

PIPE HYDRAULIC DATA
STR 3706 Sta.656+44

DRAINAGE AREA	= 11.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 44	CFS
DESIGN HW ELEVATION	= 575.1	FT
100 YEAR DISCHARGE	= 52	CFS
100 YEAR HW ELEVATION	= 575.5	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

PI = 661+00.00
EL = 572.00'
VC = 500'
K = 162.3
DS > 80 mph

620 610 600 590 580 570 560 550 540 530

648+00 649+00 650+00 651+00 652+00 653+00 654+00 655+00 656+00 657+00 658+00 659+00 660+00 661+00 662+00

600 590 580 570 560 550 540 530 520 510

662+00 663+00 664+00 665+00 666+00 667+00 668+00 669+00 670+00 671+00 672+00 673+00 674+00 675+00 676+00

CULVERT HYDRAULIC DATA
STR NA Sta.669+12

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 2400	CFS
DESIGN HW ELEVATION	= 547.5	FT
100 YEAR DISCHARGE	= 2700	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 548.6	FT
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING DISCHARGE	= 4850	CFS
OVERTOPPING ELEVATION	= 559.7	FT

PROPOSED GRADE

EXISTING GROUND

BEGIN LAT. BASE DITCH LT.
-L- STA.663+50.00
EI = 560.00

(-)13.9800%

(3)-9'X12' RCBC

(+)2.6000%

END LAT. BASE DITCH LT.
BEGIN LAT. BASE DITCH LT.
-L- STA.670+00.00
EI = 534.13

END LAT. BASE DITCH LT.
-L- STA.672+00.00
EI = 539.33

BEGIN SP. CUT DITCH LT.
-L- STA.673+50.00
EI = 554.23

BEGIN MED. V. DITCH
-L- STA.675+00.00
EI = 557.23

PI = 674+80.00
EL = 559.00'
VC = 500'
K = 390
DS > 80 mph

(-)0.9420%

(+)0.3414%

(-) 0.3000%

(-) 0.3000%

PI = 675+97.00
EI = 556.94

PI = 675+97.00
EI = 553.47

FOR -L- PLAN SEE SHTS. 37 & 38

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	140
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

-L- POS Sta. 688+22.27=
-Y301- POT Sta. 819+86.69
ELEV.= 563.58'

EXISTING GROUND

PROPOSED GRADE

END MED.V DITCH
-L- STA.677+00.00
EI = 557.25

END SP.CUT DITCH LT.
-L- STA.678+00.00
EI = 554.09

BEGIN SP.CUT DITCH RT.
-L- STA.681+00.00
EI = 560.00

END SP.CUT DITCH RT.
-L- STA.684+50.00
EI = 561.06

(+) 0.3000%

(+) 0.3000%

(+) 0.3029%

610 600 590 580 570 560 550 540 530 520

676+00 677+00 678+00 679+00 680+00 681+00 682+00 683+00 684+00 685+00 686+00 687+00 688+00 689+00 690+00

BEGIN MED.V DITCH
-L- STA.690+50.00
EI = 561.51

PI = 692+17.000
EI = 561.000

END MED.V DITCH
-L- STA.693+00.00
EI = 562.14

END LAT.BASE DITCH RT.
EI = 561.01

-L- STA.699+23.87 =
-Y301A- STA.16+76.94
ELEV.= 567.28'

PI = 699+70.00
EL = 567.50'
VC = 210'
K = 271
DS = 72 mph

PI = 701+56.000
EI = 556.19

CULVERT HYDRAULIC DATA
STR NA Sta.702+70

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 340	CFS
DESIGN HW ELEVATION	= 560.8	FT
100 YEAR DISCHARGE	= 390	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 561.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 632	CFS
OVERTOPPING ELEVATION	= 565.7	FT

BEGIN SP.CUT BASE DITCH LT.
-L- STA.690+50.00
EI = 560.08

BEGIN LAT.BASE DITCH RT.
-L- STA.691+20.00
EI = 554.00

END SP.CUT BASE DITCH LT.
BEGIN LAT.BASE DITCH
-L- STA.692+50.00
EI = 558.92

PI = 693+00.000
EI = 558.63

END LAT.BASE DITCH
-L- STA.694+00.00
EI = 561.35

BEGIN LAT.BASE DITCH LT.
-L- STA.698+00.00
EI = 567.40

PI = 699+50.000
EI = 563.33

BEGIN LAT.BASE DITCH RT.
-L- STA.701+50.00
EI = 549.85

PI = STA.703+75.00
EI = 554.13

END LAT.BASE DITCH RT.
-L- STA.703+00.00
EI = 550.30

(-) 0.3054%

(+) 1.3735%

(-) 0.5800%

(-) 0.5800%

(+) 2.7200%

(+) 3.8944%

30" RCP

(+)0.3414%

(-)0.4321%

(-) 2.7153%

(-) 3.4660%

(-) 0.9406%

(+) 0.3000%

7'X7' RCBC

PIPE HYDRAULIC DATA
STR 4401 Sta.692+17

DRAINAGE AREA	= 8.45	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 241	CFS
DESIGN HW ELEVATION	= 561.13	FT
100 YEAR DISCHARGE	= 26.5	CFS
100 YEAR HW ELEVATION	= 561.33	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

610 600 590 580 570 560 550 540 530 520 510

690+00 691+00 692+00 693+00 694+00 695+00 696+00 697+00 698+00 699+00 700+00 701+00 702+00 703+00 704+00

FOR -L- PLAN SEE SHTS. 39 - 41

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
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TURNPIKE AUTHORITY

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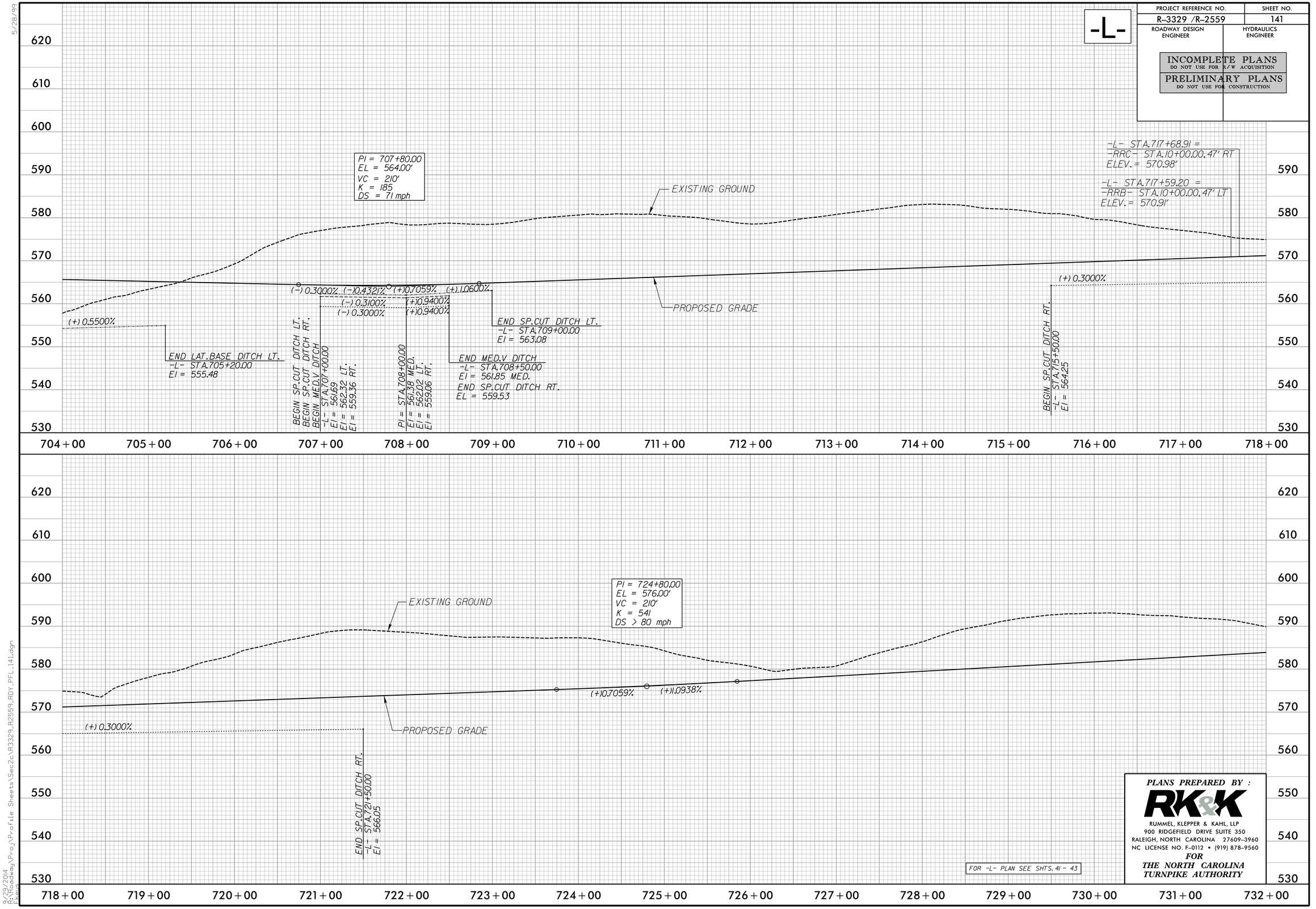
-L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	141
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -L- PLAN SEE SHTS. 41 - 43

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	142
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

620 610 600 590 580 570 560 550 540 530

732+00 733+00 734+00 735+00 736+00 737+00 738+00 739+00 740+00 741+00 742+00 743+00 744+00 745+00 746+00

-L- STA.734+72.86 =
-RLC- STA.10+00.00, 47' RT
ELEV. = 586.86'

-L- STA.737+05.82 =
-Y302- STA.128+08.93
ELEV. = 588.35'

PI = 737+60.00
EL = 590.00'
VC = 600'
K = 285
DS = 73 mph

-L- STA.738+06.45 =
-RLA- STA.10+00.00, 47' LT
ELEV. = 586.40'

(+)1.0938%

(-)1.0145%

PROPOSED GRADE

PI = 744+50.00
EL = 583.00'
VC = 500'
K = 1295
DS > 80 mph

(-)1.0145%

(-)0.6284%

EXISTING GROUND

24" RCP

(+)6.3377%

BEGIN LAT. BASE DITCH RT.
-L- STA.741+69.00
EI = 557.30

END LAT. BASE DITCH RT.
-L- STA.744+00.00
EI = 571.94

610 600 590 580 570 560 550 540 530 520

746+00 747+00 748+00 749+00 750+00 751+00 752+00 753+00 754+00 755+00 756+00 757+00 758+00 759+00 760+00

(-)0.6284%

PROPOSED GRADE

-L- STA.756+49.58 =
-RRA- STA.10+00.00, 47' LT
ELEV. = 575.46'

EXISTING GROUND

(-) 1.0112%

BEGIN LAT. BASE DITCH LT.
-L- STA.758+55.00
EI = 566.50

FOR -L- PLAN SEE SHTS. 43 & 44

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	143
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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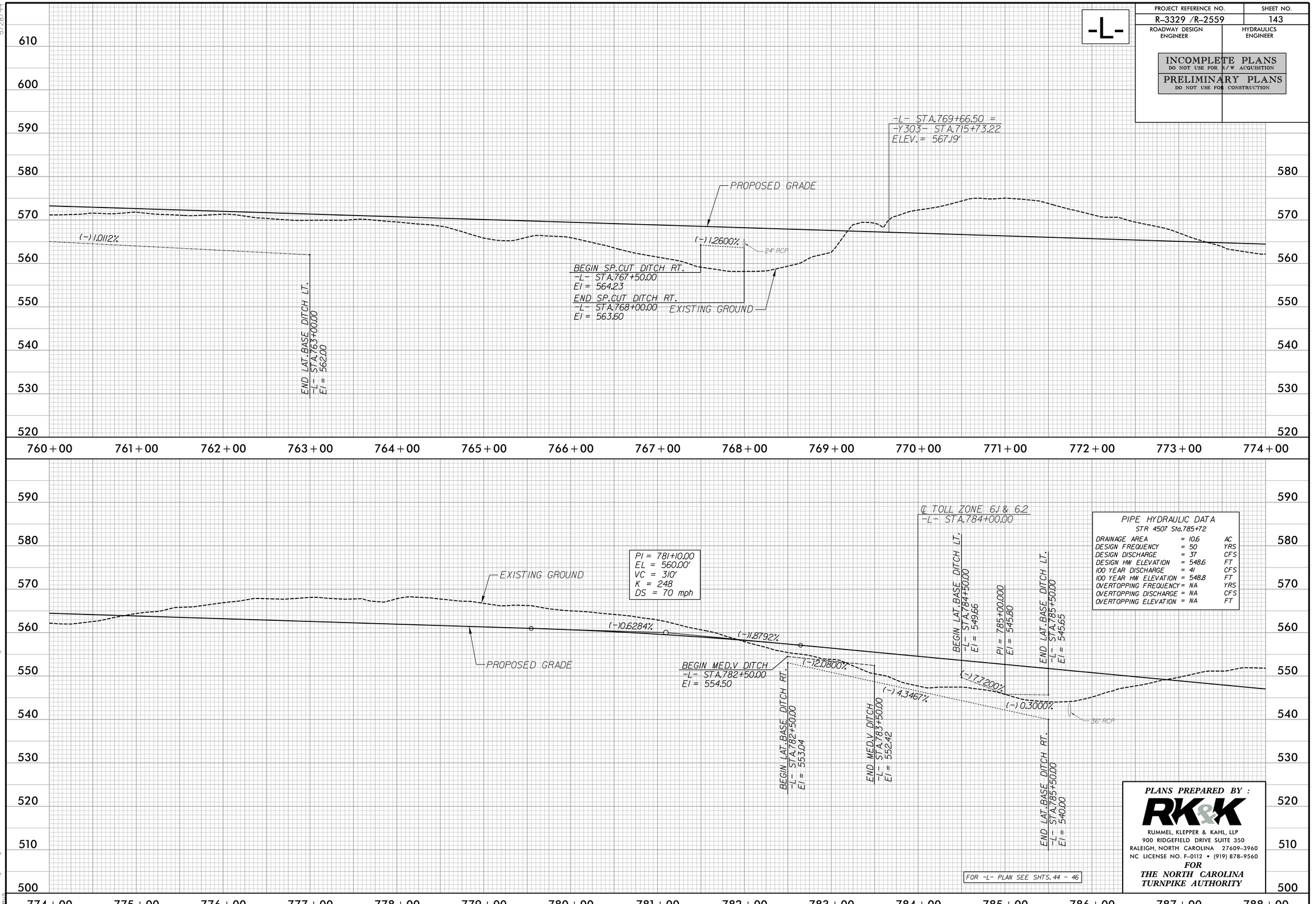
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PIPE HYDRAULIC DATA
STR 4507 Sta.785+72

DRAINAGE AREA	= 10.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 37	CFS
DESIGN HW ELEVATION	= 548.6	FT
100 YEAR DISCHARGE	= 41	CFS
100 YEAR HW ELEVATION	= 548.8	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

FOR -L- PLAN SEE SHTS. 44 - 46

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	144
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA
STR NA Sta.791+33

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 6,300	CFS
DESIGN HW ELEVATION	= 514.0	FT
100 YEAR DISCHARGE	= 6,800	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 514.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 39,700	CFS
OVERTOPPING ELEVATION	= 534.3	FT

PROPOSED GRADE

PI = 796+00.00
EL = 532.00'
VC = 610'
K = 185
DS = 71 mph

BEGIN LAT. BASE DITCH RT.
-L- STA.793+30.00
EI = 518.20

BEGIN MED.V DITCH
-L- STA.795+00.00
EI = 533.34

END LAT. BASE DITCH RT.
-L- STA.797+00.00
EI = 530.35

(-)1.8792%
(-) 3.0000%
(+)1.4138%
(+) 0.3800%
(+)1.3200%
(+)2.6000%
(+) 5.5000%
(+) 3.0000%
(+)1.0000%

STEWART'S CREEK

EXISTING GROUND

PI =793+50.000 RT.
EI = 522.80

PI =796+50.00 RT.
EI = 525.50

PI =795+50.00
EI = 531.840

BEGIN SP. CUT DITCH LT.
EI = 529.50

END SP. CUT DITCH LT.
-L- STA.796+00.00
EI = 530.16

PI =796+50.000
EI = 527.60

END MED.V DITCH
-L- STA.799+00.00
EI = 533.17

580 570 560 550 540 530 520 510 490

788+00 789+00 790+00 791+00 792+00 793+00 794+00 795+00 796+00 797+00 798+00 799+00 800+00 801+00 802+00

CULVERT HYDRAULIC DATA
STR NA Sta.805+89

DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 550	CFS
DESIGN HW ELEVATION	= 535.1	FT
100 YEAR DISCHARGE	= 600	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 535.5	FT
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING DISCHARGE	= 810	CFS
OVERTOPPING ELEVATION	= 538.3	FT

PROPOSED GRADE

EXISTING GROUND

10'X7' RCBC

BEGIN LAT. BASE DITCH LT.
-L- STA.807+12.00
EI = 525.20

(+) 15.2632%
(+) 5.1000%

PI = 807+50.000
EI = 531.00

END LAT. BASE DITCH LT.
-L- STA.811+00.00
EI = 548.85

590 580 570 560 550 540 530 520 510 500

802+00 803+00 804+00 805+00 806+00 807+00 808+00 809+00 810+00 811+00 812+00 813+00 814+00 815+00 816+00

FOR -L- PLAN SEE SHTS. 46 - 48

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	145
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
STR 4812 Sta.817+63

DRAINAGE AREA	= 25.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 91	CFS
DESIGN HW ELEVATION	= 557.2	FT
100 YEAR DISCHARGE	= 106	CFS
100 YEAR HW ELEVATION	= 557.6	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

BEGIN SP.CUT DITCH LT.
-L- STA.818+26.00
EI = 553.10

BEGIN SP.CUT DITCH RT.
-L- STA.821+50.00
EI = 565.65

PI = 822+50.000
EI = 565.35

EXISTING GROUND

PROPOSED GRADE

PI = 825+00.00
EL = 573.00'
VC = 600'
K = 249
DS = 70 mph

BEGIN MED.V DITCH
-L- STA.827+00.00
EI = 568.05

PI = 827+50.000
EI = 567.000

END SP.CUT DITCH RT.
-L- STA.829+50.00
EI = 567.50
END MED.V DITCH
EI = 567.60

(+)1.4138% (-)1.0000%
(-) 0.3000%
(+) 0.3071%
(-)1.1000% (+) 0.3000%
(-) 2.1000% (+) 0.3000%

24" RCP
48" RCP

(+) 2.6000%
(+) 2.5900%
(+) 3.2600%

END SP.CUT DITCH LT.
BEGIN LAT.V DITCH
-L- STA.819+50.00
EI = 556.32

PI = 820+50.000
EI = 558.91

END LAT.V DITCH
-L- STA.821+50.00
EI = 562.17

BEGIN SP.CUT DITCH LT.
-L- STA.822+00.00
EI = 563.80

PI = 822+50.000
EI = 563.25

END SP.CUT DITCH LT.
-L- STA.829+00.00
EI = 565.20

816+00 817+00 818+00 819+00 820+00 821+00 822+00 823+00 824+00 825+00 826+00 827+00 828+00 829+00 830+00

620 610 600 590 580 570 560 550 540 530

-L- STA.830I2.36 =
-Y304- STA.36+09.16
ELEV. = 567.88'

-L- STA.831+01.70 =
-TLA- STA.10+00.00.47' LT
ELEV. = 567.00'

PI = 832+00.00
EL = 566.00'
VC = 250'
K = 188
DS = 71 mph

-L- STA.832+22.19 =
-TLD- STA.10+00.00.47' RT
ELEV. = 566.36'

EXISTING GROUND

BEGIN SP.CUT DITCH RT.
-L- STA.835+00.00
EI = 565.29

END SP.CUT DITCH RT.
BEGIN SP.LAT V DITCH RT
-L- STA.838+50.00
EI = 555.24

END SP.LAT V DITCH RT.
-L- STA.839+77.00
EI = 551.60

PROPOSED GRADE

BEGIN MED.V DITCH
-L- STA.831+00.00
EI = 564.41

(-)1.0000% (+)0.3333%
(-) 0.3000%
(+) 1.7800%
(-)2.8700%
(-)2.8700%

PI = 834+50.000
EI = 563.360

END MED.V DITCH
-L- STA.835+00.00
EI = 564.25

78" RCP
30" RCP

PIPE HYDRAULIC DATA
STR 4839 Sta.840+31

DRAINAGE AREA	= 58.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 187	CFS
DESIGN HW ELEVATION	= 557.4	FT
100 YEAR DISCHARGE	= 187	CFS
100 YEAR HW ELEVATION	= 557.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 474	CFS
OVERTOPPING ELEVATION	= 567.9	FT

FOR -L- PLAN SEE SHTS. 48 & 49

PLANS PREPARED BY :
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816+00 817+00 818+00 819+00 820+00 821+00 822+00 823+00 824+00 825+00 826+00 827+00 828+00 829+00 830+00

600 590 580 570 560 550 540 530 520 510

830+00 831+00 832+00 833+00 834+00 835+00 836+00 837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00

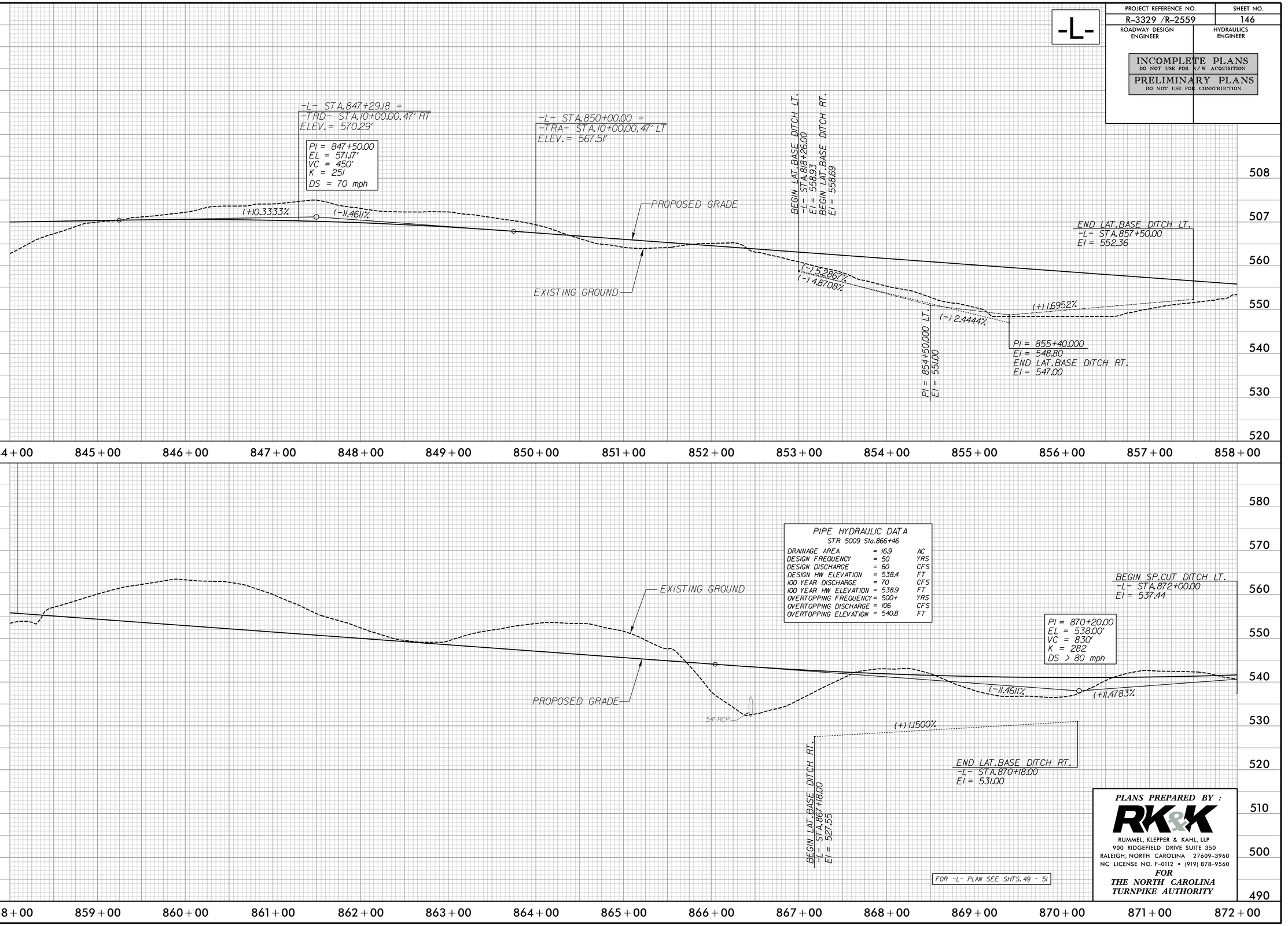
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	146
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	147
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
STR 5101 Sta.878+06

DRAINAGE AREA	= 11.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 42	CFS
DESIGN HW ELEVATION	= 545.5	FT
100 YEAR DISCHARGE	= 45	CFS
100 YEAR HW ELEVATION	= 545.8	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

PI = 881+70.00
EL = 555.00'
VC = 1,140'
K = 254
DS = 71 mph

BEGIN SP.CUT DITCH LT.
-L- STA.872+00.00
EI = 537.44

BEGIN MED.V DITCH RT.
-L- STA.872+50.00
EI = 536.91

PI = 873+00.000
EI = 540.00 LT.
EI = 538.270 MED.RT.

END MED.V DITCH RT.
-L- STA.874+00.00
EI = 539.44

PI = 873+76.000
EI = 537.00

END SP.CUT DITCH LT.
-L- STA.874+50.00
EI = 540.16

BEGIN LAT.V DITCH LT.
-L- STA.877+60.00
EI = 543.88

PI = 878+15.000
EI = 542.42

END LAT.V DITCH LT.
-L- STA.879+00.00
EI = 545.04

(+)2.5600%
(+)2.7200%
(+)1.4783%
(+)1.1709%
(-)3.9474%
(+)4.2703%
(-)2.6545%
(+)3.0824%
(+)1.4783%
(-)3.0088%

EXISTING GROUND
PROPOSED GRADE
36" RCP

590 580 570 560 550 540 530 520 510 500

872+00 873+00 874+00 875+00 876+00 877+00 878+00 879+00 880+00 881+00 882+00 883+00 884+00 885+00 886+00

PIPE HYDRAULIC DATA
STR 5214 Sta.893+24

DRAINAGE AREA	= 81.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 240	CFS
DESIGN HW ELEVATION	= 520.3	FT
100 YEAR DISCHARGE	= 280	CFS
100 YEAR HW ELEVATION	= 521.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 350	CFS
OVERTOPPING ELEVATION	= 522.6	FT

PI = 893+00.00
EL = 521.00'
VC = 700'
K = 194
DS = 73 mph

EXISTING GROUND
PROPOSED GRADE

(-)3.0088%
(-)6.6200%
(-)2.8690%
(-)3.0088%
(+)0.6000%
(-)0.3300%
(-)0.3810%
(-)1.7244%
(+)0.3000%
(+)1.7400%
(+)6.4150%
(+)0.3000%
(+)0.3000%
(+)0.3067%

BEGIN LAT.BASE DITCH LT.
-L- STA.890+50.00
EI = 524.58

PI = 891+50.000
EI = 517.96

END LAT.BASE DITCH LT.
-L- STA.892+95.00
EI = 513.80

BEGIN MED.V DITCH RT.
-L- STA.892+50.00
EI = 519.72

BEGIN MED.V DITCH
-L- STA.893+00.00
EI = 521.08

84" RCP

BEGIN SP.CUT DITCH LT.
-L- STA.895+00.00
EI = 518.46

BEGIN LAT.BASE DITCH RT.
-L- STA.896+40.00
EI = 508.20

PI = 896+50.000
EI = 508.23

END MED.V DITCH RT.
-L- STA.896+70.00
EI = 518.12

PI = 897+00.000
EI = 519.780

END SP.CUT DITCH LT.
BEGIN SP.CUT BASE DITCH LT.
-L- STA.897+25.00
EI = 514.58

END MED.V DITCH
-L- STA.897+50.00
EI = 520.63

END SP.CUT BASE DITCH LT.
BEGIN LAT.BASE DITCH LT.
-L- STA.898+00.00
EI = 514.80

BEGIN MED.V DITCH RT.
-L- STA.899+50.00
EI = 520.70

END LAT.BASE DITCH RT.
-L- STA.898+50.00
EI = 521.06

END LAT.BASE DITCH LT.
BEGIN LAT.V DITCH LT.
-L- STA.900+00.00
EI = 515.40

FOR -L- PLAN SEE SHTS. 51 - 53

560 550 540 530 520 510 500 490 480 470

886+00 887+00 888+00 889+00 890+00 891+00 892+00 893+00 894+00 895+00 896+00 897+00 898+00 899+00 900+00

PLANS PREPARED BY :
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	148
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
STR 5214 Sta.893+24

DRAINAGE AREA	= 81.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 240	CFS
DESIGN HW ELEVATION	= 520.3	FT
100 YEAR DISCHARGE	= 280	CFS
100 YEAR HW ELEVATION	= 521.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 350	CFS
OVERTOPPING ELEVATION	= 522.6	FT

PI = 903+00.00
EL = 527.00'
VC = 210'
K = 644
DS > 80 mph

PI = 908+40.00
EL = 532.00'
VC = 520'
K = 250
DS = 70 mph

EXISTING GROUND

PROPOSED GRADE

(+)0.6000%

(+)0.9259%

(+)0.9259%

(-)1.1542%

(+) 0.3067%

(+) 6.2000%

END LAT.V DITCH LT.
-L- STA.901+00.00
EI = 521.60

END LAT.BASE DITCH LT.
BEGIN LAT.V DITCH LT.
-L- STA.900+00.00
EI = 515.40

END MED.V DITCH RT.
-L- STA.902+50.00
EI = 521.62

66" RCP

END SECTION 2C
-L- STA 912+00.00
ELEV. = 527.84

570 560 550 540 530 520 510 500 490 480

900+00 901+00 902+00 903+00 904+00 905+00 906+00 907+00 908+00 909+00 910+00 911+00 912+00 913+00 914+00

FOR -L- PLAN SEE SHT. 53

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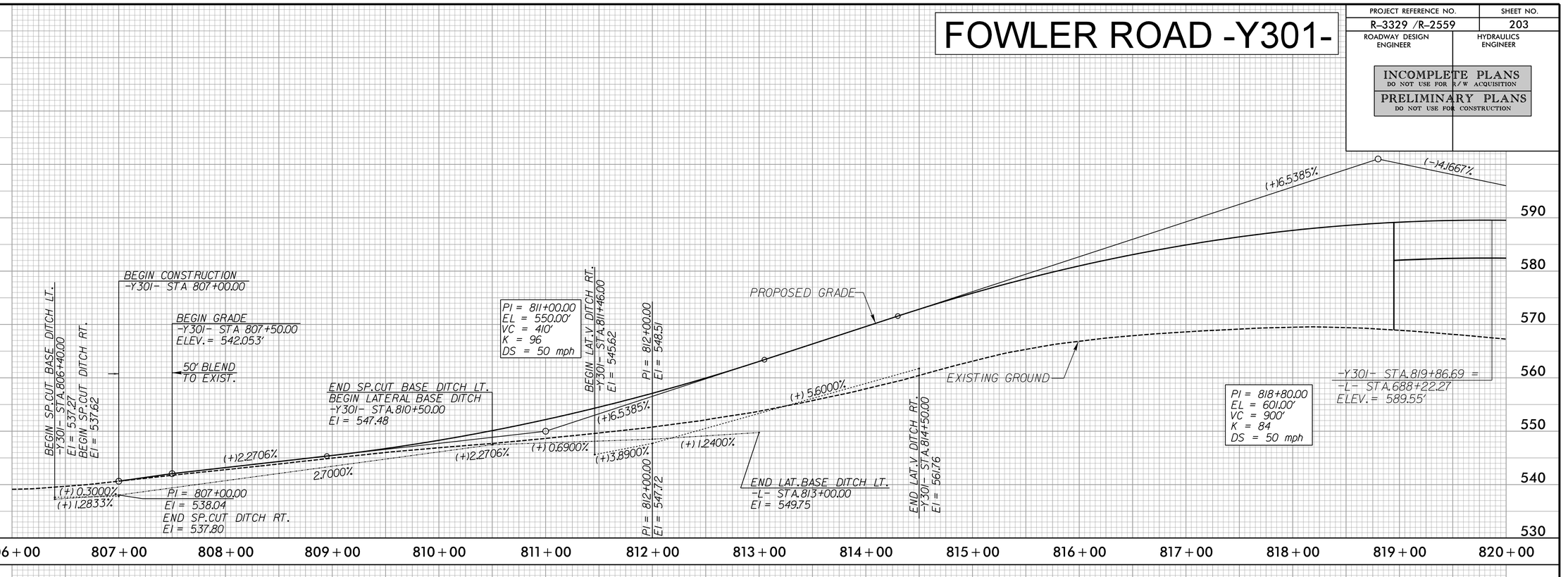
FOWLER ROAD -Y301-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	203
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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US 601 -Y302-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	204
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN CONSTRUCTION
-Y302- STA 98+35.00
ELEV. = 565.46'

BEGIN GRADE
-Y302- STA 98+85.00
ELEV. = 566.07'

50' BLEND TO EXIST.

-Y302- STA.101+26.06 =
-Y302C- STA.10+00.00
ELEV. = 568.05'

PI = 102+70.00
EL = 570.07'
VC = 660'
K = 335
DS = 77 mph

BEGIN LAT.V DITCH RT.
-Y302- STA.103+77.79
EI = 565.69

PROPOSED GRADE

EXISTING GROUND

(+)1.2094% (+)1.0399% (+) 0.3000% (+) 1.1067% (+) 2.5000% (+)1.0399% (−)0.9303% (+) 0.5943% (+) 0.5943% (−) 2.3449% (−) 0.8834% (−)1.5236% (−) 4.3957% (−)0.9303% (−) 1.5236%

BEGIN SP.LAT.V DITCH LT.
-Y302- STA.98+50.00
EI = 560.19

PI = 99+00.000
EI = 560.34

PI = 100+50.000
EI = 562.00

PI = 101+50.000
EI = 564.50

END SP.LAT.V DITCH LT.
BEGIN SP.CUT DITCH LT.
-Y302- STA.102+50.00
EI = 565.09

END SP.CUT DITCH LT.
BEGIN SP.LAT V DITCH LT.
PI = 103+25.000
EI = 565.54

END LAT.V DITCH RT.
BEGIN LAT.V DITCH RT.
-Y302- STA.104+74.17
EI = 563.45

END LAT.V DITCH RT.
BEGIN SP.LAT.V DITCH RT.
-Y302- STA.108+50.00
EI = 560.11

END SP.LAT.V DITCH RT.
BEGIN LAT.BASE DITCH RT.
-Y302- STA.110+80.00
EI = 550.00

97+00 98+00 99+00 100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00

610 600 590 580 570 560 550 540 530 520

PI = 111+40.00
EL = 561.98'
VC = 360'
K = 293
DS > 80 mph

PI = 113+50.000
EI = 555.50

PI = 114+50.000
EI = 557.20

END LAT.BASE DITCH LT.
-Y302- STA.115+00.00
EI = 560.90

-Y302- STA.122+51.62 =
-RRC- STA.32+32.67
ELEV. = 564.98'

-Y302- STA.123+02.26 =
-RLC- STA.23+40.84
ELEV. = 564.97'

PI = 124+40.00
EL = 565.88'
VC = 370'
K = 392
DS > 80 mph

PROPOSED GRADE

EXISTING GROUND

(+)0.3000% (+)0.3000% (−)0.6433% (+) 3.3333% (+) 0.8000% (+) 1.7000% (+) 1.4000% (+) 0.3725% (+) 0.6040% (+) 2.6000% (−) 2.1333%

END SP.LAT.V DITCH LT.
BEGIN LAT.BASE DITCH LT.
-Y302- STA.111+10.00
EI = 553.58

PI = 112+00.000
EI = 554.00

END LAT.BASE DITCH RT.
BEGIN LAT.V DITCH RT.
-Y302- STA.116+00.00
EI = 555.49

END LAT.V DITCH RT.
BEGIN LAT.V DITCH RT.
-Y302- STA.118+50.00
EI = 557.00

END LAT.V DITCH RT.
-Y302- STA.119+50.00
EI = 559.60

BEGIN LAT.BASE DITCH LT.
-Y302- STA.124+00.00
EI = 564.00

111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00

610 600 590 580 570 560 550 540 530 520 510

FOR -Y302- PLAN SEE SHTS. 43,98 & 99

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US 601 -Y302-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	205
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 127+40.00
EL = 563.95'
VC = 200'
K = 155
DS = 65 mph

-Y302- STA.128+08.93 =
-L- STA.737+05.82
ELEV. = 563.72'

-Y302- STA.129+53.22 =
-RLA- STA.23+31.25, 44.75' RT
ELEV. = 564.64'

-Y302- STA.133+14.96 =
-RRA- STA.31+92.23
ELEV. = 567.07'

-Y302- STA.138+42.38 =
-RRB- STA.31+03.90, 44.75' LT
ELEV. = 570.61'

PROPOSED GRADE

EXISTING GROUND

(-) 2.1333%
(-) 0.8000%
(-)0.6433%
(+)0.6474%
(+) 0.3125%
(+)5.2400%
(+) 0.3231%
(+) 0.6500%
(+) 0.6500%

PI = 125+50.000
EI = 560.80

END LAT. BASE DITCH LT.
-Y302- STA.126+50.00
EI = 560.00

BEGIN LAT. BASE DITCH RT.
-Y302- STA.129+40.00
EI = 560.65

END LAT. BASE DITCH RT.
-Y302- STA.131+00.00
EI = 561.45

BEGIN LAT. BASE DITCH RT.
-Y302- STA.133+75.00
EI = 562.50

END LAT. BASE DITCH LT.
-Y302- STA.134+83.00
EI = 560.00

BEING LAT. BASE DITCH LT.
-Y302- STA.133+98.00
EI = 555.55

PI = 137+00.000
EI = 563.55

END LAT. BASE DITCH RT.
BEGIN SP. CUT DITCH RT.
-Y302- STA.138+00.00
EI = 564.20

125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00

610 600 590 580 570 560 550 540 530 520

-Y302- STA.140+63.89 =
-Y302B- STA.14+95.82
ELEV. = 572.09'

-Y302- STA.140+74.00 =
-Y302A- STA.13+98.28
ELEV. = 572.16'

PI = 147+25.00
EL = 576.80'
VC = 700'
K = 591
DS > 80 mph

PROPOSED GRADE

EXISTING GROUND

(+)0.6474%
(-)0.5376%
(+) 0.6500%
(+) 3.5900%
(+) 3.9067%
(-) 4.5149%

END SP.CUT DITCH RT.
-Y302- STA.140+00.00
EI = 565.50

BEGIN SP.CUT DITCH RT.
-Y302- STA.141+13.00
EI = 567.00

BEGIN SP.CUT DITCH LT.
-Y302- STA.141+75.00
EI = 567.50

END SP.CUT DITCH LT.
-Y302- STA.142+50.00
EI = 570.43

END SP.CUT DITCH RT.
-Y302- STA.142+00.00
EI = 570.12

BEGIN SP.LAT.V DITCH RT.
-Y302- STA.150+50.00
EI = 572.05

END SP.LAT.V DITCH RT.
-Y302- STA.151+84.00
EI = 566.00

FOR -Y302- PLAN SEE SHTS. 43,100 & 101

139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00

610 600 590 580 570 560 550 540 530 520

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US 601 -Y302-

RIDGE ROAD -Y302A-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	206
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

END CONSTRUCTION
-Y302- STA 161+45.00
ELEV.= 568.92

END GRADE
-Y302- STA 160+95.00
ELEV.= 569.44'

50' BLEND TO EXIST.

PROPOSED GRADE

(-)0.5376%

(-)1.0340%

(-)2.5111%

(-)0.6667%

EXISTING GROUND

BEGIN SP.CUT DITCH RT.
-Y302- STA.161+00.00
EI = 566.49
BEGIN SP.CUT DITCH LT.
EI = 567.22

END SP.CUT DITCH RT.
-Y302- STA.161+45.00
EI = 566.19
END SP.CUT DITCH LT.
EI = 566.09

BEGIN GRADE
-Y302A- STA 11+83.74
ELEV.= 571.70'

BEGIN CONSTRUCTION
-Y302A- STA 11+58.74
ELEV.= 571.57'

END GRADE
-Y302A- STA.13+51.04
ELEV.= 571.79'

PI = 13+00.00
EL = 571.20'
VC = 100'
K = 63
DS = 35 mph

PROPOSED GRADE

(+)0.5468%

(-)0.4325%

(+)1.1554%

(-)2.0000%

EXISTING GROUND

-RRA-

-RRA- STA.10+00.00 =
-L- STA.756+49.58, 47' LT
ELEV.= 574.74'

BEGIN GRADE
-RRA- STA 10+00.00
ELEV.= 574.74'

PI = 11+50.00
EL = 575.53'
VC = 200'
K = 1134
DS > 80 mph

(+)0.5247%

(+)0.3484%

PI = 14+00.00
EL = 576.40'
VC = 300'
K = 257
DS = 71 mph

(+)0.3484%

(-)0.8211%

PROPOSED GRADE

EXISTING GROUND

FOR -Y302- PLAN SEE SHT. 101
FOR -Y302A- PLAN SEE SHT. 100
FOR -RRA- PLAN SEE SHT. 43

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-RRA-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	207
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

620 610 600 590 580 570 560 550 540 530

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00

EXISTING GROUND

PROPOSED GRADE

PI = 29+80.00
EL = 563.43'
VC = 280'
K = 99
DS = 51 mph

END GRADE
-RRA- STA. 31+92.23 =
-Y302- STA. 133+14.96
ELEV. = 567.67'

(-) 0.3200%

(-)10.8211%

(+)2.0000%

(+) 1.5100%

BEGIN SP.CUT DITCH RT.
-RRA- STA. 24+00.00
EI = 564.12

END SP.CUT DITCH RT.
-RRA- STA. 27+50.000
EI = 563.00

BEGIN SP.CUT BASE DITCH RT.
-RRA- STA. 30+00.00
EI = 560.99

END SP.CUT BASE DITCH RT.
-RRA- STA. 31+00.00
EI = 562.50

-RLA-

620 610 600 590 580 570 560 550 540 530

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

BEGIN GRADE
-RLA- STA. 10+00.00 =
-L- STA. 738+06.45, 47' RT
ELEV. = 587.68'

PI = 11+40.00
EL = 587.36'
VC = 210'
K = 96
DS = 52 mph

PI = 14+50.00
EL = 579.88'
VC = 110'
K = 44
DS = 40 mph

PI = 19+00.00
EL = 557.78'
VC = 280'
K = 38
DS = 37 mph

PI = 22+00.00
EL = 565.20'
VC = 160'
K = 52
DS = 43 mph

END GRADE
-RLA- STA. 23+31.25
ELEV = 564.44'

PROPOSED GRADE

EXISTING GROUND

(-)10.2280%

(-)12.4124%

(-)12.4124%

(-)14.9117%

(+) 4.6977%

(-) 5.1845%

(-)14.9117%

(-) 1.3582%

(+)2.4737%

(+) 1.3820%

(+)2.4737%

(-)10.5826%

BEGIN LAT. BASE DITCH LT.
-RLA- STA. 10+00.00
EI = 560.65

END LAT. BASE DITCH LT.
-RLA- STA. 13+48.04
EI = 577.00

BEGIN SP. BACK OF CURB DITCH LT.
-RLA- STA. 15+00.00
EI = 575.50

PI = 17+99.970
EI = 560.00

PI = 19+46.220
EI = 558.00

END SP. BACK OF CURB DITCH LT.
-RLA- STA. 20+18.58
EI = 559.00

FOR -RRA- PLAN SEE SHT. 43
FOR -RLA- PLAN SEE SHT. 43

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-RRB-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	208
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGINE GRADE
-RRB- STA. 10+00.00 =
-L- STA. 716+09.84, 47' LT
ELEV. = 571.30'

PI = 11+60.00
EL = 572.49'
VC = 170'
K = 430
DS > 80 mph

PI = 15+80.00
EL = 577.28'
VC = 350'
K = 146
DS = 55 mph

EXISTING GROUND

(+)0.7450%

(+)1.1400%

(+)1.1400%

(−)1.2523%

PROPOSED GRADE

620 610 600 590 580 570 560 550 540 530

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

END GRADE
-RRB- STA 31+14.20
ELEV = 567.95'

PI = 30+40.00
EL = 567.40'
VC = 80'
K = 53
DS = 44 mph

EXISTING GROUND

PI = 28+00.00
EL = 562.00'
VC = 340'
K = 97
DS = 50 mph

PROPOSED GRADE

(−)1.2523%

(+)2.2560%

(+)2.2500%

(+)0.7345%

(−)1.1821%

BEGIN SP.CUT DITCH RT.
-RRB- STA. 26+00.00
EL = 558.41

END SP.CUT DITCH RT.
-RRB- STA. 28+80.00
EL = 555.10

620 610 600 590 580 570 560 550 540 530

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00

FOR -RRB- PLAN SEE SHTS. 42 & 43

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-RRC-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	209
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-RRC- STA.10+00.00 =
-L- STA.717+68.91,47' LT
ELEV.= 569.54'

PI = 11+50.00
EL = 570.22'
VC = 180'
K = 3252
DS > 80 mph

PI = 21+00.00
EL = 574.00'
VC = 180'
K = 344
DS > 80 mph

EXISTING GROUND

PROPOSED GRADE

(+)0.4532%

(+)0.3978%

(+) 2.6881%

(+)0.3978%

(+)0.9204%

BEGIN SP.CUT DITCH LT.
-RRC- STA.18+13.62
EI = 564.95

END SP.CUT DITCH LT.
-RRC- STA.20+00.00
EI = 569.96

620 610 600 590 580 570 560 550 540 530

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

END GRADE
-RRC- STA.32+32.67 =
-Y302- STA.122+51.62
ELEV.= 565.31'

PI = 29+00.00
EL = 581.36'
VC = 490'
K = 85
DS = 50 mph

EXISTING GROUND

(+)0.9204%

(-)4.8242%

PROPOSED GRADE

620 610 600 590 580 570 560 550 540 530

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00

FOR -RRC- PLAN SEE SHTS. 42 & 43

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-RLC-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	210
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-RLC- STA.10+00.00 =
-L- STA.7+34+72.86, 47' RT
ELEV.= 586.14'

PI = 10+90.00
EL = 585.14'
VC = 90'
K = 102
DS = 53 mph

EXISTING GROUND

(-)1.1042%

(-)1.9874%

PI = 15+50.00
EL = 576.00'
VC = 480'
K = 153
DS = 64 mph

(-)1.9874%

(+)1.1587%

PROPOSED GRADE

PI = 20+10.00
EL = 581.33'
VC = 440'
K = 74
DS = 48 mph

(+)1.1587%

(-)4.8034%

END GRADE
-RLC- STA.23+40.84 =
-Y302- STA.123+02.26
ELEV.= 565.44'

620 610 600 590 580 570 560 550 540 530

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

DEESE ROAD -Y303-

BEGIN CONSTRUCTION
-Y303- STA 705+50.00
ELEV.= 578.95

BEGIN GRADE
-Y303- STA 706+00.00
ELEV.= 579.34'

50' BLEND TO EXIST.

PI = 707+25.00
EL = 579.93'
VC = 250'
K = 137
DS = 60 mph

(+)0.7800%

(+)0.4700%

(-) 0.3000%

(+)2.2940%

(-) 0.3000%

(-)4.0333%

(-)7.4762%

PROPOSED GRADE

EXISTING GROUND

(+) 6.8750%

(+) 0.3000%

(+)2.2940%

(-)4.6727%

-Y303- STA.715+73.22 =
-L- STA.769+66.50
ELEV.= 590.37'

PI = 716+00.00
EL = 600.00'
VC = 140'
K = 164
DS = 62 mph

(+) 0.5500%

PI =718+00.000
EL = 562.46

BEGIN LAT.BASE DITCH RT.
-Y303- STA.717+00.00
EL = 561.91

BEGIN SP.CUT DITCH LT.
-Y303- STA.706+50.00
EL = 576.50

END SP.CUT DITCH LT.
BEGIN LAT.V DITCH LT.
-Y303- STA.707+50.00
EL = 576.20

PI = 708+50.000
EL = 575.90

END LAT.V DITCH LT.
BEGIN LAT.V DITCH LT.
-Y303- STA.710+00.00
EL = 569.85

END LAT.V DITCH LT.
-Y303- STA.711+05.00
EL = 562.00

BEGIN LAT.V DITCH RT.
-Y303- STA.711+18.00
EL = 558.10

END LAT.V DITCH RT.
BEGIN LAT.V DITCH RT.
-Y303- STA.713+50.00
EL = 574.05

END LAT.V DITCH RT.
-Y303- STA.714+90.00
EL = 574.47

620 610 600 590 580 570 560 550 540 530

704+00 705+00 706+00 707+00 708+00 709+00 710+00 711+00 712+00 713+00 714+00 715+00 716+00 717+00 718+00

FOR -RLC- PLAN SEE SHT. 43
FOR -Y303- PLAN SEE SHTS. 44 & 102

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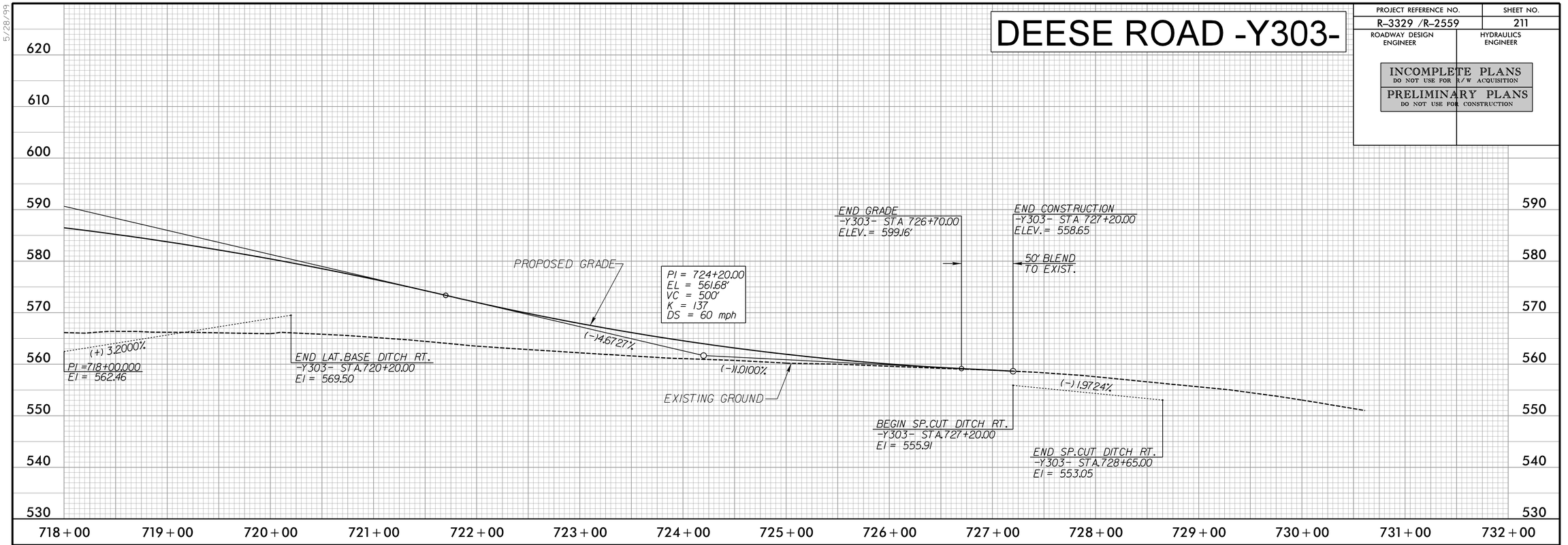
DEESE ROAD -Y303-

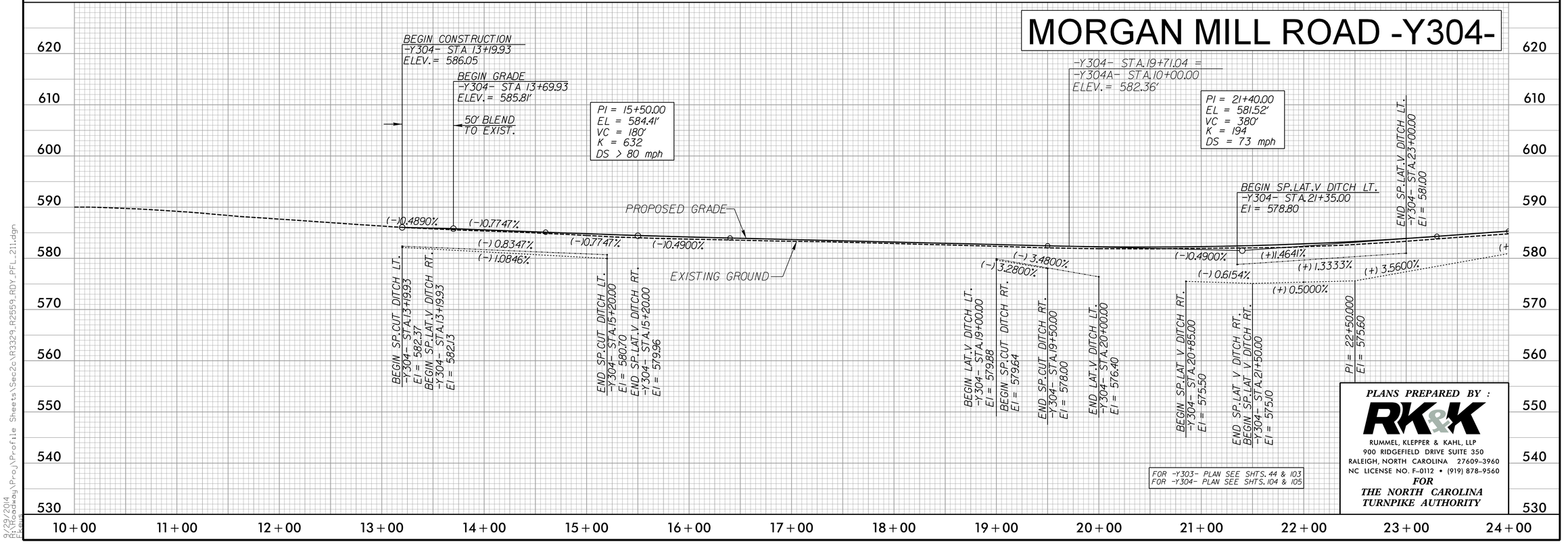
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	211
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



MORGAN MILL ROAD -Y304-



FOR -Y303- PLAN SEE SHTS. 44 & 103
FOR -Y304- PLAN SEE SHTS. 104 & 105

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MORGAN MILL ROAD -Y304-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	212
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 25+00.00
EL = 586.79'
VC = 200'
K = 287
DS = 73 mph

-Y304- STA. 29+83.34 =
-TRD- STA. 27+85.21
ELEV. = 590.29'

-Y304- STA. 30+27.34 =
-TLD- STA. 20+92.30
ELEV. = 590.65'

PI = 35+70.00
EL = 595.00'
VC = 620'
K = 203
DS = 66 mph

-Y304- STA. 36+09.16 =
-L- STA. 830+12.36
ELEV. = 592.25'

PROPOSED GRADE

(+)1.4641%

(+)0.7673%

(+)0.7673%

(-)2.2838%

) 3.5600%

EXISTING GROUND

(-) 2.5000%

(-) 1.3043%

(+) 0.9622%

END SP.LAT V DITCH RT.
-Y304- STA. 24+50.00
EI = 582.72

BEGIN LAT. BASE DITCH LT.
-Y304- STA. 28+00.00
EI = 583.00

PI = 32+00.000
EI = 573.00

PI = 33+15.000
EI = 571.50

END LAT. BASE DITCH LT.
-Y304- STA. 35+00.00
EI = 573.28

-Y304- STA. 40+84.12 =
-TLA- STA. 22+07.31
ELEV. = 583.11'

-Y304- STA. 41+18.12 =
-TRA- STA. 31+37.15
ELEV. = 582.33'

PROPOSED GRADE

PI = 48+60.00
EL = 565.54'
VC = 190'
K = 352
DS = 78 mph

PI = 51+10.00
EL = 558.48'
VC = 290'
K = 213
DS = 76 mph

BEGIN SP.LAT V DITCH RT.
-Y304- STA. 51+00.00
EI = 556.33

(+) 3.1689%

EXISTING GROUND

(-)2.2838%

(-)2.8235%

(-)2.8235%

(-)1.4652%

(-) 4.7073%

(-) 5.6600%

(-) 3.8596%

PI = 51+50.000
EI = 553.50

BEGIN SP.LAT.V DITCH LT.
-Y304- STA. 42+40.00
EI = 558.60

END SP.LAT.V DITCH LT.
-Y304- STA. 43+88.00
EI = 563.29

BEGIN SP.LAT.V DITCH LT.
-Y304- STA. 51+00.00
EI = 556.37

FOR -Y304- PLAN SEE SHTS. 48,105 & 106

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MORGAN MILL ROAD -Y304-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	213
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

590 580 570 560 550 540 530 520 510 500

52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00

PI = 52+64.000
EL = 549.10

END SP.LAT V DITCH RT.
-Y304- STA.52+82.00
EI = 550.10

PI = 56+00.00
EL = 551.30'
VC = 180'
K = 972
DS > 80 mph

END GRADE
-Y304- STA 57+50.00
ELEV.= 549.38'

END CONSTRUCTION
-Y304- STA 58+00.00
ELEV.= 548.87'

50' BLEND TO EXIST.

PROPOSED GRADE

(-) 3.8596%
(-) 4.7073%
(+) 5.5556%
(-)1.4652%
(-)1.2800%
(-)1.2800%
(-)1.0294%
(-) 4.3667%

BEGIN SP.LAT.V DITCH LT.
-Y304- STA.51+00.00
EI = 556.37

BEGIN SP.LAT V DITCH RT.
-Y304- STA.56+00.00
EI = 548.65

END SP.LAT V DITCH RT.
-Y304- STA.57+50.00
EI = 542.10

EXISTING GROUND

-TRA-

600 590 580 570 560 550 540 530 520 510

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

BEGIN GRADE
-TRA- STA.10+00.00 =
-L- STA.850+00.00.47' LT
ELEV.= 566.79'

PI = 12+90.00
EL = 570.65'
VC = 500'
K = 181
DS = 64 mph

PI = 16+50.00
EL = 565.50'
VC = 150'
K = 124
DS = 56 mph

PIPE HYDRAULIC DATA
STR 4840 Sta.18+86

DRAINAGE AREA	= 70.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 222	CFS
DESIGN HW ELEVATION	= 554.70	FT
100 YEAR DISCHARGE	= 258	CFS
100 YEAR HW ELEVATION	= 555.58	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= >300	CFS
OVERTOPPING ELEVATION	= 556.87	FT

PIPE HYDRAULIC DATA
STR 4845 Sta.21+88

DRAINAGE AREA	= 23.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 75.5	CFS
DESIGN HW ELEVATION	= 551.38	FT
100 YEAR DISCHARGE	= 87.7	CFS
100 YEAR HW ELEVATION	= 551.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 186.3	CFS
OVERTOPPING ELEVATION	= 556.87	FT

PI = 22+00.00
EL = 551.00'
VC = 690'
K = 96
DS = 50 mph

(+)1.3300%
(-)1.4308%
(-)1.4308%
(-)2.6364%
(-) 0.3000%
(-)2.6364%
(+)4.5478%

PROPOSED GRADE

EXISTING GROUND

BEGIN SP.CUT DITCH LT.
-TRA- STA.20+00.00
EI = 554.26

END SP.CUT DITCH LT.
-TRA- STA.21+00.00
EI = 553.96

FOR -Y304- PLAN SEE SHTS.106 & 107
FOR -TRA- PLAN SEE SHTS. 48 & 49

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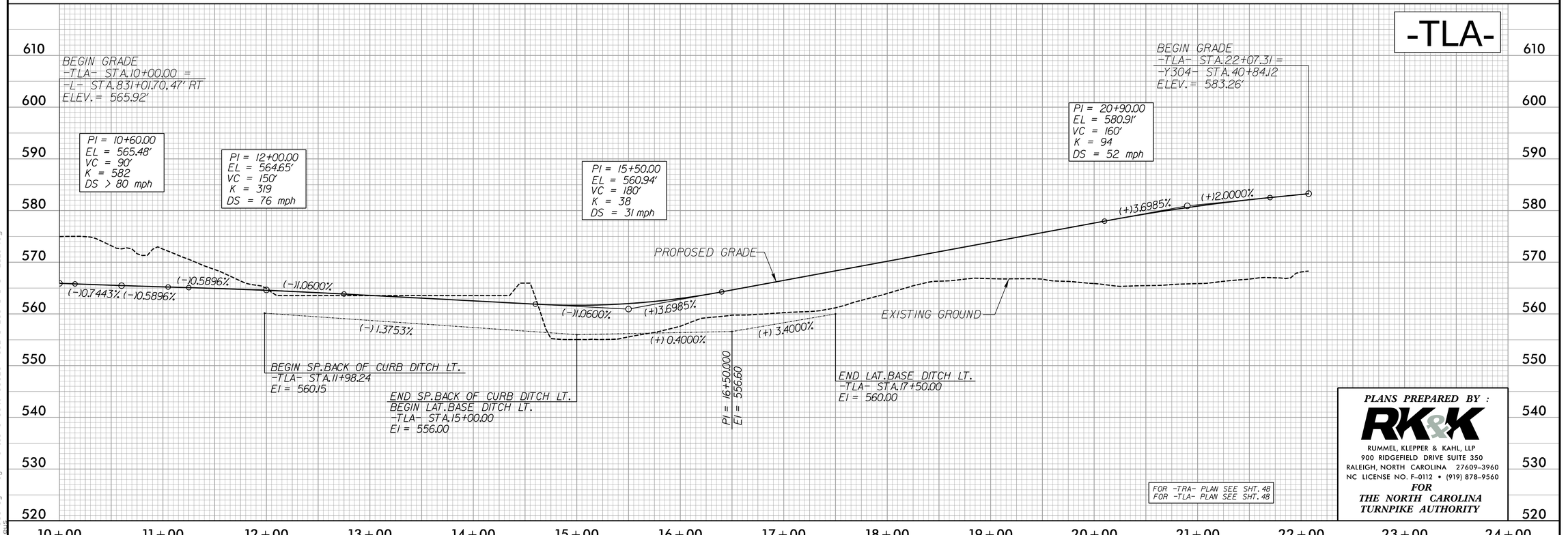
-TRA-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	214
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -TRA- PLAN SEE SHT. 48
FOR -TLA- PLAN SEE SHT. 48

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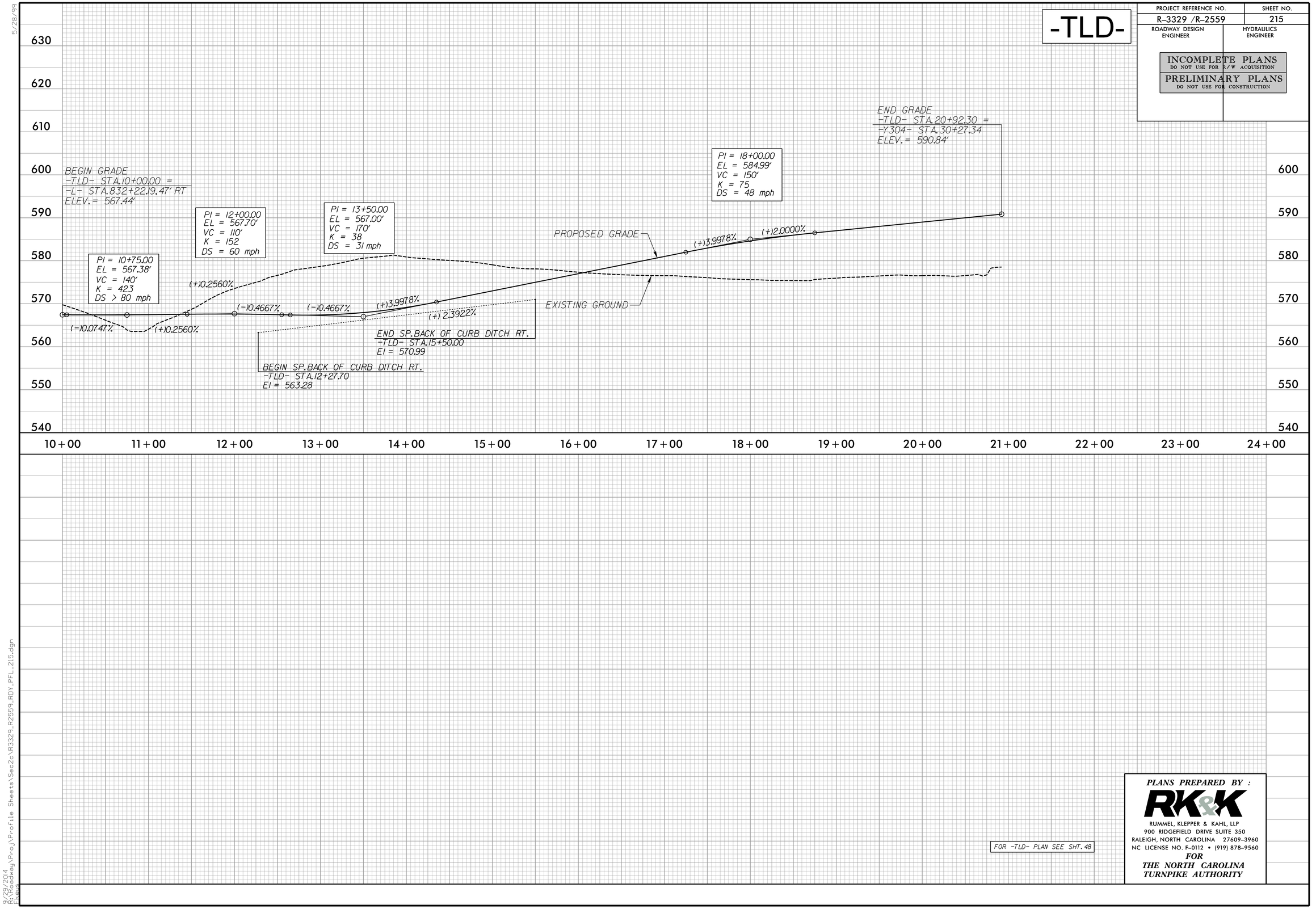
-TLD-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	215
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -TLD- PLAN SEE SHT. 48

PLANS PREPARED BY :

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-TRD-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	216
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-TRD- STA. 10+00.00 =
-L- STA. 847+29.18, 47' RT
ELEV. = 569.55'

PI = 10+90.00
EL = 569.89'
VC = 150'
K = 299
DS = 74 mph

PI = 12+40.00
EL = 569.71'
VC = 150'
K = 821
DS > 80 mph

PI = 14+60.00
EL = 569.05'
VC = 180'
K = 99
DS = 51 mph

PIPE HYDRAULIC DATA
STR 4825 Sta.17+63

DRAINAGE AREA	= 53.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 171	CFS
DESIGN HW ELEVATION	= 560.5	FT
100 YEAR DISCHARGE	= 199	CFS
100 YEAR HW ELEVATION	= 561.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= >200	CFS
OVERTOPPING ELEVATION	= 569.6	FT

PIPE HYDRAULIC DATA
STR 4908 Sta.13+95

DRAINAGE AREA	= 9.69	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 27.6	CFS
DESIGN HW ELEVATION	= 556.0	FT
100 YEAR DISCHARGE	= 30.3	CFS
100 YEAR HW ELEVATION	= 556.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 88.2	CFS
OVERTOPPING ELEVATION	= 569.5	FT

(+)0.3822%
(−)10.1193%
(−)10.1193%
(−)10.3020%
PROPOSED GRADE
(−)10.3020%
(+)11.5142%
EXISTING GROUND

BEGIN LAT. BASE DITCH LT.
-TRD- STA. 17+65.00
EI = 554.50

BEGIN LAT. BASE DITCH RT.
-TRD- STA. 17+64.00
EI = 553.00

PI = 18+00.000
EI = 553.11

(+)0.3056%
(+)3.9450%
(+)0.9355%

BEGIN LAT. BASE DITCH RT.
-TRD- STA. 20+77.00
EI = 561.50

END LAT. BASE DITCH RT.
-TRD- STA. 20+00.00
EI = 561.00

END LAT. BASE DITCH LT.
-TRD- STA. 20+75.00
EI = 557.40

(+) 5.6054%

END LAT. BASE DITCH RT.
-TRD- STA. 23+00.00
EI = 574.00

PI = 25+00.00
EL = 584.79'
VC = 150'
K = 309
DS > 80 mph

END GRADE
-TRD- STA. 27+85.21 =
-Y304- STA. 29+83.34
ELEV. = 590.50'

PROPOSED GRADE
(+)1.5142%
(+)2.0000%
EXISTING GROUND

FOR -TRD- PLAN SEE SHTS. 48 & 49

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OLIVE BRANCH ROAD -Y305-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	217
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN CONSTRUCTION
-Y305- STA 23+70.00
ELEV = 555.86'

BEGIN GRADE
-Y305- STA 24+20.00
ELEV.= 555.80'

50' BLEND
TO EXIST.

PI = 26+20.00
EL = 557.00'
VC = 400'
K = 120
DS = 55 mph

PROPOSED GRADE

(-)10.1254% (+)0.6010%

(+)0.6010%

(+)3.9241% (-) 0.4151%

(-) 4.9000%

BEGIN LAT.V DITCH LT.
-Y305- STA.26+77.73
EI = 556.00

PI = 27+50.000
EI = 555.70

EXISTING GROUND

END LAT.V DITCH LT.
BEGIN LAT.BASE DITCH LT.
-Y305- STA.29+00.00
EI = 548.35

(-) 0.8593%

END LAT.BASE DITCH LT.
-Y305- STA.31+70.00
EI = 546.03

-Y305- STA.31+94.13 =
-Y317- STA.10+00.00
ELEV.= 576.45

PI = 34+10.00
EL = 588.00'
VC = 1,000'
K = 131
DS = 57 mph

(+)3.9241%

(-)13.7143%

-Y305- STA.35+00.00 =
-L- STA.858+08.54
ELEV.= 578.24'

23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00

620 610 600 590 580 570 560 550 540 530

PI = 41+10.00
EL = 562.00'
VC = 370'
K = 115
DS = 55 mph

END GRADE
-Y305- STA 43+00.00
ELEV.= 561.05'

END CONSTRUCTION
-Y305- STA 43+50.00
ELEV.= 560.93'

50' BLEND
TO EXIST.

PROPOSED GRADE

(-)13.7143%

EXISTING GROUND

(-)0.4995%

(-)0.4995% (-)0.2446%

(-) 0.3000%

BEGIN SP.CUT DITCH RT.
-Y305- STA.42+50.00
EI = 558.75

END SP.CUT DITCH RT.
-Y305- STA.43+60.00
EI = 558.42

FOR -Y305- PLAN SEE SHTS. 50,108 & 109

37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00

610 600 590 580 570 560 550 540 530 520

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SERVICE ROAD -Y317-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	218
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-Y317- STA. 10+00.00 =
-Y305- STA. 31+94.13
ELEV. = 576.45'

PI = 11+50.00
EL = 573.45'
VC = 250'
K = 75
DS = 48 mph

(-)12.0000%

(-)5.3163%

PI = 16+00.00
EL = 549.52'
VC = 300'
K = 78
DS = 45 mph

(-)5.3163%

(-)11.4611%

(-) 0.5072%

EXISTING GROUND

PROPOSED GRADE

BEGIN LAT.V. DITCH LT.
-Y317- STA.11+60.00
EI = 547+00.00

END LAT.V. DITCH LT.
-Y317- STA.16+88.38
EI = 544.32

590 580 570 560 550 540 530 520 510 500

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

PI = 24+09.15
EL = 537.70'
VC = 830'
K = 282
DS > 80 mph

(+)11.4783%

PROPOSED GRADE

EXISTING GROUND

PI = 35+59.15
EL = 554.70'
VC = 1,140'
K = 254
DS = 71 mph

(+)11.4783%

(-)13.0088%

580 570 560 550 540 530 520 510 500 490

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

FOR -Y317- PLAN SEE SHTS. 50 - 52 & 108

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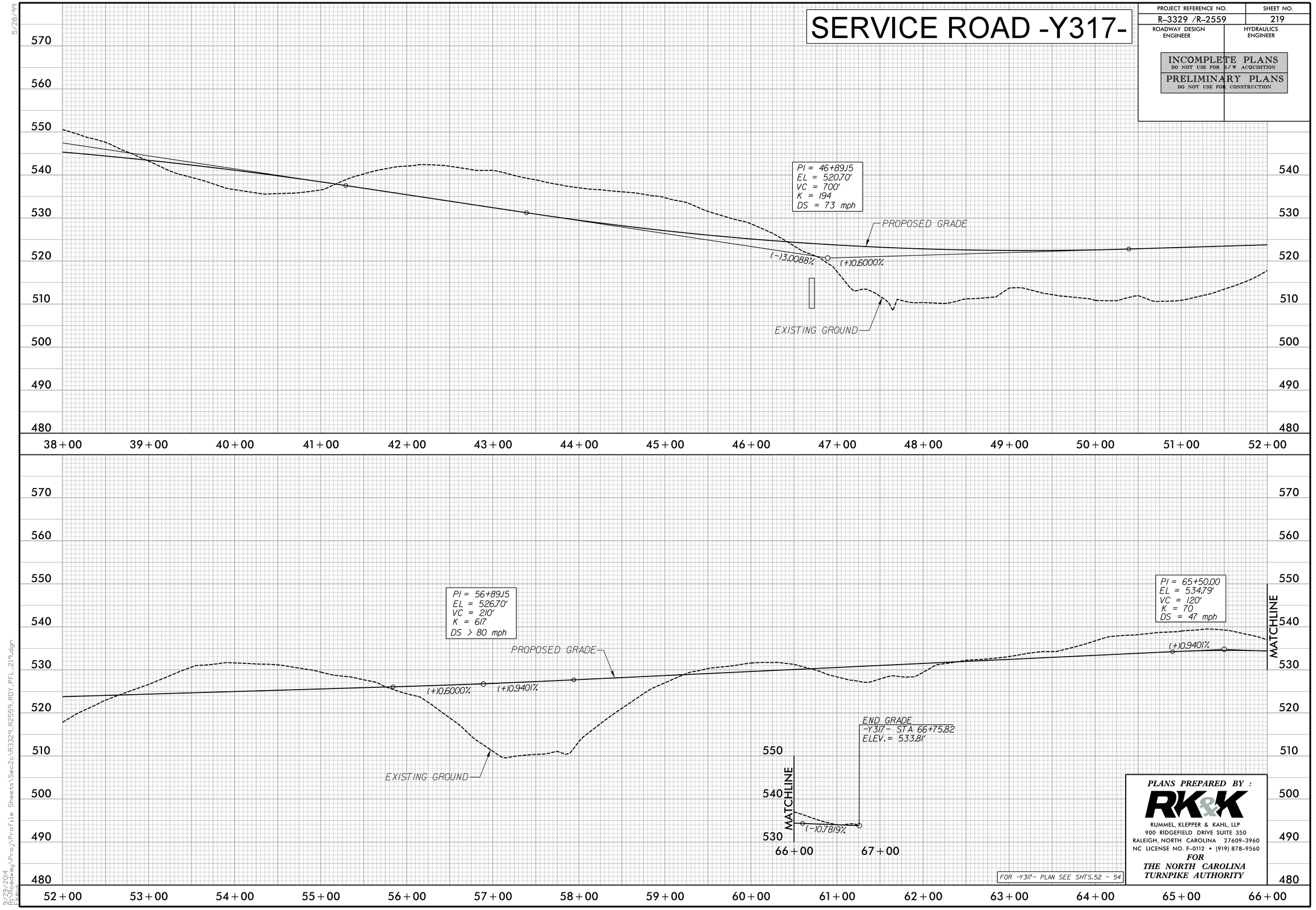
SERVICE ROAD -Y317-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	219
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y317- PLAN SEE SHTS.52 - 54

PLANS PREPARED BY :

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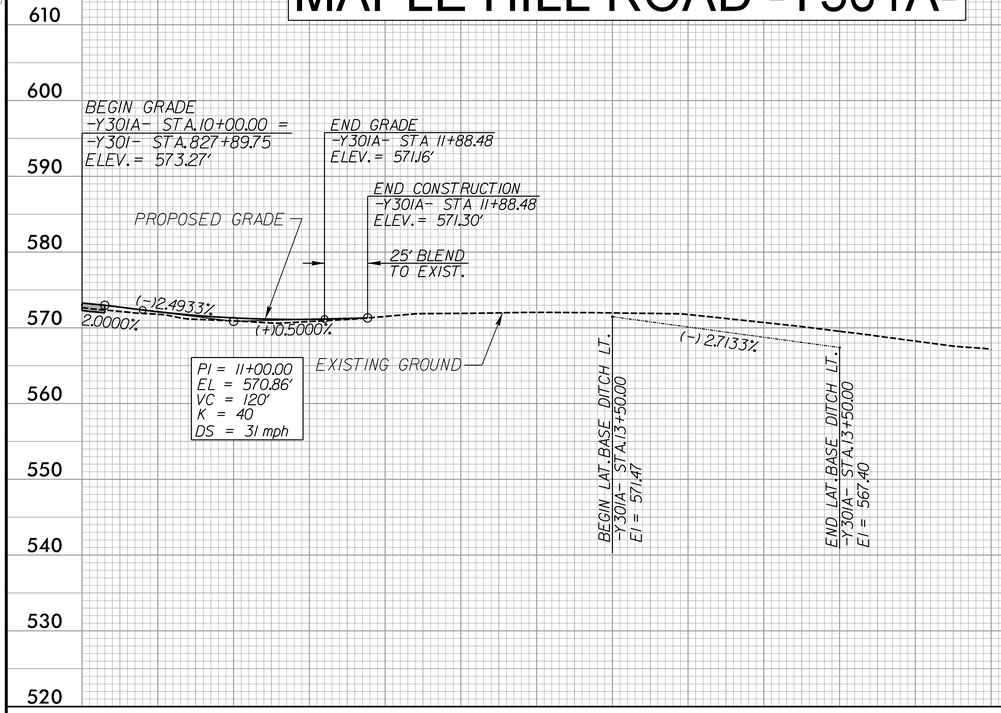
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	220
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

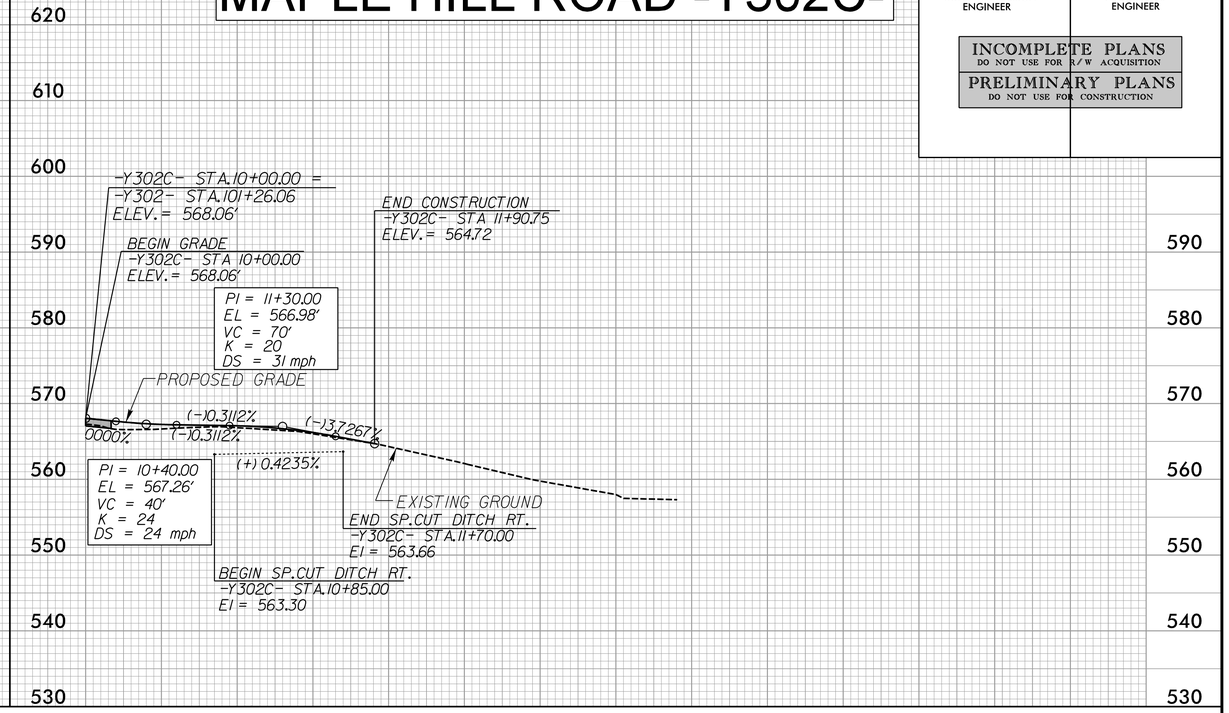
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

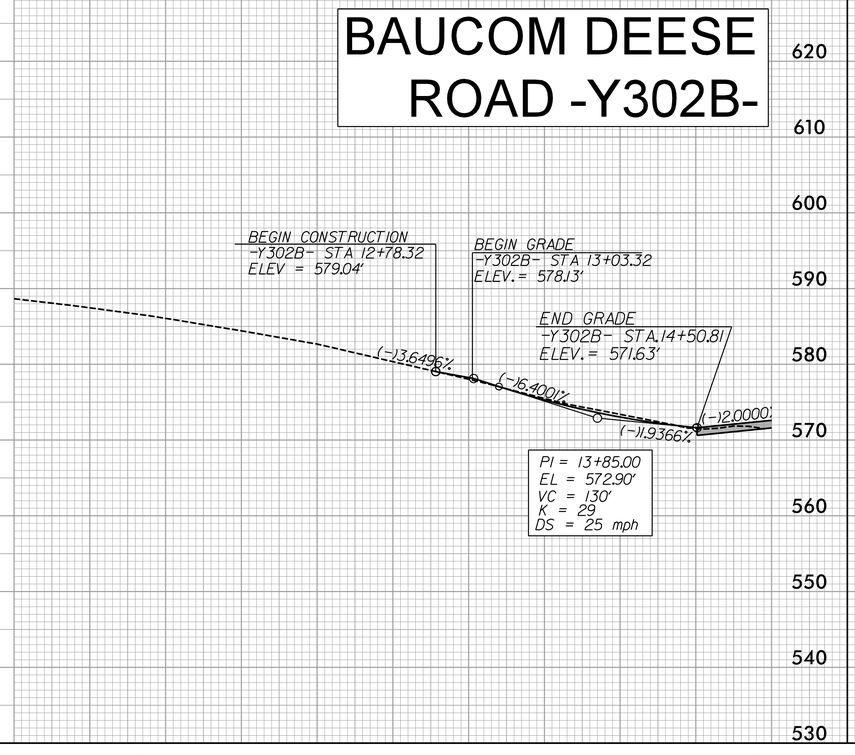
MAPLE HILL ROAD -Y301A-



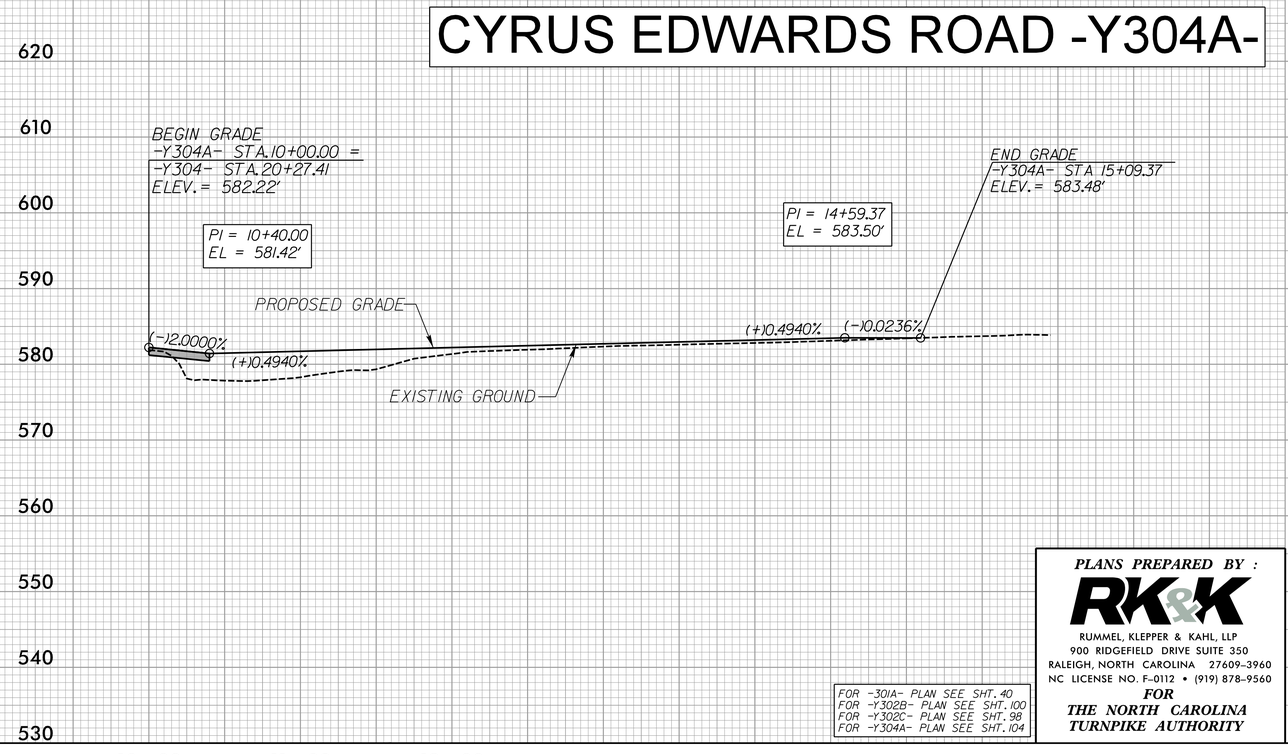
MAPLE HILL ROAD -Y302C-



BAUCOM DEESE ROAD -Y302B-



CYRUS EDWARDS ROAD -Y304A-



FOR -301A- PLAN SEE SHT. 40
FOR -Y302B- PLAN SEE SHT. 100
FOR -Y302C- PLAN SEE SHT. 98
FOR -Y304A- PLAN SEE SHT. 104

PLANS PREPARED BY :

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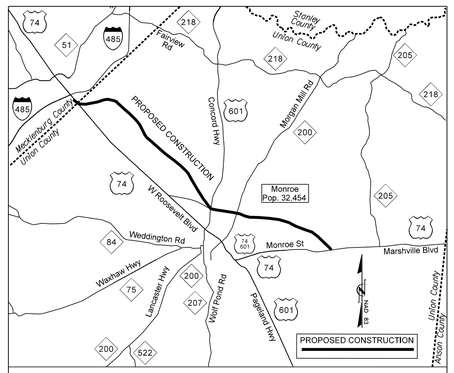
TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I–485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN–BUILD

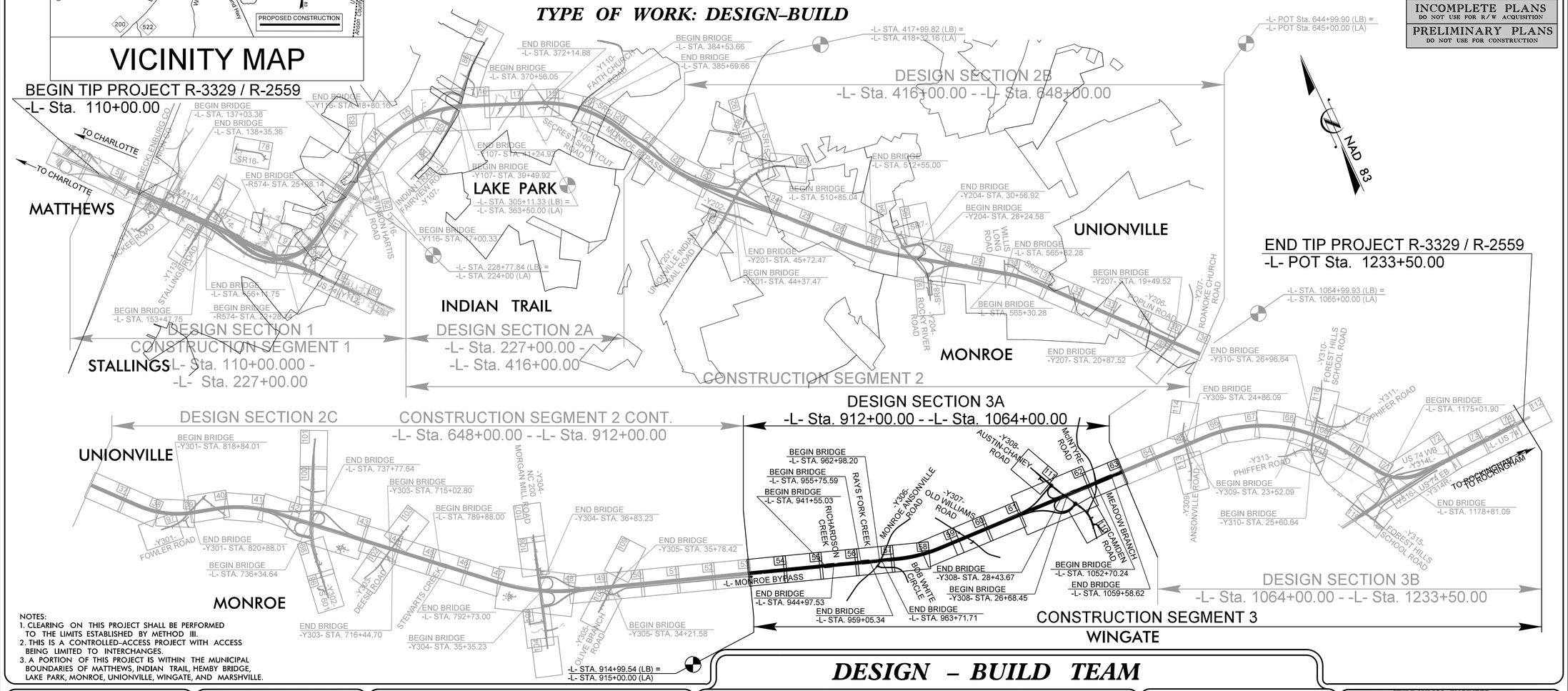
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R–3329 /R–2559	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

PERMIT APPLICATION
SUBMITTAL NO. S-099
DATE: 10-01-2014

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

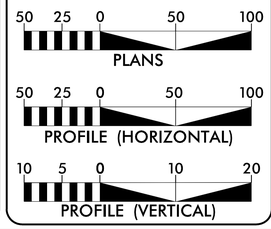
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

DESIGN – BUILD TEAM

GRAPHIC SCALES



DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R–3329 /R–2559..... 18.1 mi
LENGTH STRUCTURE TIP PROJECT R–3329 /R–2559..... *1.6 mi
TOTAL LENGTH TIP PROJECT R–3329 /R–2559..... 19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

PLANS PREPARED BY :

MULKEY
ENGINEERS & CONSULTANTS
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Raleigh, N.C. 27636
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NC LICENSE NO. C-1021

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*
ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

9/30/2014
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6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

A1	9″ PORTLAND CEMENT CONCRETE PAVEMENT	D11	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ OR GREATER THAN 4″ IN DEPTH.	J1	PROPOSED 6″ AGGREGATE BASE COURSE
C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E1	PROP. APPROX. 3″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	J2	PROPOSED 8″ AGGREGATE BASE COURSE
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.	E2	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J3	PROPOSED 9″ AGGREGATE BASE COURSE
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 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	E3	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	J4	PROPOSED 10″ AGGREGATE BASE COURSE
C4	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E4	PROP. APPROX. 7″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J5	PROPOSED VARIABLE DEPTH AGGREGATE BASE COURSE
C5	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.	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″ OR GREATER THAN 5.5″ IN DEPTH.	K1	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8″ OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7″
C6	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 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	E6	PROP. APPROX. 3″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ YD
C7	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E7	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2′-6″ CONCRETE CURB & GUTTER
C8	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E8	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R2	1′-6″ CONCRETE CURB & GUTTER
C9	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	E9	PROP. APPROX. 5.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R3	SHOULDER BERM GUTTER
C10	PROP. APPROX. 1.25″ ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS.PER SQ. YD.	E10	PROP. APPROX. 6″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	CONCRETE EXPRESSWAY GUTTER
D1	PROP. APPROX. 2.5″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E11	PROP. APPROX. 6.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	5″ MONOLITHIC CONCRETE ISLAND (KEYED IN)
D2	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E12	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.	R6	SINGLE FACED CONCRETE BARRIER
D3	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E13	PROP. APPROX. 9″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R7	DOUBLE FACED CONCRETE BARRIER (TYPE T, T1, T2)
D4	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 2.5″ OR GREATER THAN 4″ IN DEPTH.	E14	PROP. APPROX. 10.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R8	RUMBLE STRIPS
D5	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E15	PROP. APPROX. 11″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	S	4″ CONCRETE SIDEWALK
D6	PROP. APPROX. 2.5″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E16	PROP. APPROX. 3.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 199 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
D7	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E17	PROP. APPROX. 4.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT
D8	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 2.5″ OR GREATER THAN 4″ IN DEPTH.	E18	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″ OR GREATER THAN 5.5″ IN DEPTH.	V	SPLIT SEAL
D9	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E19	PROP. APPROX. 12.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 712.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W	WEDGING
D10	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	G1	8″ CEMENT TREATED AGGREGATE BASE COURSE	Z	NON WOVEN FIBERGLASS/POLYESTER INTERLAYER PAVING MAT

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/28/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

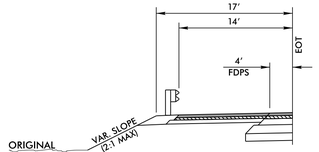
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
E2	4″ B25.0B
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
P	PRIME COAT
K1	8″ LIME BASE OR 7″ CEMENT BASE
R1	2′-6″ CURB & GUTTER
R2	1′-6″ CURB & GUTTER
R8	RUMBLE STRIPS
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

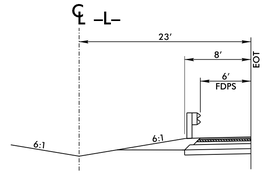
SHOULDER WIDENING DETAILS FOR –L–

SHOULDER WIDENING DETAIL FOR –L–

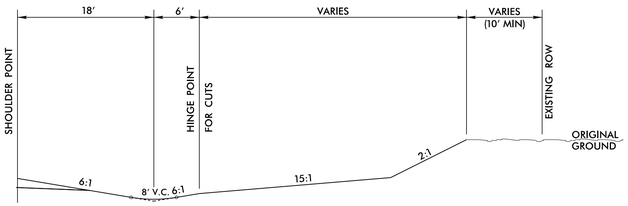


USE PARTIAL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)

DETAIL FOR PLACEMENT OF GUARDRAIL IN MEDIAN OF –L–



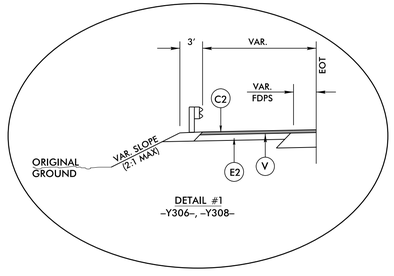
USE FULL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)



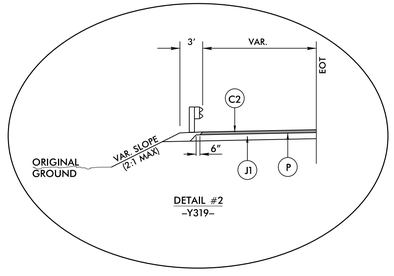
DETAIL FOR EXTRA CUT ON –L–

–L– STA. 929+25 TO 936+75 LT	–L– STA. 944+50 TO 947+75 RT
–L– STA. 969+25 TO 970+75 LT	–L– STA. 979+25 TO 986+75 RT
–L– STA. 973+25 TO 974+25 LT	–L– STA. 987+75 TO 989+75 RT
–L– STA. 982+75 TO 985+25 LT	–L– STA. 1012+75 TO 1015+25 RT
–L– STA. 989+25 TO 991+75 LT	–L– STA. 1024+75 TO 1027+75 RT
–L– STA. 1005+75 TO 1026+25 LT	–L– STA. 1028+25 TO 1039+25 RT
–L– STA. 1028+75 TO 1037+75 LT	–L– STA. 1043+75 TO 1050+25 RT
–L– STA. 1043+75 TO 1049+25 LT	

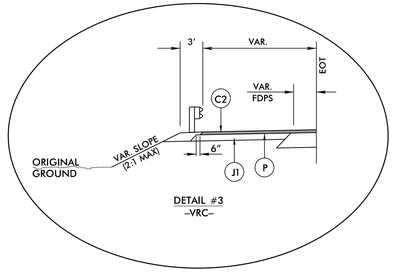
SHOULDER WIDENING DETAILS FOR Y–LINES & RAMPS



DETAIL #1
–Y306–, –Y308–

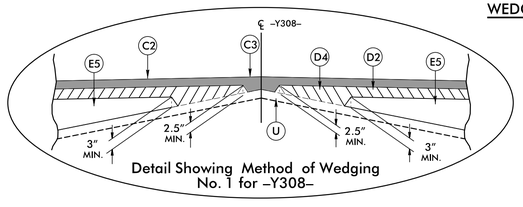


DETAIL #2
–Y319–

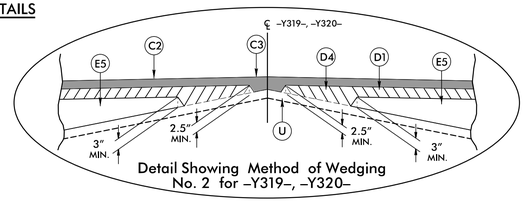


DETAIL #3
–VRC–

WEDGING DETAILS



Detail Showing Method of Wedging
No. 1 for –Y308–



Detail Showing Method of Wedging
No. 2 for –Y319–, –Y320–

PLANS PREPARED BY :
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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

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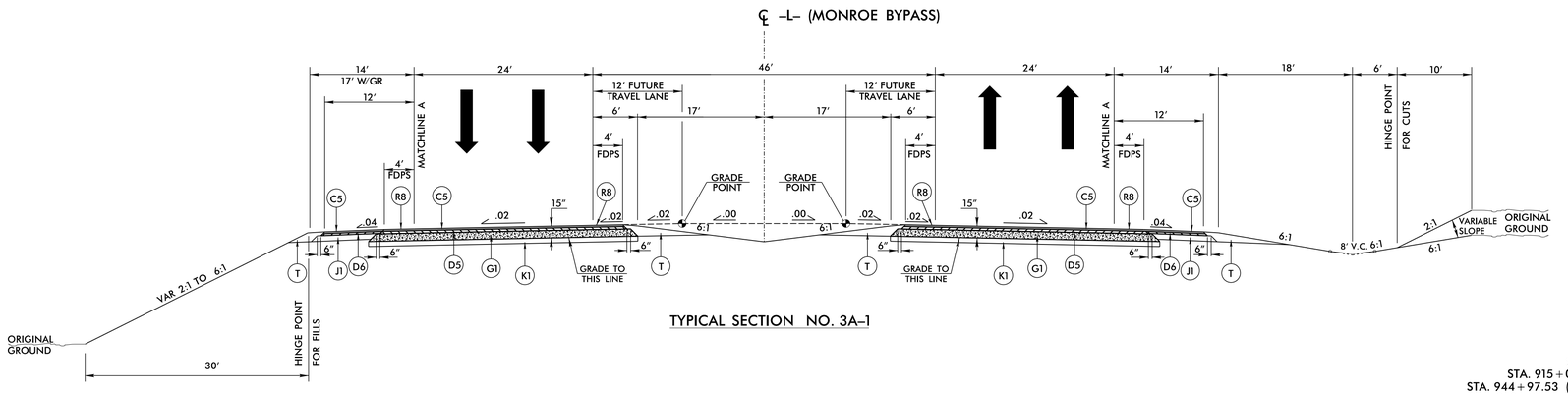
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

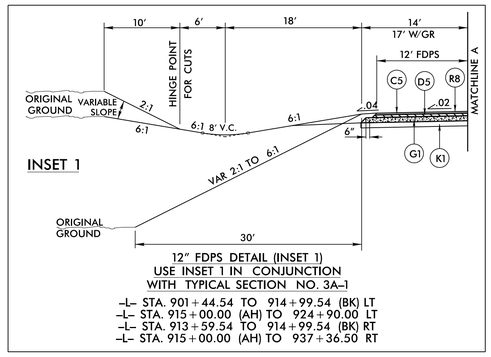
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
E2	4″ B25.0B
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
P	PRIME COAT
K1	8″ LIME BASE OR 7″ CEMENT BASE
R1	2′-6″ CURB & GUTTER
R2	1′-6″ CURB & GUTTER
R8	RUMBLE STRIPS
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

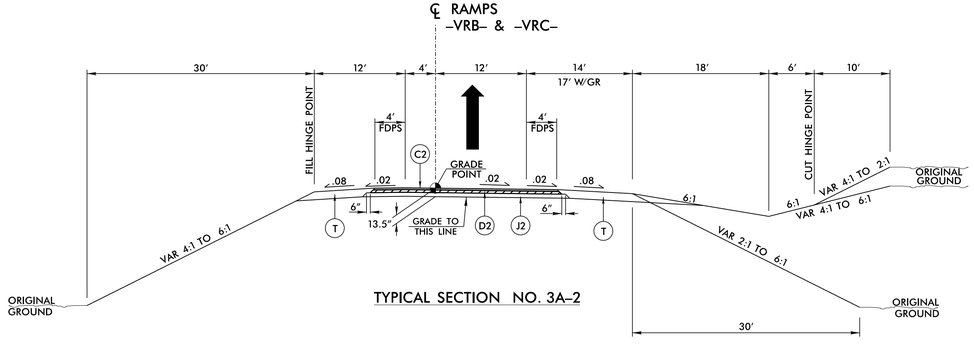


TYPICAL SECTION NO. 3A–1

USE TYPICAL SECTION NO. 3A–1
US 74 – MONROE BYPASS (–L–)
STA. 912+00.00 TO 914+99.54 BK
STA. 915+00.00 AH TO 941+55.03 (BEGIN BRIDGE LT)
STA. 944+97.53 (END BRIDGE LT) TO 955+67.26 (BEGIN BRIDGE LT)
STA. 958+98.41 (END BRIDGE LT) TO 962+97.37 (BEGIN BRIDGE LT)
STA. 963+72.62 (END BRIDGE LT) TO 1052+70.68 (BEGIN BRIDGE LT)
STA. 1059+75.00 (END BRIDGE LT) TO 1064+00.00



12″ FDPS DETAIL (INSET 1)
USE INSET 1 IN CONJUNCTION WITH TYPICAL SECTION NO. 3A–1
–L– STA. 901+44.54 TO 914+99.54 (BK) LT
–L– STA. 915+00.00 (AH) TO 924+90.00 LT
–L– STA. 913+59.54 TO 914+99.54 (BK) RT
–L– STA. 915+00.00 (AH) TO 937+36.50 RT



TYPICAL SECTION NO. 3A–2

USE TYPICAL SECTION NO. 3A–2
–VRB– STA 10+00.00 TO 26+42.55
–VRC– STA 10+00.00 TO 31+90.80

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–VRB– STA 10+00.00 TO 14+27.50
–VRC– STA 10+00.00 TO 14+30.91

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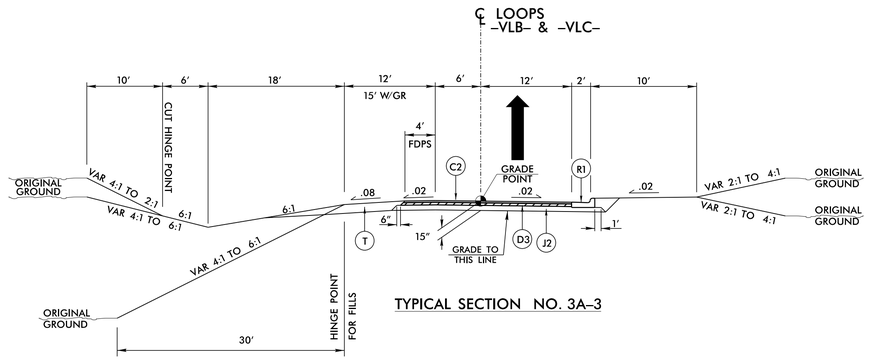
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
E2	4″ B25.0B
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
P	PRIME COAT
K1	8″ LIME BASE OR 7″ CEMENT BASE
R1	2′-6″ CURB & GUTTER
R2	1′-6″ CURB & GUTTER
R8	RUMBLE STRIPS
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

℄ LOOPS –VLB– & –VLC–



TYPICAL SECTION NO. 3A–3

USE TYPICAL SECTION NO. 3A–3

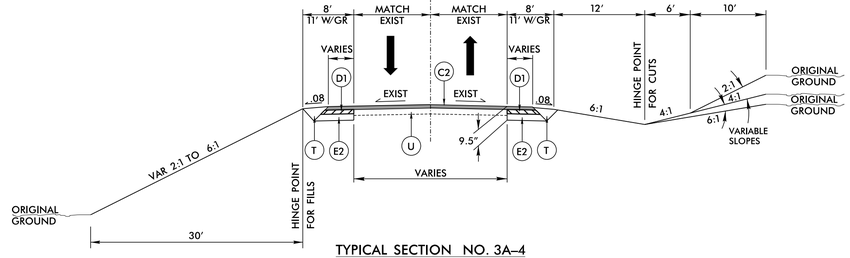
–VLB– STA 10+00.00 TO 18+51.09
–VLC– STA 10+00.00 TO 23+46.54

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
–VLB– STA 10+00.00 TO 12+35.84
–VLC– STA 10+00.00 TO 11+91.11

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

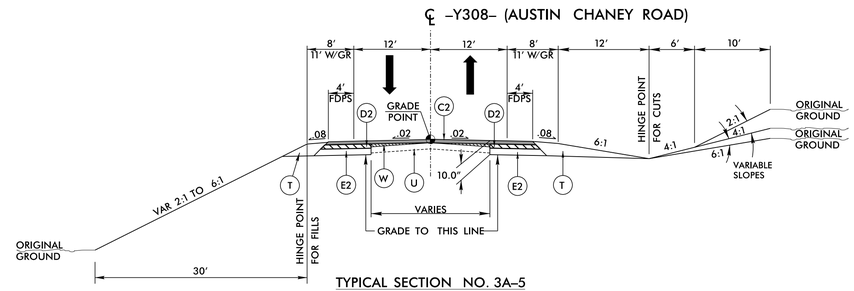
℄ –Y306– (MONROE ANSONVILLE ROAD)



TYPICAL SECTION NO. 3A–4

USE TYPICAL SECTION NO. 3A–4
MONROE ANSONVILLE ROAD (–Y306–)
STA. 27+66.00 TO 35+07.00

℄ –Y308– (AUSTIN CHANEY ROAD)



TYPICAL SECTION NO. 3A–5

USE TYPICAL SECTION NO. 3A–5
AUSTIN CHANEY ROAD (–Y308–)
STA. 10+50.82 TO 14+50.00
STA. 37+78.00 TO 41+50.00

PLANS PREPARED BY :

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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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Plans

6/2/99

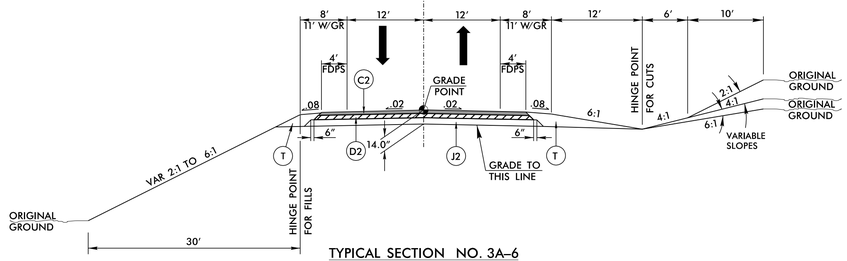
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
A1	9" PORTLAND CEMENT CONCRETE PAVEMENT
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D2	3" I19.0B
D3	4" I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
E2	4" B25.0B
G1	8" CTABC
J1	6" ABC
J2	8" ABC
P	PRIME COAT
K1	8" LIME BASE OR 7" CEMENT BASE
R1	2'-6" CURB & GUTTER
R2	1'-6" CURB & GUTTER
R8	RUMBLE STRIPS
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

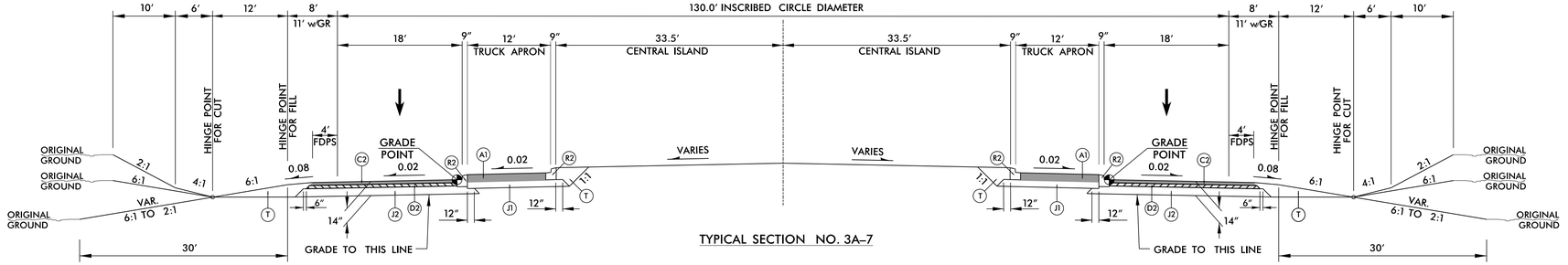
℄ –Y308– (AUSTIN CHANEY ROAD)



TYPICAL SECTION NO. 3A–6

USE TYPICAL SECTION NO. 3A–6
AUSTIN CHANEY ROAD (–Y308–)
STA. 14+50.00 TO 26+71.06 (BEGIN BRIDGE)
STA. 28+41.06 (END BRIDGE) TO 37+78.00

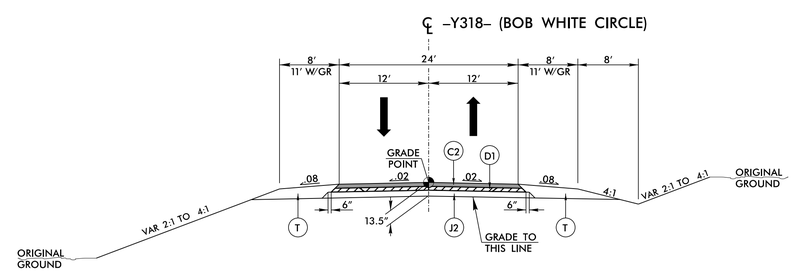
℄ ROUNDABOUTS
–Y308– (AUSTIN CHANEY ROAD)



TYPICAL SECTION NO. 3A–7

USE TYPICAL SECTION NO. 3A–7
AUSTIN CHANEY ROAD (–Y308–)
STA. 21+73.86 TO 23+02.86
STA. 33+58.22 TO 34+88.22

℄ –Y318– (BOB WHITE CIRCLE)



TYPICAL SECTION NO. 3A–8

USE TYPICAL SECTION NO. 3A–8
BOB WHITE CIRCLE (–Y318–)
STA. 15+75.00 TO 25+21.25

PLANS PREPARED BY :
MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
www.mulkeyinc.com
NC LICENSE NO. C-1021
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

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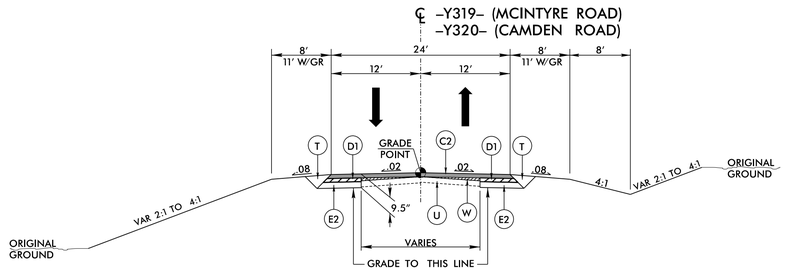
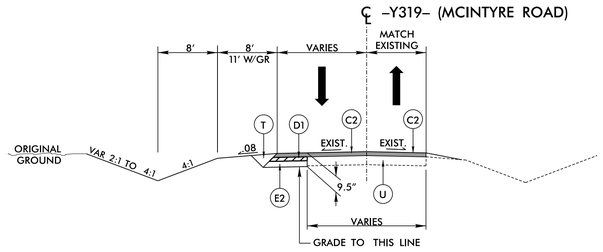
PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	4″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
E2	4″ B25.0B
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
P	PRIME COAT
K1	8″ LIME BASE OR 7″ CEMENT BASE
R1	2′-6″ CURB & GUTTER
R2	1′-6″ CURB & GUTTER
R8	RUMBLE STRIPS
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING

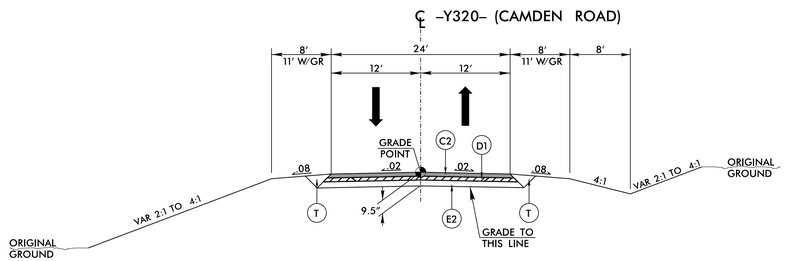
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 3A–9



TYPICAL SECTION NO. 3A–10



TYPICAL SECTION NO. 3A–11

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2E
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

USE TYPICAL SECTION NO. 3A–9
MCINTYRE ROAD (–Y319–)
STA. 10+13.54 TO 11+99.36
CAMDEN ROAD (–Y320–)
STA. 12+44.01 TO 14+00.00

USE TYPICAL SECTION NO. 3A–10
MCINTYRE ROAD (–Y319–)
STA. 20+03.00 TO 26+70.00

USE TYPICAL SECTION NO. 3A–11
CAMDEN ROAD (–Y320–)
STA. 14+00.00 TO 15+39.45

PLANS PREPARED BY :
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(919) 851-1912
(919) 851-1918 (FAX)
www.mulkeyinc.com
NC LICENSE NO. C-1021

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

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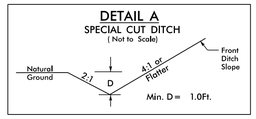
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

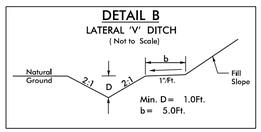
ENGLISH

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



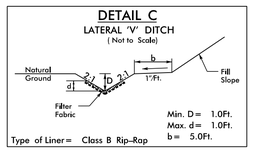
–L– STA. 973+75 TO STA. 974+50 LT
–L– STA. 986+50 TO STA. 987+50 RT
–L– STA. 1063+50 TO STA. 1064+00 LT
–Y320– STA. 13+50 TO STA. 14+60 RT

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



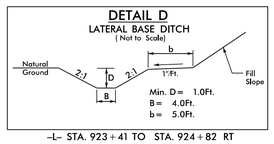
–L– STA. 965+00 TO STA. 965+39 LT
–Y306– STA. 29+50 TO STA. 30+00 RT
–Y318– STA. 16+00 TO STA. 16+50 LT
–Y318– STA. 24+17 TO STA. 24+75 RT
–L– STA. 977+75 TO STA. 978+20 LT
–L– STA. 1001+00 TO STA. 1001+75 LT
–Y308– STA. 30+25 TO STA. 31+75 LT
–L– STA. 1049+50 TO STA. 1052+00 LT
–L– STA. 1062+00 TO STA. 1063+73 RT

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



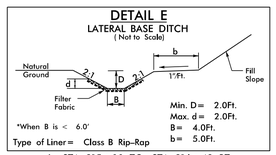
–L– STA. 924+82 TO STA. 925+00 RT
–L– STA. 928+58 TO STA. 928+88 LT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



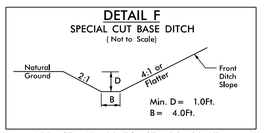
–L– STA. 923+41 TO STA. 924+82 RT
–L– STA. 955+00 TO STA. 955+50 LT
–L– STA. 959+50 TO STA. 961+50 RT
–L– STA. 985+00 TO STA. 986+35 LT
–L– STA. 992+50 TO STA. 993+97 LT
–L– STA. 1001+75 TO STA. 1002+60 LT
–VLC– STA. 20+75 TO STA. 22+40 LT
–L– STA. 1041+65 TO STA. 1043+00 LT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)



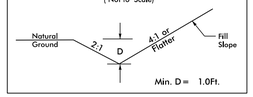
–L– STA. 915+00 TO STA. 916+43 RT
–L– STA. 916+43 TO STA. 917+00 RT
–L– STA. 923+40 TO STA. 923+85 LT
–L– STA. 929+58 TO STA. 930+59 RT
–L– STA. 937+15 TO STA. 939+50 LT
–L– STA. 939+50 TO STA. 942+10 LT
–L– STA. 939+15 TO STA. 941+05 RT
–L– STA. 946+35 TO STA. 947+20 LT
–L– STA. 954+70 TO STA. 955+00 LT
–L STA. 958+80 TO STA. 962+20 LT
–Y306– STA. 28+80 RT TO –L– STA. 966+25 RT
–L– STA. 975+54 TO STA. 977+30 LT
–L– STA. 976+20 TO STA. 979+00 RT
–L– STA. 981+44 TO STA. 982+50 LT
–L– STA. 993+55 TO STA. 998+00 RT
–L– STA. 993+97 TO STA. 998+50 LT
–L– STA. 1001+16 TO STA. 1003+00 RT
–L– STA. 1002+60 TO STA. 1003+15 LT
–Y308– STA. 21+50 TO STA. 25+35 RT
–Y308– STA. 20+50 LT TO –VRC– STA. 28+34 RT
–L– STA. 1039+00 RT TO –Y308– STA. 25+45 LT
–L– STA. 1041+65 TO STA. 1043+00 LT
–L– STA. 1059+30 TO STA. 1063+00 LT
–L– STA. 1060+00 TO STA. 1060+50 RT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



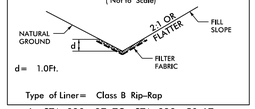
–VRB– STA. 17+00 TO STA. 26+30 LT
–Y308– STA. 35+00 TO STA. 36+50 LT
–VRB– STA. 18+50 TO STA. 23+50 RT

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



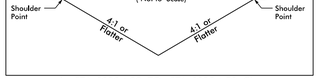
DETAIL G NOT USED IN SECTION 3A

DETAIL H
TOE PROTECTION
(Not to Scale)



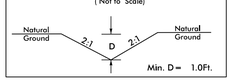
–L– STA. 928+97 TO STA. 929+50 LT
–L– STA. 964+50 TO STA. 965+00 LT
–Y308– STA. 31+75 TO STA. 32+50 LT
–L– STA. 1050+50 TO STA. 1051+50 RT
–L– STA. 1052+00 TO STA. 1052+68 LT

DETAIL I
MEDIAN 'V' DITCH
(Not to Scale)



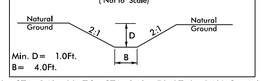
–L– STA. 1020+00 TO STA. 1023+50 CL

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



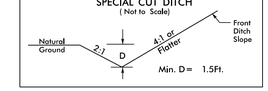
–Y318– STA. 23+70 TO STA. 24+00 LT
L = 35', S = 1.50%
BEG EL = 455.50, END EL = 456.03
–Y308– STA. 37+35 LT; L = 35', S = 2.77%
BEG EL = 549.74, END EL = 548.77
–Y308– STA. 28+91 RT; L = 55', S = 3.18%
BEG EL = 520.75, END EL = 519.00
–Y308– STA. 28+91 RT; L = 110', S = 7.27%
BEG EL = 519.00, END EL = 511.00

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



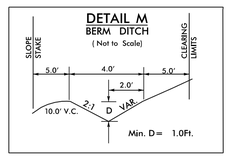
–L– STA. 942+10 TO STA. 943+50 LT; L = 140', S = 4.6%
BEG EL = 456.4, END EL = 450.0
–L– STA. 943+50 TO STA. 944+04 LT; L = 54', S = 1.9%
BEG EL = 450.0, END EL = 449.0
–L– STA. 955+50 TO STA. 956+82 LT; L = 132', S = 2.0%
BEG EL = 452.0, END EL = 449.36
–L– STA. 957+13 TO STA. 958+80 LT; L = 167', S = 2.65%
BEG EL = 449.55, END EL = 453.98
–L– STA. 957+50 TO STA. 958+00 RT; L = 50', S = 1.00%
BEG EL = 449.50, END EL = 450.00
–L– STA. 958+00 TO STA. 958+50 RT; L = 50', S = 3.00%
BEG EL = 450.00, END EL = 451.50
–L– STA. 958+50 TO STA. 959+50 RT; L = 100', S = 0.50%
BEG EL = 451.50, END EL = 452.00
–Y308– STA. 37+25 LT; L = 95', S = 1.5%
BEG EL = 549.74, END EL = 548.35
–Y319– STA. 23+12 RT; L = 45', S = 14.00%
BEG EL = 515.0, END EL = 508.7
–Y319– STA. 23+55 RT; L = 100', S = 0.50%
BEG EL = 508.7, END EL = 508.2

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



DETAIL L NOT USED IN SECTION 3A

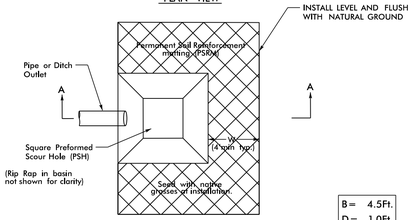
DETAIL M
BERM DITCH
(Not to Scale)



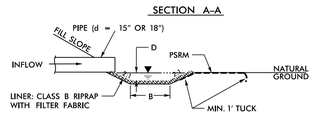
–L– STA. 913+25 TO STA. 913+75 LT
–L– STA. 919+25 TO STA. 921+00 LT
–L– STA. 1019+00 TO STA. 1020+00 LT
–VRC– STA. 14+50 TO STA. 15+60 RT
–VRC– STA. 20+40 TO STA. 21+00 RT

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE

PLAN VIEW

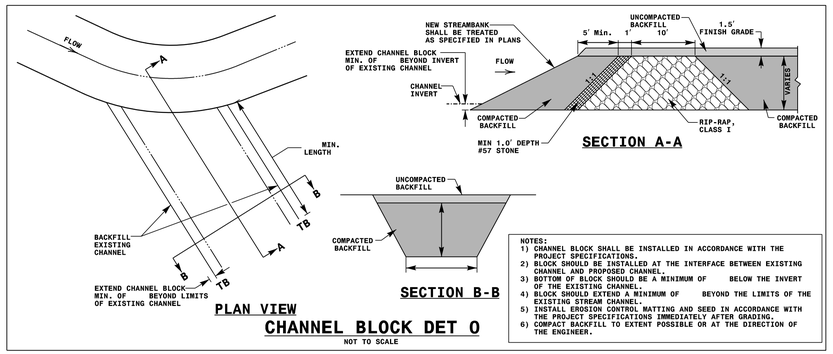


SECTION A–A



308

–L– STA. 945+65 LT
–L– STA. 979+00 LT
–L– STA. 1041+00 LT
–Y319– STA. 23+60 +/– RT

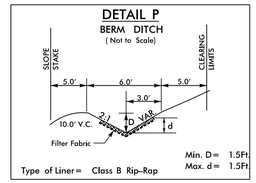


NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF 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.

CHANNEL BLOCK DET O
NOT TO SCALE

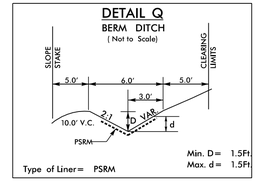
DETAIL O NOT USED IN SECTION 3A

DETAIL P
BERM DITCH
(Not to Scale)



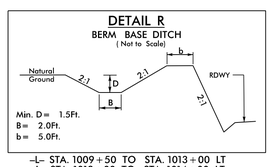
DETAIL P NOT USED IN SECTION 3A

DETAIL Q
BERM DITCH
(Not to Scale)



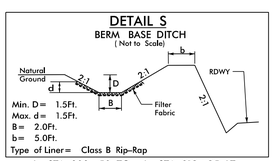
–L– STA. 921+00 TO STA. 921+80 LT
–L– STA. 930+50 TO STA. 933+80 LT

DETAIL R
BERM BASE DITCH
(Not to Scale)



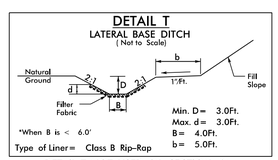
–L– STA. 1009+50 TO STA. 1013+00 LT
–L– STA. 1013+00 TO STA. 1014+00 LT
–L– STA. 1023+50 TO STA. 1027+00 LT
–VRB– STA. 16+70 TO STA. 17+00 LT

DETAIL S
BERM BASE DITCH
(Not to Scale)



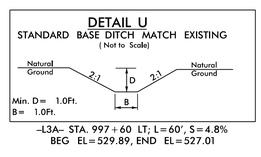
–L– STA. 909+50 TO –L– STA. 913+25 LT

DETAIL T
LATERAL BASE DITCH
(Not to Scale)



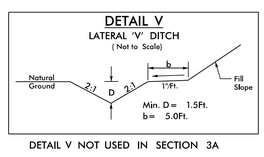
DETAIL T NOT USED IN SECTION 3A

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



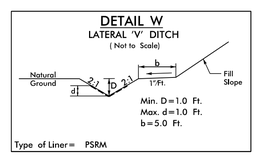
–L3A– STA. 997+60 LT; L = 60', S = 4.8%
BEG EL = 529.89, END EL = 527.01

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



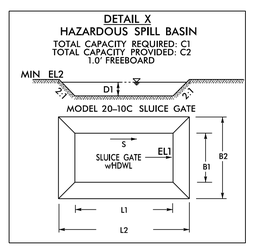
DETAIL V NOT USED IN SECTION 3A

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



–L– STA. 923+85 TO STA. 924+75 LT
–L– STA. 974+50 TO STA. 975+54 LT
–L– STA. 1000+00 TO STA. 1001+16 RT
–L– STA. 1042+30 TO STA. 1043+50 RT
–L– STA. 1060+50 TO STA. 1062+00 RT

DETAIL X
HAZARDOUS SPILL BASIN
TOTAL CAPACITY REQUIRED: C1
TOTAL CAPACITY PROVIDED: C2
1.0' FREEBOARD



DETAIL X NOT USED IN SECTION 3A

9/28/2014
R:\Survey\Projects\CADD\R3329_R2559_HYD_DitchDet_Sec03a.dgn
Eric Fleming

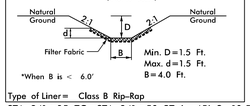
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3A-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ENGLISH

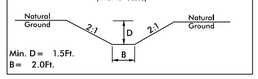
DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = Class B Rip-Rap

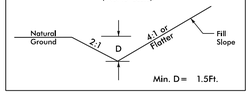
–L– STA. 941+05 TO STA. 941+50 RT; L = 45', S = 10.5%
BEG EL = 456.7, END EL = 452.0
–L– STA. 941+50 TO STA. 942+38 RT; L = 88', S = 4.6%
BEG EL = 452.0, END EL = 448.0
–L– STA. 1059+50 TO STA. 1060+00 RT
L = 50', S = 0.50%
BEG EL = 509.00, END EL = 509.25
–Y319– STA. 21+35 RT
L = 52', S = 0.40%
BEG EL = 510.20, END EL = 510.00

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



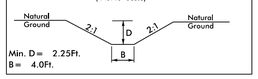
DETAIL Z NOT USED IN SECTION 3A

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



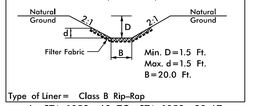
DETAIL AA NOT USED IN SECTION 3A

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



–VLC– STA. 15+00 LT; L = 305', S = 0.89%
BEG EL = 522.71, END EL = 522.00

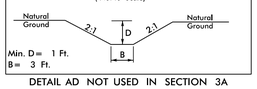
DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = Class B Rip-Rap

–L– STA. 1058+60 TO STA. 1059+30 LT
L = 70', S = 0.20%
BEG EL = 508.50, END EL = 508.58

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



DETAIL AD NOT USED IN SECTION 3A

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)

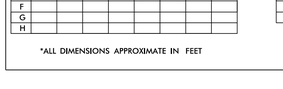
Type of Liner = Class B Rip-Rap

–L– STA. 1002+60 LT; L = 54', S = 3.43%
BEG EL = 530.35, END EL = 528.50
–L– STA. 1002+60 LT; L = 27', S = 1.00%
BEG EL = 528.50, END EL = 528.23
–Y308– STA. 30+00 RT; L = 214', S = 1.55%
BEG EL = 514.31, END EL = 511.00
–Y308– STA. 32+85 LT; L = 23', S = 0.30%
BEG EL = 518.04, END EL = 517.97

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)

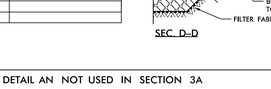
–Y308– STA. 10+08 RT; L = 120', S = 0.50%
BEG EL = 536.8, END EL = 536.2

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



–L– STA. 942+35 RT 6 TONS CL I; 7 SY FF
–L– STA. 944+07 LT 5 TONS CL I; 7 SY FF
–L– STA. 956+80 LT 6 TONS CL I; 7 SY FF
–L– STA. 957+13 LT 7 TONS CL I; 7 SY FF
–L– STA. 957+50 RT 18 TONS CL I; 18 SY FF
–Y308– STA. 29+51 RT 5 TONS CL I; 7 SY FF
–Y308– STA. 28+43 RT 5 TONS CL I; 7 SY FF
–Y308– STA. 25+45 LT 10 TONS CL I; 14 SY FF
–VRC– STA. 28+34 RT 10 TONS CL I; 14 SY FF

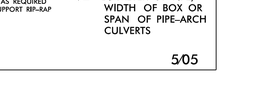
DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner = Class B Rip-Rap

–Y308– STA. 37+00 TO STA. 37+50 RT
–Y318– STA. 15+87 TO STA. 17+00 RT
–Y318– STA. 16+50 TO STA. 17+50 LT

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)

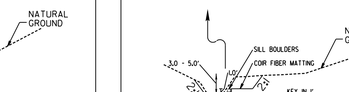


DETAIL AI NOT USED IN SECTION 3A

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)

–L– STA. 1042+30 TO STA. 1043+50 RT
–Y307– STA. 28+64 LT TO STA. 29+41 RT
–Y307– STA. 28+64 TO STA. 29+39 LT
–Y308– STA. 13+50 TO STA. 14+60 LT
–Y308– STA. 14+50 TO STA. 16+49 LT
–Y308– STA. 20+50 TO STA. 21+50 RT
–Y308– STA. 33+50 TO STA. 35+00 RT
–VLC– STA. 18+00 TO STA. 20+35 LT

DETAIL
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'

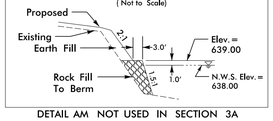
DETAIL AK
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

DETAIL AK NOT USED IN SECTION 3A

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)

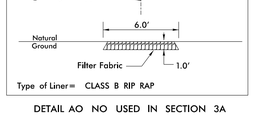
DETAIL AL NOT USED IN SECTION 3A

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



DETAIL AM NOT USED IN SECTION 3A

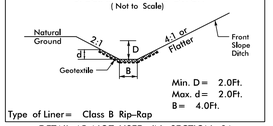
DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)



Type of Liner = CLASS B RIP RAP

DETAIL AO NO USED IN SECTION 3A

DETAIL AP
SPECIAL CUT BASE DITCH
(Not to Scale)

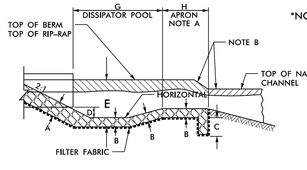


Type of Liner = Class B Rip-Rap

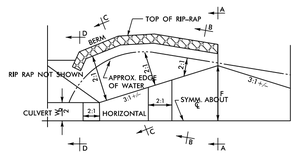
DETAIL AP NOT USED IN SECTION 3A

DETAIL AN
RIP–RAPPED ENERGY DISSIPATOR BASIN

℄ SECTION



HALF PLAN



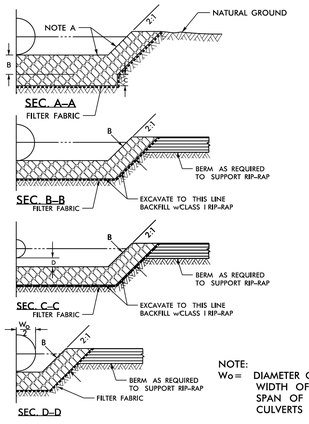
DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

*ALL DIMENSIONS APPROXIMATE IN FEET

BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A) = SPECIFIED VELOCITY.

*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

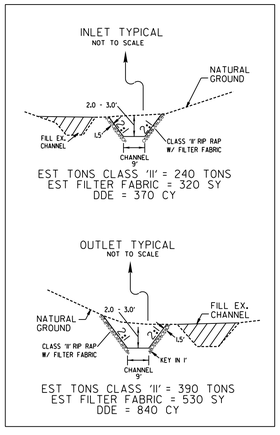


NOTE:
Wo = DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

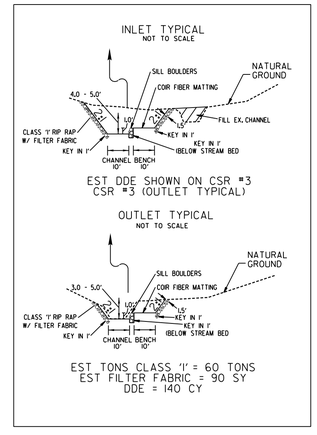
5/05

DETAIL AN NOT USED IN SECTION 3A

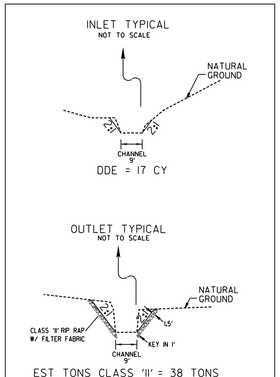
CORRESPONDS TO –L– 977+22 9'X7' RCBC



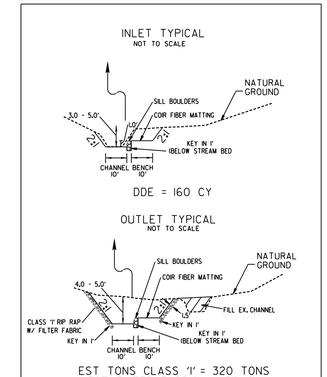
CORRESPONDS TO –L– 1041+25 2@10'X6' RCBC



CORRESPONDS TO –Y318– 15+85 9'X7' RCBC



CORRESPONDS TO –VRC– 28+46 2@10'X6' RCBC



9/28/2014
R:\Surfaces\CADD\R3329_R2559_HYD_DitchDet_Sec03a.dgn
Eileen

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	54
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

655
ROBERT GILES, ET ALS
DB 85 PG 192

652
EDWARDS TIMBER COMPANY, INC.
DB 607 PG 680
DB 766 PG 521

648
ROBERT H. MORRISON
DB 3708 PG 636

N 10°14'33" E 165.23'
S 82°38'03" E 511.01'
N 82°48'18" W 202.01'
S 82°53'52" E 708.34'
EIP
LOB SOIL
RUINS
8" WOOD

MATCHLINE -L- STA. 912+00 SEE SHEET 53

BEGIN SECT. 3A
-L- STA. 912+00.00

EQUATION:
Sta. 914+99.54 BK =
Sta. 915+00.00 AH

PROP. 48" WW FENCE

BERM BASE DITCH SEE DETAIL S
BERM DITCH SEE DETAIL M
LATERAL V DITCH SEE DETAIL B
STANDARD BASE DITCH SEE DETAIL AD
2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL V DITCH SEE DETAIL B
BERM DITCH SEE DETAIL M
BERM DITCH SEE DETAIL Q
3 TONS CL B RIPRAP W/10 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL E
LATERAL V DITCH SEE DETAIL AB

5421 BDO C
18" CAAP W/2 ELBOWS ROD & LUG
5422 2GI FS 12" F.D.P.S.
24" RCP-III
5426 2GI-A FS 4" P.S.
5423 915+00 S 70° 33' 38.8" E -L-
24" RCP-III 2GI-A GRAU 350 8.1
24" RCP-III
5424 2GI-A FS F C
5425 24" RCP-III
BEGIN F.D.P.S. +55.54
S 64° 55' 16.1" E
SEE SECTION 2C PLANS FOR -Y317- PROFILE INFO
-Y317- 30' R
-Y317- PT Sta. 66+29.13
-L- POT Sta. 912+70.00 (139.90' RT) =
-Y317- POT Sta. 66+75.82
EXISTING R/W
178

5401 2GI FS 15" RCP-III
5402 C 2 TONS CL B RIPRAP W/7 SY FIL FAB HW
5403 2GI FS S 70° 33' 38.8" E -L- GRAU 350 8.1
15" RCP-III
5404 2GI FS F 5 TONS CL B RIPRAP W/14 SY FIL FAB
48" RCP-III
5428 F C
5405 2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL E
LATERAL BASE DITCH SEE DETAIL E 26 TONS CL I RIPRAP W/50 SY FIL FAB
179

5407 2GI FS 15" RCP-IV
5408 2GI FS 15" RCP-III TYPE B-77 50.1
SINGLE FACED CONC. BARRIER
920+00
TYPE B-77
SINGLE FACED CONC. BARRIER
BEGIN SBG STA. 916+69
2GI 15" RCP-III 50.1
5406 TYPE B-77 END SBG STA. 918+75
PROP. 48" WW FENCE
180

5413 BDO C
15" CAAP W/2 ELBOWS ROD & LUG
5412 2GI 15" RCP-III
15" CAAP W/2 ELBOWS ROD & LUG
5409 2GI FS
GRAU 350 8.1
5411
925+00
BEGIN SBG STA. 923+50
8.1 15" RCP-III GRAU 350
5415 2GI FS
5414 2GI FS C
15" CAAP W/2 ELBOWS ROD & LUG
3 TONS CL B RIPRAP W/10 SY FIL FAB
LATERAL BASE DITCH SEE DETAIL E
20 TONS CL I RIPRAP W/39 SY FIL FAB

5410 C F HW
42" RCP-IV
5427 F C
END F.D.P.S. +90 12" P.S.
-BL-52 PINC
723+33.29
5419 2GI FS 4" P.S.
15" RCP-III
5416 2GI FS F
15" CAAP W/ 2 ELBOWS ROD & LUG
5411 2GI 8.1 F.D.P.S.
C END SBG STA. 925+12 C
2 TONS CL B RIPRAP W/7 SY FIL FAB
LATERAL V DITCH SEE DETAIL C
-BL-51 PINC
718+86.47

MATCHLINE -L- STA. 926+00 SEE SHEET 55

FOR -L- PROFILE SEE SHT. 149

EDWARDS TIMBER COMPANY
DB 607 PG 680
654

PLANS PREPARED BY :
MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
Raleigh, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
www.mulkeyinc.com
NC LICENSE NO. C-1021

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/29/2014
R:\Roadway\Proj\Plan Sheets\Sec3a\R3329_R2559_RDY_PSH_054.dgn
kevis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	55
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -L- STA. 926+00 SEE SHEET 54

MATCHLINE -L- STA. 940+00 SEE SHEET 56

652
EDWARDS TIMBER COMPANY, INC.
DB 607 PG 680
DB 766 PG 521

655
ROBERT GILES, ET ALS
DB 85 PG 192

WOODS

N 22°07'22" E
387.01'

-BL-53 PINC
725+37.35

-BL-54 PINC
727+81.20

-BL-55R PINC
732+07.53

-BL-56R PINC
735+13.79

BERM DITCH
SEE DETAIL Q

BERM DITCH
SEE DETAIL Q

PROP. 48" WW FENCE

BDO

LATERAL V DITCH
SEE DETAIL AB

2 TONS CL B RIPRAP
W/7 SY FIL FAB

15" RCP-III

TOE PROTECTION
SEE DETAIL H

42" RCP-III

18" CAAP W/2 ELBOWS
ROD & LUG

8' RCP-III

18" RCP-III

15" RCP-III

LATERAL BASE DITCH
SEE DETAIL E

CAT-1

BEGIN SBG STA. 938+59

TYPE M350

BEGIN SBG STA. 939+50

GRAU 350

END F.D.P.S. +36.50

3 TONS CL B RIPRAP
W/10 SY FIL FAB

13 TONS CL I RIPRAP
W/30 SY FIL FAB

930+00

935+00

-L- S 70° 33' 38.8" E

5501 5502 5503 5504 5505 5506 5507 5510 5511 5512 5513 5514 5515 5516 5517 5518

654
EDWARDS TIMBER COMPANY
DB 607 PG 680

N 22°07'22" E
213.93'

PLACED BY GIS

EIP

WOODS

655
ROBERT GILES, ET ALS
DB 85 PG 192

FOR -L- PROFILE SEE SHT.149

PLANS PREPARED BY :
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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

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E.Kelly

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	56
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

655
ROBERT GILES, ET ALS
DB 85 PG 192

658
NCDOT
DB 2053 PG 730

WOODS

RICHARDSON CREEK

MATCHLINE –L– STA. 940+00 SEE SHEET 55

MATCHLINE –L– STA. 954+00 SEE SHEET 57

PROP. 48" WW FENCE

END SBG STA. 941+55

END WW FENCE

LATERAL BASE DITCH SEE DETAIL E

STANDARD BASE DITCH SEE DETAIL K

2 TONS CL B RIPRAP W/7 SY FIL FAB

15" CAAP W/2 ELBOWS ROD & LUG

TYPE B–77

RIP RAP AT EMBANKMENT SEE DETAIL AG

BEGIN WW FENCE

945+00

PREFORMED SCOUR HOLE SEE DETAIL N

PSH

15 TONS CL I RIPRAP W/29 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL E

3 TONS CL B RIPRAP W/10 SY FIL FAB

SPECIAL GRADE

END SBG STA. 948+30

GRAU 350

-BL-60R PINC
748+66.23

-BL-61 PINC
751+03.54

2GI 15" RCP–III 2GI

18" RCP–III

15" RCP–III

FS

HW

BEGIN SBG STA. 945+53

TYPE M350

950+00

S 70° 33' 38.8" E

3GI–A

END SBG STA. 940+87

RIP RAP AT EMBANKMENT SEE DETAIL AG

LATERAL BASE DITCH SEE DETAIL E

2 TONS CL B RIPRAP W/7 SY FIL FAB

STANDARD BASE DITCH SEE DETAIL Y

CAT–1

END SBG STA. 944+93

BEGIN SBG STA. 944+85

BEGIN WW FENCE

-BL-57R PINC
740+55.35

-BL-58 PINC
743+07.61

-BL-59 PINC
746+15.48

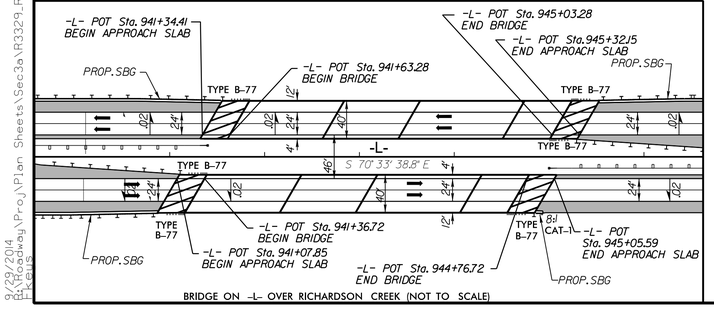
1 TONS CL B RIPRAP W/5 SY FIL FAB

PROP. 48" WW FENCE

H. F. WILLIAMS III, ET ALS
DB 913 PG 559

657
ROBERT GILES, ET ALS
DB 85 PG 192

FOR –L– PROFILE SEE SHT.150



BRIDGE ON –L– OVER RICHARDSON CREEK (NOT TO SCALE)

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	57
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PLANS PREPARED BY :

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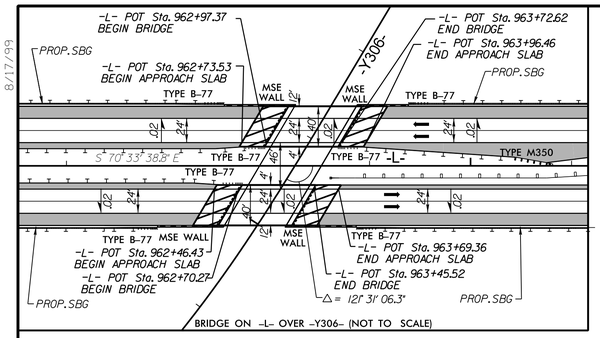
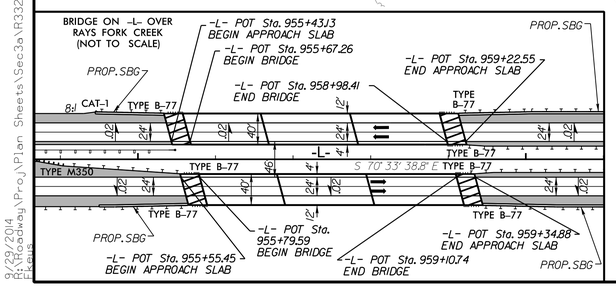


-Y306-

PIs Sta 25+40.02	PI Sta 27+72.31	PIs Sta 30+03.01	PIs Sta 33+51.50	PI Sta 35+34.55	PIs Sta 37+17.52
Θs = 5° 02' 31.3"	Δ = 14° 29' 57.5" (LT)	Θs = 5° 02' 31.3"	Θs = 0° 37' 48.9"	Δ = 3° 21' 14.4" (LT)	Θs = 0° 37' 48.9"
Ls = 220.00'	D = 4° 35' 01.2"	Ls = 220.00'	Ls = 110.00'	D = 1° 08' 45.3"	Ls = 110.00'
LT = 146.73'	L = 316.33'	LT = 146.73'	LT = 73.33'	L = 292.69'	LT = 73.33'
ST = 73.39'	T = 159.01'	ST = 73.39'	ST = 36.67'	T = 146.39'	ST = 36.67'
	R = 1,250.00'			R = 5,000.00'	
	SUPER = 0.08			SUPER = 0.04	
	DS = 60 MPH			DS = 65 MPH	

-Y306- CS Sta. 36+80.86
END CONSTRUCTION
-Y306- POC Sta. 35+25.00
-Y306- SC Sta. 33+88.16
END SBG STA. 33+81
-Y306- TS Sta. 32+78.16
-Y306- ST Sta. 31+49.62
BEGIN WW FENCE
-BY8-2R PINC 15+19.57
-BL- PINC 761+39.89
-BY9- POT 5+00.00
-L- POT Sta. 963+26.07
-Y306- POS Sta. 30+68.40
-BL-63 PINC
757+75.05
H. F. WILLIAMS III, ET ALS
DB 913 PG 559
NCDOT
DB 2053 PG 730
ED WILLIAMS MCLEAN, ET ALS
DB 201 PG 110
RAYS FORK CREEK
WOODS
NAD 83
GRAU 350
CHORD E
BEGIN SBG STA. 954+45
END SBG STA. 954+50
END WW FENCE
PROP. 48" WW FENCE
LATERAL BASE DITCH SEE DETAIL E
LATERAL BASE DITCH SEE DETAIL D
STANDARD BASE DITCH SEE DETAIL K
3 TONS CL B RIPRAP W/10 SY FIL FAB
2 TONS CL B RIPRAP W/7 SY FIL FAB
RIP RAP AT EMBANKMENT SEE DETAIL AG
18" CAAP W/2 ELBOWS ROD & LUG
15" CAAP W/2 ELBOWS ROD & LUG
END SBG STA. 955+33
BEGIN SBG STA. 959+13
BEGIN WW FENCE
END SBG STA. 962+56
END SBG STA. 961+90
END SBG STA. 29+76
BEGIN SBG STA. 959+45
BEGIN WW FENCE
END SBG STA. 955+65
END SBG STA. 28+69
-BL-62 PINC
752+91.66
-BL-64 PINC 759+98.66
-BY8- PINC 16+60.80
-Y306- CS Sta. 29+29.62
-Y306- POC Sta. 28+38.38
-Y318- POT Sta. 25+33.21
BEGIN CONSTRUCTION
-Y306- POC Sta. 27+66.00
-BY8-3 PINC
21+60.73
-Y306- TS Sta. 23+93.30
-Y306- SC Sta. 26+13.30
955+00
960+00
965+00
-L-
S 70° 33' 38.8" E
MONROE ANSONVILLE RD
-Y306-
N 74° 51' 13.2" E
N 30° 23' 14.3" W
N 50° 16' 13.2" E
-BL- 65 PINC
764+60.02
-BY9-1 PINC
9+34.95
BOB WHITE CIRCLE
-Y318-
N 65° 14' 05.4" W
-Y318- PC Sta. 23+22.17
-Y318- PT Sta. 25+04.63
-Y318- PT Sta. 19+13.94
RACHEL WILLIAMS MCLEAN HEIRS
DB 201 PG 110
TOE PROTECTION SEE DETAIL H
LATERAL V DITCH SEE DETAIL B
LATERAL V DITCH SEE DETAIL A
40 TONS CL I RIPRAP W/75 SY FIL FAB
END SBG STA. 967+00
BEGIN SBG STA. 964+39
END SBG STA. 966+30
BEGIN SBG STA. 963+87
END SBG STA. 962+00
BEGIN SBG STA. 960+00
MSE WALL
TYPE B-77
TYPE M350
CAT-1
TBDI
2GI
15" RCP-III
18" RCP-III
60" RCP-IV
PROP. 48" WW FENCE
PROP. SBG
EXISTING R/W
MATCHLINE -L- STA. 954+00 SEE SHEET 56
MATCHLINE -L- STA. 968+00 SEE SHEET 58
MATCHLINE -Y318- STA. 19+00 SEE SHEET 58



PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.150
FOR -Y306- PROFILE SEE SHT.225
FOR -318- PROFILE SEE SHT.225

-Y318-

PI Sta 16+42.54	PI Sta 24+16.32
Δ = 67° 57' 01.7" (LT)	Δ = 34° 50' 51.1" (RT)
D = 10° 48' 37.9"	D = 19° 05' 54.9"
L = 628.56'	L = 182.46'
T = 357.16'	T = 94.15'
R = 530.00'	R = 300.00'
SUPER = 0.05	SUPER = 0.042
DS = 30 MPH	DS = 20 MPH

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	58
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -L- STA. 968+00 SEE SHEET 57

MATCHLINE -L- STA. 982+00 SEE SHEET 59

MATCHLINE -Y318- STA. 19+00 SEE SHEET 57

-L- SC Sta. 971+10.22

-L- TS Sta. 968+60.22

PROP. 48" WW FENCE

ED WILLIAMS MCLEAN, ET ALS
DB 201 PG 110

RACHEL WILLIAMS MCLEAN HEIRS
DB 201 PG 110

WOODS

GRAU 350

62.5' TYP.

970+00

975+00

980+00

S 70° 33' 38.8" E

-BL-66 PINC
766+86.50

-BL-67 PINC
769+40.24

-BL-68 PINC
774+46.15

-BL-69 PINC
779+44.73

2 TONS CL B RIPRAP W/7 SY FIL FAB

8 TONS CL B RIPRAP W/21 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL E

LATERAL V DITCH SEE DETAIL W

LATERAL V DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL AH

BEGIN SBG STA. 977+19

15" CAAP W/2 ELBOWS ROD & LUG

PREFORMED SCOUR HOLE SEE DETAIL N

FILL

30" RCP-IV

42" RCP-IV

15" RCP-III

9'x7' RCBC

BOB WHITE CIRCLE -Y318-

BEGIN CONSTRUCTION
-Y318- POC Sta. 15+50.00

-L-			-Y318-
PIs Sta 970+26.89	PI Sta 978+49.93	PIs Sta 986+64.90	PI Sta 16+42.54
Θs = 1° 14' 44.0"	△ = 14° 39' 40.4" (LT)	Θs = 1° 14' 44.0"	△ = 67° 57' 01.7" (LT)
Ls = 250.00'	D = 0° 59' 47.2"	Ls = 250.00'	D = 10° 48' 37.9"
LT = 166.67'	L = 1,471.35'	LT = 166.67'	L = 628.56'
ST = 83.34'	T = 739.71'	ST = 83.34'	T = 357.16'
	R = 5,750.00'		R = 530.00'
	SUPER = 0.04		SUPER = 0.05
	DS = 75 MPH		DS = 30 MPH

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.151
FOR -Y318- PROFILE SEE SHT.225

PLANS PREPARED BY :
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ERLewis

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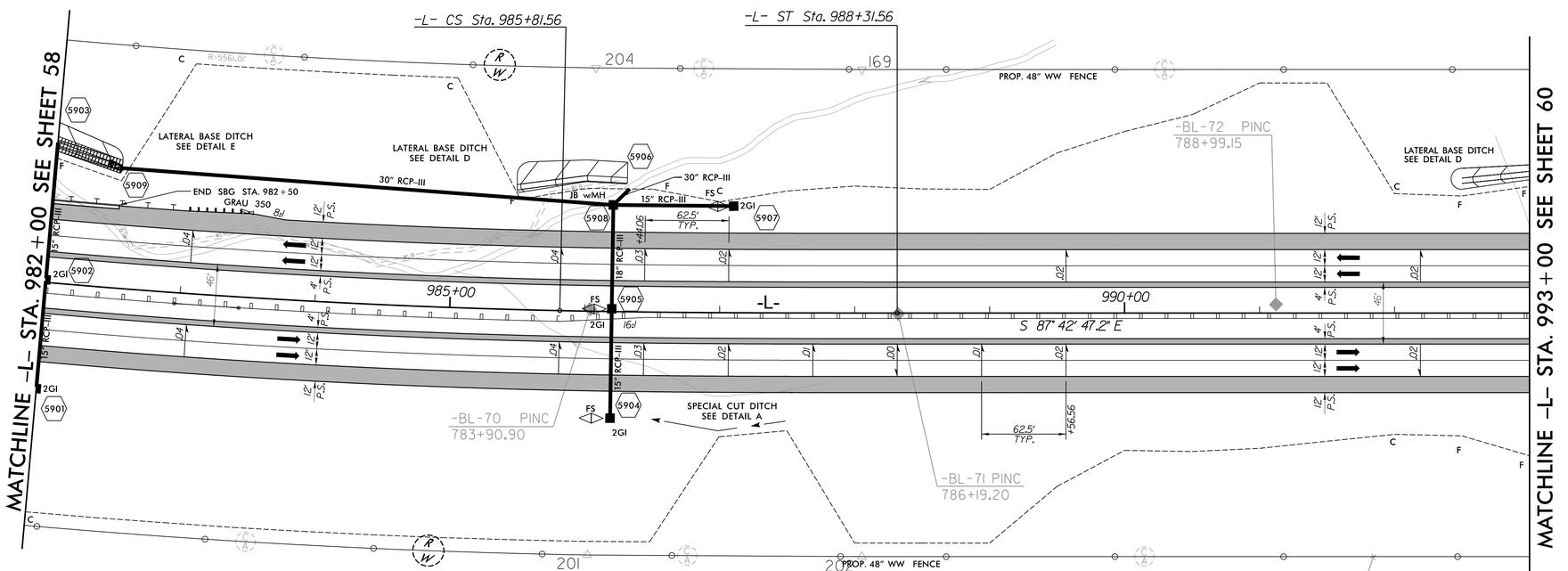
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	59
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83



-L-		
PIs Sta 970+26.89	PI Sta 978+49.93	PIs Sta 986+64.90
Θs = 1° 14' 44.0"	Δ = 14° 39' 40.4" (LT)	Θs = 1° 14' 44.0"
Ls = 250.00'	D = 0° 59' 47.2"	Ls = 250.00'
LT = 166.67'	L = 1,471.35'	LT = 166.67'
ST = 83.34'	T = 739.71'	ST = 83.34'
	R = 5,750.00'	
	SUPER = 0.04	
	DS = 70 MPH	

WOODS
WOODS
664
RACHEL WILLIAMS MCLEAN HEIRS
DB 201 PG 110
669
DAVID N. TUCKER
DB 887 PG 503
S 20°30'09" W
482.25'

FOR -L- PROFILE SEE SHT.151

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	60
R/W SHEET NO.	
ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE –L– STA. 993+00 SEE SHEET 59

MATCHLINE –L– STA. 1007+00 SEE SHEET 61

OLD WILLIAMS RD
-Y307-

N 35°09'19.4" W

END CONSTRUCTION
-Y307- POC Sta.29+41.42

CUL-DE-SAC
3.0" S9.5B
10.0" ABC
PRIME COAT

30' R

SPECIAL CUT DITCH
SEE DETAIL AJ

TES

DAVID N. TUCKER
DB 887 PG 503

BILLY A. WILLIAMS
DONALD RAY WILLIAMS
DB 469 PG 520

-BL-73 PINC
92+22.55

-BL-75R PINC
804+61.39

-BL-74 PINC 795+71.22
-BYI0- PINC 24+28.71

R-2559B-I3R
PINC 26+86.40

STANDARD BASE DITCH
SEE DETAIL U

STANDARD BASE DITCH
SEE DETAIL AE

LATERAL BASE DITCH
SEE DETAIL D

LATERAL BASE DITCH
SEE DETAIL E

LATERAL V DITCH
SEE DETAIL B

LATERAL V DITCH
SEE DETAIL W

PROP. 48" WW FENCE

REMOVE

2 TONS CL B RIPRAP
W/7 SY FIL FAB

10 TONS CL B RIPRAP
W/13 SY FIL FAB

15" RCP-III

42" RCP-III

24" RCP-III

18" RCP-III

20 TONS CL I RIPRAP
W/39 SY FIL FAB

32 TONS CL I RIPRAP
W/67 SY FIL FAB
ON BANKS ONLY

5 TONS CL B RIPRAP
W/14 SY FIL FAB

995+00

1000+00

1005+00

-L-
S 87° 42' 47.2" E

-Y307- PT Sta. 23+35.54

BEGIN CONSTRUCTION
-Y307- POC Sta.22+12.92

-Y307- PC Sta. 20+91.09

N 23° 49' 05.3" W

-Y307-
PI Sta 22+13.59
Δ = 9° 20' 14.1" (LT)
D = 3° 49' 11.0"
L = 244.45'
T = 122.50'
R = 1,500.00'
SUPER = EXIST.

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHT.151 & 152

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -L- STA. 1007+00 SEE SHEET 60

MATCHLINE -L- STA. 1021+00 SEE SHEET 62

675
BILLY A. WILLIAMS
DONALD RAY WILLIAMS
DB 469 PG 520

676
ROBERT HENRY
TOMBERLIN, ET ALS
DB 1133 PG 47

682
VIVIAN A. CHANEY
DB 829 PG 738

673
BILLY A. WILLIAMS
DONALD RAY WILLIAMS
DB 469 PG 520

679
JOHN WINFRED HUNTLEY
AND BELINDA ANN HUNTLEY
DB 1376 PG 280

678
ROBERT HENRY
TOMBERLIN, ET ALS
DB 1133 PG 47

WOODS

STONE

EIP

3" WW & 2SBW

W 44°45'26" W
308.53'

S 44°15'43" W
15.48'

W 44°10'32" E
658.40'

-VRB- TS Sta. 10+00.00
-L- POT Sta.1020+62.00
(47.0' LT.)

300' TAPER

600' ACCELERATION

PROP. 48" WW FENCE

BERM DITCH
SEE DETAIL R

BERM DITCH
SEE DETAIL M

BDO

30" CAAP W/2 ELBOWS
ROD & LUG

15" CAAP W/2 ELBOWS
ROD & LUG

-BL-77 PINC
815+90.42

-BL-76 PINC
811+43.45

1010+00

1015+00

1020+00

-L-
S 87° 42' 47.2" E

6012 2GI
6008 2GI
6011 2GI
6101
6102 FS 2GI
6103 FS 2GI-A
6104 FS 2GI
6105
6106 FS 2GI
6107 FS SPECIAL 2GI-A
6108 FS 2GI

15" RCP-III
18" RCP-II
30" RCP-III
36" RCP-III
18" RCP-III
15" RCP-III

12' P.S.
4' P.S.
46'
.02

FOR -L- PROFILE SEE SHT.152
FOR -VRB- PROFILE SEE SHT.222

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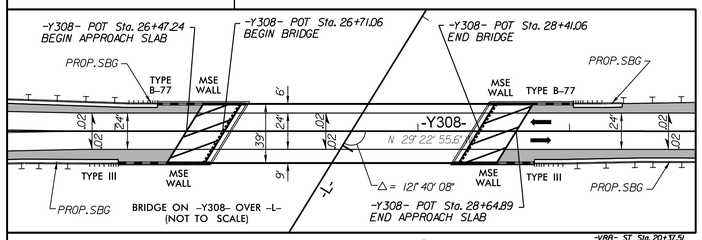
REVISIONS

-VRB-			-VLB-		
Pts Sta 11+26.69	Pt Sta 15+27.46	Pts Sta 19+10.86	Pts Sta 12+04.65	Pt Sta 15+59.84	Pts Sta 17+39.79
θs = 3°01'26.2"	Δ = 127°55'45.3" (LT)	θs = 3°01'26.2"	θs = 37°22'00.5"	Δ = 96°58'21.5" (RT)	θs = 18°41'00.3"
Ls = 190.00'	D = 3°01'59.2"	Ls = 190.00'	D = 24°54'40.4"	D = 24°54'40.4"	Ls = 150.00'
LT = 126.69'	L = 657.54'	LT = 126.69'	L = 300.00'	L = 389.27'	LT = 100.56'
ST = 63.35'	T = 332.46'	ST = 63.35'	LT = 184.65'	T = 259.84'	ST = 50.5'
	R = 1,900.00'		ST = 104.24'	R = 230.00'	
	SUPER = 0.01'			SUPER = 0.08	
	DS = 55 MPH			DS = 30 MPH	



MATCHLINE -Y308- STA. 36+00 SEE SHEET 111

MATCHLINE -L- STA. 1021+00 SEE SHEET 61

MATCHLINE -L- STA. 1050+00 SEE SHEET 63

MATCHLINE -Y308- STA. 20+00 SEE SHEET 110

MATCHLINE -Y319- STA. 14+80 SEE SHEET 110

-VRB- ST Sta. 20+37.51

-VRB- CS Sta. 18+47.51

-VRB- SC Sta. 11+90.00

-VRC- SC Sta. 12+90.00

-VRC- TS Sta. 11+00.00

-VRC- POT Sta. 10+00.00
-L- POT Sta. 1021+67.32
(47.0' RT.)
Δ = 3°00'00.0"

-VRC- CS Sta. 21+21.95

-VRC- SRS Sta. 23+11.95

-VRC- SC Sta. 24+81.95

-VLB- ST Sta. 18+39.29

-VLB- CS Sta. 15+89.27

-VLB- SC Sta. 13+00.00

-VLB- TS Sta. 10+00.00
-L- Sta. 1037+84.21
(47.0' LT.)

-VLC- SC Sta. 11+50.00

-VLC- PT Sta. 22+40.78

-L- POT Sta. 1039+89.06
-Y308- POT Sta. 27+56.06

-VLC- TS Sta. 10+00.00
(47.0' RT.)

-VLC- CS Sta. 15+96.20

-VLC- SC Sta. 17+46.20

-Y308- POT Sta. 34+34.15
-VRB- POT Sta. 27+06.62

-Y308- POT Sta. 34+12.15
-VLB- POT Sta. 19+15.14

-Y308- POT Sta. 33+75.47
-Y308NRAB- PC Sta. 10+00.00 AH=
-Y308NRAB- PCC Sta. 13+00.02 BK

-Y308- ST Sta. 33+19.68

-Y308- CS Sta. 32+47.68

-Y308- SC Sta. 30+06.87

-Y308- TS Sta. 29+34.87

-Y308- ST Sta. 20+83.42

-VRC- PT Sta. 30+42.09

-Y308SRAB- PCC Sta. 12+09.26

-Y308- POT Sta. 22+49.92
-VLC- POT Sta. 24+09.53

-Y308- POT Sta. 22+27.81
-VRC- POT Sta. 32+53.94

-Y308- POT Sta. 21+91.11
-Y308SRAB- PC
Sta. 10+00.00 AH=
-Y308SRAB- PCC
Sta. 13+00.02 BK

-Y308SRAB-		-Y308NRAB-	
PI Sta 10+66.83	PI Sta 12+76.09	PI Sta 10+60.28	PI Sta 12+74.23
Δ = 257°05'20.0" (LT)	Δ = 138°54'40.0" (LT)	Δ = 256°46'00.0" (LT)	Δ = 103°13'59.9" (LT)
D = 119°59'28.2"	D = 119°59'28.2"	D = 119°59'28.2"	D = 119°59'28.2"
L = 269.06	L = 90.17'	L = 213.99'	L = 86.02'
T = 66.83'	T = 66.83'	T = 60.28'	T = 60.28'
R = 47.75'	R = 47.75'	R = 47.75'	R = 47.75'
SUPER = 0.02	SUPER = 0.02	SUPER = 0.02	SUPER = 0.02
DS = 20 MPH	DS = 20 MPH	DS = 20 MPH	DS = 20 MPH

-Y319-									
Pts Sta 11+00.56	Pt Sta 14+85.61	Pts Sta 16+61.89	Pt Sta 20+10.46	Pts Sta 12+58.85	Pts Sta 15+21.66	Pts Sta 17+71.44	Pts Sta 29+82.87	Pt Sta 31+27.31	Pts Sta 32+71.68	Pts Sta 17+08.12
θs = 18°41'00.3"	Δ = 111°09'11.3" (LT)	θs = 7°32'48.5"	θs = 49°58'40.1" (LT)	θs = 4°02'39.9"	θs = 28°55'01.8" (LT)	θs = 4°02'39.9"	θs = 17°32'23.5"	θs = 7°36'43.0" (RT)	θs = 17°32'23.5"	Δ = 12°03'47.3" (LT)
Ls = 150.00'	D = 24°54'40.4"	Ls = 150.00'	D = 17°06'18.3"	Ls = 158.00'	D = 4°48'53.2"	Ls = 158.00'	Ls = 72.00'	D = 1°29'59.6"	Ls = 72.00'	D = 3°26'53.8"
LT = 100.56'	L = 446.29'	LT = 86.90'	L = 494.58'	LT = 112.03'	L = 600.59'	LT = 112.03'	LT = 48.07'	L = 240.06'	LT = 48.07'	L = 345.83'
ST = 50.5'	T = 335.6'	ST = 65.69'	T = 264.26'	ST = 56.03'	T = 306.84'	ST = 56.03'	ST = 24.00'	R = 1,820.00'	ST = 24.00'	T = 173.56'
	R = 230.00'		R = 567.00'		R = 1,190.00'			SUPER = 0.03		R = 1,866.56'
	SUPER = 0.08		SUPER = 0.06		SUPER = 0.07			DS = 50 MPH		SUPER = EXIST.
	DS = 30 MPH		DS = 30 MPH		DS = 50 MPH					

TRAFFIC DIAGRAM

ADT 2013
ADT 2035

-Y308-: 8,500 / 14,200

-L-: 11,600 / 24,800 | 400 / 1,200 | 1,300 / 2,000 | 10,500 / 19,600

MONROE BYPASS: 2,200 / 6,200 | 200 / 200

AUSTIN CHANEY RD.: 9,200 / 17,400

FOR ROUNDABOUT DETAILS, SEE SHEETS 3A-21 & 3A-21

FOR -L- PROFILE SEE SHT. 152 & 153
FOR -Y308- PROFILE SEE SHT. 221
FOR -VLB- PROFILE SEE SHT. 223
FOR -VRB- PROFILE SEE SHT. 222
FOR -VLC- PROFILE SEE SHT. 224
FOR -VRC- PROFILE SEE SHT. 223 & 224

PAVEMENT REMOVAL

GRAPHIC SCALE
50 25 0 50 100
PLANS

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FOR
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	62

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

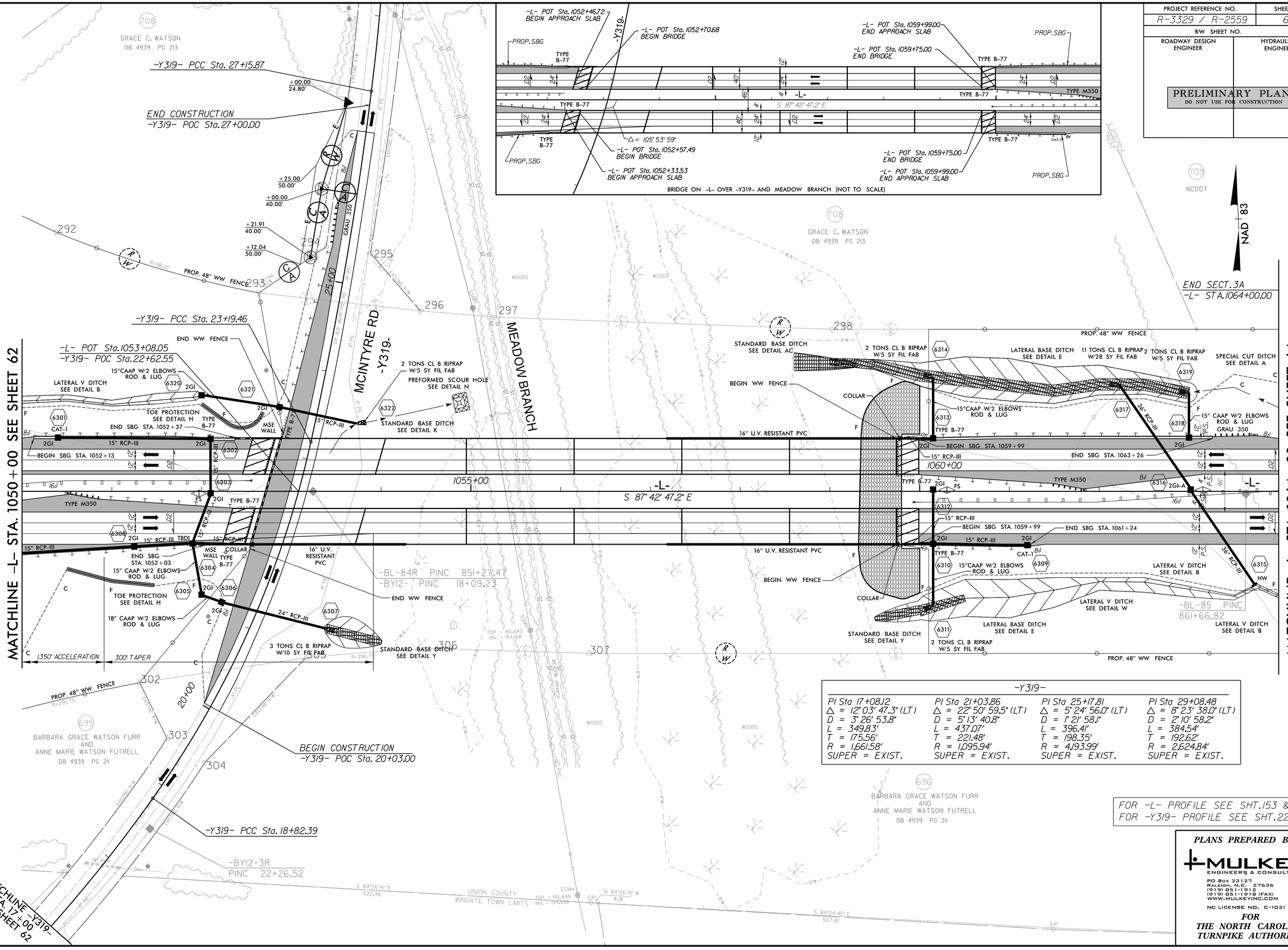
NAD 83

2/27/2014

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y319-			
PI Sta 17+08.12	PI Sta 21+03.86	PI Sta 25+17.81	PI Sta 29+08.48
Δ = 12° 03' 47.3" (LT)	Δ = 22° 50' 59.5" (LT)	Δ = 5° 24' 56.0" (LT)	Δ = 8° 23' 38.0" (LT)
D = 3° 26' 53.8"	D = 5° 13' 40.8"	D = 1° 21' 58.1"	D = 2° 10' 58.2"
L = 349.83'	L = 437.07'	L = 396.41'	L = 384.54'
T = 175.56'	T = 221.48'	T = 198.35'	T = 192.62'
R = 1,661.58'	R = 1,095.94'	R = 4,193.99'	R = 2,624.84'
SUPER = EXIST.	SUPER = EXIST.	SUPER = EXIST.	SUPER = EXIST.

FOR -L- PROFILE SEE SHT.153 & 154
FOR -Y319- PROFILE SEE SHT.226

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	110
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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TURNPIKE AUTHORITY

NAD 83

691
MARQUIS J. RYAN
AND WIFE,
HILDA RYAN
DB 439 PG 173

690
BARBARA GRACE WATSON FURR
AND
ANNE MARIE WATSON FUTRELL
DB 4939 PG 211

JUNE L. GUNTER
DB 1315 PG 859

BEGIN CONSTRUCTION
-Y308- POT Sta.9+75.30

AUSTIN CHANEY RD
-Y308-
N 7° 37' 25.9" E

-Y308- SC Sta. 13+14.82
-Y308- TS Sta. 11+46.82
-Y308- POT Sta. 11+48.99
-Y320- POT Sta. 15+51.45
-Y320- PT
Sta. 15+02.71
CHORD
CHORD

-BYII-5 POT
38+74.17

-BYII-4 PINC 32+09.92
-BYI2- POT 30+48.37

-Y308- POC Sta. 16+50.25
-Y319- POT Sta. 10+00.00

-Y308- CS Sta. 19+15.42

-Y320- PT Sta. 12+28.79

-Y320- PC Sta. 10+08.16

-Y320- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y320- PT Sta. 12+19.01

-Y320- PC Sta. 13+28.01

END CONSTRUCTION
-Y319- PT Sta. 12+49.36

-Y308- STA. 20+00 SEE SHEET 62

MATCHLINE
-Y319- STA. 14+80 SEE SHEET 62

CAMDEN RD
-Y320-
N 12° 57' 22.5" W

MCINTYRE RD
-Y319-
N 49° 41' 43.5" E

N 15° 38' 45.4" W

N 82° 22' 38.2" W

764
WALTER FANTON PERRY
NO DEED FOUND

692
WINGATE UNIVERSITY
DB 214 PG 086

693
WINGATE UNIVERSITY, INC.
DB 960 PG 490

693A
WINGATE UNIVERSITY INC.
NO DEED FOUND

694
DONALD RAY HELMS
AND WIFE,
MARGARET B. HELMS
DB 330 PG 479

695
BARBARA GRACE WATSON FURR
AND
ANNE MARIE WATSON FUTRELL
DB 4939 PG 211

R-2559B-I5
PINC 35+46.17

RESTORE PARKING LOT TO ORIGINAL CONFIGURATION, SIZE AND DIMENSIONS ONCE TEMPORARY DETOUR IS REMOVED.

-Y308-		-Y320-	
PIs Sta 12+58.85	PI Sta 16+21.66	PI Sta 11+18.49	PI Sta 14+26.79
Θs = 4° 02' 39.9"	△ = 28° 55' 01.8" (LT)	△ = 2° 41' 22.8" (LT)	△ = 66° 43' 52.8" (LT)
Ls = 168.00'	D = 4° 48' 53.2"	D = 1° 13' 08.6"	D = 38° 11' 49.9"
LT = 112.03'	L = 600.59'	L = 220.64'	L = 174.70'
ST = 56.03'	T = 306.84'	T = 110.34'	T = 98.78'
	R = 1,190.00'	R = 4,700.00'	R = 150.00'
	SUPER = 0.07	SUPER = EXIST.	SUPER = 0.06
	DS = 50 MPH		DS = 25 MPH
PIs Sta 19+71.44			
Θs = 4° 02' 39.9"			
Ls = 168.00'			
LT = 112.03'			
ST = 56.03'			

PAVEMENT REMOVAL

FOR -Y308- PROFILE SEE SHT. 221
FOR -Y319- PROFILE SEE SHT. 226
FOR -Y320- PROFILE SEE SHT. 226

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	111
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

-SR308-
PI Sta 12+08.60
△ = 90° 00' 00.0" (RT)
D = 95° 29' 34.7"
L = 94.25'
T = 60.00'
R = 60.00'
SUPER = NC
DS = 15 MPH

MATCHLINE -Y308- STA. 36+00 SEE SHEET 62

683 CARY D. THOMAS AND WIFE, KAREN C. THOMAS DB 745 PG 118 DB 1719 PG 708

682 VIVIAN A. CHANEY DB 829 PG 738

681 DENNIS Y. WASHBURN DB 411 PG 767 DB 1719 PG 711

709 THOMAS NORMAN BARBEE, JR. DB 1348 PG 399

BEGIN CONSTRUCTION -SR308- POT Sta. 10+00.00

-SR308- POT Sta. 11+48.60

-SR308-

-Y308- POT Sta. 44+93.11

-BYII-1 POT 5+00.00

AUSTIN CHANEY RD SR 1758 AUSTIN-CHANEY RD 21' BST

N 24° 41' 24.9" W

-Y308-

STANDARD BASE DITCH SEE DETAIL K

PROP. 48" WW FENCE

SPECIAL CUT BASE DITCH SEE DETAIL F

STANDARD V DITCH SEE DETAIL J

END C/A END WW FENCE

100' TAPER

50' BLEND TO EXIST.

GRADE TO DRAIN

SPECIAL CUT DITCH C SEE DETAIL AH

GRAU 350

END CONSTRUCTION -Y308- POT Sta. 42+00.00

-SR308- POT Sta. 12+42.85

-Y308- POT Sta. 39+50.00

-SR308- POT Sta. 12+77.85

-BYII-2 PINC 10+98.38

N 65° 18' 35.1" E

PAVEMENT REMOVAL

FOR -Y308- PROFILE SEE SHT. 221 & 222

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	149
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

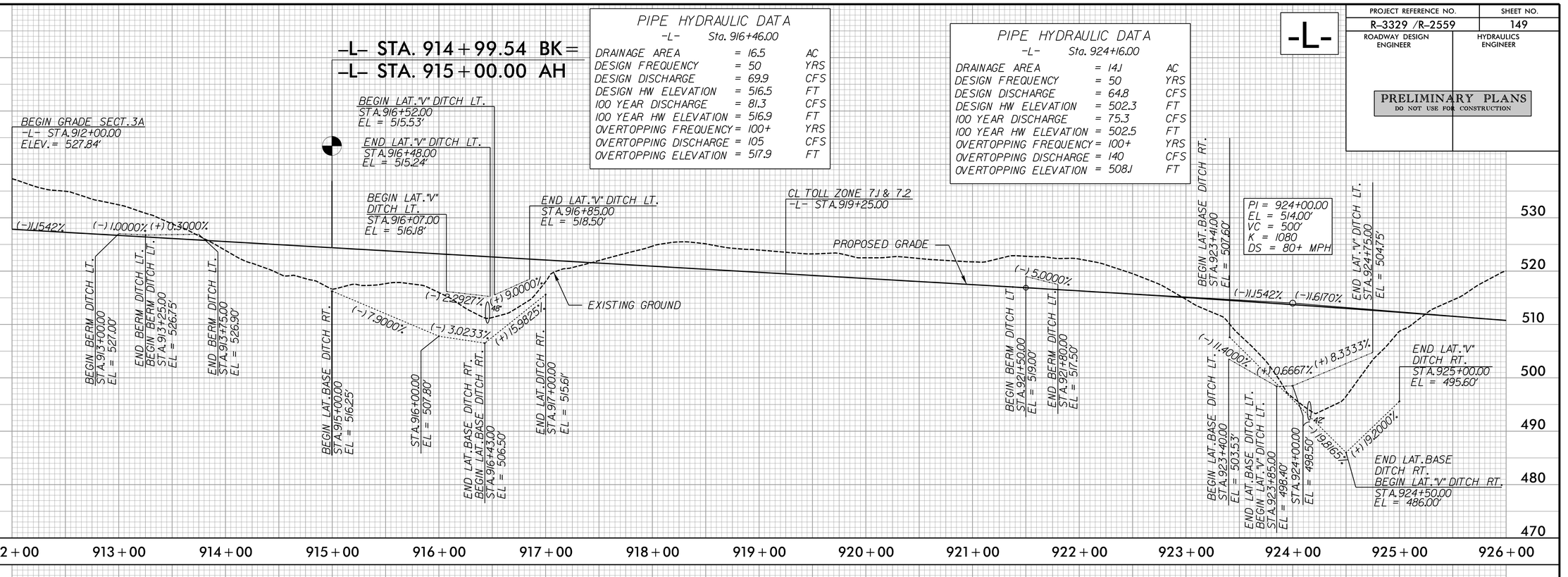
-L- STA. 914+99.54 BK =
-L- STA. 915+00.00 AH

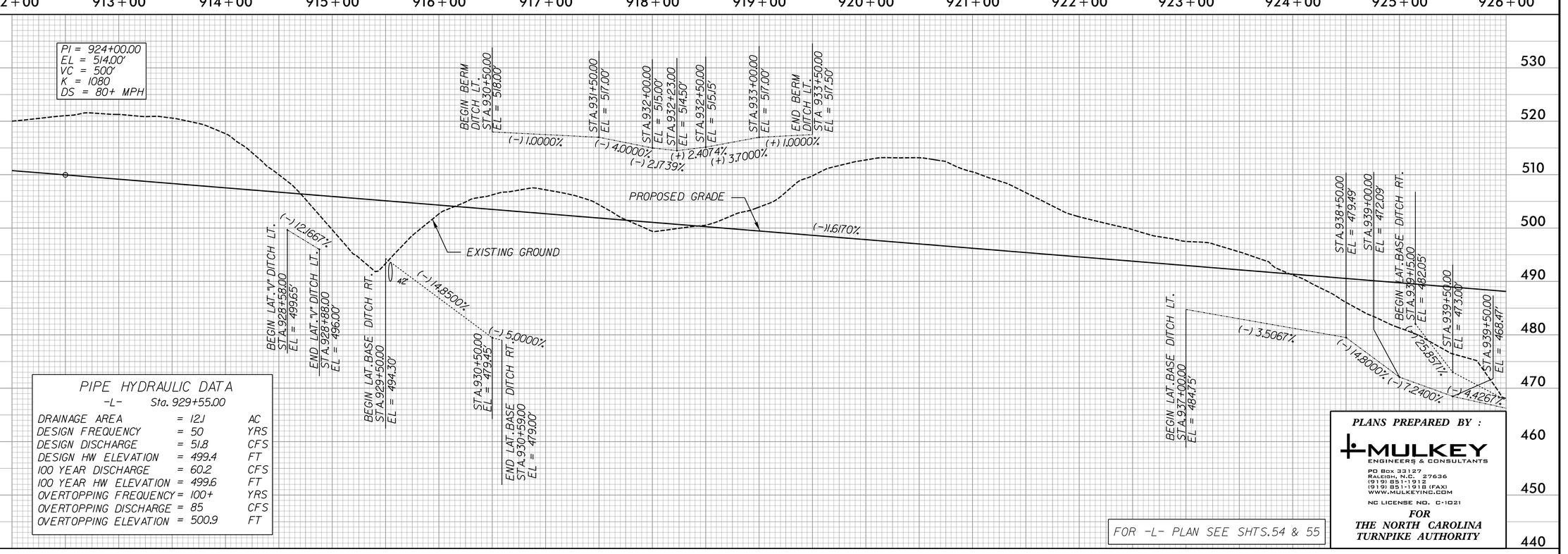
PIPE HYDRAULIC DATA
-L- Sta. 916+46.00

DRAINAGE AREA	= 16.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 69.9	CFS
DESIGN HW ELEVATION	= 516.5	FT
100 YEAR DISCHARGE	= 81.3	CFS
100 YEAR HW ELEVATION	= 516.9	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 105	CFS
OVERTOPPING ELEVATION	= 517.9	FT

PIPE HYDRAULIC DATA
-L- Sta. 924+16.00

DRAINAGE AREA	= 14.1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 64.8	CFS
DESIGN HW ELEVATION	= 502.3	FT
100 YEAR DISCHARGE	= 75.3	CFS
100 YEAR HW ELEVATION	= 502.5	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 140	CFS
OVERTOPPING ELEVATION	= 508.1	FT





PIPE HYDRAULIC DATA
-L- Sta. 929+55.00

DRAINAGE AREA	= 12.1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 51.8	CFS
DESIGN HW ELEVATION	= 499.4	FT
100 YEAR DISCHARGE	= 60.2	CFS
100 YEAR HW ELEVATION	= 499.6	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 85	CFS
OVERTOPPING ELEVATION	= 500.9	FT

FOR -L- PLAN SEE SHTS. 54 & 55

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	150
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 17,000 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 465.9 FT
BASE DISCHARGE	= 18,000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 466.4 FT
OVERTOPPING DISCHARGE	= 70,500+CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 480.0 FT
DATE OF SURVEY	= 03/2012
W.S.ELEVATION AT DATE OF SURVEY	= 445.6 FT

PIPE HYDRAULIC DATA
-L- Sta. 947+29.00

DRAINAGE AREA	= 7.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 33.5	CFS
DESIGN HW ELEVATION	= 471.2	FT
100 YEAR DISCHARGE	= 36.5	CFS
100 YEAR HW ELEVATION	= 471.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 92	CFS
OVERTOPPING ELEVATION	= 476.1	FT

PI = 947+50.00
EL = 476.00'
VC = 1,200'
K = 438
DS = 80+ MPH

RICHARDSON CREEK

PROPOSED GRADE

EXISTING GROUND

(−) 4.4267%
(−) 10.5161%
(−) 4.9364%
(−) 10.4444%
(−) 4.5455%
(−) 4.5714%
(−) 3.0000%
(−)1.6170%
(+)1.1228%
(+) 0.5000%
(+) 6.6667%
(+) 19.0000%

END LAT. BASE DITCH RT. BEGIN STD. BASE DITCH RT. STA.941+05.00 EL = 456.70'
STA.941+00.00 EL = 461.83'
STA.941+50.00 EL = 452.00'
END STD. BASE DITCH RT. STA.942+38.00 EL = 448.00'
END LAT. BASE DITCH LT. BEGIN STD. BASE DITCH LT. STA.942+10.00 EL = 456.40'
STA.943+50.00 EL = 450.00'
END STAND. BASE DITCH LT. STA.944+04.00 EL = 448.38'
BEGIN LAT. BASE DITCH LT. STA.946+35.00 EL = 457.00'
STA.946+50.00 EL = 458.00'
END LAT. BASE DITCH LT. STA.947+20.00 EL = 471.30'
BEGIN SP. GRADE LT. STA.947+50.00 EL = 475.06'
END SP. GRADE LT. STA.948+50.00 EL = 475.56'

60'

940+00 941+00 942+00 943+00 944+00 945+00 946+00 947+00 948+00 949+00 950+00 951+00 952+00 953+00 954+00

520 510 500 490 480 470 460 450 440 430

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5,700 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 460.8 FT
BASE DISCHARGE	= 6,100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 461.2 FT
OVERTOPPING DISCHARGE	= 51,000+CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 483.8 FT
DATE OF SURVEY	= 03/2012
W.S.ELEVATION AT DATE OF SURVEY	= 443.7 FT

PIPE HYDRAULIC DATA
-L- Sta. 965+09.00

DRAINAGE AREA	= 26.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 117	CFS
DESIGN HW ELEVATION	= 472.8	FT
100 YEAR DISCHARGE	= 136	CFS
100 YEAR HW ELEVATION	= 473.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 230	CFS
OVERTOPPING ELEVATION	= 477.7	FT

MONROE ANSONVILLE ROAD
-L- STA.963+26.07' =
-Y306- STA.30+68.40

PROPOSED GRADE

RAYS FORK CREEK

EXISTING GROUND

PI = 967+70.00
EL = 498.68'
VC = 300'
K = 485
DS = 80+ MPH

(+)1.1228%
(+)0.5037%
(+) 2.6527%
(+) 3.0000%
(+) 11.0000%
(+) 2.6000%
(+) 0.5000%
(+) 1.0000%
(+) 3.9216%
(+) 10.0000%
(−) 5.1282%
(+)2.6000%
(+)1.2000%

BEGIN LAT. BASE DITCH LT. STA.954+70.00 EL = 453.60'
STA.955+00.00 EL = 453.00'
END LAT. BASE DITCH LT. BEGIN ST. AND. BASE DITCH LT. STA.955+50.00 EL = 452.00'
STA.956+50.00 EL = 450.00'
END STAND. BASE DITCH LT. STA.956+82.00 EL = 449.00'
BEGIN STD. BASE DITCH LT. STA.957+13.00 EL = 449.55'
BEGIN STD. BASE DITCH RT. STA.957+50.00 EL = 449.50'
STA.958+00.00 EL = 450.00'
STA.958+50.00 EL = 451.50'
END STD. BASE DITCH LT. BEGIN LAT. BASE DITCH LT. STA.958+80.00 EL = 453.98'
END STD. BASE DITCH RT. BEGIN LAT. BASE DITCH RT. STA.959+50.00 EL = 452.00'
STA.959+00.00 EL = 454.50'
STA.960+00.00 EL = 465.50'
STA.960+50.00 EL = 453.00'
STA.961+00.00 EL = 454.30'
END LAT. BASE DITCH RT. STA.961+50.00 EL = 454.90'
END LAT. BASE DITCH LT. STA.962+20.00 EL = 472.10'
BEGIN LAT. BASE DITCH RT. STA.963+11.00 EL = 459.90'
STA.964+64.00 EL = 465.90'
BEGIN LAT. "Y" DITCH LT. STA.965+00.00 EL = 470.00'
END LAT. BASE DITCH RT. STA.965+39.00 EL = 468.00'
END LAT. BASE DITCH RT. STA.966+25.00 EL = 482.00'

60'

954+00 955+00 956+00 957+00 958+00 959+00 960+00 961+00 962+00 963+00 964+00 965+00 966+00 967+00 968+00

520 510 500 490 480 470 460 450 440 430

FOR -L- PLAN SEE SHTS.56 & 57

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	151
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
-L- Sta. 972+26.00

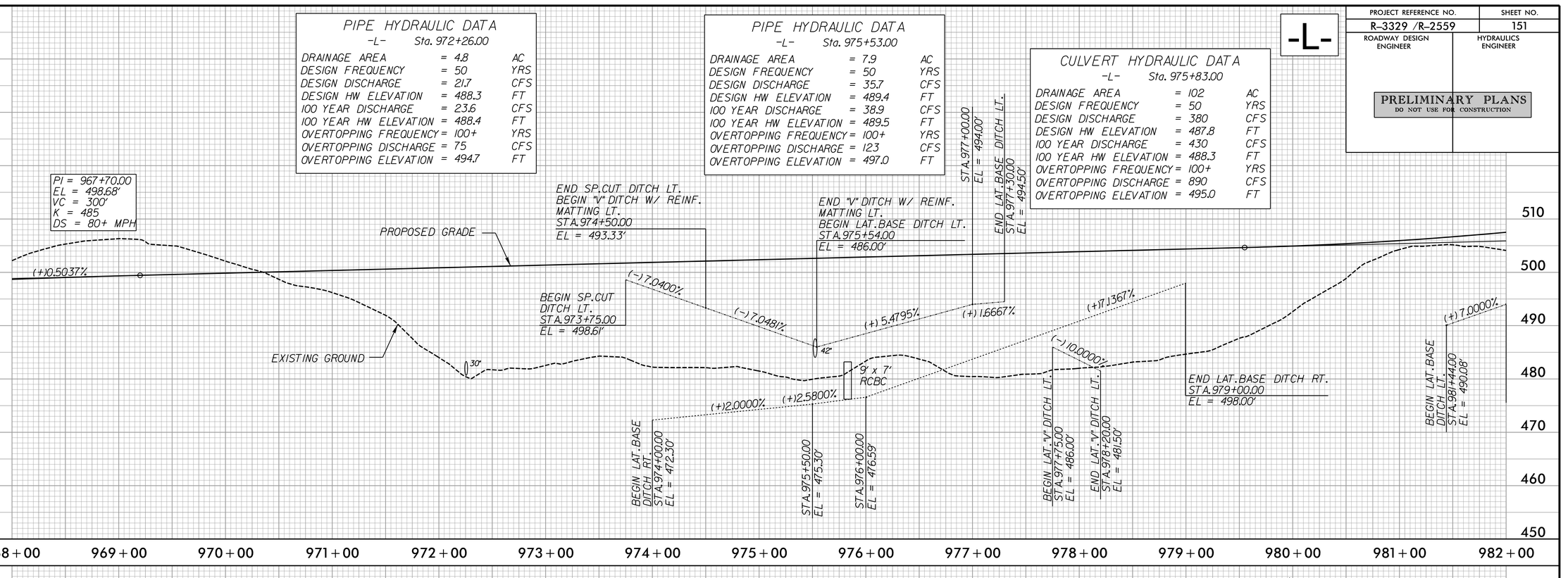
DRAINAGE AREA	= 4.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 21.7	CFS
DESIGN HW ELEVATION	= 488.3	FT
100 YEAR DISCHARGE	= 23.6	CFS
100 YEAR HW ELEVATION	= 488.4	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 75	CFS
OVERTOPPING ELEVATION	= 494.7	FT

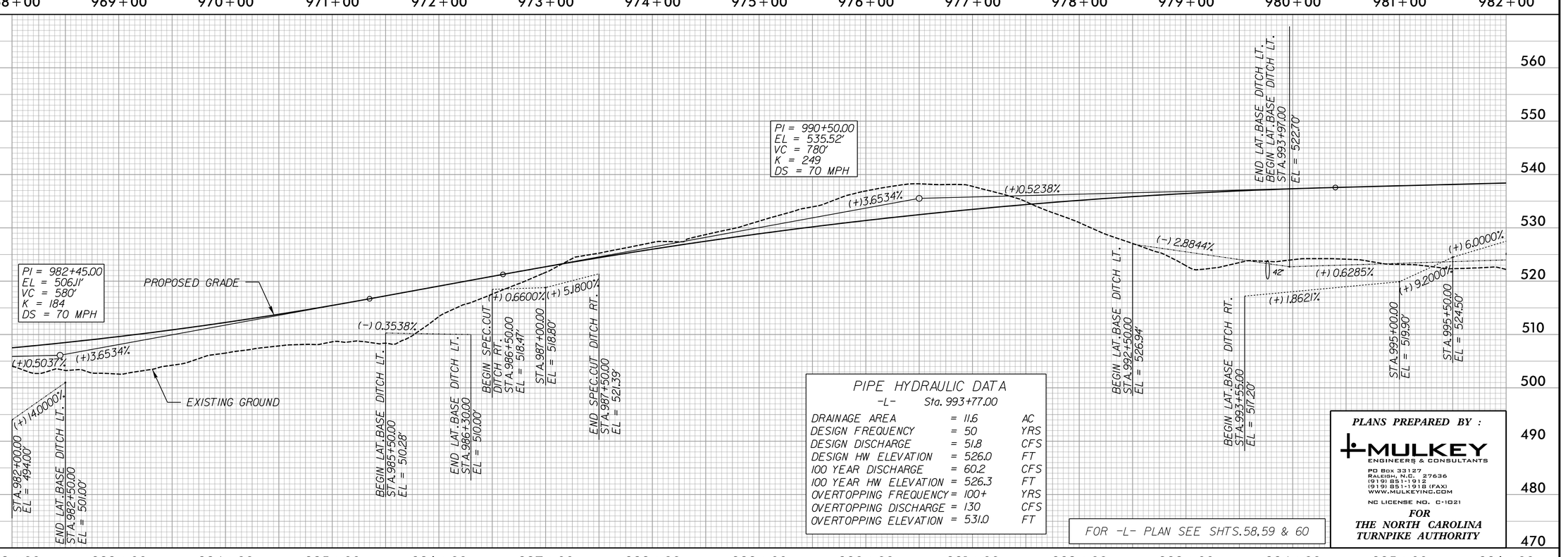
PIPE HYDRAULIC DATA
-L- Sta. 975+53.00

DRAINAGE AREA	= 7.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 35.7	CFS
DESIGN HW ELEVATION	= 489.4	FT
100 YEAR DISCHARGE	= 38.9	CFS
100 YEAR HW ELEVATION	= 489.5	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 123	CFS
OVERTOPPING ELEVATION	= 497.0	FT

CULVERT HYDRAULIC DATA
-L- Sta. 975+83.00

DRAINAGE AREA	= 102	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 380	CFS
DESIGN HW ELEVATION	= 487.8	FT
100 YEAR DISCHARGE	= 430	CFS
100 YEAR HW ELEVATION	= 488.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 890	CFS
OVERTOPPING ELEVATION	= 495.0	FT





PIPE HYDRAULIC DATA
-L- Sta. 993+77.00

DRAINAGE AREA	= 11.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 51.8	CFS
DESIGN HW ELEVATION	= 526.0	FT
100 YEAR DISCHARGE	= 60.2	CFS
100 YEAR HW ELEVATION	= 526.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 130	CFS
OVERTOPPING ELEVATION	= 531.0	FT

FOR -L- PLAN SEE SHTS.58,59 & 60

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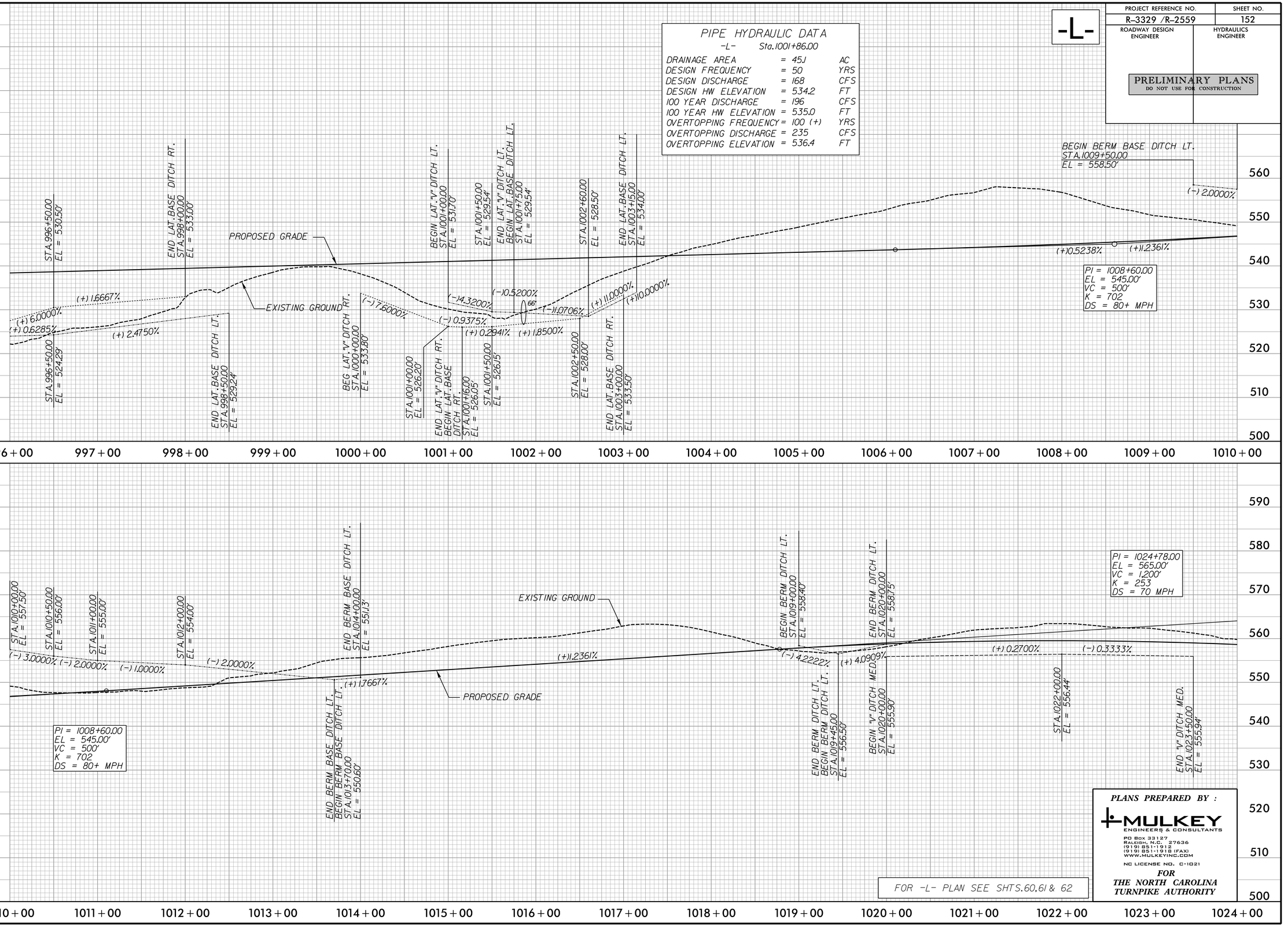
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	152
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
-L- Sta.1001+86.00

DRAINAGE AREA	= 45.1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 168	CFS
DESIGN HW ELEVATION	= 534.2	FT
100 YEAR DISCHARGE	= 196	CFS
100 YEAR HW ELEVATION	= 535.0	FT
OVERTOPPING FREQUENCY	= 100 (+)	YRS
OVERTOPPING DISCHARGE	= 235	CFS
OVERTOPPING ELEVATION	= 536.4	FT



FOR -L- PLAN SEE SHTS.60,61 & 62

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	153
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 1024+78.00
EL = 565.00'
VC = 1,200'
K = 253
DS = 70 MPH

(+)1.2361%

(-)3.5115%

EXISTING GROUND

PROPOSED GRADE

PI = 1037+88.00
EL = 519.00'
VC = 970'
K = 181
DS = 70 MPH

(-)3.5115%

580 570 560 550 540 530 520 510 500 490

1024+00 1025+00 1026+00 1027+00 1028+00 1029+00 1030+00 1031+00 1032+00 1033+00 1034+00 1035+00 1036+00 1037+00 1038+00

CULVERT HYDRAULIC DATA

-L- Sta. 1041+25.00

DRAINAGE AREA	= 243.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 700	CFS
DESIGN HW ELEVATION	= 519	FT
100 YEAR DISCHARGE	= 750	CFS
100 YEAR HW ELEVATION	= 519.3	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 1260	CFS
OVERTOPPING ELEVATION	= 525.60	FT

AUSTIN-CHANEY ROAD
-L- STA.1039+86.06
Y308 - STA.27+56.06

PI = 1037+88.00
EL = 519.00'
VC = 970'
K = 181
DS = 70 MPH

BEGIN LAT."V" DITCH RT.
STA.1042+20.00
EL = 518.60'

STA.1043+00.00
EL = 521.50'

END LAT."V" DITCH RT.
STA.1043+50.00
EL = 524.51'

(+)1.8413%

2 @ 10' x 6' RCBC

(+) 3.6250%

(+) 6.0200%

PROPOSED GRADE

EXISTING GROUND

(+)1.8413%

(+) 1.4286%

(+) 6.0000%

(+) 8.0000%

BEGIN LAT. BASE DITCH LT.
STA.1041+65.00
EL = 512.50'

STA.1042+00.00
EL = 513.00'

STA.1042+50.00
EL = 516.00'

END LAT. BASE DITCH LT.
STA.1043+00.00
EL = 520.00'

PI = 1053+00.00
EL = 546.84'
VC = 630'
K = 250
DS = 70 MPH

(+)1.8413%

(-) 3.2000%

BEGIN LAT."V" DITCH LT.
STA.1049+50.00
EL = 532.00'

END LAT.V DITCH LT.
STA.1052+00.00
EL = 524.00'

570 560 550 540 530 520 510 500 490 480

1038+00 1039+00 1040+00 1041+00 1042+00 1043+00 1044+00 1045+00 1046+00 1047+00 1048+00 1049+00 1050+00 1051+00 1052+00

FOR -L- PLAN SEE SHTS.62 & 63

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	154
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

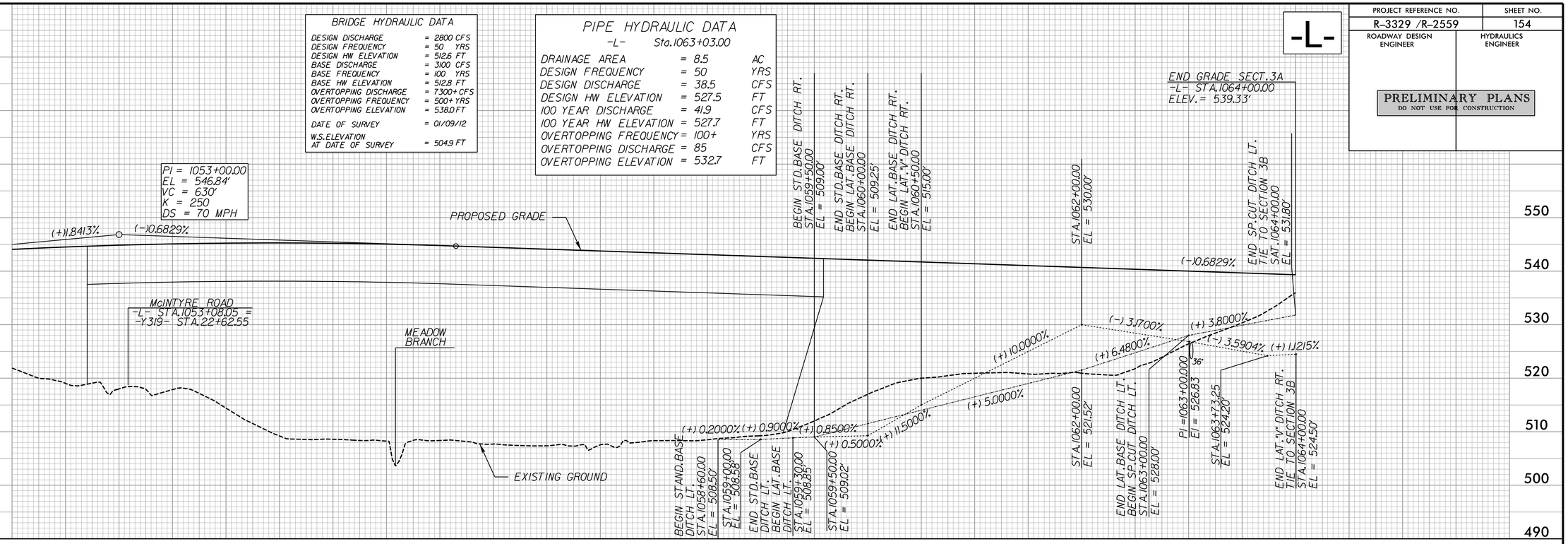
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2800 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 512.6 FT
BASE DISCHARGE	= 3100 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 512.8 FT
OVERTOPPING DISCHARGE	= 7300+ CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 538.0 FT
DATE OF SURVEY	= 01/09/12
W.S.ELEVATION AT DATE OF SURVEY	= 504.9 FT

PIPE HYDRAULIC DATA
-L- Sta.1063+03.00

DRAINAGE AREA	= 8.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 38.5	CFS
DESIGN HW ELEVATION	= 527.5	FT
100 YEAR DISCHARGE	= 41.9	CFS
100 YEAR HW ELEVATION	= 527.7	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 85	CFS
OVERTOPPING ELEVATION	= 532.7	FT



FOR -L- PLAN SEE SHT.63

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AUSTIN CHANEY ROAD -Y308-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	221
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

N.CAMDEN ROAD
-Y320- STA. 15+51.45 =
-Y308- STA. 11+48.99

BEGIN GRADE
STA. 10+50.82
ELEV. = 544.70'

50' BLEND TO EXIST.

(+)3.2000%

(+)3.9313%

(-)11.8843%

PI = 14+40.00
EL = 560.00'
VC = 486'
K = 84
DS = 50 MPH

(-)0.8800%

(-) 4.5000%

(-) 6.0000%

(-) 2.0020%

PROPOSED GRADE

EXISTING GROUND

McINTYRE ROAD
-Y319- STA. 10+00.00 =
-Y308- STA. 16+50.25

BEGIN SPEC.CUT DITCH LT.
STA.14+50
EL = 553.12'

STA.15+00
EL = 552.68'

STA.15+50
EL = 550.43'

STA.16+00.00
EL = 547.43'

END SPEC.CUT DITCH LT.
STA.16+49.00
EL = 546.44'

BEGIN SP. LAT. "V" DITCH RT.
STA. 20+50.00
EL = 546.94'

-VRC- STA. 32+55.94 =
-Y308- STA. 22+27.81

-Y308SRAB- STA. 10+00.00 AH =
-Y308SRAB- STA. 13+00.02 BK
-Y308- STA. 21+91.11
EL. = 551.855'

PI = 21+73.86
EL = 551.51'

END SP. LAT. "V" DITCH RT.
BEGIN LAT. BASE DITCH RT.
STA. 21+50.00
EL = 540.00'

(-)11.8843%

(+)10.5003%

PI = 19+50.00
EL = 550.39'
VC = 230'
K = 96
DS = 50 MPH

(-) 6.9400%

(-) 10.0000%

(-) 15.0000%

(-) 9.0000%

BEGIN LAT. BASE DITCH LT.
STA. 20+50.00
EL = 546.48'

STA. 21+50.00
EL = 536.48'

END LAT. BASE DITCH LT.
STA. 21+65.00
EL = 532.00'

(+)12.0000%

-Y308SRAB-
ROUNDABOUT

(-)2.0000%

-VLC- STA. 24+09.53 =
-Y308- STA. 22+49.92

-Y308SRAB-STA. 11+50.01
-Y308-STA. 22+86.61
EL. = 551.855'

PI = 23+02.86
EL = 551.53'

STA. 24+00.00
EL = 517.50'

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

590 580 570 560 550 540 530 520 510 500

-Y308- STA. 25+90
DRAINAGE AREA = 243.20 AC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 700	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 519.00	FT
BASE DISCHARGE	= 750	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 519.30	FT
OVERTOPPING DISCHARGE	= 1260	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 525.60	FT

-L- STA. 1039+86.06 =
-Y308- STA. 27+56.06

PIPE HYDRAULIC DATA
-Y308- Sta. 32+52.00

DRAINAGE AREA	= 24.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 104	CFS
DESIGN HW ELEVATION	= 522.6	FT
100 YEAR DISCHARGE	= 120	CFS
100 YEAR HW ELEVATION	= 523.0	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 295	CFS
OVERTOPPING ELEVATION	= 531.5	FT

PI = 24+90.00
EL = 550.59'
VC = 200'
K = 402
DS = 80+ MPH

(-)0.5023%

(-)1.0000%

STA. 24+00.00
EL = 517.50'

BEGIN LAT. BASE DITCH LT.
STA. 25+45.00
EL = 515.34'

END LAT. BASE DITCH RT.
STA. 25+35.00
EL = 515.48'

(-) 1.4963%

(+) 0.2909%

STA. 26+00.00
EL = 515.50'

END LAT. BASE DITCH LT.
STA. 20+50.00
EL = 517.27'

(+) 3.5400%

2 @ 10' x 6'
RCBC

EXISTING GROUND

PROPOSED GRADE

-Y308NRAB- STA. 10+00.00 AH =
-Y308NRAB- STA. 13+00.02 BK
-Y308- STA. 33+75.47
EL. = 544.945'

PI = 33+58.22
EL = 544.60'

PI = 32+40.00
EL = 543.09'
VC = 220'
K = 97
DS = 50 MPH

(-)1.0000%

(+)1.2773%

(+)2.0000%

-Y308NRAB-
ROUNDABOUT

-VLB- STA. 19+15.14 =
-Y308- STA. 34+12.15

-VRB- STA. 27+06.62 =
-Y308- STA. 34+34.15

-Y308NRAB- STA. 11+50.01
-Y308- STA. 34+70.97
EL. = 547.395'

PI = 34+88.22
EL = 547.05'

(-)2.0000%

(+)1.8602%

(+) 4.9467%

(+) 10.4400%

(+) 1.0000%

(+) 5.3333%

54"

BEGIN LAT. "V" DITCH LT.
STA. 30+25.00
EL = 530.00'

END LAT. "V" DITCH LT.
STA. 31+75.00
EL = 531.50'

BEGIN SPEC. CUT DITCH RT.
STA. 33+50.00
EL = 525.80'

END SPEC. CUT DITCH RT.
STA. 35+00.00
EL = 533.80'

BEGIN SP. CUT BASE DITCH LT.
STA. 35+00.00
EL = 540.00'

END SP. CUT BASE DITCH LT.
STA. 36+50.00
EL = 547.42'

BEGIN SPEC. CUT DITCH RT.
STA. 37+00.00
EL = 544.00'

END SPEC. CUT DITCH RT.
STA. 37+50.00
EL = 549.22'

FOR -Y308- PLAN SEE SHT. 62, 110 & 111

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10 + 00 11 + 00 12 + 00 13 + 00 14 + 00 15 + 00 16 + 00 17 + 00 18 + 00 19 + 00 20 + 00 21 + 00 22 + 00 23 + 00 24 + 00

590 580 570 560 550 540 530 520 510 500

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580 570 560 550 540 530 520 510 500 490

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AUSTIN CHANEY ROAD -Y308-

PI = 39+50.00
EL = 555.64'
VC = 250'
K = 85
DS = 50 MPH

END GRADE
STA.41+50.00
ELEV = 553.45'

50' BLEND TO EXIST.

PROPOSED GRADE

(+)1.8602%

(−)1.0950%

(−)0.6000%

EXISTING GROUND

-VRB-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	222
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-VRB- STA.10+00.00 =
-L- STA.1020+62.00 (47.0' LT.)
ELEV.= 558.47'

PI = 12+00.00
EL = 559.28'
VC = 310'
K = 155
DS = 60 MPH

EXISTING GROUND

(+)0.4050%

(−)1.5987%

PROPOSED GRADE

(+)1.1000%

BEGIN BERM BASE DITCH LT.
STA.16+70.00
EL = 548.50'

END BERM BASE DITCH LT.
BEGIN SPEC.CUT BASE DITCH LT.
STA.17+00.00
EL = 546.37'

590 580 570 560 550 540 530 520 510 500

38+00 39+00 40+00 41+00 42+00 43+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

PIPE HYDRAULIC DATA
-VRB- Sta. 24+64.00

DRAINAGE AREA	= 19.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 80.3	CFS
DESIGN HW ELEVATION	= 537.9	FT
100 YEAR DISCHARGE	= 93.3	CFS
100 YEAR HW ELEVATION	= 538.1	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 150	CFS
OVERTOPPING ELEVATION	= 541.0	FT

BEGIN SPEC.CUT BASE DITCH RT.
STA.18+50.00
EL = 545.87'

STA.19+50.00
EL = 541.00'

STA.20+00.00
EL = 540.50'

PI = 23+86.00
EL = 540.32'
VC = 384'
K = 97
DS = 50 MPH

END GRADE
-VRB- STA.26+42.55 =
-Y308NRAB- STA.12+16.95 (17.25' RT.)
ELEV.= 546.43'

(−) 2.6850%

(−) 4.8700%

(−) 1.0000%

(−) 0.3000%

(−) 3.0000%

(−) 2.2000%

(−) 2.0000%

(−)1.5987%

(+)2.3816%

(+) 5.0200%

(+) 2.0500%

(+)2.3816%

(+)2.2226%

48"

STA.19+00.00
EL = 541.00'

STA.21+00.00
EL = 540.40'

STA.21+50.00
EL = 536.00'

END SPEC.CUT DITCH RT.
STA.23+50.00
EL = 532.00'

STA.24+00.00
EL = 533.80'

STA.24+50.00
EL = 536.31'

END SPEC.CUT DITCH LT.
STA.26+30.00
EL = 540.00'

END BERM BASE DITCH LT.
BEGIN SPEC.CUT BASE DITCH LT.
STA.17+00.00
EL = 546.37'

590 580 570 560 550 540 530 520 510 500 490

17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00

FOR -Y308- PLAN SEE SHTS.111
FOR -VRB- PLAN SEE SHTS.61 & 62

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	223
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-VLB-

BEGIN GRADE
-VLB- STA.10+00.00 =
-L- STA.1037+84.71 (47.0' LT.)
ELEV.= 524.80'

PI = 11+00.00
EL = 525.78'
VC = 100'
K = 382
DS = 80+ MPH

PI = 12+20.00
EL = 527.27'
VC = 90'
K = 53
DS = 35 MPH

EXISTING GROUND

END GRADE
-VLB- STA.18+51.09 =
-Y308NRAB- STA.12+33.19 (17.25' RT.)
ELEV.= 545.93'

(+)0.9800%
(+)1.2417%
(+)2.9568%
(+)2.9568%
(+)1.3636%
PROPOSED GRADE

580 570 560 550 540 530 520 510 500 490

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00

-VRC-

BEGIN GRADE
-VRC- STA.10+00.00 =
-L- STA.1021+67.32 (47.0' RT.)
ELEV.= 558.78'

PI = 10+80.00
EL = 558.70'
VC = 100'
K = 189
DS = 60 MPH

PI = 12+20.00
EL = 557.82'
VC = 110'
K = 87
DS = 50 MPH

BEGIN BERM DITCH RT.
STA.14+50.00
EL = 561.00'

STA.15+15.00
EL = 558.80'

END BERM DITCH RT.
STA.15+60.00
EL = 560.00'

(-)10.1000%
(-)10.6286%
(-)10.6286%
(-)11.8861%
(-) 3.3846%
(+) 2.6667%
EXISTING GROUND
PROPOSED GRADE

BEGIN BERM DITCH RT.
STA.20+40.00
EL = 543.00'

END BERM DITCH RT.
STA.21+00.00
EL = 543.00'

STA.20+70.00
EL = 540.50'

(-) 8.3333%
(+) 8.3333%
(-)11.8861%

PI = 23+88.00
EL = 535.79'
VC = 460'
K = 117
DS = 55 MPH

580 570 560 550 540 530 520 510 500 490

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

FOR -VLB- PLAN SEE SHT.62
FOR -VRC- PLAN SEE SHT.62

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	224
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-VRC-

-VRC- STA.28+46
DRAINAGE AREA = 224.0 AC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 521.3	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 521.7	FT
OVERTOPPING DISCHARGE	= 1720	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 537.0	FT

END GRADE
-VRC- STA.31+90.80 =
-Y308SRAB- STA.12+28.48 (17.25' RT.)
ELEV.= 552.30'

PI = 23+88.00
EL = 535.79'
VC = 460'
K = 117
DS = 55 MPH

PROPOSED GRADE

EXISTING GROUND

(+)2.0566%

(+)2.0566%

(+)2.1035%

BEGIN LAT. BASE DITCH RT.
STA.28+34.00
EL = 516.00'

STA.28+50.00
EL = 516.24'

STA.29+00.00
EL = 517.00'

STA.30+00.00
EL = 525.00'

END LAT. BASE DITCH RT.
STA.31+75.00
EL = 532.00'

2 @ 10' x 6' RCBC

(+)1.5200%

(+)1.5200%

(+) 8.0000%

(+) 4.0000%

580 570 560 550 540 530 520 510 500 490

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00

-VLC-

-VLC- STA.20+28
DRAINAGE AREA = 224.0 AC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 650	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 521.3	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 521.7	FT
OVERTOPPING DISCHARGE	= 1720	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 537.0	FT

END GRADE
-VLC- STA.23+46.54 =
-Y308SRAB- STA.12+12.24 (17.25' RT.)
ELEV.= 552.14'

BEGIN GRADE
-VLC- STA.10+00.00 =
-L- STA.1037+54.08 (47.0' RT.)
ELEV.= 525.09'

PI = 11+00.00
EL = 526.22'
VC = 100'
K = 149
DS = 55 MPH

PI = 12+70.00
EL = 527.00'
VC = 120'
K = 64
DS = 40 MPH

EXISTING GROUND

PROPOSED GRADE

(+)1.1300%

(+)0.4588%

(+)0.4588%

(+)2.3353%

(+)2.3353%

(+)1.7614%

BEGIN SPEC. CUT DITCH LT.
STA.18+00.00
EL = 534.00'

STA.19+00.00
EL = 528.00'

END SPEC. CUT DITCH LT.
STA.20+35.00
EL = 515.00'

BEGIN LAT. BASE DITCH LT.
STA.20+75.00
EL = 515.00'

END LAT. BASE DITCH LT.
STA.22+40.00
EL = 517.00'

2 @ 10' x 6' RCBC

(-) 6.0000%

(-) 9.6296%

(+) 1.2121%

580 570 560 550 540 530 520 510 500 490

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

FOR -VRC- PLAN SEE SHT.62
FOR -VLC- PLAN SEE SHT.62

PLANS PREPARED BY :
MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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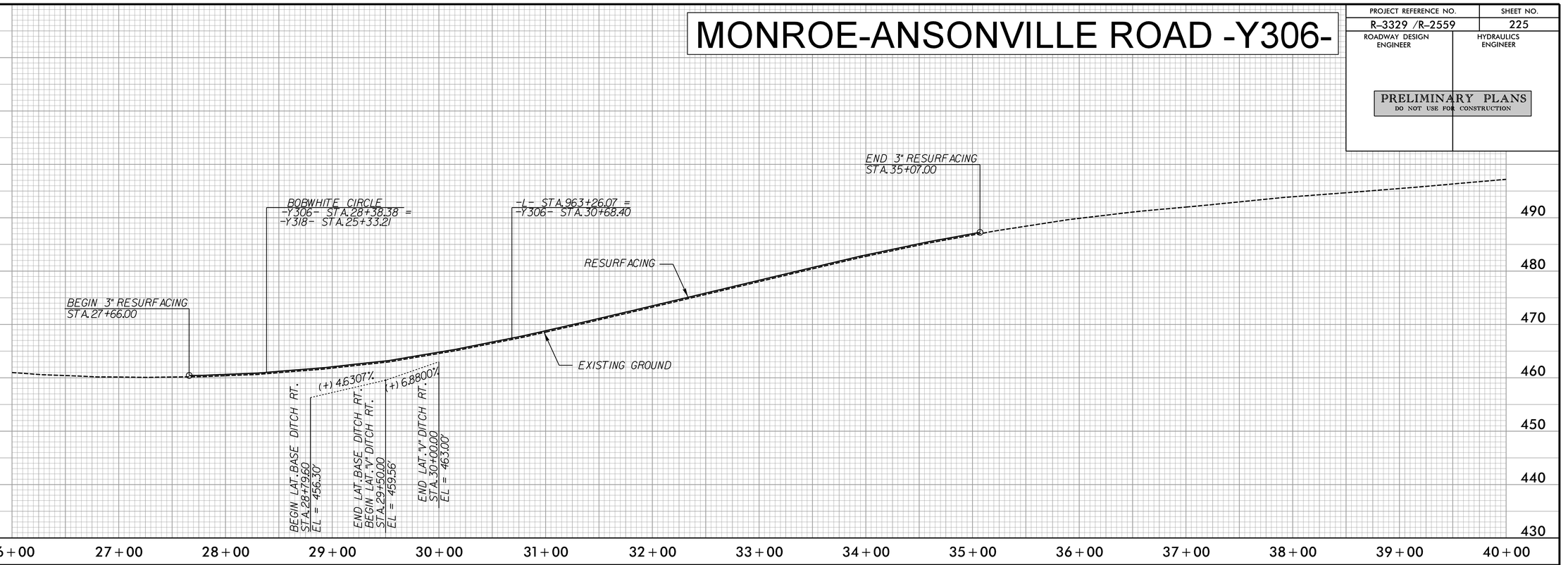
5/28/99

MONROE-ANSONVILLE ROAD -Y306-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	225
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



BOB WHITE CIRCLE -Y318-

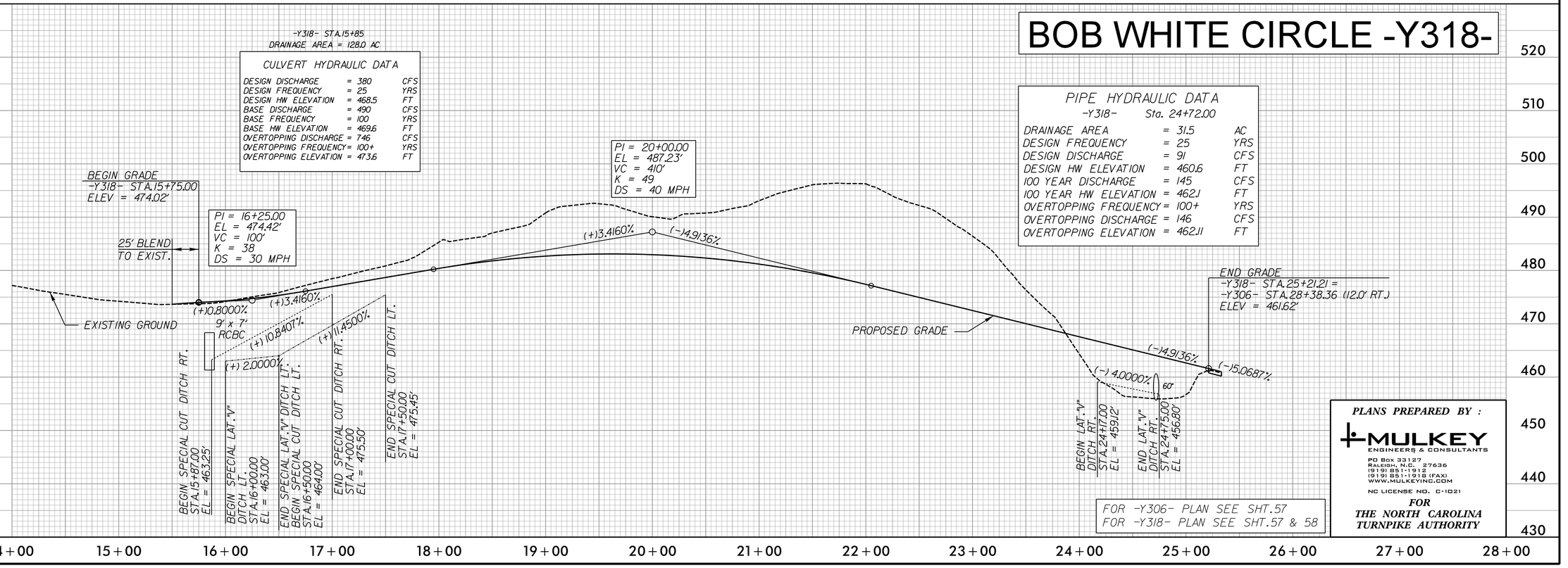
-Y318- STA. 15+85
DRAINAGE AREA = 128.0 AC

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 380	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 468.5	FT
BASE DISCHARGE	= 490	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 469.6	FT
OVERTOPPING DISCHARGE	= 746	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 473.6	FT

PIPE HYDRAULIC DATA
-Y318- Sta. 24+72.00

DRAINAGE AREA	= 31.5	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 91	CFS
DESIGN HW ELEVATION	= 460.6	FT
100 YEAR DISCHARGE	= 145	CFS
100 YEAR HW ELEVATION	= 462.1	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 146	CFS
OVERTOPPING ELEVATION	= 462.11	FT



FOR -Y306- PLAN SEE SHT. 57
FOR -Y318- PLAN SEE SHT. 57 & 58

PLANS PREPARED BY :

MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

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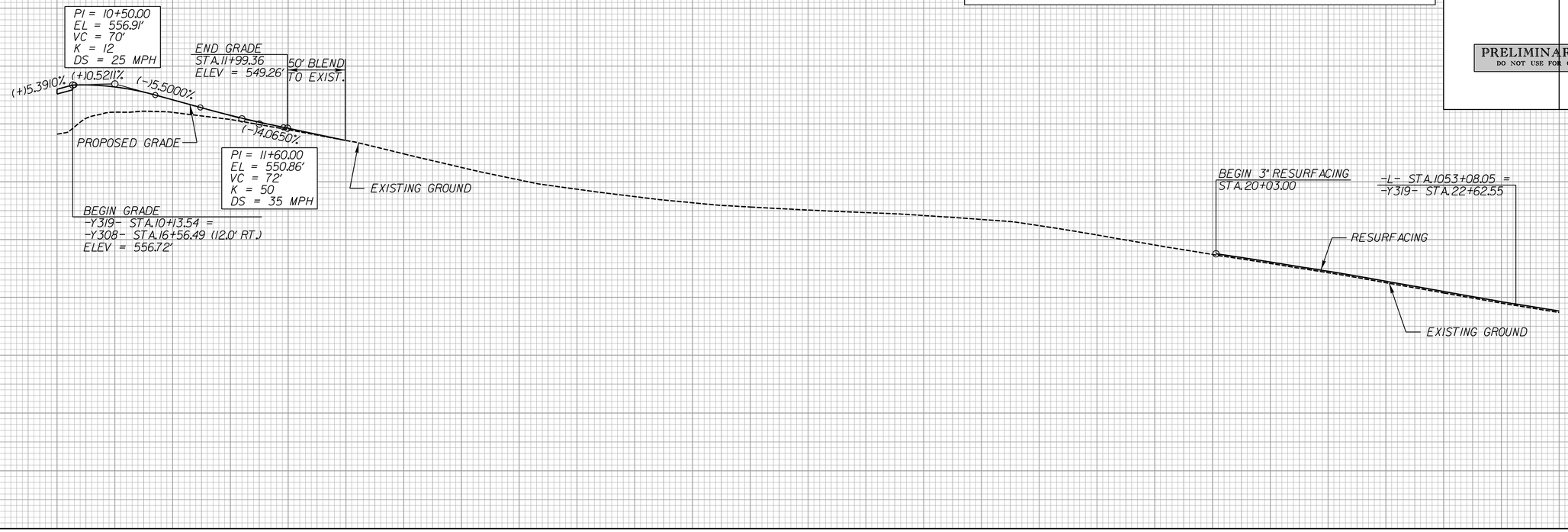
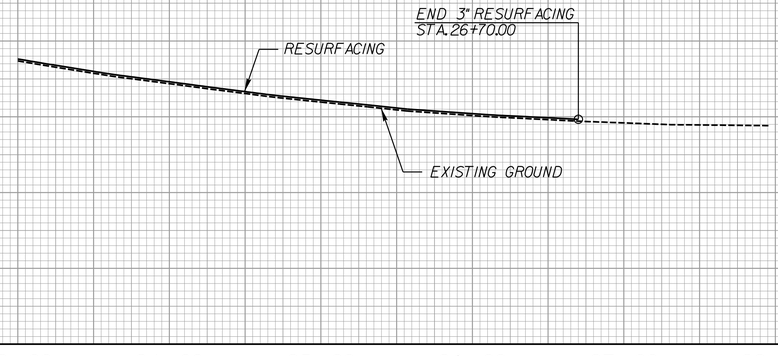
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	226
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

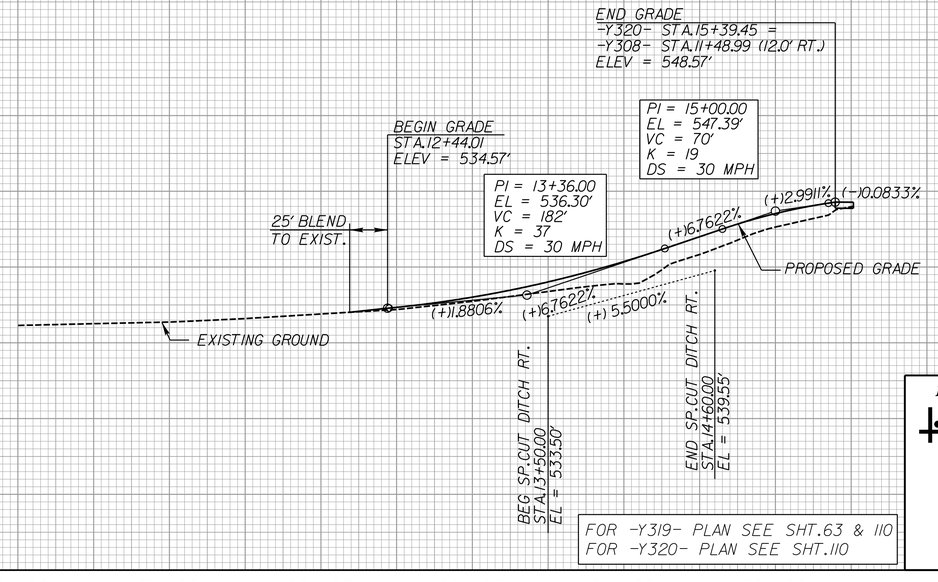
MCINTYRE ROAD -Y319-



MCINTYRE ROAD -Y319-



N. CAMDEN ROAD -Y320-



FOR -Y319- PLAN SEE SHT.63 & 110
FOR -Y320- PLAN SEE SHT.110

PLANS PREPARED BY :

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ENGINEERS & CONSULTANTS
PO Box 33127
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(919) 851-1918 (FAX)
WWW.MULKEYINC.COM
NC LICENSE NO. C-1021

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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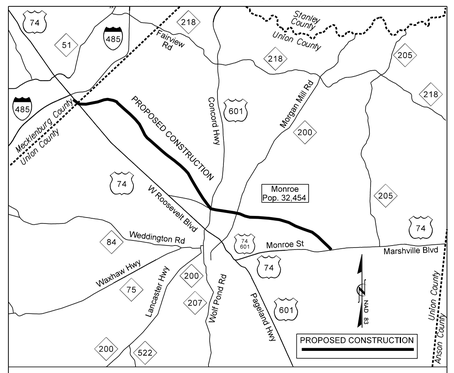
Plotted By: kevin

09/08/49

TIP PROJECT: R-3329 /R-2559

CONTRACT: C202587

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3329 /R-2559	1	

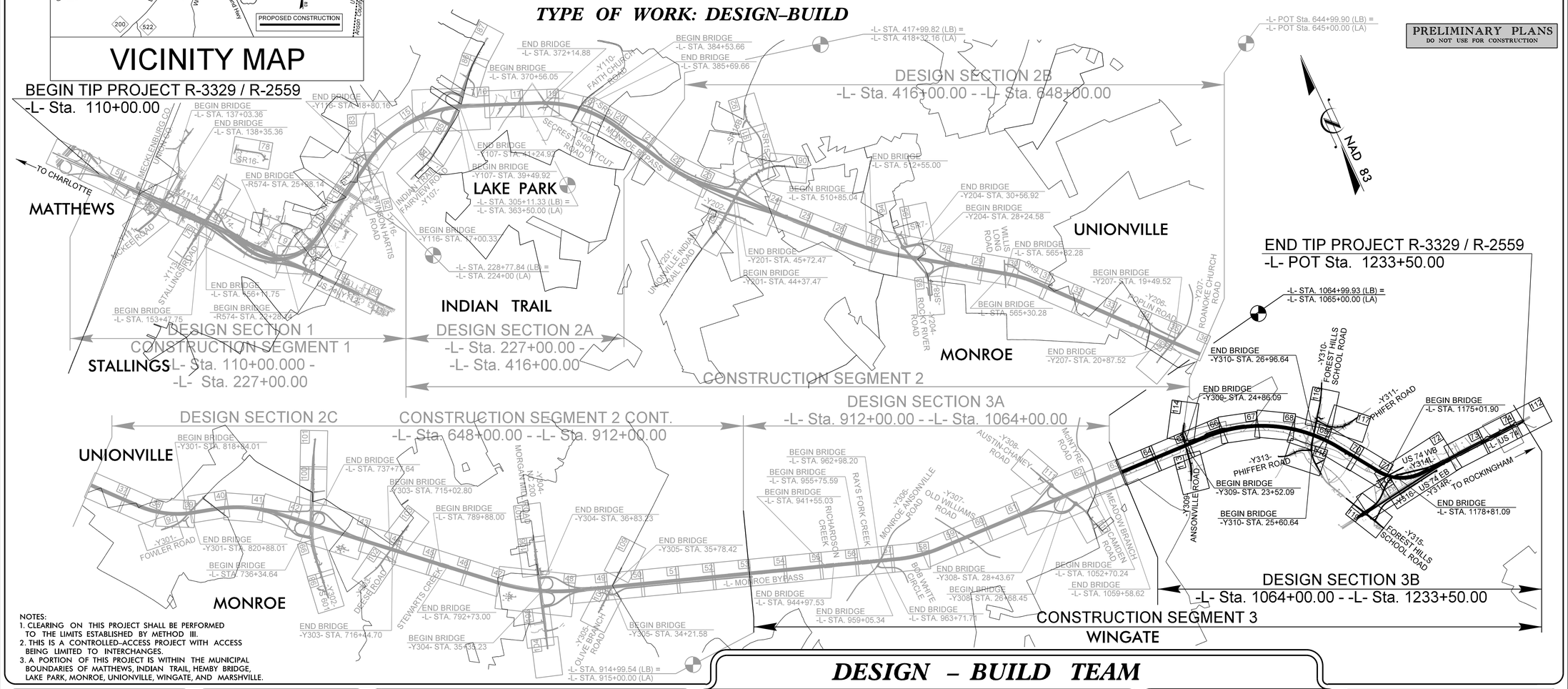
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34533.5.TA1		

PERMIT APPLICATION
SUBMITTAL NO. S-099
DATE: 10-01-2014

LOCATION: US 74 BYPASS FROM US 74 JUST EAST OF I-485 NEAR MATTHEWS AND STALLINGS TO US 74 JUST EAST OF WINGATE AND WEST OF MARSHVILLE

TYPE OF WORK: DESIGN-BUILD

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
3. A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF MATTHEWS, INDIAN TRAIL, HEMBY BRIDGE, LAKE PARK, MONROE, UNIONVILLE, WINGATE, AND MARSHVILLE.

DESIGN – BUILD TEAM

GRAPHIC SCALES

PLANS
PROFILE (HORIZONTAL)
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 64,100
ADT 2035 = 95,600
DHV = 8%
D = 55%
T = 18%*
V = 70 mph

*TTST 11% DUAL 7%
FUNCTIONAL CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3329 /R-2559.....	18.1 mi
LENGTH STRUCTURE TIP PROJECT R-3329 /R-2559.....	*1.6 mi
TOTAL LENGTH TIP PROJECT R-3329 /R-2559.....	19.7 mi

* LENGTH OF STRUCTURES BASED ON WB LANES

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112

2012 STANDARD SPECIFICATIONS

LETTING DATE:
OCTOBER 28, 2010

J.T. Peacock, Jr., P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

CONTRACTOR :

MONROE BYPASS CONSTRUCTORS

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*
ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

9/30/2014
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3/15/06

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-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 — 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 — 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
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

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 — HH
- 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 — HH
- 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
- 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 — ?UTL
- 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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E1	PROP. APPROX. 3″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	J2	PROPOSED 8″ AGGREGATE BASE COURSE
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.	E2	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	J3	PROPOSED 9″ AGGREGATE BASE COURSE
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 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	E3	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	J4	PROPOSED 10″ AGGREGATE BASE COURSE
C4	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E4	PROP. APPROX. 7″ ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	J5	PROPOSED VARIABLE DEPTH AGGREGATE BASE COURSE
C5	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.	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″ OR GREATER THAN 5.5″ IN DEPTH.	K1	BASE TO BE TREATED WITH LIME TO A DEPTH OF 8″ OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7″
C6	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 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	E6	PROP. APPROX. 3″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ YD
C7	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS.PER SQ. YD.	E7	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	2′-6″ CONCRETE CURB & GUTTER
C8	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E8	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R2	1′-6″ CONCRETE CURB & GUTTER
C9	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.	E9	PROP. APPROX. 5.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	R3	SHOULDER BERM GUTTER
C10	PROP. APPROX. 1.25″ ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS.PER SQ. YD.	E10	PROP. APPROX. 6″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R4	CONCRETE EXPRESSWAY GUTTER
D1	PROP. APPROX. 2.5″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E11	PROP. APPROX. 6.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 370.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R5	5″ MONOLITHIC CONCRETE ISLAND (KEYED IN)
D2	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E12	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.	R6	SINGLE FACED CONCRETE BARRIER
D3	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E13	PROP. APPROX. 9″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R7	DOUBLE FACED CONCRETE BARRIER (TYPE T, T1, T2)
D4	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 2.5″ OR GREATER THAN 4″ IN DEPTH.	E14	PROP. APPROX. 10.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 598.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R8	RUMBLE STRIPS
D5	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	E15	PROP. APPROX. 11″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	S	4″ CONCRETE SIDEWALK
D6	PROP. APPROX. 2.5″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E16	PROP. APPROX. 3.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 199 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
D7	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E17	PROP. APPROX. 4.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT
D8	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 2.5″ OR GREATER THAN 4″ IN DEPTH.	E18	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″ OR GREATER THAN 5.5″ IN DEPTH.	V	SPLIT SEAL
D9	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	E19	PROP. APPROX. 12.5″ ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 712.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	W	WEDGING
D10	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	G1	8″ CEMENT TREATED BASE COURSE	Z	NON WOVEN FIBERGLASS/POLYESTER INTERLAYER PAVING MAT
D11	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ OR GREATER THAN 4″ IN DEPTH.	J1	PROPOSED 6″ AGGREGATE BASE COURSE		

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PLANS PREPARED BY :
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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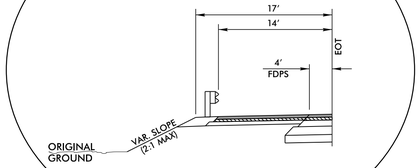
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

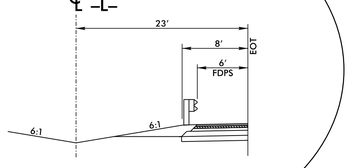
PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
E2	4" B25.0B
E7	4" B25.0C
E8	5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
K1	8" LIME BASE OR 7" CEMENT BASE
P	PRIME COAT
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING
Z	PAVING MAT

SHOULDER WIDENING DETAIL FOR –L–

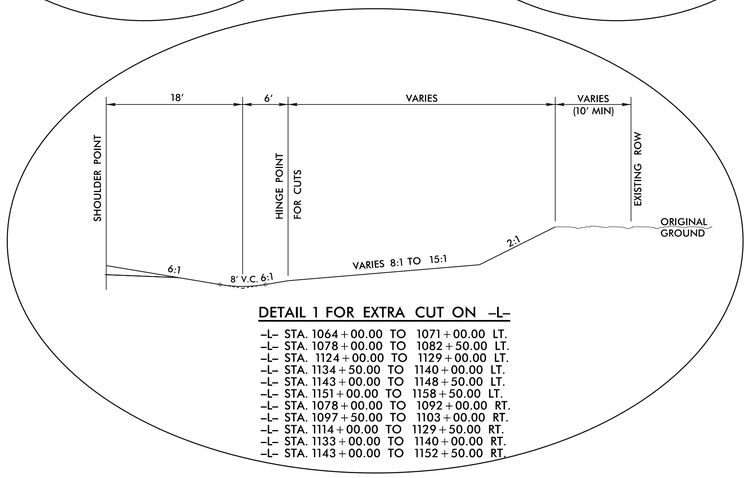


USE PARTIAL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)

DETAIL FOR PLACEMENT OF GUARDRAIL IN MEDIAN OF –L–

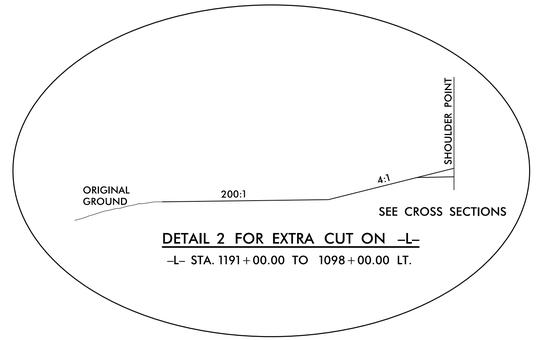


USE FULL DEPTH PAVED SHOULDER TO FACE OF GUARDRAIL (SEE TYPICALS FOR PAVEMENT TYPES)



DETAIL 1 FOR EXTRA CUT ON –L–

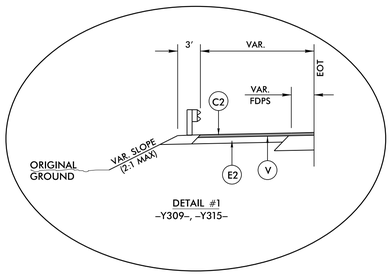
–L– STA. 1064+00.00 TO 1071+00.00 LT.
–L– STA. 1078+00.00 TO 1082+50.00 LT.
–L– STA. 1124+00.00 TO 1129+00.00 LT.
–L– STA. 1134+50.00 TO 1140+00.00 LT.
–L– STA. 1143+00.00 TO 1148+50.00 LT.
–L– STA. 1151+00.00 TO 1158+50.00 LT.
–L– STA. 1078+00.00 TO 1092+00.00 RT.
–L– STA. 1097+50.00 TO 1103+00.00 RT.
–L– STA. 1114+00.00 TO 1129+50.00 RT.
–L– STA. 1133+00.00 TO 1140+00.00 RT.
–L– STA. 1143+00.00 TO 1152+50.00 RT.



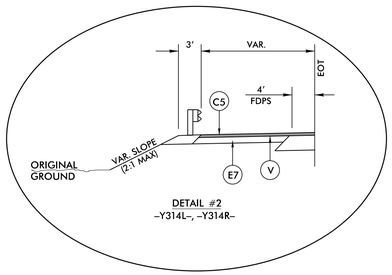
DETAIL 2 FOR EXTRA CUT ON –L–

–L– STA. 1191+00.00 TO 1098+00.00 LT.

SHOULDER WIDENING DETAILS FOR Y–LINES

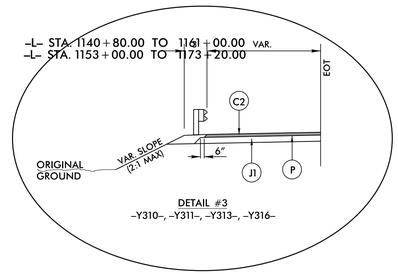


DETAIL #1
–Y309–, –Y315–



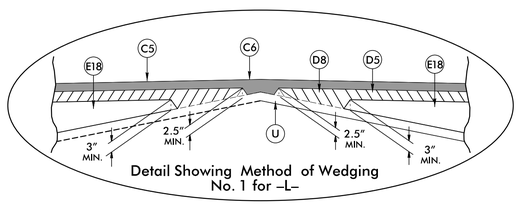
DETAIL #2
–Y314L–, –Y314R–

–L– STA. 1140+80.00 TO 1161+00.00 VAR.
–L– STA. 1153+00.00 TO 1173+20.00

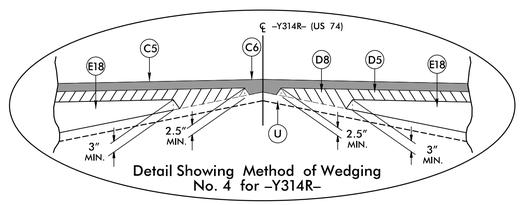


DETAIL #3
–Y310–, –Y311–, –Y313–, –Y316–

WEDGING DETAILS



Detail Showing Method of Wedging
No. 1 for –L–



Detail Showing Method of Wedging
No. 4 for –Y314R–

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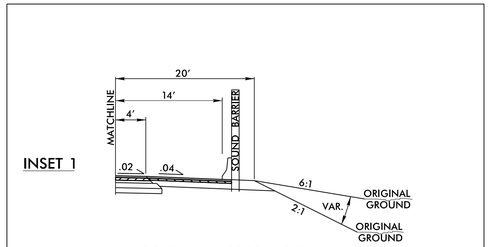
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

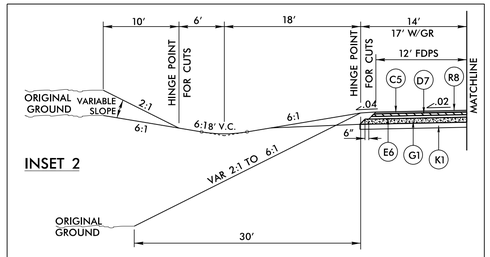
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3″ S9.5B
C5	3″ S9.5C
D1	2.5″ I19.0B
D5	4″ I19.0C
D6	2.5″ I19.0C
E2	4″ B25.0B
E7	4″ B25.0C
E8	5″ B25.0C
G1	8″ CTABC
J1	6″ ABC
J2	8″ ABC
K1	8″ LIME BASE OR 7″ CEMENT BASE
P	PRIME COAT
R8	RUMBLE STRIPS
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING
Z	PAVING MAT

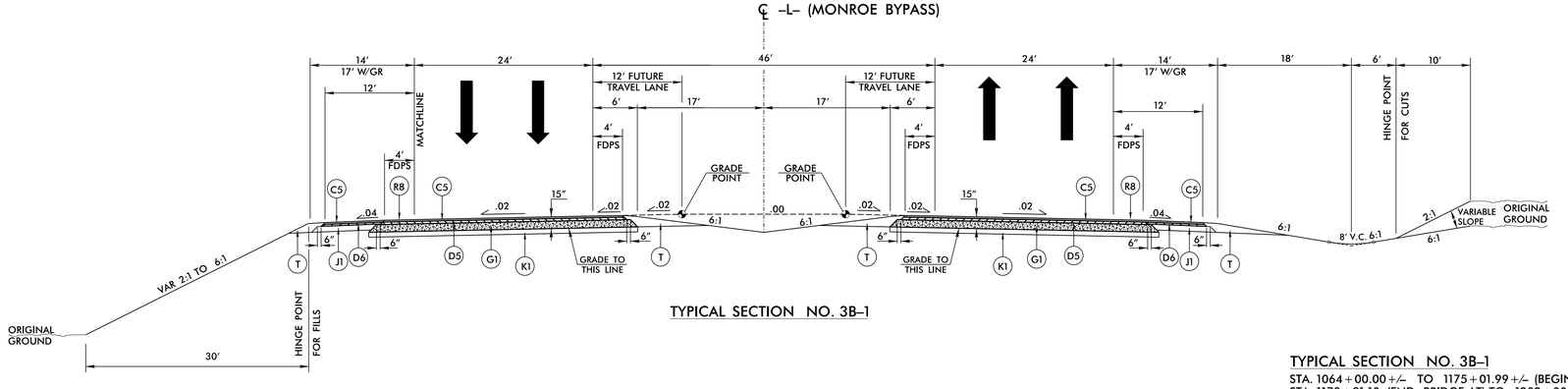


SOUND BARRIER DETAIL

USE AT THE FOLLOWING LOCATIONS
–L– STA. 1095+80.62 TO –L– STA. 1099+14.38 LT.
–L– STA. 1107+84.67 TO –L– STA. 1115+26.06 LT.

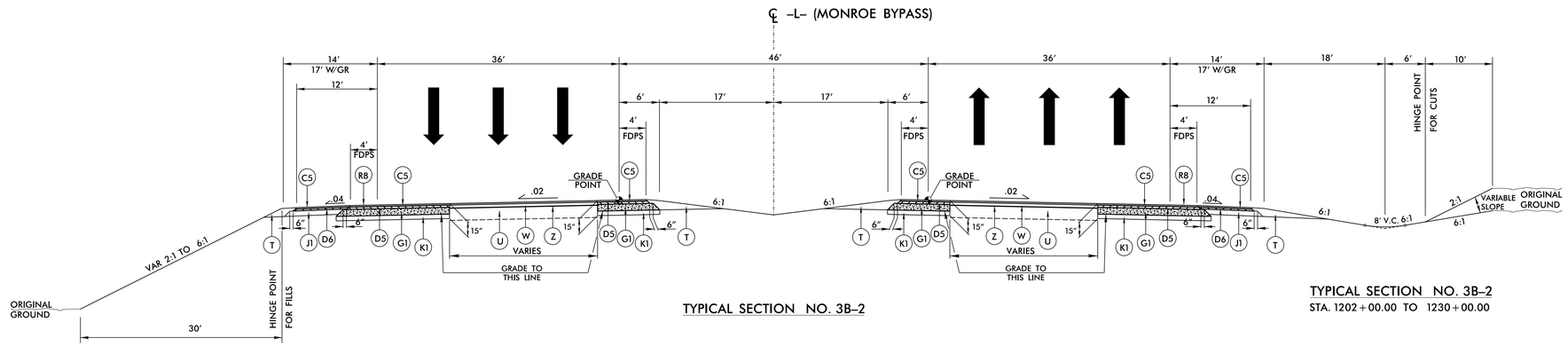


USE INSET A IN CONJUNCTION
WITH TYPICAL SECTION NO. 3B
–L– STA. 1140+80.00 TO 1161+00.00
–L– STA. 1153+00.00 TO 1173+20.00



TYPICAL SECTION NO. 3B–1

TYPICAL SECTION NO. 3B–1
STA. 1064+00.00+/– TO 1175+01.99+/– (BEGIN BRIDGE LT)
STA. 1178+81.10 (END BRIDGE LT) TO 1202+00.00



TYPICAL SECTION NO. 3B–2

TYPICAL SECTION NO. 3B–2
STA. 1202+00.00 TO 1230+00.00

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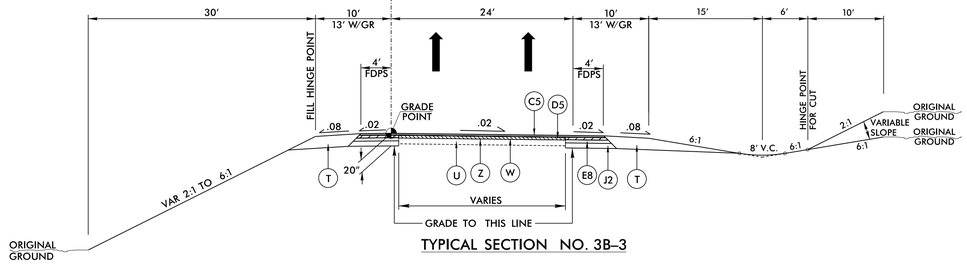
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
E2	4" B25.0B
E7	4" B25.0C
E8	5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
K1	8" LIME BASE OR 7" CEMENT BASE
P	PRIME COAT
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING
Z	PAVING MAT

℄ –Y314R– (US 74 EASTBOUND)

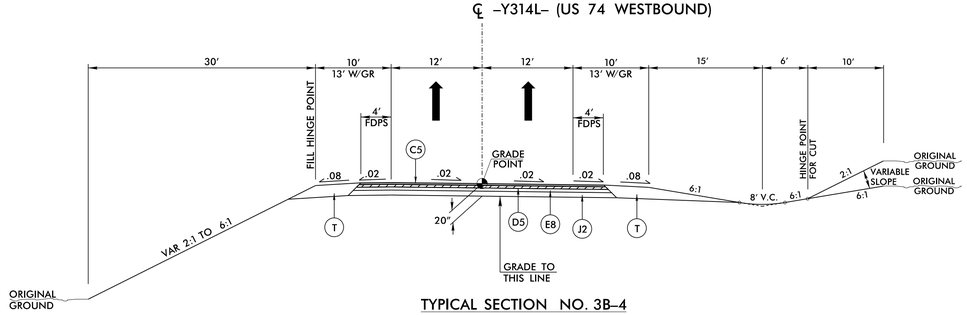


TYPICAL SECTION NO. 3B–3

TYPICAL SECTION NO. 3B–3
STA. 12+25.00 TO 53+12.25

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
STA. 46+02.95 TO 53+12.25

℄ –Y314L– (US 74 WESTBOUND)

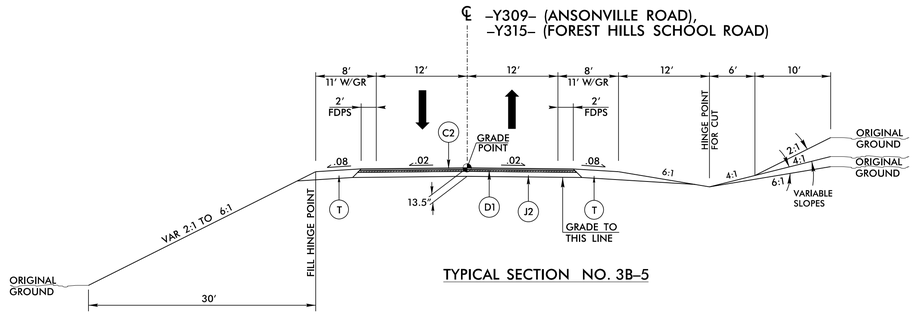


TYPICAL SECTION NO. 3B–4

TYPICAL SECTION NO. 3B–4
STA. 10+00.00 TO 50+00.00

NOTE: USE –L– PAVEMENT DESIGN AT THE FOLLOWING LOCATIONS:
STA. 10+00.00 TO 15+59.07

℄ –Y309– (ANSONVILLE ROAD),
–Y315– (FOREST HILLS SCHOOL ROAD)



TYPICAL SECTION NO. 3B–5

TYPICAL SECTION NO. 3B–5
–Y309– STA. 13+00.00 TO 23+52.09 +/– (BEGIN BRIDGE)
–Y309– STA. 24+86.09 +/– (END BRIDGE) TO 29+50.00
FOREST HILLS SCHOOL ROAD (–Y315–)
–Y315– STA. 12+50.00 TO 19+13.17

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO.3B–5
–Y109– STA. 11+80.00 TO 13+00.00
–Y109– STA 29+50.00 TP 32+25.00

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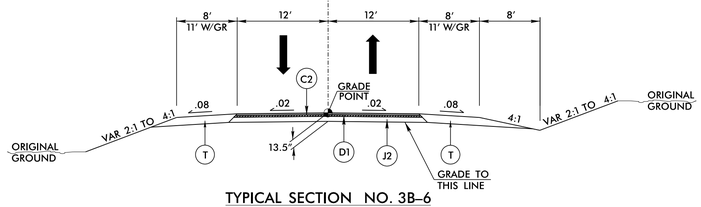
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	2.5" I19.0B
D5	4" I19.0C
D6	2.5" I19.0C
E2	4" B25.0B
E7	4" B25.0C
E8	5" B25.0C
G1	8" CTABC
J1	6" ABC
J2	8" ABC
K1	8" LIME BASE OR 7" CEMENT BASE
P	PRIME COAT
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	SPLIT SEAL
W	WEDGING
Z	PAVING MAT

℄ –Y310– (FOREST HILLS SCHOOL ROAD)



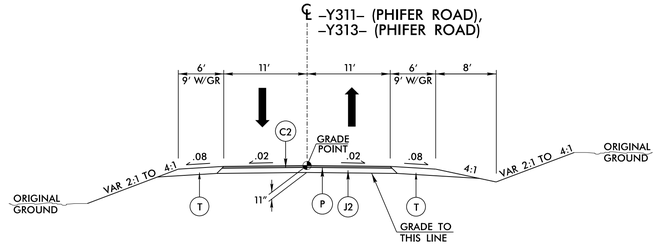
TYPICAL SECTION NO. 3B–6

TYPICAL SECTION NO. 3B–6

STA. 13+50.00 TO 25+60.91+/– (BEGIN BRIDGE)
STA. 26+96.91+/– (END BRIDGE) TO 36+50.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 3B–6
STA. 13+00.00 TO 17+00.00
STA 36+00.00 TP 40+00.00

℄ –Y311– (PHIFER ROAD),
–Y313– (PHIFER ROAD)



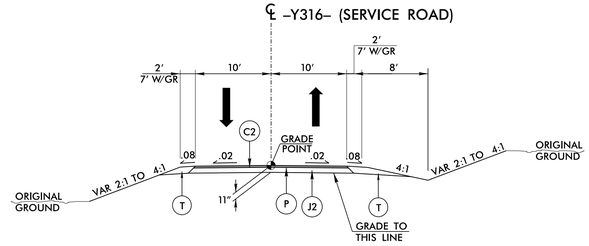
TYPICAL SECTION NO. 3B–7

TYPICAL SECTION NO. 3B–7

–Y311– STA. 10+12.42 TO 26+60.00
–Y313– STA. 15+50.00 TO 23+48.11

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 3B–7
–Y311– STA. 22+00.00 TO 27+10.00
–Y313– STA 15+00.00 TO 17+50.00

℄ –Y316– (SERVICE ROAD)

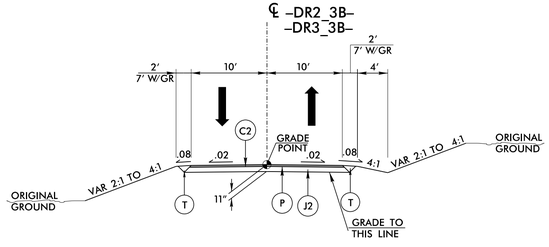


TYPICAL SECTION NO. 3B–8

TYPICAL SECTION NO. 3B–8

STA. 10+27.10 TO 95+05.00

℄ –DR2_3B–
–DR3_3B–



TYPICAL SECTION NO. 3B–9

TYPICAL SECTION NO. 3B–9

–DR2_3B– STA. 10+00.00 TO 13+29.50
–DR3_3B– STA. 10+00.00 TO 12+20.00

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Plans

8/17/99

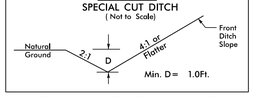
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

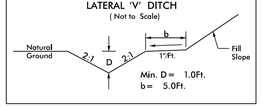
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



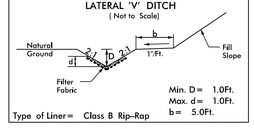
–L– STA. 1064+00 TO STA. 1071+50 LT
–L– STA. 1065+00 TO STA. 1066+50 RT
–L– STA. 1091+50 TO STA. 1095+00 LT
–L– STA. 1102+50 TO STA. 1106+50 RT
–L– STA. 1104+00 TO STA. 1107+00 LT
–L– STA. 1125+00 TO STA. 1131+00 LT
–L– STA. 1128+00 TO STA. 1134+50 RT
–L– STA. 1156+50 TO STA. 1158+50 LT
–Y309– STA. 12+50 TO STA. 13+50 RT
–Y309– STA. 28+00 TO STA. 29+50 RT
–Y309– STA. 30+50 TO STA. 32+00 RT
–Y310– STA. 13+18 TO STA. 14+50 LT
–Y310– STA. 33+00 TO STA. 35+00 LT
–Y310– STA. 39+00 TO STA. 39+92 LT
–Y310– STA. 38+50 TO STA. 40+50 RT
–Y313– STA. 14+74 TO STA. 15+50 LT
–Y313– STA. 14+91 TO STA. 15+50 RT
–Y314L– STA. 29+50 TO STA. 38+00 RT
–Y314L– STA. 30+50 TO STA. 31+00 LT
–Y314L– STA. 37+50 TO STA. 41+00 LT
–Y314R– STA. 16+50 TO STA. 18+00 LT
–Y315– STA. 11+92 TO STA. 14+50 RT
–Y314R– STA. 18+50 TO STA. 27+00 RT
–Y314R– STA. 23+50 TO STA. 25+85 LT
–Y314R– STA. 29+50 TO STA. 32+60 RT
–Y314R– STA. 33+00 TO STA. 37+50 RT
–Y316– STA. 17+00 TO STA. 20+50 RT
–Y316– STA. 13+00 TO STA. 15+00 RT
–Y316– STA. 24+20 TO STA. 25+50 RT
–DR2– STA. 10+25 TO STA. 10+50 RT
–DR2– STA. 10+25 TO STA. 10+50 LT

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



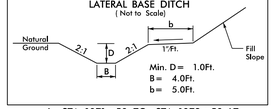
–L– STA. 1064+00 TO STA. 1065+00 RT
–L– STA. 1072+50 TO STA. 1073+50 LT
–L– STA. 1110+30 TO STA. 1112+00 LT
–L– STA. 1158+00 TO STA. 1159+51 RT
–Y309– STA. 15+82 TO STA. 16+70 RT
–Y309– STA. 16+63 TO STA. 17+19 LT
–Y309– STA. 25+35 TO STA. 28+00 RT
–Y310– STA. 22+80 TO STA. 24+50 RT
–Y310– STA. 29+00 TO STA. 33+00 LT
–Y311– STA. 21+00 TO STA. 26+82 RT
–Y314R– STA. 15+50 TO STA. 16+50 LT
–Y315– STA. 15+01 TO STA. 16+50 LT
–Y316– STA. 11+50 TO STA. 13+00 RT
–Y316– STA. 20+50 TO STA. 21+20 RT
–Y316– STA. 25+50 TO STA. 29+00 RT

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



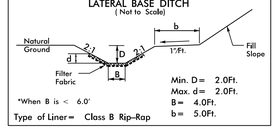
–L– STA. 1137+00 TO STA. 1137+50 LT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



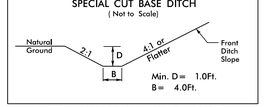
–L– STA. 1071+50 TO STA. 1072+50 LT
–L– STA. 1072+50 TO STA. 1073+95 RT
–L– STA. 1074+00 TO STA. 1076+00 RT
–L– STA. 1095+30 TO STA. 1096+50 RT
–L– STA. 1097+00 TO STA. 1097+94 LT
–L– STA. 1106+50 TO STA. 1111+50 RT
–L– STA. 1108+00 TO STA. 1110+30 LT
–L– STA. 1140+00 TO STA. 1141+50 RT
–L– STA. 1159+00 TO STA. 1162+70 LT
–L– STA. 1161+80 TO STA. 1164+00 RT
–L– STA. 1198+50 TO STA. 1200+00 RT
–L– STA. 1201+41 TO STA. 1205+50 LT
–Y309– STA. 17+00 TO STA. 18+50 RT
–Y309– STA. 20+00 TO STA. 21+00 RT
–Y309– STA. 22+00 TO STA. 23+49 RT
–Y310– STA. 16+50 TO STA. 19+68 LT
–Y310– STA. 21+00 TO STA. 25+60 LT
–Y310– STA. 27+30 TO STA. 29+00 LT
–Y310– STA. 27+50 TO STA. 31+25 RT
–Y311– STA. 10+50 TO STA. 18+50 LT
–Y311– STA. 23+00 TO STA. 24+38 LT
–Y311– STA. 11+00 TO STA. 17+65 RT
–Y313– STA. 17+00 TO STA. 22+50 LT
–Y313– STA. 18+50 TO STA. 22+77 RT
–Y315– STA. 16+50 TO STA. 18+66 LT
–Y316– STA. 29+00 TO STA. 29+72 RT

DETAIL E
LATERAL BASE DITCH
(Not to Scale)

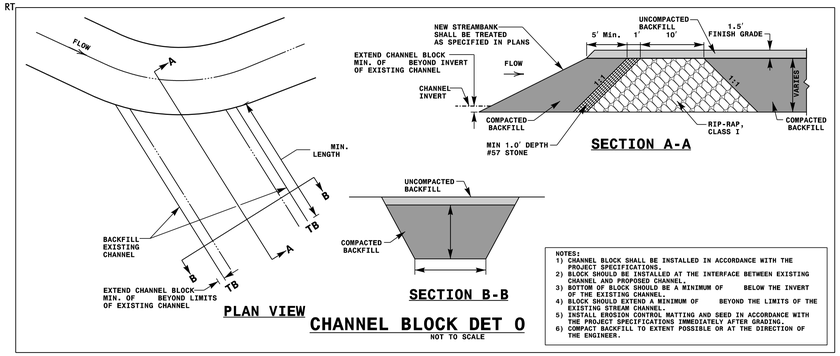


–L– STA. 1076+00 TO STA. 1076+50 RT
–L– STA. 1159+51 TO STA. 1161+80 RT
–L– STA. 1164+00 TO STA. 1165+00 RT
–L– STA. 1201+93 TO STA. 1206+00 RT
–Y309– STA. 18+50 TO STA. 20+00 RT
–Y309– STA. 21+00 TO STA. 22+00 RT

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



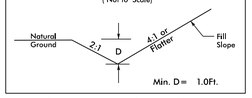
–L– STA. 1140+00 TO STA. 1141+20 LT
–L– STA. 1194+50 TO STA. 1198+50 RT
–Y311– STA. 24+38 TO STA. 27+00 LT



CHANNEL BLOCK DET O
NOT TO SCALE

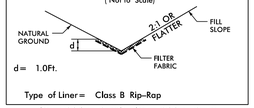
DETAIL O NOT USED IN SECTION 3B

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



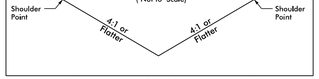
DETAIL G NOT USED IN SECTION 3B

DETAIL H
TOE PROTECTION
(Not to Scale)



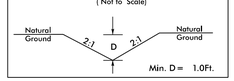
–L– STA. 1096+50 TO STA. 1098+50 LT
–L– STA. 1201+00 TO STA. 1201+78 RT
–L– STA. 1166+00 TO STA. 1167+65 RT
–Y314L– STA. 24+85 TO STA. 28+00 RT
–Y31R– STA. 11+00 TO STA. 12+50 LT

DETAIL I
MEDIAN V DITCH
(Not to Scale)



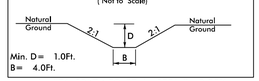
–L– STA. 1091+50 TO STA. 1094+00 MED
–L– STA. 1104+50 TO STA. 1106+50 MED
–L– STA. 1130+00 TO STA. 1135+50 MED
–L– STA. 1157+50 TO STA. 1159+50 MED
–L– STA. 1201+50 TO STA. 1203+00 MED
–L– STA. 1219+50 TO STA. 1223+00 MED

DETAIL J
STANDARD 'V' DITCH
(Not to Scale)



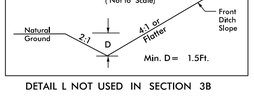
–L– STA. 1092+50 TO STA. 1094+50 LT
–L– STA. 1127+50 LT; L=85', S=0.47%
BEG EL=590.40, END EL. 590.0
–L– STA. 1149+50 LT; L=120', S=0.79%
BEG EL=579.65, END EL. 578.7
–L– STA. 1186+11 TO STA. 1188+00 RT

DETAIL K
STANDARD BASE DITCH
(Not to Scale)



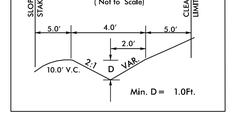
–L– STA. 1067+50 RT; L=182', S=0.55%
BEG EL=531.0, END EL. 530.0
–L– STA. 1068+00 LT; L=101', S=9.85%
BEG EL=543.2, END EL. 532.6
–L– STA. 1071+23 RT; L=89', S=0.90%
BEG EL=533.8, END EL. 533.0
–L– STA. 1072+50 LT; L=82', S=10.00%
BEG EL=543.2, END EL. 535.0
–L– STA. 1094+50 TO STA. 1096+50 LT
–L– STA. 1094+50 RT; L=20', S=0.55%
BEG EL=555.4, END EL. 555.3
–L– STA. 1095+30 RT; L=24', S=0.50%
BEG EL=554.9, END EL. 554.8
–L– STA. 1103+35 TO STA. 1108+00 LT
–L– STA. 1131+00 LT; L=150', S=1.09%
BEG EL=584.4, END EL. 582.8
–L– STA. 1137+50 LT; L=320', S=0.60%
BEG EL=585.4, END EL. 583.5
–L– STA. 1147+54 TO STA. 1148+57 RT
–L– STA. 1194+50 TO STA. 1197+00 RT
–L– STA. 1198+42 LT; L=41', S=4.63%
BEG EL=519.5, END EL. 517.6
–L– STA. 1211+80 LT; L=40', S=1.03%
BEG EL=537.1, END EL. 536.7
–L– STA. 1216+57 LT; L=40', S=0.30%
BEG EL= 541.1, END EL. 540.9
–Y310– STA. 19+56 TO STA. 19+68 LT
–Y310– STA. 24+30 LT; L=150', S=3.03%
BEG EL=585.95, END EL. 581.4
–Y311– STA. 18+75 TO STA. 19+00 RT
–Y314L– STA. 31+00 LT; L=305', S=0.75%
BEG EL=563.5, END EL. 561.2
–Y314R– STA. 25+85 LT; L=279', S=0.36%
BEG EL=565.1, END EL. 564.1
–Y314R– STA. 30+00 TO STA. 31+31 LT
–Y314R– STA. 33+00 TO STA. 34+35 LT

DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



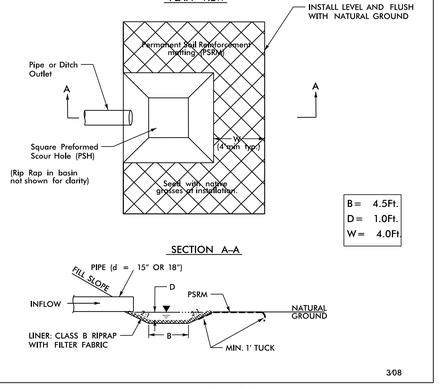
DETAIL L NOT USED IN SECTION 3B

DETAIL M
BERM DITCH
(Not to Scale)



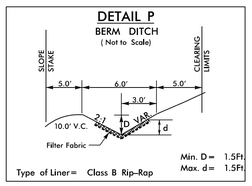
–L– STA. 1120+50 TO STA. 1124+50 RT

PREFORMED SCOUR HOLE SEE DETAIL N
*NOT TO SCALE



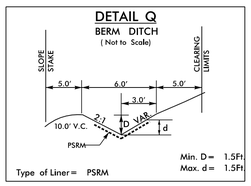
–L– STA. 1094+63 RT
–Y310– STA. 21+60 RT
–L– STA. 1171+50 LT
–L– STA. 1195+50 LT

DETAIL P
BERM DITCH
(Not to Scale)



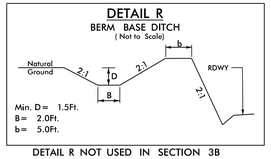
DETAIL P NOT USED IN SECTION 3B

DETAIL Q
BERM DITCH
(Not to Scale)



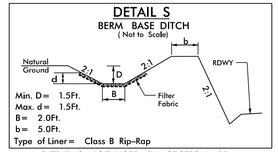
DETAIL Q NOT USED IN SECTION 3B

DETAIL R
BERM BASE DITCH
(Not to Scale)



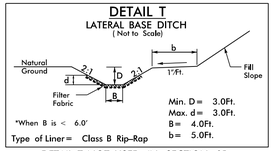
DETAIL R NOT USED IN SECTION 3B

DETAIL S
BERM BASE DITCH
(Not to Scale)



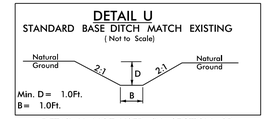
DETAIL S NOT USED IN SECTION 3B

DETAIL T
LATERAL BASE DITCH
(Not to Scale)



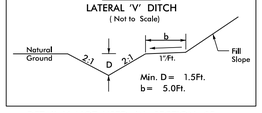
DETAIL T NOT USED IN SECTION 3B

DETAIL U
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



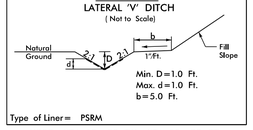
DETAIL U NOT USED IN SECTION 3B

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



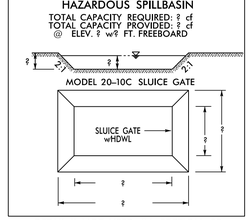
DETAIL V NOT USED IN SECTION 3B

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



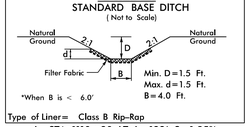
–Y309– STA. 13+50 TO STA. 15+82 RT

DETAIL X
HAZARDOUS SPILLBASIN
TOTAL CAPACITY REQUIRED: ? cf
TOTAL CAPACITY PROVIDED: ? cf
@ ELEV. ? w/ ? FT. FREEBOARD



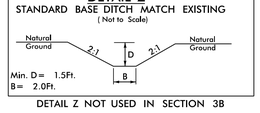
DETAIL X NOT USED IN SECTION 3B

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



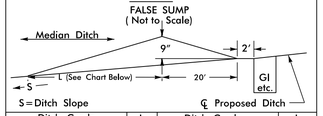
–L– STA. 1110+38 LT; L=122', S=1.95%
BEG EL=572.0, END EL. 569.6
–Y314R– STA. 30+50 LT; L=40', S=3.13%
BEG EL=561.00, END EL. 559.75

DETAIL Z
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



DETAIL Z NOT USED IN SECTION 3B

DETAIL
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'

8/29/2014
E:\Highways\CADD\R3329_R2559_HYD_DitchDet_Sec03B.dgn
Default

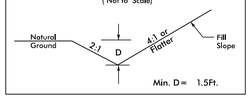
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	3B-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

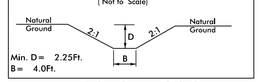
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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



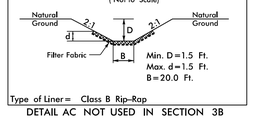
DETAIL AA NOT USED IN SECTION 3B

DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



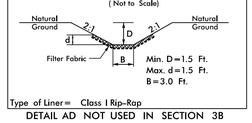
DETAIL BB NOT USED IN SECTION 3B

DETAIL AC
STANDARD BASE DITCH
(Not to Scale)



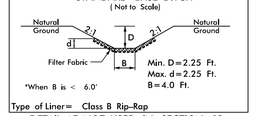
DETAIL AC NOT USED IN SECTION 3B

DETAIL AD
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



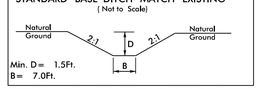
DETAIL AD NOT USED IN SECTION 3B

DETAIL AE
STANDARD BASE DITCH
(Not to Scale)



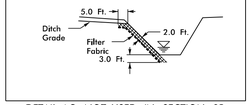
DETAIL AE NOT USED IN SECTION 3B

DETAIL AF
STANDARD BASE DITCH MATCH EXISTING
(Not to Scale)



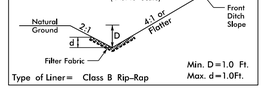
DETAIL AF NOT USED IN SECTION 3B

DETAIL AG
RIP RAP AT EMBANKMENT
(Not to Scale)



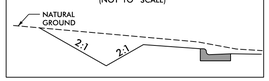
DETAIL AG NOT USED IN SECTION 3B

DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



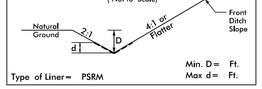
DETAIL AH NOT USED IN SECTION 3B

DETAIL AI
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



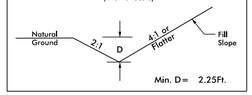
DETAIL AI NOT USED IN SECTION 3B

DETAIL AJ
SPECIAL CUT DITCH
(Not to Scale)



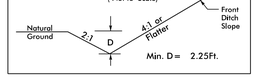
DETAIL AJ NOT USED IN SECTION 3B

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



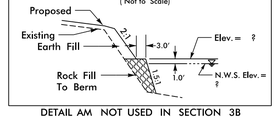
DETAIL AK NOT USED IN SECTION 3B

DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



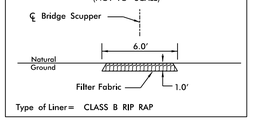
DETAIL AL NOT USED IN SECTION 3B

DETAIL AM
ROCK FILL IN POND
(Not to Scale)



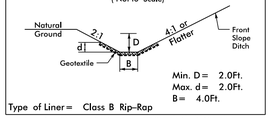
DETAIL AM NOT USED IN SECTION 3B

DETAIL AO
SCOUR PROTECTION
(NOT TO SCALE)



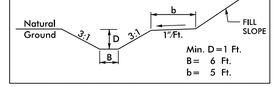
DETAIL AO NOT USED IN SECTION 3B

DETAIL AP
SPECIAL CUT BASE DITCH
(Not to Scale)



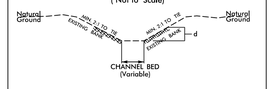
DETAIL AP NOT USED IN SECTION 3B

DETAIL AQ
LATERAL GRASSED SWALE
(Not to Scale)



DETAIL AQ NOT USED IN SECTION 3B

DETAIL AR
BANK STABILIZATION AT PIPE OUTLET
(Not to Scale)



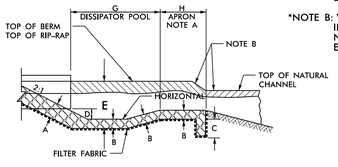
–L3B– STA. 1095+25 RT, L=14', d=1.0'
–Y309– STA. 19+08 LT, L=16', d=0.8'
–Y310– STA. 22+83 RT, L=12', d=1.2'
–Y316– STA. 11+98 RT, L=16', d=1.5'

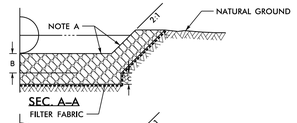
DETAIL AN
RIP–RAPPED ENERGY DISSIPATOR BASIN

*NOTE A: IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A–A SUCH THAT Q des/(CROSS SECTION AREA AT SEC. A–A)= SPECIFIED VELOCITY.

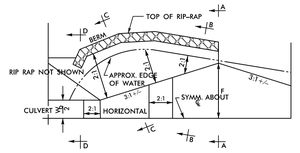
*NOTE B: WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL TOP OF RIP–RAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A–A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.

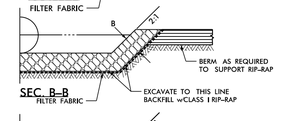
℄ SECTION

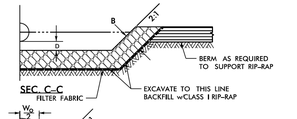




HALF PLAN







DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A								
B								
C								
D								
E								
F								
G								
H								

*ALL DIMENSIONS APPROXIMATE IN FEET

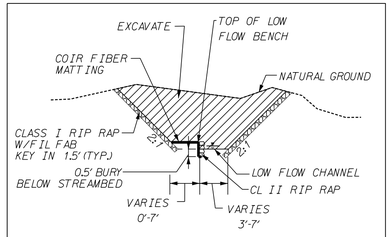
BASIN #	LOCATION (AT OUTLET)
1	
2	
3	
4	
5	
6	
7	
8	

DETAIL AN NOT USED IN SECTION 3B

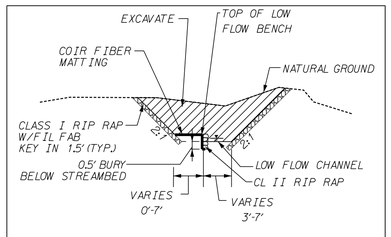
NOTE:
Wo= DIAMETER OF PIPE, WIDTH OF BOX OR SPAN OF PIPE–ARCH CULVERTS

5/05

UT TO MEADOW BRANCH
–L– STA. 1074+23

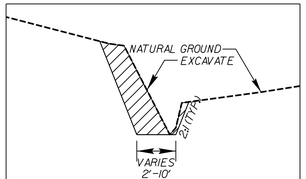


CULVERT INLET DETAIL (NTS)
LENGTH=39'



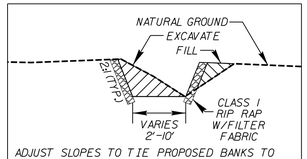
CULVERT OUTLET DETAIL (NTS)
LENGTH=36'

UT TO SALEM CREEK
–L– STA. 1162+27



ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

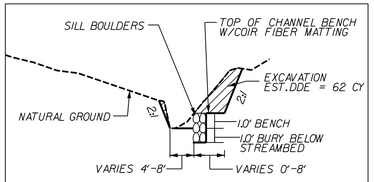
CULVERT INLET DETAIL (NTS)
LENGTH=33'



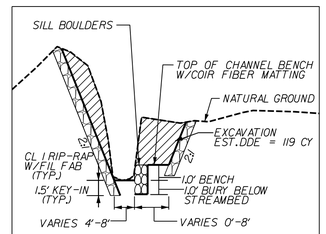
ADJUST SLOPES TO TIE PROPOSED BANKS TO TOP OF EXISTING BANKS AT CHANNEL IMPROVEMENT TIE IN.

CULVERT OUTLET DETAIL (NTS)
LENGTH=53'

SALEM CREEK
–L– STA. 1201+62



CULVERT INLET DETAIL (NTS)
LENGTH=47'



CULVERT OUTLET DETAIL (NTS)
LENGTH=52'

8/30/2004
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	64
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

709
NCDOT

-L- Sta 1064+99.93 BK =
-L- Sta 1065+00.00 AH

MATCHLINE -L- STA. 1064+00 SEE SHEET 63

MATCHLINE -L- STA. 1078+00 SEE SHEET 65

-BL-86 PNC 83+53.12

-BL-87 PNC 80+17

-BL-88 PNC 74+6.4

EXISTING R/W

PROP 48" WW FENCE

STANDARD BASE DITCH SEE DETAIL K (6403)

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL A

STANDARD BASE DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

SEE CULVERT INLET DETAIL STA. 1074+23

END 48" WW FENCE

CLASS 'I' RIP RAP EST. 31 TONS

BEGIN 48" WW FENCE

END SBG +00

GRAU 350

BEG. SBG +45

CAT-1

1065+00

1070+00

S 87° 42' 47.2" E

-L-

1075+00

15" RCP-III 2GI (6401)

24" RCP-III FS 2GI (6404)

24" RCP-III FS 2GI (6407)

15" RCP-III FS 2GI (6410)

72" RCBC

15" RCP-III FS 2GI (6416)

30" RCP-III 2GI-A

LATERAL V DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL A

5 TONS CL B RIPRAP W/14 SY FIL FAB (6405)

STANDARD BASE DITCH SEE DETAIL K

5 TONS CL B RIPRAP W/14 SY FIL FAB (6408)

STANDARD BASE DITCH SEE DETAIL K

BEG. SBG +45

15" RCP-III (6412) 2GI 15" RCP-III 2GI (6411)

2 TONS CL B RIPRAP W/7 SY FIL FAB (6413)

CAT-1

BEGIN 48" WW FENCE

END SBG +61

LATERAL BASE DITCH SEE DETAIL D

CLASS 'I' RIP RAP EST. 36 TONS

END 48" WW FENCE

SEE CULVERT OUTLET DETAIL STA. 1074+23

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

FS 36" RCP-III (6415) 2GI-A

15 TONS CL I RIPRAP W/30 SY FIL FAB

PROP 48" WW FENCE

4' WW FENCE

4' WW FENCE

WOODS

GR

CONC

PILE

G

711
CHARLES C. BIVENS
DB 472 PG 785

712
TIMOTHY L. BANNISTER AND WIFE, KIMBERLY BANNISTER
DB 1811 PG 779

713
DOROTHY E. EDWARDS
DB 96 PG 071

S 20°21'43" E 436.16' EIP

S 20°21'43" E 320.06'

S 20°20'05" E 184.82'

S 19°18'16" W 182.22'

S 69°34'40" E 320.00'

30' NON-EXCLUSIVE R/W FOR INGRESS AND EGRESS

S 88°35'28" E 93.40'

N 88°23'42" E 82.55'

EIP

N 87°37'47" E 792.18'

N 57°15'29" E 436.13'

UNION COUNTY
WINGATE TOWN LIMITS

PINE KNOT

FOR -L- PROFILE SEE SHT. 155

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/30/2014
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8/17/99

PLANS PREPARED BY :

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	65
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE –Y309– STA. 27+00
SEE SHEET 114

MATCHLINE –L– STA. 1078+00 SEE SHEET 64

MATCHLINE –L– STA. 1092+00 SEE SHEET 66

MATCHLINE –Y309– STA. 20+00
SEE SHEET 113

709 NCDOT

713 DOROTHY E. EDWARDS
DB 96 PG 071

715 NCDOT
DB 1852 PG 546

WOODS

EXISTING R/W

PROP 48" WW FENCE

–L– POT Sta. 1090+82.01 =
–Y309– POT Sta. 24+19.09

–Y309– TS Sta. 25+60.75

–Y309– PT Sta. 21+71.91

–L– S 87° 42' 47.2" E

–BL-89 PINC 8|9+99.18

–BL-90 PINC 8|9+99.18

–BL-91 PINC 883+55.58

–BL-92 PINC

–BY13 PINC

1080+00

1085+00

1090+00

30" RCP-III

24" RCP-III

15" RCP-III

2GI-A

2GI

6502 6503 6504 6505 6506 6507 6508 6509 6510 6511 6512 6513

–L– +65.00
230.00'

–L– +95.00
230.00'

–L– +55.00
180.45'

–L– +11.69
180.45'

–L– +04.88
237.73'

–Y309– +53.00
91.00'

–Y309– +66.00
96.37'

–Y309– +42.00
99.14'

–Y309– +38.00
126.00'

–Y309– +98.00
120.00'

–Y309– +00.00
103.88'

–Y309– +68.12
75.94'

–Y309– +30.00
90.00'

5 TONS CL B RIPRAP W/14 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

REMOVE 24" RCP-IV

LATERAL V DITCH SEE DETAIL B

BEG. SBG +27

END SBG +40

BEG. SBG +23

15" CAAP 2 ELBOWS ROD & LUG

SPECIAL CUT DITCH SEE DETAIL A

CONC. BARRIER

TYPE B-77

MSE WALL

MEDIAN V DITCH SEE DETAIL I

ATTENUATOR

6" SCUPPERS

GRAU 350

END SBG +11

BEG. SBG +75

END SBG +15

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

LATERAL V DITCH SEE DETAIL D

BEGIN 48" WW FENCE

END 48" WW FENCE

2@48" RCP-V

N 9°00'27" W

N 86°50'46" W

223.10'

25+00 PROP. SBG

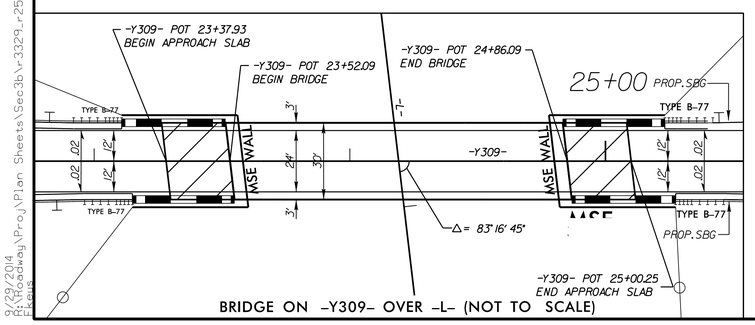
–Y309–

PI Sta 19+62.50
Δ = 2° 05' 12.9" (LT)
D = 0° 29' 53.6"
L = 418.87'
T = 209.46'
R = 11,500.00'
SE = NC
DS = 50mph

PIs Sta 26+94.20
Θs = 7° 32' 20.1"
Ls = 200.00'
LT = 133.45'
ST = 66.78'

NOTES:

INSTALL ONE 48" RCP AT –Y309– STA. 19+77 BURIED 0.8' BELOW WETLAND ELEVATION INSTALL SECOND 48" RCP 1.0' ABOVE WETLAND ELEVATION.



BRIDGE ON –Y309– OVER –L– (NOT TO SCALE)

FOR –L– PROFILE SEE SHT. 155
FOR –Y309– PROFILE SEE SHT. 227

8/29/2014
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jlewis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	66
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

NOTES:

INSTALL BOTH 42" RCPS AT –L– STA. 1096+08 AT EXIST. WETLAND ELEVATION DO NOT BURY

MATCHLINE –L– STA. 1092+00 SEE SHEET 65

MATCHLINE –L– STA. 1106+00 SEE SHEET 67

MARTHA G. COLEY
DB 1088 PG 495

DOROTHY E. EDWARDS
DB 96 PG 071

STANDARD V DITCH SEE DETAIL J

PROPOSED SOUND BARRIER WALL #3

SPECIAL CUT DITCH SEE DETAIL A

STANDARD BASE DITCH SEE DETAIL K

FALSE SUMP ELEV. 564.00

2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL D

TOE PROTECTION SEE DETAIL H

PROP 48" WW FENCE

MEDIAN V DITCH SEE DETAIL I

GRAU 350

3 TONS CL B RIPRAP W/10 SY FIL FAB

13 TONS CL I RIPRAP W/30 SY FIL FAB ON BANKS ONLY

5 TONS CL B RIPRAP W/14 SY FIL FAB

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

-L- TS Sta. 1097+84.66

-L- SC Sta. 1100+34.66

1095+00

1100+00

1105+00

S 87° 42' 47.2" E

62.5' TYP.

APPROXIMATE LOCATION

-L-	
PIs Sta 1099+51.33	PI Sta 1127+95.72
Θs = 1° 14' 47.9"	Δ = 51° 20' 17.1" (RT)
Ls = 250.00'	D = 0° 59' 50.3"
LT = 166.67'	L = 5,147.63'
ST = 83.34'	T = 2,761.06'
	R = 5,745.00'
	SE = 0.04
	DS = 70mph

FOR –L– PROFILE SEE SHT. 156

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	67
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

8/17/99

(740) CRAFT HOLDINGS, LLC
DB 4597 PG 386

(726) MARTHA G. COLEY
DB 1088 PG 495

(741) NELSON REID PHIFER
DB 391 PG 668

EIP

N 20°31'38" E
165.44'

N 74°15'59" E
24.86'

S 23°43'50" E
22.37'

EXISTING R/W

PROP 48" WW FENCE
R=5921.90'

STANDARD BASE DITCH
SEE DETAIL Y

STANDARD BASE DITCH
SEE DETAIL K

SPECIAL CUT DITCH
SEE DETAIL A

2 TONS CL B RIPRAP
W/7 SY FIL FAB (6705)

LATERAL BASE DITCH
SEE DETAIL D (6706)

LATERAL V DITCH
SEE DETAIL B

PROPOSED SOUND BARRIER WALL #3

TYPE B-77

GRAU 350

DL-97 PNC

DL-98 PNC

MATCHLINE -L- STA. 1106+00 SEE SHEET 66

MATCHLINE -L- STA. 1120+00 SEE SHEET 68

15" RCP-III

48" RCP-III

36" RCP-III

30" RCP-III

2GI (6701)

2GI (6702)

MEDIAN V DITCH
SEE DETAIL I

2GI (6703)

2GI-A (6707)

2GI (6711)

2GI (6712)

2GI (6713)

2GI-A (6714)

2GI (6715)

2GI-A (6716)

2 TONS CL B RIPRAP
W/7 SY FIL FAB

SPECIAL CUT DITCH
SEE DETAIL A

26 TONS CL I RIPRAP
W/50 SY FIL FAB

LATERAL BASE DITCH
SEE DETAIL D

11 TONS CL B RIPRAP
W/28 SY FIL FAB

1110+00

1115+00

-L-

4" & 8" SSW

EXISTING R/W

R=5561.01'

PROP 48" WW FENCE

(748) EDWARDS WOOD PRODUCTS
DB 361 PG 523

(749) WRISTON ARTHUR DAVIS
AND WIFE,
CLARA BELLE DAVIS
DB 3850 PG 578

(721) DOROTHY E. EDWARDS
DB 96 PG 071

S 0°29'08" E
311.20'

N 74°15'59" E
598.40'

-L-
PI Sta 1127+95.72
Δ = 51° 20' 17.1" (RT)
D = 0° 59' 50.3"
L = 5,147.63'
T = 2,761.06'
R = 5,745.00'
SE = 0.04
DS = 70mph

FOR -L- PROFILE SEE SHT. 156

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

9/28/2014
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ERavis

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	68
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

-L-
PI Sta 1127+95.72
△ = 51° 20' 17.1" (RT)
D = 0° 59' 50.3"
L = 5,147.63'
T = 2,761.06'
R = 5,745.00'
SE = 0.04
DS = 70mph

MATCHLINE -L- STA. 1120+00 SEE SHEET 67

MATCHLINE -L- STA. 1134+00 SEE SHEET 69

741 NELSON REID PHIFER DB 391 PG 668

742 NELSON REID PHIFER DB 391 PG 668

749 WRISTON ARTHUR DAVIS AND WIFE, CLARA BELLE DAVIS DB 3850 PG 578

750 DONALD R. GOODMAN AND WIFE, KAREN H. GOODMAN DB 751 PG 626

751 NCDOT DB 1867 PG 261

755 GARY VAN PHIFER AND WIFE, KATHRYN L. PHIFER DB 1542 PG 854

756 GARY VAN PHIFER AND WIFE, KATHRYN L. PHIFER DB 453 PG 243

WOODS

EXISTING R/W R=5921.90'

PROP 48" WW FENCE

BL-99 PINC 324+01

STANDARD V DITCH SEE DETAIL J

STANDARD BASE DITCH SEE DETAIL K

3 TONS CL B RIPRAP W/10 SY FIL FAB

SPECIAL CUT DITCH SEE DETAIL A

MEDIAN V DITCH SEE DETAIL I

1125+00

1130+00

-L-

18" RCP-III

15" RCP-III

30" RCP-III

2GI

2GI-A

FS

BDO

15" CAAP 2 ELBOWS ROD & LUG

BERM DITCH SEE DETAIL M

-L- +30.00 235.00'

-L- +52.00 254.00'

-L- +02.00 252.00'

-L- +51.00 292.00'

-L- +70.00 179.83'

-L- +10.00 179.83'

-L- +30.00 210'

-L- +80.00 220'

PUE

FUEL TANK

CONC PADS

R=5561.01'

R=11811.00'

R=11897.50'

S 22°41'47" E 104.38'

S 22°41'47" E 96.76'

S 32°28'08" E 223.00'

S 83°26'09" E 23.53'

N 14°21'51" E 149.70'

N 89°12'27" W 211.89'

S 89°33'43" E 103.89'

N 08°45'07" W 186.98'

S 89°33'43" E 211.55'

S 00°26'33" E 182.98'

EIP

FOR -L- PROFILE SEE SHT. 157

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/29/2014
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E.Evans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	69
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-	-Y310-
PI Sta 1127+95.72	PI Sta 19+41.82
△ = 51° 20' 17.1" (RT)	△ = 40° 07' 49.3" (RT)
D = 0° 59' 50.3"	D = 4° 46' 28.7"
L = 5,147.63'	L = 840.49'
T = 2,761.06'	T = 438.31'
R = 5,745.00'	R = 1,200.00'
SE = 0.04	SE = 0.06
DS = 70mph	DS = 50mph

MATCHLINE -Y310- STA. 30+50 SEE SHEET 116

MATCHLINE -L- STA. 1134+00 SEE SHEET 68

MATCHLINE -L- STA. 1148+00 SEE SHEET 70

MATCHLINE -Y310- STA. 21+50 SEE SHEET 115

-L- POC Sta. 1142+45.22 = -Y310- POT Sta. 26+28.64

-Y310- PT Sta. 23+43.99

NAD 83

N. 36° 32' 18.5" E.

742 NELSON REID PHIFER DB 391 PG 668

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

804 THOMAS E. TRAYWICK, JR. DB 138 PG 478

331 NCDOT DB 1907 PG 456

PROP 48" WW FENCE

EXISTING R/W

-BL-100 PINC

-BL-101R PINC

-BY14- PINC

-BY15- PINC

-BL-102 PINC

STANDARD BASE DITCH SEE DETAIL K

REMOVE

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL C

3 TONS CL B RIPRAP W/10 SY FIL FAB

SPECIAL CUT BASE DITCH SEE DETAIL F

GRADE TO DRAIN

2 TONS CL B RIPRAP W/7 SY FIL FAB

MEDIAN V DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL A

LATERAL 'V' DITCH SEE DETAIL B

5 TONS CL B RIPRAP W/14 SY FIL FAB

15 TONS CL I RIPRAP W/30 SY FIL FAB ON BANKS ONLY

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

PSH SEE DETAIL N

MSE WALL

CONC. BARRIER

ATTENUATOR

TYPE B-77

2-6" SCUPPERS EACH SIDE

GRAU 350

END SBG +01

END SBG +19

END SBG +25

BEG. SBG +38

BEG. SBG +32

BEG. SBG +73

15" CAAP 2 ELBOWS ROD & LUG

15" CSP 2 ELBOWS ROD & LUG

18" RCP-III

24" RCP-III

36" RCP-IV

15" RCP-III

2GI

2GID

FS

HW

BEGIN F.D.P.S.

F.D.P.S.

P.S.

1135+00

1140+00

1145+00

+15.00 80.00' LT

+70.00 80.00' RT

+85.00 100.00' LT

+50.00 90.00' RT

+80.00 115.00' LT

+70.00 95.00' RT

+10.00 90.00' RT

+17.87 125.21' LT

BRIDGE ON -Y310- OVER -L- (NOT TO SCALE)

-Y310- POT 25+60.64 BEGIN BRIDGE

-Y310- POT 25+46.48 BEGIN APPROACH SLAB

-Y310- POT 26+96.64 END BRIDGE

-Y310- POT 27+10.79 END APPROACH SLAB

△ = 98° 59' 15"

PROP. SBG

TYPE B-77

MSE WALL

-Y310-

OBLITERATE

FOR -L- PROFILE SEE SHT. 157
FOR -Y310- PROFILE SEE SHT. 228

PLANS PREPARED BY :

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	70
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE –L– STA. 1148+00
SEE SHEET 69

MATCHLINE –L– STA. 1161+00
SEE SHEET 71

796
THOMAS E. TRAYWICK, JR.
DB 138 PG 478

795
THOMAS E. TRAYWICK, JR.
AND
SARAH H. TRAYWICK
PC E FILE 988

796
THOMAS E. TRAYWICK, JR.
DB 138 PG 478

804
THOMAS E. TRAYWICK, JR.
DB 138 PG 478

S 80°13'15" E
177.55'

S 09°00'14" E
389.39'

N 89°38'42" E
275.06'

-BY15-3 PINC 19+78.95

REMOVE

GRADE TO DRAIN

EXISTING R/W

PROP 48" WW FENCE

STANDARD V DITCH
SEE DETAIL J

STANDARD BASE DITCH
SEE DETAIL K

SPECIAL CUT DITCH
SEE DETAIL A

LATERAL BASE DITCH
SEE DETAIL D

LATERAL V DITCH
SEE DETAIL B

LATERAL BASE DITCH
SEE DETAIL E

MEDIAN V DITCH
SEE DETAIL I

8 TONS CL B RIP RAP
W/21 SY FIL FAB

2 TONS CL B RIP RAP
W/7 SY FIL FAB

2 TONS CL B RIP RAP
W/7 SY FIL FAB

END FDPS +00

1150+00

1155+00

1160+00

-L- S 33°52'54.3" E

-L- CS Sta. 1151+82.29

-L- ST Sta. 1154+32.29

GRAU 350

SINGLE FACE
CONC. BARRIER

62.5'
(TYP.)

12' P.S.

+00 BEGIN F.D.P.S.

12' F.D.P.S.

24" RCP-III

18" RCP-III

15" RCP-III

30" RCP-III

15" CSP
2 ELBOWS
ROD & LUG

15" CAAP
2 ELBOWS
ROD & LUG

BEG. SBG
+00

BEG. SBG
+82

TYPE B-77

GRADE TO DRAIN

PIPES
DO NOT
INTERSECT

CAT-1

HW

2GI

FS

7001 7002 7003 7004 7006 7007 7008 7009 7010 7011 7012 7013 7014 7015 7016 7017

-BL-103 PINC
956+28.87

3.3 W.L. & G. ELEC.

MTL. S

OBLITERATE

FOR –L– PROFILE SEE SHT. 158

FOR AET SITE DETAIL SEE SHT. AET-8

-L-

PI Sta 1127+95.72	PIs Sta 1152+65.62
△ = 51° 20' 17.1" (RT)	Θs = 1° 14' 47.9"
D = 0° 59' 50.3"	Ls = 250.00'
L = 5,147.63'	LT = 166.67'
T = 2,761.06'	ST = 83.34'
R = 5,745.00'	
SE = 0.04	
DS = 70mph	

PLANS PREPARED BY :

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Figure

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	71
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PIs Sta 1172+04.24	PI Sta 1180+77.94
Θs = 5° 25' 59.6"	Δ = 47° 23' 59.8" (LT)
Ls = 330.00'	D = 3° 17' 34.3"
LT = 220.10'	L = 1,439.48'
ST = 110.09'	T = 763.81'
	R = 1,740.00'
	SE = 0.06
	DS = 60mph

NAD 83

796
THOMAS E. TRAYWICK, JR.
DB 138 PG 478

BRUCE C. PHIFER (HEIRS)
DB 110 PG 231

797
NCDOT
DB 1840 PG 681

N 70°58'04" E
256.38'

NOTES:
INSTALL 72" RCP AND 10'X6' RCBC AT -L- STA. 1162+00 BURIED 1.0' BELOW WETLAND ELEVATION. DO NOT BURY 42" RCP PIPE.

NOTES:
INSTALL 48" RCP AT -L- STA. 1167+23 AT EXIST WETLAND ELEVATION (DO NOT BURY).

MATCHLINE -L- STA. 1161+00 SEE SHEET 70

SEE CULVERT OUTLET DETAIL STA. 1162+27

13 TONS CL I RIP RAP W/30 SY FIL FAB

CLASS 'II' RIP RAP EST. 28 TONS

LATERAL BASE DITCH SEE DETAIL D

END 48" WW FENCE

72" RCP-III

BEGIN 48" WW FENCE

10'x6' RCBC

42" RCP-III

S 33° 52' 54.3" E

BANK TO BANK WETLANDS

-BL- 105 PINC 85+23.17

WOODS

26 TONS CL I RIP RAP W/50 SY FIL FAB

48" RCP-IV

EXISTING R/W

PROP 48" WW FENCE

R=2116.14'

-L- TS Sta. 1169+84.13

-L- SC Sta. 1173+14.13

-BL- 106 PINC 170+43

7103 PSH

7102 15" CAAP 2 ELBOWS ROD & LUG

55' (TYP.)

7101 15" RCP-III

TYPE M350

7104 2GI

7105 2GI

7106 2GI

15" RCP-III

1165+00

1170+00

-L-

END SBG +00

END F.D. +20

18" CSP 2 ELBOWS ROD & LUG

7107 3 TONS CL B RIP RAP W/10 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

TOE PROTECTION SEE DETAIL H

7108

HW

SEE CULVERT INLET DETAIL STA. 1162+27

MATCHLINE -L- STA. 1174+00 SEE SHEET 72

ENCASEMENT VENT F.D.

6" CAST IRON

PROP 48" WW FENCE

R=2417.03'

BANK TO BANK WETLANDS

-BL- 106 PINC 2146.57

-CSX- POT Sta. 10+00.00

10+00

CSX R/R

797
NCDOT
DB 1840 PG 681

845
NCDOT
DB 1886 PG 511

MTL S

S 77°05'58" W
660.08'

WOODS

FOR -L- PROFILE SEE SHT. 158

PLANS PREPARED BY :

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E.Ellis

REVISIONS
1. 6/26/2014: ADDED R/W TAKE TO PARCEL 829.

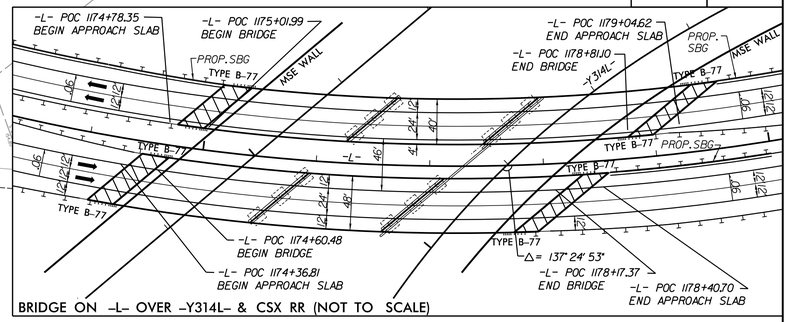
PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	72
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PI Sta 1180+77.94	PIs Sta 1188+63.70	PIs Sta 44+97.55	PI Sta 48+78.46	PIs Sta 52+58.91	PIs Sta 10+66.67	PI Sta 13+81.37	PIs Sta 15+94.07	PIs Sta 26+75.28	PI Sta 30+43.91	PIs Sta 33+86.27
Δ = 41° 23' 59.2" (LT)	Θs = 5° 25' 59.6"	Θs = 0° 17' 11.3"	Δ = 5° 04' 15.2" (RT)	Θs = 0° 17' 11.3"	Θs = 1° 03' 11.6"	Δ = 11° 48' 42.3" (RT)	Θs = 1° 03' 11.6"	Θs = 7° 09' 43.1"	Δ = 41° 22' 19.1" (LT)	Θs = 7° 09' 43.1"
D = 3° 17' 34.3"	Ls = 330.07'	Ls = 80.00'	D = 1° 42' 58.3"	Ls = 80.00'	Ls = 100.00'	D = 2° 08' 23.3"	Ls = 100.00'	Ls = 200.00'	D = 7° 09' 43.1"	Ls = 200.00'
L = 1439.48'	L = 2210.00'	LT = 5.33.3'	L = 708.03'	LT = 53.33'	LT = 66.67'	L = 560.74'	LT = 66.67'	LT = 133.44'	L = 517.86'	LT = 133.44'
T = 763.30'	LT = 1110.09'	ST = 26.67'	T = 354.05'	ST = 26.67'	ST = 33.33'	T = 280.37'	ST = 33.33'	ST = 66.71'	T = 302.22'	ST = 66.71'
R = 1740.00'			R = 8000.00'			R = 2720.00'			R = 800.00'	
SE = 0.06			SE = NC			SE = 0.04			SE = 0.08	
DS = 60mph			DS = 50mph			DS = 50mph			DS = 50mph	



BRIDGE ON -L- OVER -Y314L- & CSX RR (NOT TO SCALE)

MATCHLINE -L- STA. 1174+00 SEE SHEET 71

MATCHLINE -Y314L- STA. 32+50 SEE SHEET 118

MATCHLINE -Y314R- STA. 28+00 SEE SHEET 118

MATCHLINE -L- STA. 1202+00 SEE SHEET 73

-CSX- POT Sta. 22+00.00

-L- POC Sta. 1177+67.62 = -Y314L- POC Sta. 29+01.59

-Y314L- SC Sta. 27+41.84

-Y314L- TS Sta. 25+41.84

-L- CS Sta. 1187+53.61

-Y314L- ST Sta. 17+60.74

-Y314L- CS Sta. 15+60.74

-L- ST Sta. 1190+83.61

-Y314L- SC Sta. 11+00.00

-Y314L- TS Sta. 10+00.00 = -L- POT Sta. 1191+16.01 (49' LT)

-Y314R- TS Sta. 44+44.22

-Y314R- SC Sta. 45+24.22

-Y314R- CS Sta. 52+32.25

-Y314R- ST Sta. 53+12.25 = -L- POT Sta. 1201+63.80 (49' RT)

END CONSTRUCTION -Y316- POT Sta. 42+00.00

OBLITERATE

FOR -L- PROFILE SEE SHTS. 158 & 159
FOR -Y314L- PROFILE SEE SHT. 232
FOR -Y314R- PROFILE SEE SHTS. 230 & 231
FOR -Y316- PROFILE SEE SHTS. 234 & 235

GRAPHIC SCALE
50 25 0 50 100
PLANS

PLANS PREPARED BY :
RK&K
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	73
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE –L– STA. 1202+00 SEE SHEET 72

MATCHLINE –L– STA. 1216+00 SEE SHEET 74

PROP 48" WW FENCE

EXISTING R/W

B20
GRIFFIN INDUSTRIES, INC.
DB 5520 PG 11

CONC PAD

GRAVEL PARKING

7302 2 TONS CL B RIPRAP W/7 SY FIL FAB

LATERAL BASE DITCH SEE DETAIL D

2 TONS CL B RIPRAP W/7 SY FIL FAB

7308

15" CAAP 2 ELBOWS ROD & LUG

END SBG +00

GRAU 350

7307

15" RCP-III

2GI

7301

REMOVE

REMOVE DI AND 4 LF 18" RCP

7309

MEDIAN V DITCH SEE DETAIL I

1205+00

–L–

1210+00

N 87° 51' 06.7" E

1215+00

15" RCP-III

18" RCP-III

OUTLET NOT FOUND

ASSUMED LOC

7305 7303

JB W/SLAB LID

15" CAAP 2 ELBOWS ROD & LUG

7310

JB W/SLAB LID

END SBG +43

CAT-1

7321

18" RCP-III

15" RCP-III

7311

7312

FS

2GI

BEGIN 45' WW FENCE +0.3

7306 7304

LATERAL BASE DITCH SEE DETAIL E

TIE TO DITCH

3 TONS CL B RIPRAP W/10 SY FIL FAB

+80.00 175.00' RT

+85.00 175.00' RT

+50.00 150.00' RT

600' TAPER

150' TAPER

2 TONS CL B RIPRAP W/7 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

STANDARD BASE DITCH SEE DETAIL K

7313

REMOVE

18" RCP-III

7314

COLLAR

RETAIN

REMOVE DI AND 4 LF 18" RCP

7315

7316

18" RCP-III COLLAR

RETAIN

REMOVE DI 7317 COLLAR

18" RCP-III

FS

2GI-D

7318

PROP. 5' MONOLITHIC CONC. ISLAND

7320

DI

7319

15" RCP-III

18" RCP-III

DI

150' TAPER

PROP 48" WW FENCE

S 00°13'26" E 0.69'

835
ONA LEE HAIGLER HEIRS
93E - 153
DB 113 PG 479
DB 99 PG 101
DB 119 PG 147

836
WAMPLER-LONGACRE INC.
PILGRIMS PRIDE CORPORATION
DB 733 PG 802

OBLITERATE

FOR –L– PROFILE SEE SHTS. 159 & 160

PLANS PREPARED BY :

RK&K

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Figure

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	74
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE –L– STA. 1216+00 SEE SHEET 73

MATCHLINE –L– STA. 1229+00 SEE SHEET 112

EXISTING R/W

MARSHVILLE TOWN LIMITS
UNION COUNTY

N 12°58'58" W 3436'

N 01°47'41" W 373.27'

820
GRIFFIN INDUSTRIES, INC.
DB 5520 PG 11

821
GRIFFIN INDUSTRIES, INC.
DB 5520 PG 11

822
WAMPLER-LONGACRE INC.
DB 733 PG 802

836
WAMPLER-LONGACRE INC.
PILGRIMS PRIDE CORPORATION
DB 733 PG 802

837
UNITED STATES
COLD STORAGE, INC.
DB 4808 PG 201

GRAVEL PARKING

ISMTL BUS

ISF BUS

IS F BUS

BST PARKING

PROPANE TANK

CLEAN OUT

ANTENNA

GUY WIRE

7 OHL

STANDARD BASE DITCH
SEE DETAIL K

8 TONS CL B RIPRAP
W/21 SY FIL FAB

PROP 48" WW FENCE

6' CL FENCE

END C/A
8' FENCE
+99.39

BEGIN
9'x18" CURB

BEGIN
2'-6" C&G

END
9'x18" CURB

BEGIN
9'x18" CURB

PROP
9'x18" CURB

PROP
9'x18" CURB

PROP.2'-6"
C&G

OVERHEAD SIGN

CAT-1

REMOVE DI

GRAU 350

REMOVE

RETAIN

15" RCP-III

18" RCP-III

2GI

2GI-D

FS

JB w/MH

JB W/SLAB LID

REMOVE 50'

COLLAR

REMOVE DI

200' TRANSITION

PROP 5'"KEYED IN"
MONOLITHIC
CONC.ISLAND

TRENCHLESS INSTALLATION
30" WELDED STEEL

PLUG AND FILL
W\ FLOWABLE FILL

MEDIAN V DITCH
SEE DETAIL I

150' TAPER

1220+00 GRADE TO DRAIN

1225+00

R-2558B-21 PNC 81+09.49

R-3317-7 PNC 54+59.96

+40.00
110.00' RT

+40.00
150.00' RT

R=45'

R=30'

R=20'

P.S.

12' P.S.

4' P.S.

TCE

ABANDONED

PROP 48" WW FENCE

EXISTING R/W

10' A.C.

OBLITERATE

FOR –L– PROFILE SEE SHT. 160

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	112
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE -L- STA. 1229+00 SEE SHEET 74

NAD 83

END TIP PROJECT R-3329, R-2559
-L- Sta.1233+50.00

-L- POT Sta. 1234+00.00

RETAIL PROPANE COMPANY
DB 1428 PG 223

WAMPLER-LONGACRE INC.
DB 733 PG 802

DONNIE B. JORDAN AND WIFE, BETTY A. JORDAN
DB 4254 PG 689

UNION COUNTY
DB 1171 PG 707
WATER TANK

UNITED STATES COLD STORAGE, INC.
DB 4808 PG 201

WAMPLER-LONGACRE INC.
PILGRIMS PRIDE CORPORATION
DB 733 PG 802

WAMPLER-LONGACRE INC.
DB 733 PG 802

MARSHVILLE TOWN LIMITS
UNION COUNTY

FOR -L- PROFILE SEE SHT. 160

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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E.Evans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	113
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

NOTES:

INSTALL ONE 48" RCP AT –Y309– STA. 19+77 BURIED 0.8' BELOW WETLAND ELEVATION INSTALL SECOND 48" RCP 1.0' ABOVE WETLAND ELEVATION.

720 RUTH B. TRULL
DB 200 PG 303

720A TOMMY N. EDWARDS AND WIFE, LINDA A. EDWARDS
DB 5509 PG 514

719 JAVADI ENTERPRISES, INC.
DB 3053 PG 63

713 DOROTHY E. EDWARDS
DB 96 PG 071

722 ALLEN SCOTT EDWARDS
DB 5466 PG 405

723 TOMMY N. EDWARDS AND WIFE, LINDA EDWARDS
DB 472 PG 122
DB 1253 PG 028

721 DOROTHY E. EDWARDS
DB 96 PG 071

BEGIN CONSTRUCTION
–Y309– POT Sta. 11+80.00

–Y309– POT Sta. 10+00.00

–Y309– TS Sta. 12+70.30

–Y309– SC Sta. 14+40.30

–Y309– CS Sta. 15+83.04

–Y309– SC Sta. 17+53.04

N 26°08'09.7" E

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

5 TONS CL B RIPRAP W/14 SY FIL FAB

2 TONS CL B RIPRAP W/7 SY FIL FAB

17 TONS CL B RIPRAP W/38 SY FIL FAB ON BANKS ONLY

LATERAL V DITCH SEE DETAIL B

PROP 48" WW FENCE

BEGIN C/A & 48"WW FENCE +50.00

BEGIN C/A & 48"WW FENCE +70.00

48" RCP

15" CAAP 2 ELBOWS ROD & LUG

BEG. SBG +00

END SBG +50

2GI

15" RCP

24" RCP

GRAU 350

REMOVE

SPECIAL CUT DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL W

LATERAL BASE DITCH SEE DETAIL D

LATERAL BASE DITCH SEE DETAIL E

PROP 48" WW FENCE

LATERAL BASE DITCH SEE DETAIL D

50' BLEND TO EXIST.

24.29' TYP.

±25.00 –Y309– 25.49'

±45.00 –Y309– 60'

±50.00 –Y309– 75'

±00.00 –Y309– 73.51'

–Y309– ±47.00 93.50'

–Y309– ±65.00 110.00'

–Y309– ±65.00 110.00'

–Y309–

MATCHLINE –Y309– STA. 20+00
SEE SHEET 65

20+00

R-2559B-16 POT

BY13-2 PIN

EXISTING R/W

WOODS

POND

PERMANENT SEPTIC DRAINFIELD EASEMENT

S 73°46'20" E 238.58'

S 73°46'20" E 238.58'

S 17°38'30" E 350.08'

S 73°46'20" E 5.03'

S 4°59'56" W 210.24'

N 3°42'52" E 185.40'

N 8°25'31" W 185.40'

N 29°24'29" E 117.71'

N 10°29'30" E 150.03'

–Y309–

PIs Sta 13+83.66	PI Sta 15+11.75	PIs Sta 16+39.73	PI Sta 19+62.50
θs = 4° 05' 33.2"	Δ = 6° 52' 21.6" (LT)	θs = 4° 05' 33.2"	Δ = 2° 05' 12.9" (LT)
Ls = 170.00'	D = 4° 48' 53.2"	Ls = 170.00'	D = 0° 29' 53.6"
LT = 113.36'	L = 142.74'	LT = 113.36'	L = 418.87'
ST = 56.69'	T = 71.46'	ST = 56.69'	T = 209.46'
	R = 1,190.00'		R = 11,500.00'
	SE = 0.07		SE = NC
	DS = 50mph		DS = 50mph

ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y309– PROFILE SEE SHT. 227

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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E.Evans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	114
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

-Y309-		
PIs Sta 26+94.20	PI Sta 28+17.50	PIs Sta 29+40.82
Θs = 7° 32' 20J"	△ = 8° 32' 28.4" (RT)	Θs = 7° 32' 20J"
Ls = 200.00'	D = 7° 32' 20J"	Ls = 200.00'
LT = 133.45'	L = 113.29'	LT = 133.45'
ST = 66.78'	T = 56.75'	ST = 66.78'
	R = 760.00'	
	SE = 0.08	
	DS = 50mph	

-Y309- POT Sta. 33+17.04

END CONSTRUCTION
-Y309- POT Sta. 32+25.00

-Y309- ST Sta. 30+74.04

-Y309- CS Sta. 28+74.04

-Y309- SC Sta. 27+60.75

MATCHLINE -Y309- STA. 27+00
SEE SHEET 65

-Y309- +18.00
134.00'

-Y309- +65.00
114.00'

-Y309- +91.01
EXIST

-Y309- +25.00
81.00'

-Y309- +08.30
80.30'

-Y309- +10.15
68.00'

-Y309- +79.80
68.51'

-Y309- +85.00
105.00'

-Y309- +15.00
100.00'

-Y309- +00.00

END SBG +50

END C/A & 48"WW FENCE +25

LATERAL V DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL A

25' TYP.

50' BLEND TO EXIST.

N 32° 37' 36.3" E

SR 1002 - ANSONVILLE RD

716 DAVID M. KENERLEY AND WIFE, BONNIE KENERLEY DB 418 PG 199

717 DAVID M. KENERLEY AND WIFE, BONNIE KENERLEY DB 388 PG 588

718 CHARLES WALKER HUDSON AND WIFE, JULIE K. HUDSON DB 1463 PG 630

726 MARTHA G. COLEY DB 1088 PG 495

727 GLENCROFT HOMEOWNERS ASSOC., INC. DB 4375 PG 727

728 KEITH L. GRIFFIN & APRIL L. GRIFFIN DB 5086 PG 423

729 CRAFT DEVELOPMENT, LLC

730 TRUSTEE: U.S. BANK NATIONAL ASSOCIATION DB 5597 PG 301

731 YVETTE M. FONTANA DB 5613 PG 763

732 MARY M. CURETON DB 4210 PG 742

733 STEPHANIE PATRICK & ROBERT TOD FERGUSON DB 4959 PG 897

734 CRAFT DEVELOPMENT, LLC

735 TANYOR R. MARTIN DB 3863 PG 899

736 JAMES DAVID BROWN DB 3225 PG 445

737 JULIOCESAR ALFARO DB 4998 PG 304

738 REBECCA LIPMAN DB 4229 PG 896

ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y309- PROFILE SEE SHT. 227

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	115
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

NAD 83

MATCHLINE -Y310- STA. 21+50
SEE SHEET 69

-Y310- POC Sta. 20+38.11 =
-Y313- POT Sta. 23+41.84

-DR2_3B- POT Sta. 13+46.13

END CONSTRUCTION
-Y313- PT Sta. 15+00.00

-Y313- PC Sta. 16+93.80

-Y310- PC Sta. 15+03.51

-Y310- POT Sta. 14+46.94 =
-DR2_3B- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y310- PT Sta. 13+00.00

758 JAMES MICHAEL GRIFFIN AND WIFE, BRENDA S. GRIFFIN DB 295 PG 100

759 SADIE PHIFER PRICE PHILLIPS AND HUSBAND, TOMMY GLENN PHILLIPS DB 5093 PG 225

760 NCDOT DB 1507 PG 456

761 NCDOT DB 1471 PG 900

762 MILDRED M. PHIFER DB 108 PG 40 DB 171 PG 542 DB 204 PG 675

337 NCDOT DB 1907 PG 456

338 NCDOT DB 1907 PG 459

766 ROBERT DEAN PHIFER DB 201 PG 578 DB 450 PG 515

767 DANNY CAROLL PHIFER, ET AL DB 320 PG 571

SR 1753 PHIFER RD. 18' PAVE

SR 1755 ZEB GOODMAN RD

LATERAL BASE DITCH SEE DETAIL D

-Y313- PT Sta. 20+58.86

-Y310- +40.00
146.60'

-Y313- +47.84
139.34'

-Y310- +10.94
64.86'

8 TONS CL B RIPRAP W/21 SY FIL FAB

STANDARD BASE DITCH SEE DETAIL K

GRADE TO DRAIN

15 TONS CL I RIPRAP W/30 SY FIL FAB ON BANKS ONLY

2 TONS CL B RIPRAP W/7 SY FIL FAB

SPECIAL CUT DITCH SEE DETAIL A

60' BLEND TO EXIST.

100' TAPER

22' TYP.

36" RCP-III

30" RCP-III

PINC-40-19R

R-2559B-19R

PINC-40-52.48

PINC-40-52.48

-Y310-	-Y313-	
PI Sta 19+41.82	PI Sta 13+27.11	PI Sta 18+79.19
△ = 40° 07' 49.3" (RT)	△ = 23° 38' 56.6" (LT)	△ = 24° 36' 26.8" (RT)
D = 4° 46' 28.7"	D = 6° 44' 26.4"	D = 6° 44' 26.4"
L = 840.49'	L = 350.84'	L = 365.06'
T = 438.31'	T = 177.95'	T = 185.39'
R = 1,200.00'	R = 850.00'	R = 850.00'
SE = 0.06	SE = EXIST	SE = 0.06
DS = 50mph	DS = 50mph	DS = 50mph

ADT 2013 / ADT 2035

TRAFFIC DIAGRAM

-Y310- FOREST HILLS SCHOOL ROAD: 300 / 1,800

-Y313- PHIFER ROAD: 245 / 560

-Y310- FOREST HILLS SCHOOL ROAD: 490 / 1,120

-Y313- PHIFER ROAD: 245 / 560

-Y310- FOREST HILLS SCHOOL ROAD: 300 / 1,800

OBLITERATE

ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y310- PROFILE SEE SHT. 228
FOR -Y313- PROFILE SEE SHT. 231

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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9/28/2014
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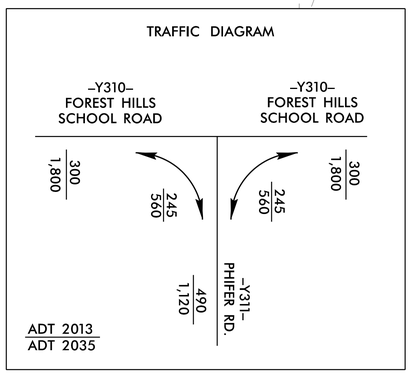
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	116
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TRAFFIC DIAGRAM



ADT 2013
ADT 2035

NAD 83

MATCHLINE –Y310– STA. 30+50 SEE SHEET 69

–Y311– POT Sta. 10+00.00
–Y310– POT Sta. 32+16.93

END C/A & 48" WW FENCE +12.13

REMOVE

GRADE TO DRAIN

SPECIAL CUT DITCH SEE DETAIL A

–DR3_3B– POT Sta. 10+00.00
–Y310– POT Sta. 33+54.60

LATERAL V DITCH SEE DETAIL B

GRAU 350

8:1

N 36° 32' 18.5" E

35+00

–Y310–

–DR3_3B– PC Sta. 10+22.91

–DR3_3B– PT Sta. 10+61.95

S 53° 27' 41.5" E

–Y310– PC Sta. 38+86.03

–Y310– PT Sta. 42+37.34

24.29' TYP.

50' BLEND TO EXIST.

40+00

N 27° 47' 13.3" E

SR 1754 FOREST HILLS SCH RD RIGHT

SPECIAL CUT DITCH SEE DETAIL A

END CONSTRUCTION
–Y310– PC Sta. 40+00.00

GRADE TO DRAIN

R=85' +94.65

R=60' +94.65

LATERAL BASE DITCH SEE DETAIL D

–Y311– +63.62 65'

END C/A & 48" WW FENCE +63.76

100' TAPER

S 38° 27' 10.4" E

–Y311–

–DR3_3B– PC Sta. 11+41.89

–DR3_3B– PT Sta. 12+19.44

–DR3_3B– POT Sta. 12+60.08

N 89° 39' 45.6" E

–Y311– +55.00 64.52'

–Y311– +00.00 60.25'

–Y311– PC Sta. 13+57.06

LATERAL BASE DITCH SEE DETAIL D

–Y311– +00.00 65'

181 Peak III

4160

15+00

–Y311– +25.00 70'

+00.00 –Y311– 64.68'

MATCHLINE
–Y311– STA. 15+50 SEE SHEET 117

742 NELSON REID PHIFER DB 391 PG 668

744 JOHNNY C. PHIFER DB 485 PG 019

785 EVELYN IRENE PHIFER DB 163 PG 229

784 JOHNNY C. PHIFER DB 231 PG 470

783 GAYLE PHIFER HATLEY DB 485 PG 017

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

787 THOMAS E. TRAYWICK, JR. DB 138 PG 478

786 EVELYN IRENE PHIFER

–BY14–2 PINC 14+99.41

–DR3_3B–	
PI Sta 10+42.68	PI Sta 11+84.54
△ = 22° 22' 12.0" (RT)	△ = 59° 14' 44.0" (LT)
D = 57° 17' 44.8"	D = 76° 23' 39.7"
L = 39.04'	L = 77.55'
T = 19.77'	T = 42.65'
R = 100.00'	R = 75.00'

–Y310–	–Y311–
PI Sta 40+62.03	PI Sta 19+44.08
△ = 8° 45' 05.2" (LT)	△ = 62° 06' 06.9" (LT)
D = 2° 29' 28.0"	D = 5° 52' 35.4"
L = 351.31'	L = 1,056.79'
T = 176.00'	T = 587.02'
R = 2,300.00'	R = 975.00'
SE = 0.06	SE = 0.06
DS = 50mph	DS = 50mph

OBLITERATE

ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y310– PROFILE SEE SHT. 228
FOR –Y311– PROFILE SEE SHT. 229

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/29/2014
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	117
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

NAD 83

-Y311- POT Sta. 27+63.76

END CONSTRUCTION
-Y311- POT Sta. 27+10.00

-Y311- PT Sta. 24+13.85

MATCHLINE
-Y311- STA. 15+50 SEE SHEET 116

791 GAYLE PHIFER HATLEY DB 4752 PG 293

792 GAYLE PHIFER HATLEY DB 4752 PG 293

789 MARSHALL ALLEN TRAYWICK DB 805 PG 110

788 MARSHALL ALLEN TRAYWICK DB 805 PG 110

789 MARSHALL ALLEN TRAYWICK DB 805 PG 110

787 THOMAS E. TRAYWICK, JR. DB 138 PG 478

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

794 THOMAS E. TRAYWICK, JR. AND SARAH H. TRAYWICK PC E FILE 988

793 THOMAS RICHARD TRAYWICK AND WIFE, LILLIAN H. TRAYWICK DB 1070 PG 867

795 THOMAS E. TRAYWICK, JR. AND SARAH H. TRAYWICK PC E FILE 988

796 THOMAS E. TRAYWICK, JR. DB 138 PG 478

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL B

15 TONS CL I RIPRAP W/30 SY FIL FAB ON BANKS ONLY

8 TONS CL B RIPRAP W/21 SY FIL FAB

STANDARD BASE DITCH SEE DETAIL K

GRADE TO DRAIN

RETAIN

REMOVE

OBLITERATE

-Y311-
PI Sta 19+44.08
Δ = 62° 06' 06.9" (LT)
D = 5° 52' 35.4"
L = 1,056.79'
T = 587.02'
R = 975.00'
SE = 0.08
DS = 50mph

ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR -Y311- PROFILE SEE SHT. 229

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

9/28/2014
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Plans

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	118
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y316-	-Y314L-				
PI Sta 16+85.51	PI Sta 30+43.91	PIs Sta 33+86.27	PIs Sta 37+29.02	PI Sta 40+82.23	PIs Sta 44+23.66
△ = 32° 33' 25.0" (RT)	△ = 41° 22' 19.1" (LT)	θs = 7° 09' 43.1"	θs = 4° 05' 33.2"	△ = 27° 59' 19.0" (RT)	θs = 4° 05' 33.2"
D = 7° 09' 43.1"	D = 7° 09' 43.1"	Ls = 200.00'	Ls = 170.00'	D = 4° 48' 53.2"	Ls = 170.00'
L = 454.58'	L = 577.66'	LT = 133.44'	LT = 113.36'	L = 581.31'	LT = 113.36'
T = 233.61'	T = 302.07'	ST = 66.77'	ST = 56.69'	T = 296.57'	ST = 56.69'
R = 800.00'	R = 800.00'			R = 1,190.00'	
SE = 0.06	SE = 0.08			SE = 0.07	
DS = 40mph	DS = 50mph			DS = 50mph	

801
MORGAN LUMBER COMPANY
DB 1160 PG 268

NAD 83

-Y314L- CS Sta. 33+19.50
-Y314L- +19.50
110.00'
CHORD
PROP 48" WW FENCE
SPECIAL CUT DITCH SEE DETAIL A
CONC PAD
-Y314L- +15.66
110.00'
-Y314L- TS Sta. 36+15.66
-Y314L- SC Sta. 37+85.66
-Y314L- +85.66
110.00'
2GI-D
(1180)
35+00
FS
(1802)
24" RCP III
(1803)
5 TONS CL B RIP RAP W/14 SY FIL FAB
-Y314L- ST Sta. 35+19.50
-Y314L- +14.25
100.98'
PROP 48" WW FENCE
EXISTING R/W
END CA
LANDSCAPE TIMBERS
SPECIAL CUT DITCH SEE DETAIL B
-Y314L- CS Sta. 43+66.96
FALSE SUMP ELEV. 572.0
150' TAPER
+27.74
LATERAL V DITCH SEE DETAIL B
SPECIAL CUT DITCH SEE DETAIL A
24.29' TYP.
40+00
-Y314L-
GRADE TO DRAIN
STANDARD BASE DITCH SEE DETAIL K
REMOVE
FES
24" RCP
FALSE SUMP ELEV. 568.70
CONC DITCH
18" RCP
20+00
25+00
-Y314R-
N 82° 12' 28.9" E
TRENCHLESS INSTALLATION 30" WELDED STEEL
(1804)
+30.00
55.00' RT
PLUG AND FILL W/FLOWABLE FILL
PROP 48" WW FENCE
30" RCP-III
-Y316-
N 82° 11' 19.7" E
19.17' TYP.
-Y316- PT Sta. 19+06.48
LATERAL V DITCH SEE DETAIL B
8 TONS CL B RIPRAP W/21 SY FIL FAB
827
LARRY E HAIGLER, ET ALS
DB 4385 PG 65

MATCHLINE -Y314L- STA. 32+50 SEE SHEET 72

MATCHLINE -Y314L- STA. 44+80 SEE SHEET 119

MATCHLINE -Y314R- STA. 16+00 SEE SHEET 119

MATCHLINE -Y314R- STA. 28+00 SEE SHEET 72

MATCHLINE -Y316- STA. 15+00 SEE SHEET 119

FOR -Y314L- PROFILE SEE SHTS. 232 & 233
FOR -Y314R- PROFILE SEE SHT. 230
FOR -Y316- PROFILE SEE SHT. 234

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	119
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ADT 2013
ADT 2035

TRAFFIC DIAGRAM

	–Y314– BUSINESS US 74 16,800 / 25,200	
–Y315– FORREST HILLS SCHOOL ROAD 1,700 / 2,800		–Y315– FORREST HILLS SCHOOL ROAD 500 / 2,500
2,300 / 4,300		700 / 3,600
	–Y314– BUSINESS US 74 15,000 / 20,700	
400 / 600		000 / 200

–Y314L–
PIs Sta 44+23.66
Θs = 4° 05' 33.2"
Ls = 170.00'
LT = 113.36'
ST = 56.69'

–Y316–

PI Sta 11+76.10	PI Sta 16+85.51
△ = 8° 42' 11.1" (LT)	△ = 32° 33' 25.0" (RT)
D = 5° 43' 46.5"	D = 7° 09' 43.1"
L = 151.90'	L = 454.58'
T = 76.10'	T = 233.61'
R = 1,000.00'	R = 800.00'
SE = 0.05	SE = 0.06
DS = 40mph	DS = 40mph

NOTES:

INSTALL ONE 48" RCP AT –Y316– STA. 11+76 BURIED 0.8' BELOW EXIST. WETLAND ELEVATION. INSTALL SECOND 48" RCP 1.0' ABOVE BURIED PIPE.

NAD 83

BEGIN CONSTRUCTION
–Y314R– POT Sta. 11+75.00

–Y314R– POT Sta.13+62.02=
–Y315– POT Sta.19+38.53

BEGIN C/A
–Y314R– ST A. +47.61

778
UNION COUNTY BOARD OF EDUCATION
DB 5305 PG 13

–Y314R– POT Sta. 10+00.00

END CONSTRUCTION
–Y314L– POT Sta. 50+50.00

–Y314L– POT Sta.47+40.43=
–Y315– POT Sta.19+94.22

771
COMMERCIAL PIPING & FABRICATING, INC.
DB 329 PG 604

END C/A
–Y314L– ST A. +35.17

TRENCHLESS INSTALLATION
30" WELDED STEEL

50' BLEND TO EXIST.

40' TYP.

S 82° 14' 52.4" W

PIPES DO NOT INTERSECT

–Y316– POT Sta.10+00.00=
–Y315– POT Sta.14+72.70

END C/A
–Y314R– ST A. +58.52

16 TONS CL B RIP RAP W/42 SY FIL FAB

LATERAL V DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

RETAIN

END CONSTRUCTION
–Y315– POT Sta.24+30.00

BEGIN C/A
–Y314L– ST A. +69.25

50' BLEND TO EXIST.

15+00

20+00

25+00

N 26° 39' 54.2" W

N 58° 20' 05.8" E

–Y315–

–Y315– +31.73
28.41'

BEGIN CONSTRUCTION
–Y315– POT Sta.12+00.00

50' BLEND TO EXIST.

SPECIAL CUT DITCH SEE DETAIL A

–Y316– PC Sta. 11+00.00

2 TONS CL B RIP RAP W/7 SY FIL FAB

BANK STABILIZATION AT PIPE OUTLET SEE DETAIL AR

26 TONS CL I RIP RAP W/50 SY FIL FAB ON BANKS ONLY

LATERAL V DITCH SEE DETAIL B

–Y316– +31.57
47.55'

–Y316– PT Sta. 12+51.90

TOE PROTECTION SEE DETAIL E1

2 TONS CL B RIP RAP W/7 SY FIL FAB AT C&E TRANSITION

GRADE TO DRAIN

SPECIAL CUT DITCH SEE DETAIL A

–Y316– PC Sta. 14+51.90

GRAU 350

26 TONS CL I RIP RAP W/50 SY FIL FAB

BEGIN C/A & 48" WW FENCE +50.00

PROP. 5' MONOLITHIC CONC. ISLAND

826
PATTIE HELMS HEIRS
DB 341 PG 804

15 TONS CL I RIP RAP W/30 SY FIL FAB

PLUG AND FILL W/FLOWABLE FILL

REMOVE

TRENCHLESS INSTALLATION
36" WELDED STEEL

PROP 48" WW FENCE

END C/A
48" WW FENCE
–Y314L– +02.95

801
MORGAN LUMBER COMPANY
DB 1160 PG 268

–Y314L– ST Sta. 45+36.96

LATERAL V DITCH SEE DETAIL B

MATCHLINE
–Y314R– STA. 16+00 SEE SHEET 118

MATCHLINE
–Y314L– STA. 44+80 SEE SHEET 118

MATCHLINE
–Y316– STA. 15+00 SEE SHEET 118

FOR –Y314R– PROFILE SEE SHT. 230
FOR –Y314L– PROFILE SEE SHT. 233
FOR –Y315– PROFILE SEE SHT. 233
FOR –Y316– PROFILE SEE SHT. 234

PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	155
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-L3B- STA 1064+00.00
ELEV.= 539.33'

-L- Sta 1064+99.93 LB =
-L- Sta 1065+00.00 LA

BEGIN SP.CUT DITCH LT.
BEGIN LAT.V DITCH RT.
-L- STA.1064+00.00
EI = 531.80 LT.
EL = 524.50 RT.

PI = 1065+80.00
EL = 538.10'
VC = 350'
K = 192
DS = 72mph

PI = 1066+50.00
EI = 534.91

PROPOSED GRADE

(-)10.6829%
(+)11.1434%
(+) 2.1293%
(+) 0.5004%
(+) 5.5000%
(+) 2.0000%
(-) 1.5400%
(+) 3.6333%
(-) 1.0167%
(+) 5.0000%
(-) 3.4966%
(+) 2.1150%
(+) 7.0000%

PI = 1065+35.880
EI = 532.48

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH RT.
-L- STA.1065+00.00
EI = 530.00

END SP.CUT DITCH RT.
-L- STA.1066+50.00
EI = 533.00 RT

24" RCP

PI = 1068+00.00
EI = 532.60

EXISTING GROUND

PI = 1069+50.00
EI = 538.05

END SP.CUT DITCH
BEGIN LAT.BASE DITCH LT.
-L- STA.1071+50.00
EI = 536.02

END LAT.BASE DITCH LT.
BEGIN LAT.V DITCH
PI = 1072+50.00
EI = 535.00

24" RCP

BEGIN LAT.BASE DITCH RT.
-L- STA.1072+50.00
EI = 537.34

END LAT.V DITCH LT.
-L- STA.1073+00.00
EI = 540.00

7'X7' RCBC

BEGIN LAT.BASE DITCH RT.
-L- STA.1074+00.00
EI = 532.27

END LAT.BASE DITCH RT.
-L- STA.1073+95.00
EI = 532.27

PI = 1076+00.00
EI = 536.50

END LAT.BASE DITCH RT.
-L- STA.1076+50.00
EI = 540.00

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 370	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 543.0	FT
BASE DISCHARGE	= 420	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 544.0	FT
OVERTOPPING DISCHARGE	= 634	CFS
OVERTOPPING FREQUENCY	= 500+/-	YRS
OVERTOPPING ELEVATION	= 547.7	FT

600 590 580 570 560 550 540 530 520 510

1064+00 1065+00 1066+00 1067+00 1068+00 1069+00 1070+00 1071+00 1072+00 1073+00 1074+00 1075+00 1076+00 1077+00 1078+00

EXISTING GROUND

PROPOSED GRADE

PI = 1086+50.00
EL = 561.77'
VC = 500'
K = 593
DS = > 80mph

(+)11.1434%
(+)0.3000%

BEGIN MED.V DITCH
-L- STA.1089+50.00
EI = 562.32

(-) 0.3160%
(-) 0.4720%

-L- STA.1090+82.01 =
-Y309- STA.24+19.09
ELEV.= 569.57'
ANSONVILLE RD.

BEGIN SP.CUT DITCH LT.
-L- STA.1091+50.00
EI = 561.85

600 590 580 570 560 550 540 530 520 510

1078+00 1079+00 1080+00 1081+00 1082+00 1083+00 1084+00 1085+00 1086+00 1087+00 1088+00 1089+00 1090+00 1091+00 1092+00

FOR -L- PLAN SEE SHT.64 & 65

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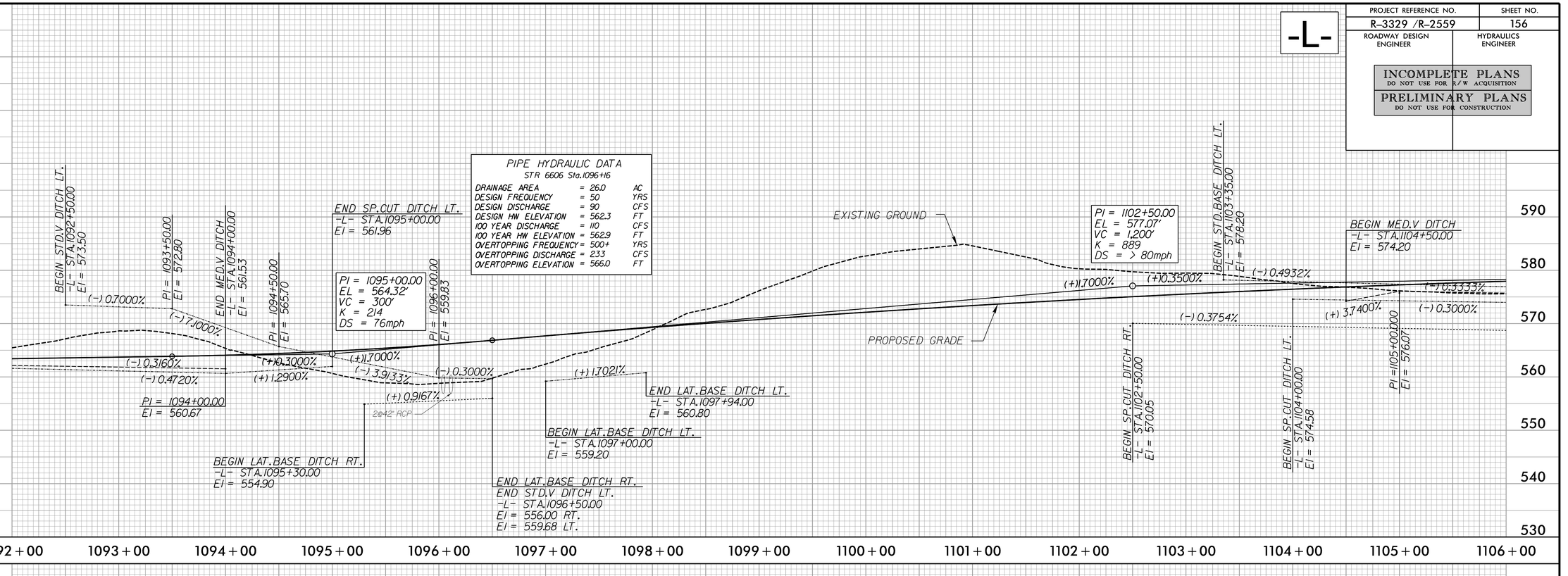
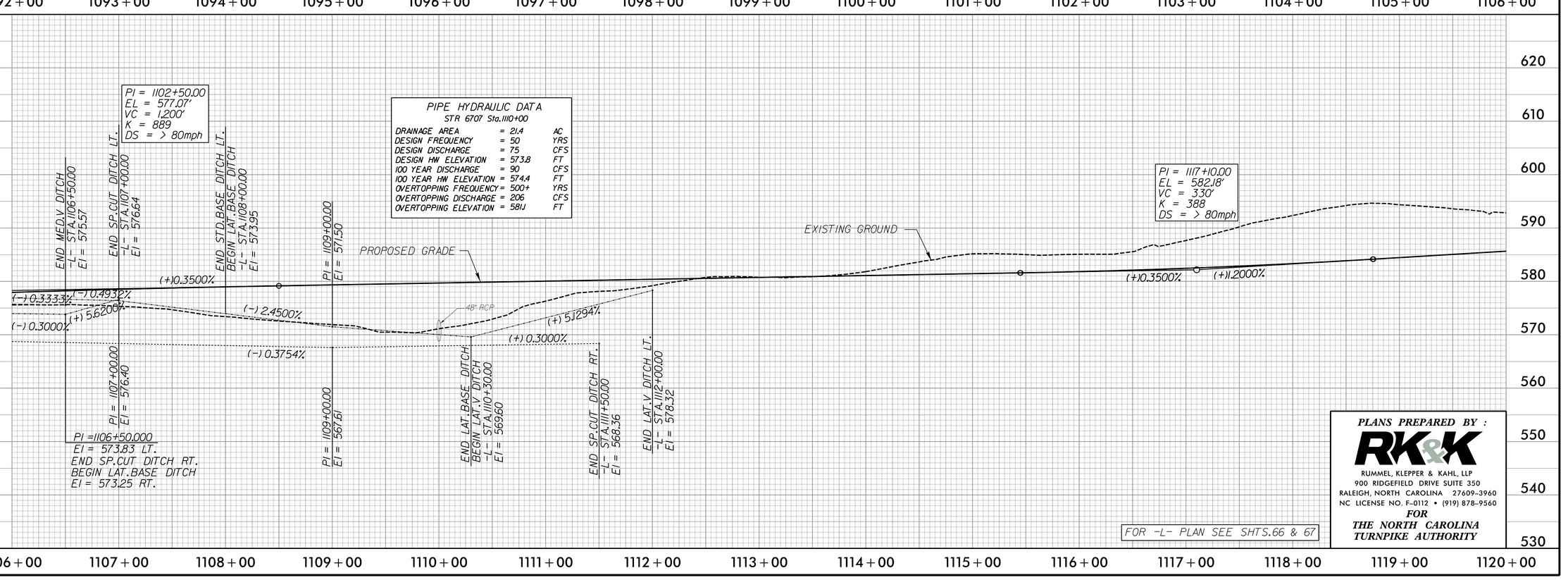
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	156
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-





FOR -L- PLAN SEE SHTS.66 & 67

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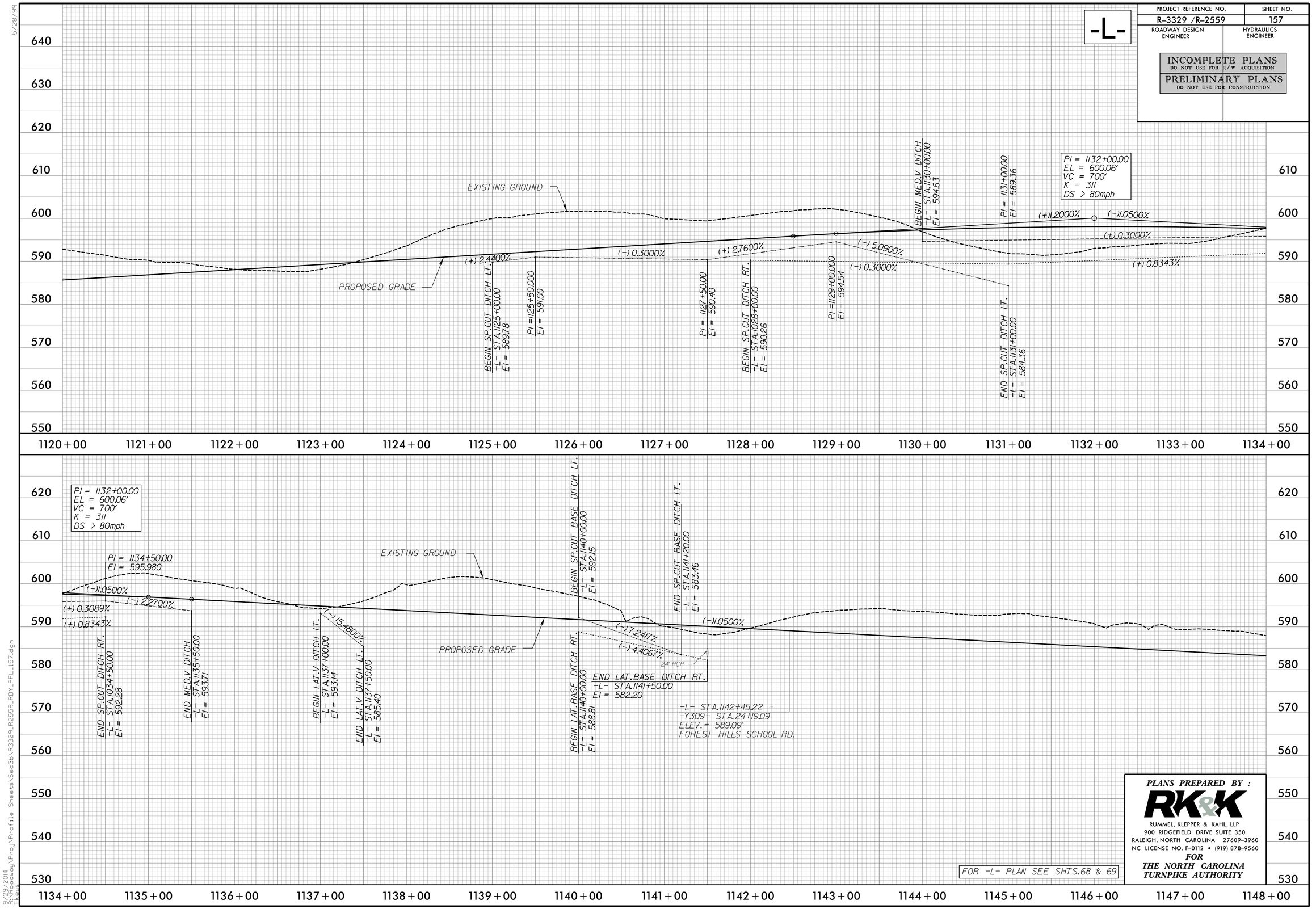
PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	157
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	158
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 1151+80.00
EL = 579.27'
VC = 640'
K = 785
DS = > 80mph

EXISTING GROUND

PROPOSED GRADE

(-)1.0500%

(-)1.8650%

℄ TOLL ZONE 8J & 8.2
-L- STA.1157+00.00

BEGIN SP.CUT DITCH LT.
-L- STA.1156+50.00
EI = 566.20

(-) 0.5000%

BEGIN MED.V DITCH
-L- STA.1157+50.00
EI = 567.93

(-) 0.8600%

BEGIN LAT.V DITCH RT.
-L- STA.1158+00.00
EI = 558.00

(-) 2.4706%

END SP.CUT DITCH LT.
-L- STA.1158+50.00
EI = 565.20

PI = 1158+50.00
EI = 567.07

(+) 0.3000%

BEGIN LAT.BASE DITCH LT.
-L- STA.1159+00.00
EI = 559.80

END MED.V DITCH
-L- STA.1159+50.00
EI = 567.37

PI = 1160+00.00
EL = 563.98'
VC = 1.000'
K = 183
DS = 70mph

(-)11.8650%

(+)3.6000%

(-) 2.3667%

(+) 4.0000%

PI= 1159+70.00
EI= 553.80

(-) 2.5692%

(-) 2.5000%

72" RCP

PI = 1160+50.00 LT
EI = 556.25

PI= 1160+50.00 RT
EI= 557.00

PI = 1161+00.00
EI = 555.00

(-) 1.7647%

(+) 2.4273%

PI = 1161+80.00
EI = 553.66

1148+00 1149+00 1150+00 1151+00 1152+00 1153+00 1154+00 1155+00 1156+00 1157+00 1158+00 1159+00 1160+00 1161+00 1162+00

620 610 600 590 580 570 560 550 540 530

PI = 1174+50.00
EL = 616.18'
VC = 1,500'
K = 197
DS = 65mph

-L- STA.1175+45.79 =
-CSXRR- STA.15+00.00
ELEV.= 568.11
CSX R/R

(+)3.6000%

(-)4.0000%

PROPOSED GRADE

EXISTING GROUND

(+)3.6000%

48" RCP

10'X6' RCBC

(+) 2.4273%

(+) 6.5000%

42" RCP

(-) 1.7647%

PI = 1164+00.00
EI = 559.00

END LAT.BASE DITCH RT.
-L- STA.1165+00.00
EI = 565.50

END LAT.BASE DITCH LT.
-L- STA.1162+70.00
EI = 552.00

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 460	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 558.7	FT
BASE DISCHARGE	= 500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 558.9	FT
OVERTOPPING DISCHARGE	= 1280	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 570.4	FT

FOR 72" RCP, 10'X6' RCBC & 42" RCP COMBINATION

PIPE HYDRAULIC DATA
STR 7108 Sta.1167+23

DRAINAGE AREA	= 23.1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 82.1	CFS
DESIGN HW ELEVATION	= 563.5	FT
100 YEAR DISCHARGE	= 95.5	CFS
100 YEAR HW ELEVATION	= 563.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 371.9	CFS
OVERTOPPING ELEVATION	= 590.0	FT

FOR -L- PLAN SEE SHTS.70,71 & 72

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1162+00 1163+00 1164+00 1165+00 1166+00 1167+00 1168+00 1169+00 1170+00 1171+00 1172+00 1173+00 1174+00 1175+00 1176+00

620 610 600 590 580 570 560 550 540 530

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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	159
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L- STA.1177+67.62 =
-Y314L- STA.29+01.59
ELEV. = 598.74
US 74 WB

PROPOSED GRADE

EXISTING GROUND

END STD.V DITCH RT.
-L- STA.1188+00.00
EI = 555.02

PI = 1189+35.00
EL = 556.78'
VC = 300'
K = 184
DS = 73mph

(-) 0.9894%

(-)14.0000%

(-)2.3655%

BEGIN STD.V DITCH RT.
-L- STA.1186+11.00
EI = 556.89

PI = 1195+50.00
EL = 542.23'
VC = 120'
K = 446
DS > 80mph

BEGIN STD.BASE DITCH RT.
-L- STA.1194+50.00
EI = 544.58

(-)12.3655%

(-)12.6345%

(-) 6.0680%

(-) 3.7018%

END STD.BASE DITCH RT.
-L- STA.1197+00.00
EI = 529.41

BEGIN SP.CUT BASE DITCH RT.
-L- STA.1194+50.00
EI = 538.66

END SP.CUT BASE DITCH RT.
BEGIN LAT.BASE DITCH
-L- STA.1198+50.00
EI = 523.85

PI = 1198+25.00
EL = 534.99'
VC = 120'
K = 240
DS > 80mph

(-)12.6345%

(-)12.1341%

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1,300	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 527.5	FT
BASE DISCHARGE	= 1,500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 529.9	FT
OVERTOPPING DISCHARGE	= 1,450	CFS
OVERTOPPING FREQUENCY	= 100+/-	YRS
OVERTOPPING ELEVATION	= 529.3	FT

PI = 1202+25.79
EL = 526.43'
VC = 600'
K = 152
DS = 63mph

PROPOSED GRADE

EXISTING GROUND

(-)12.1341%

(+)1.8100%

(-) 0.6809%

(+) 0.3010%

PI =1201+97.000
EI = 526.310

BEGIN V DITCH MED.
-L- STA.1201+50.00
EI = 526.63

END V DITCH MED.
-L- STA.1203+00.00
EI = 526.62

EXIST. 2@8'X7' RCBC

(+) 3.8550%

(+) 1.8230%

(+) 5.2400%

PI =1203+50.000
EI = 512.34

END LAT.BASE DITCH RT.
-L- STA.1200+00.00
EI = 518.30

BEGIN LAT.BASE DITCH LT.
-L- STA.1201+14.00
EI = 508.53

BEGIN LAT.BASE DITCH RT.
-L- STA.1201+93.00
EI = 508.33

FOR -L- PLAN SEE SHTS.72 & 73

PLANS PREPARED BY :
RK&K
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PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	160
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

590 580 570 560 550 540 530 520 510 500

1204+00 1205+00 1206+00 1207+00 1208+00 1209+00 1210+00 1211+00 1212+00 1213+00 1214+00 1215+00 1216+00 1217+00 1218+00

STA 1205+50.00
ELEV.= 532.30' LB
ELEV.= 532.06' LA
(GRADE POINT SHIFT)

PI = 1202+25.79
EL = 526.43'
VC = 600'
K = 152
DS = 63mph

(+)1.8100%

PROPOSED GRADE

EXISTING GROUND

(+) 3.8550%

(+) 5.2400%

END LAT. BASE DITCH LT.
-L- STA. 1205+50.00
EI = 522.82

END LAT. BASE DITCH RT.
-L- STA. 1206+00.00
EI = 524.02

590 580 570 560 550 540 530 520 510 500

1218+00 1219+00 1220+00 1221+00 1222+00 1223+00 1224+00 1225+00 1226+00 1227+00 1228+00 1229+00 1230+00 1231+00 1232+00

PI = 1222+14.95
EL = 562.20'
VC = 1,050'
K = 338
DS = 76mph

(+)1.8100%

(-)1.3000%

(+) 0.3840%

EXISTING GROUND

BEGIN V. DITCH MED.
-L- STA. 1219+50.00
EI = 554.82

END V. DITCH MED.
-L- STA. 1223+00.00
EI = 556.16

PROPOSED GRADE

(-)1.3000%

(-)0.4502%

PI = 1227+87.00
EL = 554.76'
VC = 90'
K = 106
DS = 50mph

END GRADE
-L- STA. 1230+00.00
ELEV.= 553.80'

BEGIN RESURFACING
-L- STA. 1230+50.00

50' BLEND TO EXIST.

FOR -L- PLAN SEE SHTS.73,74 & 112

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ANSONVILLE ROAD -Y309-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	227
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
STR 11304 Sta.16+16

DRAINAGE AREA	= 5.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 17	CFS
DESIGN HW ELEVATION	= 555.8	FT
100 YEAR DISCHARGE	= 21	CFS
100 YEAR HW ELEVATION	= 556.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 110	CFS
OVERTOPPING ELEVATION	= 571.3	FT

PIPE HYDRAULIC DATA
STR 11305 Sta.19+77

DRAINAGE AREA	= 44.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 110	CFS
DESIGN HW ELEVATION	= 553.6	FT
100 YEAR DISCHARGE	= 170	CFS
100 YEAR HW ELEVATION	= 555.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 404	CFS
OVERTOPPING ELEVATION	= 571.3	FT

50' BLEND TO EXIST.

BEGIN GRADE
-Y309- STA 12+30.00
ELEV.= 576.57'

PI = 13+50.00
EL = 577.08'
VC = 240'
K = 89
DS = 50mph

(+)0.4207%
(−)12.2895%
(−) 0.6200%
(−) 7.8017%

BEGIN SP.CUT DITCH RT.
-Y309- STA.12+50.00
EI = 573.12

PI = 13+50.00
EI = 572.50

PROPOSED GRADE

EXISTING GROUND

END LAT.V DITCH RT.
-Y309- STA.16+70.00
EI = 556.00

24" RCP

(+) 1.8182%

END SP.CUT DITCH RT.
BEGIN LAT.V DITCH RT.
-Y309- STA.15+82.00
EI = 554.40

(+) 0.4821%

BEGIN LAT.V DITCH LT
-Y309- STA.16+63.00
EI = 549.23

END LAT.V DITCH LT
-Y309- STA.17+19.00
EI = 549.50

PI = 18+00.00
EL = 566.78'
VC = 620'
K = 100
DS = 50mph

(−)12.2895%
(+)3.9063%

BEGIN LAT.BASE DITCH RT.
-Y309- STA.17+00.00
EI = 557.70

(−) 0.8000%
(−) 4.6667%

PI = 18+50.00
EI = 556.50

54" RCP

(−) 1.0152%

PI = 20+00.00
EI = 549.50

(+) 3.4412%

PI = 20+66.00
EI = 548.83

(+) 8.2400%

PI = 21+00.00
EI = 550.00

PI = 22+00.00
EI = 558.24

(+) 0.5034%

END LAT.BASE DITCH RT.
-Y309- STA.23+49.00
EI = 558.99

(+)3.9063%

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

620 610 600 590 580 570 560 550 540 530

PI = 24+20.00
EL = 591.00'
VC = 620'
K = 92
DS = 51mph

(+)3.9063%
(−)12.8070%

PROPOSED GRADE

BEGIN LAT.V DITCH RT.
-Y309- STA.25+35.00
EI = 570.00

24" RCP

EXISTING GROUND

(−) 3.0435%
(+) 1.8100%

-Y309- STA.24+19.09=
-L- STA.1090+82.01
ELEV.= 569.57'
ANSONVILLE RD.

PI = 26+50.00
EI = 566.50

END LAT.V DITCH RT.
BEGIN SP.CUT DITCH
-Y309- STA.28+00.00
EI = 569.22

(+) 1.8100%

END SP.CUT DITCH RT.
-Y309- STA.29+50.00
EI = 571.93

PI = 29+90.00
EL = 575.00'
VC = 150'
K = 452
DS = > 80mph

(−)12.8070%
(−)13.1390%

BEGIN SP.CUT DITCH RT.
-Y309- STA.30+50.00
EI = 569.21

(−) 1.5867%

END SP.CUT DITCH RT.
-Y309- STA.32+00.00
EI = 566.83

END GRADE
-Y309- STA 31+75.00
ELEV.= 569.19'

END CONSTRUCTION
-Y309- STA 32+25.00

50' BLEND TO EXIST.

FOR -Y309- PLAN SEE SHTS.65,113 & 114

24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

620 610 600 590 580 570 560 550 540 530

PLANS PREPARED BY :
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

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FOREST HILLS SCHOOL ROAD -Y310-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	228
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN CONSTRUCTION
-Y310- STA 13+00.00

50' BLEND TO EXIST.

BEGIN GRADE
-Y310- STA 13+50.00
ELEV.= 591.12'

-Y310- STA.14+46.94 =
-DR2_3B- STA.10+00.00
ELEV.= 592.38'

PI = 14+80.00
EL = 593.39'
VC = 260'
K = 108
DS = 54mph

BEGIN SP.CUT DITCH RT.
-Y310- STA.13+15.00
EI = 588.18

BEGIN SP.CUT DITCH LT.
-Y310- STA.13+18.00
EI = 589.25

(+)0.3049% (+)1.5600% (+)1.7500% (+) 1.0560%

PI = 14+00.00
EI = 589.50

END SP.CUT DITCH LT.
-Y310- STA.14+50.00
EI = 590.28

(-) 0.7733%

END SP.CUT DITCH RT.
-Y310- STA.15+50.00
EI = 589.42

BEGIN LAT.BASE DITCH LT.
-Y310- STA.16+50.00
EI = 591.01

(-)0.6600%

PI = 17+00.00
EI = 590.68

PROPOSED GRADE

(-) 2.7867% (-) 2.7867%

PIPE HYDRAULIC DATA
STR 11501 Sta.19+71

DRAINAGE AREA	= 14.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 41	CFS
DESIGN HW ELEVATION	= 583.7	FT
100 YEAR DISCHARGE	= 65	CFS
100 YEAR HW ELEVATION	= 585.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 127	CFS
OVERTOPPING ELEVATION	= 592.5	FT

PI = 19+50.00
EL = 590.34'
VC = 500'
K = 99
DS = 50mph

(-)10.6500% (+)4.4000%

PI = 18+50.00
EI = 586.50

36" RCP

END LAT.BASE DITCH LT.
-Y310- STA.19+68.00
EI = 580.65

EXISTING GROUND

BEGIN LAT.BASE DITCH LT.
-Y310- STA.21+00.00
EI = 584.50

(-) 4.9576%

PIPE HYDRAULIC DATA
STR 6905 Sta.23+35

DRAINAGE AREA	= 9.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 38	CFS
DESIGN HW ELEVATION	= 584.3	FT
100 YEAR DISCHARGE	= 45	CFS
100 YEAR HW ELEVATION	= 584.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 86	CFS
OVERTOPPING ELEVATION	= 589.2	FT

-Y310- STA.20+38.11 =
-Y313- STA.23+41.84
ELEV.= 595.54'
PHIFER RD.

(+)4.4000%

END LAT.V DITCH RT.
-Y310- STA.24+50.00
EI = 587.00

(+) 0.3333%

PI =22+50.00
EI = 585.00

BEGIN LAT.V DITCH RT.
-Y310- STA.22+80.00
EI = 580.42

(-) 2.5929%

(+) 2.2571%

36" RCP

PI = 23+50.00
EI = 582.00

(+) 5.0000%

(+) 0.4882%

PI =23+90.000
EI = 581.37

END LAT.BASE DITCH LT.
-Y310- STA.25+60.00
EI = 582.20

PI = 26+50.00
EL = 621.14'
VC = 780'
K = 95
DS = 50mph

(+)4.4000% (-)3.8500%

PROPOSED GRADE

BEGIN LAT.BASE DITCH RT.
-Y310- STA.27+50.00
EI = 591.50

(-) 0.3000%

-Y310- STA.26+28.64 =
-L- STA.1142+45.22
ELEV.= 589.09'
MONROE BYPASS

(+) 2.6706%

BEGIN LAT.BASE DITCH LT.
-Y310- STA.27+30.00
EI = 583.46

END LAT.V DITCH RT.
BEGIN LAT.BASE DITCH RT.
PI = -Y310- STA.29+50.00
EI = 590.90

(-) 2.2286%

(+) 0.9575%

EXISTING GROUND

END LAT.BASE DITCH LT.
BEGIN LAT.V DITCH LT.
-Y310- STA.29+00.00
EI = 588.00

END LAT.BASE DITCH RT.
-Y310- STA.31+25.00
EI = 587.00

-Y310- STA.32+16.93=
-Y311- STA.10+00.00
ELEV.= 599.45'
PHIFER RD.

-Y310- STA.33+54.60=
-DR3_3B- STA.10+00.00
ELEV.= 595.83'

PI = 33+40.00
EL = 594.57'
VC = 350'
K = 99
DS = 50mph

(-)3.8500% (+) 0.9575%

END LAT.V DITCH
BEGIN SP.CUT DITCH
PI = 33+00.00
EI = 591.83'

(-)0.3000% (-) 0.3000%

END SP.CUT DITCH LT.
-Y310- STA.35+00.00
EI = 591.23'

PI = 36+85.00
EL = 593.54'
VC = 150'
K = 143
DS = 58mph

(-)0.3000% (-)11.3509%

END CONSTRUCTION
-Y310- STA 40+00.00

END GRADE
-Y310- STA 39+50.00
ELEV.= 589.96'

50' BLEND TO EXIST.

BEGIN SP.CUT DITCH RT.
-Y310- STA.38+50.00
EI = 588.43

(-) 0.3450%

(-) 0.7826%

BEGIN SP.CUT DITCH LT.
-Y310- STA.39+00.00
EI = 587.46

END SP.CUT DITCH LT.
-Y310- STA.39+92.00
EI = 586.74

FOR -Y310- PLAN SEE SHTS.69,115 & 116

PLANS PREPARED BY :

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FOR
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PHIFER ROAD -Y311-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	229
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-Y311- STA 10+12.42=
-Y310- STA. 32+16.93
ELEV. = 599.31'

(-)11.26%

BEGIN LAT.V DITCH RT.
-Y311- STA.11+00.00
EI = 587.00

PROPOSED GRADE

PI = 13+60.00
EL = 588.88'
VC = 400'
K = 121
DS = 56mph

(-)13.0000%

(+)10.3190%

(-)10.5000%

PI = 15+00.00
EI = 584.50

(-) 1.0000%

(-) 0.5000%

(-) 4.3585%

EXISTING GROUND

(-) 1.5556%

(-) 0.6667%

(+) 4.0000%

(+) 2.5000%

30" RCP

PI = 17+50.00
EI = 582.50

PI = 20+30.00
EL = 591.02'
VC = 420'
K = 85
DS = 50mph

(+)10.3190%

(-)4.6500%

(-) 5.1154%

(-)6.1957%

BEGIN LAT.BASE DITCH LT.
-Y311- STA.10+50.00
EI = 586.50

PI = 12+00.00
EI = 586.00

PI = 15+00.00
EI = 579.50

PI = 16+50.00
EI = 578.50

END LAT.V DITCH RT.
-Y311- STA.17+65.00
EI = 572.95

END LAT.BASE DITCH LT.
-Y311- STA.18+50.00
EI = 585.00

BEGIN LAT.V DITCH RT.
-Y311- STA.21+00.00
EI = 583.09

BEGIN LAT.BASE DITCH LT.
-Y311- STA.23+00.00
EI = 575.55

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

630 620 610 600 590 580 570 560 550 540

PIPE HYDRAULIC DATA
STR 11701 Sta.16+98

DRAINAGE AREA	= 7.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 29	CFS
DESIGN HW ELEVATION	= 581.4	FT
100 YEAR DISCHARGE	= 35	CFS
100 YEAR HW ELEVATION	= 581.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 87	CFS
OVERTOPPING ELEVATION	= 590.1	FT

PIPE HYDRAULIC DATA
STR 11702 Sta.24+38

DRAINAGE AREA	= 11.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 45	CFS
DESIGN HW ELEVATION	= 570.4	FT
100 YEAR DISCHARGE	= 54	CFS
100 YEAR HW ELEVATION	= 570.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 76	CFS
OVERTOPPING ELEVATION	= 572.6	FT

PI = 24+50.00
EL = 571.49'
VC = 420'
K = 80
DS = 45mph

END GRADE
-Y311- STA 26+60.00
ELEV. = 572.75'

END CONSTRUCTION
-Y311- STA 27+10.00

50' BLEND TO EXIST.

PROPOSED GRADE

(-)4.6500%

(-)6.1957%

(+)0.6000%

(+) 1.6298%

36" RCP

(+) 1.5697%

(-) 5.1154%

EXISTING GROUND

PI = 24+38.00 RT.
EI = 565.80

END LAT.V DITCH RT.
-Y311- STA.26+82.00
EI = 569.63

END LAT.BASE DITCH LT.
BEGIN SP.CUT BASE DITCH LT.
-Y311- STA.24+38.00
EI = 567.00

END SP.CUT BASE DITCH LT.
-Y311- STA.27+00.00
EI = 571.27

24+00 25+00 26+00 27+00 28+00 29+00

630 620 610 600 590 580 570 560 550 540

FOR -Y311- PLAN SEE SHTS.116 & 117

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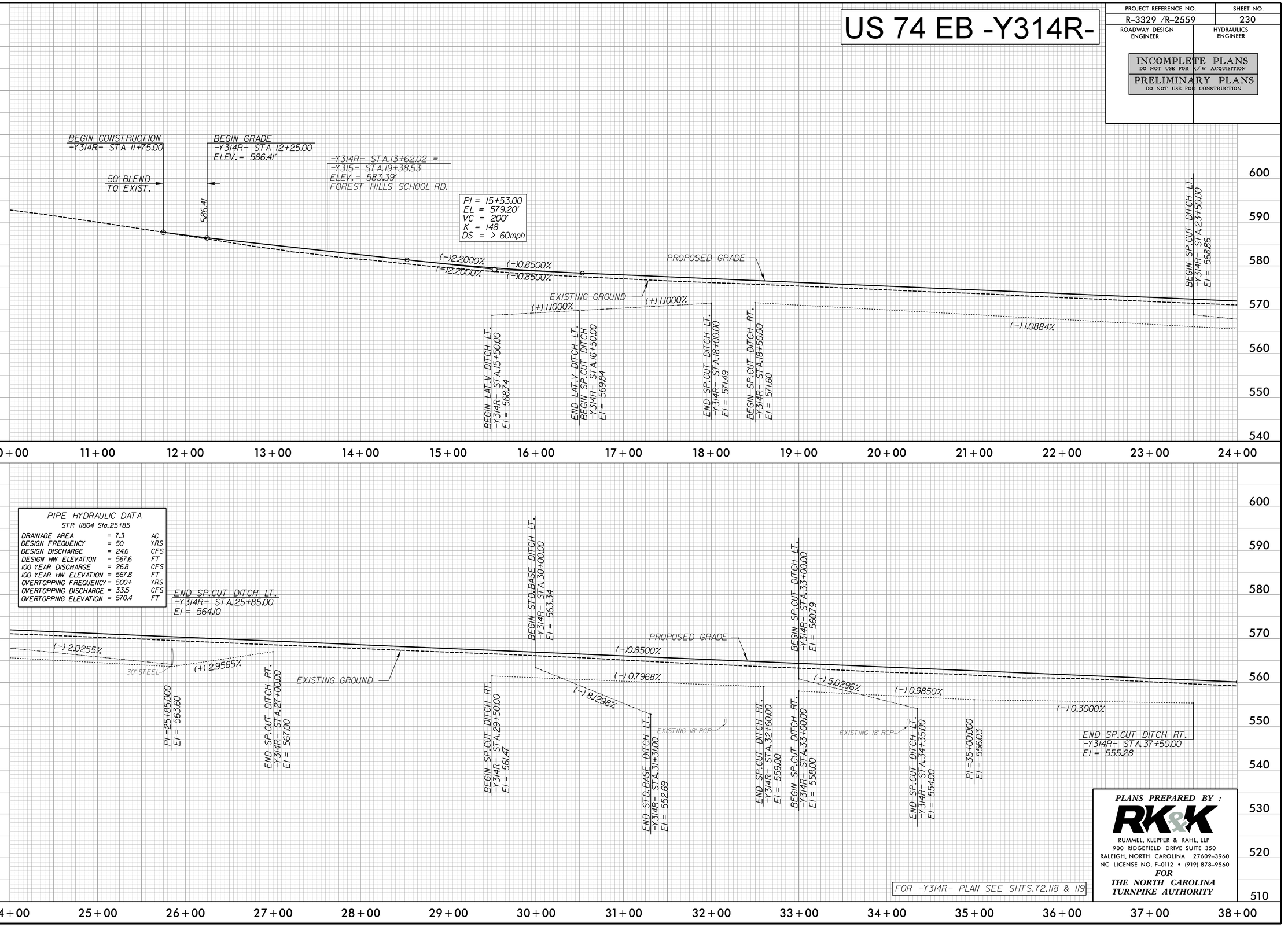
US 74 EB -Y314R-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	230
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y314R- PLAN SEE SHTS.72,118 & 119

PLANS PREPARED BY :
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US 74 WB -Y314R-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	231
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

590 580 570 560 550 540 530 520 510 500

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

PI = 41+01.00
EL = 557.54'
VC = 600'
K = 321
DS = > 70mph

(−)0.8500%

(−)12.7200%

PROPOSED GRADE

EXISTING GROUND

PI = 49+50.00
EL = 534.45'
VC = 210'
K = 273
DS = > 80mph

(−)12.7200%

(−)1.9508%

(−)1.9508%

PROPOSED GRADE

-Y314R-

570 560 550 540 530 520 510 500 490 480

52+00 53+00 54+00

END GRADE
-Y314R- STA 53+12.25
ELEV.= 528.90

PI = 52+00.00
EL = 529.57'
VC = 220'
K = 162
DS = > 65mph

(−)0.5969%

EXISTING GROUND

-Y313-

630 620 610 600 590 580 570 560 550 540

13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

BEGIN CONSTRUCTION
-Y313- STA 15+00.00

50' BLEND TO EXIST.

BEGIN GRADE
-Y313- STA 15+50.00
ELEV.= 599.27'

BEGIN SP.CUT DITCH LT.
-Y313- STA.14+74.00
EI = 598.36

BEGIN SP.CUT DITCH RT.
-Y313- STA.14+91.00
EI = 599.94

END SP.CUT DITCH RT.& LT.
-Y313- STA.15+50.00
EI = 596.74 RT.
EI = 596.02 LT.

(−)5.4237%

(−) 3.0789%

EXISTING GROUND

BEGIN LAT.BASE DITCH LT.
-Y313- STA.17+00.00
EI = 593.83

PROPOSED GRADE

(−)2.0418%

BEGIN LAT.BASE DITCH RT.
-Y313- STA.18+50.00
EI = 591.29

PI = 18+89.00
EL = 592.35'
VC = 400'
K = 101
DS = 51mph

(+)1.9000%

(−) 2.3686%

(−) 2.6100%

(−) 0.6000%

PI = 20+00.00
EI = 586.00

PIPE HYDRAULIC DATA
STR 11502 Sta.22+50

DRAINAGE AREA	= 81	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 34	CFS
DESIGN HW ELEVATION	= 587.6	FT
100 YEAR DISCHARGE	= 40	CFS
100 YEAR HW ELEVATION	= 588.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 81	CFS
OVERTOPPING ELEVATION	= 594.9	FT

END GRADE
-Y313- STA 23+29.83=
-Y310- STA 20+38.61
ELEV.= 596.28

PI = 22+20.00
EL = 598.64'
VC = 215'
K = 53
DS = 42mph

(+)1.9000%

(−)12.1500%

0.06

END LAT.BASE DITCH LT.
-Y313- STA.22+50.00
EI = 584.50

30" RCP

(−) 3.6200%

(−) 2.0000%

PI = 22+00.00
EI = 583.00

PI = 22+50.00
EI = 581.19

END LAT.BASE DITCH RT.
-Y313- STA.22+77.00
EI = 580.65

FOR -Y313- PLAN SEE SHT.115
FOR -Y314R- PLAN SEE SHTS.72 & 119

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US 74 WB -Y314L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	232
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE
-Y314L- STA 10+00.00=
-L- Sta. 1197+16.07
ELEV. = 537.13

PI = 11+85.00
EL = 542.00'
VC = 250'
K = 371

(+)2.6298%

(+)1.9558%

PI = 16+00.00
EL = 550.12'
VC = 233'
K = 1346
DS = > 80mph

PROPOSED GRADE

(+)1.9558%

(+)2.1289%

EXISTING GROUND

PI = 19+50.00
EL = 557.57'
VC = 300'
K = 334
DS = 76mph

(+)2.1289%

(+)1.2300%

PI = 29+60.00
EL = 569.99'
VC = 299'
K = 385
DS = > 80mph

(+)1.2300%

(+)0.4516%

(-) 0.3000%

BEGIN SP.CUT DITCH RT.
-Y314L- STA.29+50.00
El = 568.20

-Y314L- STA.29+01.64 =
-L- STA.1177+67.62
ELEV. = 598.74'
MONROE BYPASS

BEGIN SP.CUT DITCH LT.
-Y314L- STA.30+50.00
El = 566.01

(-) 0.3000%

PI =31+00.000
El = 567.75 RT.
END SP.CUT DITCH LT.
El = 565.86

EXISTING GROUND

PROPOSED GRADE

(+) 0.3514%

(-) 1.5600%

PI =34+50.000
El = 568.98

PI =35+00.000
El = 568.20

(+) 0.3267%

BEGIN SP.CUT DITCH LT.
-Y314L- STA.37+50.00
El = 570.61

END SP.CUT DITCH RT.
-Y314L- STA.38+00.00
El = 569.18

FOR -Y314L- PLAN SEE SHTS.72,118 & 119

PLANS PREPARED BY :
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US 74 WB -Y314L-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	233
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PI = 41+05.00
EL = 575.16'
VC = 250'
K = 448
DS = > 80mph

(+)0.4516%
(+) 0.4971%
(+)1.0100%

END SP. CUT DITCH LT.
-Y314L- STA. 41+00.00
EI = 572.35

-Y314L- STA. 47+40.43 =
-Y315- STA. 19+94.22
ELEV. = 594.01'
FOREST HILLS SCHOOL RD.

PI = 46+10.00
EL = 580.26'
VC = 290'
K = 156
DS = 60mph

(+)1.0100%
(+)2.8688%

END GRADE
-Y314L- STA 50+00.00
ELEV. = 591.45'

END CONSTRUCTION
-Y314L- STA 50+50.00
50' BLEND TO EXIST.

PROPOSED GRADE
EXISTING GROUND

38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00 51+00 52+00

630 620 610 600 590 580 570 560 550 540

-Y315-

BEGIN CONSTRUCTION
-Y315- STA 12+00.00

50' BLEND TO EXIST.

BEGIN GRADE
-Y315- STA 12+50.00
ELEV. = 573.32'

PI = 13+25.00
EL = 574.00'
VC = 150'
K = 125
DS = 56mph

(+)0.9000%
(-)0.8448%
(-)10.3000%
(-)1.1150%
(-)10.3000%
(+)0.5000%

BEGIN SP. CUT DITCH RT.
-Y315- STA. 11+92.00
EI = 571.42 RT

PI = 12+50.000
EI = 570.93

END SP. CUT DITCH RT.
-Y315- STA. 14+50.00
EI = 568.70 RT

PI = 14+75.00
EL = 573.55'
VC = 150'
K = 188
DS = 71mph

PIPE HYDRAULIC DATA
STR 11904 Sta. 16+53

DRAINAGE AREA	= 28.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 71.3	CFS
DESIGN HW ELEVATION	= 571.3	FT
100 YEAR DISCHARGE	= 113.5	CFS
100 YEAR HW ELEVATION	= 572.8	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 133.2	CFS
OVERTOPPING ELEVATION	= 573.7	FT

BEGIN LAT. V DITCH LT.
-Y315- STA. 15+01.00
EI = 570.41

-Y315- STA. 14+72.70 =
-Y316- STA. 10+00.00
ELEV. = 573.69'
-Y316-

48" RCP

END LAT. V DITCH LT.
BEGIN LAT. BASE DITCH
PI = 16+50.000
EI = 567.47

(-) 1.9732%
(+) 0.9352%

END LAT. BASE DITCH LT.
-Y315- STA. 18+66.00
EI = 569.49

PI = 17+45.00
EL = 574.90'
VC = 330'
K = 79
DS = 45mph

(+)0.5000%
(+)4.6649%
(+)4.6649%

END GRADE
-Y315- STA 19+13.17
ELEV. = 582.74'

0.02
0.02

-Y315- STA. 19+38.53 =
-Y314R- STA. 13+62.02
ELEV. = 583.22'
US 74 WB

BEGIN GRADE
-Y315- STA 20+06.91
ELEV. = 583.88'

END GRADE
-Y315- STA 21+80.00
ELEV. = 581.53'

(-)1.4000%

-Y315- STA. 19+94.22 =
-Y314L- STA. 47+40.43
ELEV. = 584.01'
US 74 EB

BEGIN CONSTRUCTION
-Y315- STA 22+30.00

50' BLEND TO EXIST.

11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00

620 610 600 590 580 570 560 550 540 530

FOR -Y314L- PLAN SEE SHTS. 118 & 119
FOR -Y315- PLAN SEE SHT. 119

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA TURNPIKE AUTHORITY

8/29/2014
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Keris

5/28/99

US 74 EB -Y316-

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	234
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
STR 11905 Sta.11+76

DRAINAGE AREA	= 41.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 97.2	CFS
DESIGN HW ELEVATION	= 567.0	FT
100 YEAR DISCHARGE	= 154.8	CFS
100 YEAR HW ELEVATION	= 568.0	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 182.4	CFS
OVERTOPPING ELEVATION	= 568.6	FT

PIPE HYDRAULIC DATA
STR 11805 Sta.21+55

DRAINAGE AREA	= 9.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 28.4	CFS
DESIGN HW ELEVATION	= 566.4	FT
100 YEAR DISCHARGE	= 33.9	CFS
100 YEAR HW ELEVATION	= 566.8	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 52.9	CFS
OVERTOPPING ELEVATION	= 569.0	FT

BEGIN GRADE
-Y316- STA 10+27.10=
-Y315- STA.14+72.70
ELEV.= 573.16'

(-)12.00%

PI = 12+75.00
EL = 568.20'
VC = 300'
K = 130
DS = 58mph

PROPOSED GRADE

(-)12.0000%

(+)0.3000%

(+) 1.5623%

EXISTING GROUND

18" RCP

BEGIN LAT.V DITCH RT.
-Y316- STA.11+50.00
EI = 563.00

(-) 2.8679%

PI =12+03.000
EI = 561.48

PI = 12+50.00
EI = 564.35

END LAT.V DITCH RT.
-Y316- STA.15+00.00
EI = 566.12

BEGIN SP.CUT DITCH RT.
-Y316- STA.17+00.00
EI = 566.72

PI = 19+50.00
EL = 570.23'
VC = 150'
K = 167
DS = 61mph

(+)0.3000%

(-)0.6000%

(-) 0.6229%

(-) 0.3000%

30" RCP

PI =20+50.000
EI = 564.54
END SP.CUT DITCH RT.
BEGIN LAT.V DITCH

END LAT.V DITCH RT.
-Y316- STA.21+20.00
EI = 564.33

PROPOSED GRADE

BEGIN SP.CUT DITCH RT.
-Y316- STA.24+20.00
EI = 565.05

(-) 3.6562%

EXISTING GROUND

END SP.CUT DITCH RT.
BEGIN LAT.V DITCH
-Y316- STA.25+50.00
EI = 560.29

PI =29+00.000
EI = 547.50
END LAT.V DITCH RT.
BEGIN LAT.BASE DITCH

(-) 2.9167%

END LAT.BASE DITCH RT.
-Y316- STA.29+72.00
EI = 545.40

PI = 37+00.00
EL = 559.73'
VC = 300'
K = 136
DS = 57mph

(-)0.6000%

(-)2.8000%

FOR -Y316- PLAN SEE SHTS.72 & 118

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5/28/99

US 74 EB -Y316-

PI = 37+00.00
EL = 559.73'
VC = 300'
K = 136
DS = 57mph

END GRADE
-Y316- STA. 42+00.00
ELEV. = 545.73'

PROPOSED GRADE

EXISTING GROUND

-DR2_3B-

BEGIN GRADE
-DR2_3B- STA 10+12.00=
-Y310- STA.14+46.94
ELEV. = 592.14'

PI = 10+60.00
EL = 592.38'
VC = 60'
K = 40
DS = 31mph

PI = 11+50.00
EL = 594.18'
VC = 105'
K = 14
DS = 26mph

END GRADE
-DR2_3B- STA 13+20.00
ELEV. = 584.78'

EXISTING GROUND

PROPOSED GRADE

(−)2.06%
(+)10.8000%
(+)4.2400%
(+)6.9600%
(+)2.0000%
(−)15.5299%

END SP.CUT DITCH LT.RT.
-Y316- STA.10+50.00
EI = 591.16 LT.
EL = 591.24 RT.

BEGIN SP.CUT DITCH LT.RT.
-Y316- STA.10+25.00
EI = 590.00 LT.
EL = 589.50 RT.

-DR3_3B-

BEGIN GRADE
-DR3_3B- STA 10+12.00=
-Y310- STA. 33+54.60
ELEV. = 595.60'

PI = 10+70.00
EL = 594.44'
VC = 100'
K = 15
DS = 27mph

PI = 11+70.00
EL = 585.82'
VC = 100'
K = 9
DS = 15mph

END GRADE
-DR3_3B- STA 12+20.00
ELEV. = 587.01'

PROPOSED GRADE

(−)12.00%
(−)2.0000%
(−)18.6127%
(−)18.6127%
(+)2.3815%

EXISTING GROUND

-CSX_TOR-

SURVEYED CSX
TOP OF RAIL
STA.12+14.66
ELEV. = 571.02

STA.13+16.67
ELEV. = 570.06

STA.14+11.18
ELEV. = 569.05

STA.15+07.60
ELEV. = 568.05

STA.16+01.93
ELEV. = 567.04

STA.16+37.00
ELEV. = 566.67

STA.17+34.46
ELEV. = 565.51

STA.18+31.59
ELEV. = 564.32

SURVEYED CSX
TOP OF RAIL
STA.19+27.12
ELEV. = 563.18

PROJECT REFERENCE NO.	SHEET NO.
R-3329 /R-2559	235
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

FOR -Y316- PLAN SEE SHTS.72,118,& 119
FOR -DR2_3B- SEE SHT.115
FOR -DR3_3B- SEE SHT.116
FOR -CSX- PLAN SEE SHTS.71 AND 72

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