STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

October 16, 2018

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

ATTN: Mr. Andrew Williams
NCDOT Coordinator

Subject: **Application for Section 404 Regional General Permit No. 198200031 and 401 Water Quality Certification** for the proposed Widening of NC 24/27 from NC 740 in Albemarle in Stanly County to the Troy Bypass in Montgomery County, Federal Aid Project No. STBG-0024(083), Divisions 10 & 8, TIP Nos. R-2530B, B-4974 & R-2527. Debit $570 from WBS 34446.1.5.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to widen NC 24/27 from NC 740 in Albemarle located in Stanly County to the Proposed Troy Bypass, west of Troy in Montgomery County. The project was combined from three separate projects; R-2530B, B-4974 and R-2527; under one NEPA document in 2006 due to logical termini. R-2530B involves widening existing NC 24-27 from west of NC 740 to the Pee Dee River from a two to three-lane facility to a four-lane divided facility and will also involve a superstreet design in the areas where curb and gutter is proposed. B-4974 involves rehabilitating existing Bridge No. 51 over the Pee Dee River on the Stanly / Montgomery County line. R-2527 involves widening existing NC 24-27 from a two-lane facility to a four-lane divided facility from east of the Pee Dee River to the Troy Bypass. The total project is approximately 14.6 miles in length.

Please see the enclosed PCN, Division of Mitigation Services (DMS) mitigation acceptance letters, permit drawing review minutes (4B and 4C), Draft MOA, State Stormwater Management Plan (SMP), utility drawings, permit drawings, and design plans for the above referenced project.

Purpose and Need

The purpose of these projects is to improve traffic flow and level of service (LOS) on the section of NC 24-27 between NC 740 in Albemarle to the proposed Troy Bypass, west of Troy, and to rehabilitate a bridge across the Pee Dee River that addresses the needs of highway users.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

MERGER INFORMATION

In compliance with the NEPA/404 Merger Process, the following Concurrence Points were reached for this project:

R-2530B/B-4974: 4B: October 19, 2016 4C: May 16, 2018.

PROJECT SCHEDULE

R-2530B and B-4974 are currently scheduled to let to construction on March 19, 2019, with a review date of January 2, 2019. B-4974 has Design Build Let of November 20, 2018 with deck rehabilitation to begin shortly thereafter but no ground disturbing activities will commence until after the Construction Let in March 2019. R-2527 is currently slated to Let in February 16, 2021.

RESOURCE STATUS

Waters within the project area are located in the Yadkin Pee Dee River Basin (HUC 03040104, within Subbasins 03-07-08, 03-07-10, and 03-07-15). There are no Outstanding Resource Waters (ORW) or High Quality Waters (HQW) within the project area. No Water Supply Waters (WS-I or WS-II) waters occur within 1.0 mile of the project area; however, the Pee Dee River and its UTs are designated as WS-IV, B; CA (water supply watershed).

Wetland and stream determinations within R-2530B, B-4974 and R-2527 were conducted using the field delineation method outlined in the 1987 Corps of Engineers Wetland Delineation Manual and the 2012 Eastern Mountains and Piedmont Supplement. The projects were initially verified between 2006 and 2008. Ronnie Smith from ACOE and David Wainwright of DWR field reverified the wetlands and surface waters in 2012 through 2014.

303(d) Impaired Waters:
Mountain Creek is currently listed on the North Carolina 2016 Final 303(d) list of impaired waters for having impaired ecological/biological integrity for benthos. The Pee Dee River (Lake Tillery) is currently listed on the 2016 Final 303(d) list for PCBs in fish tissue.

IMPACTS TO WATERS OF THE U.S.

Tables 1, 2 and 3 summarize the impacts to jurisdictional water resources for R-2530B/B-4974. Site numbers correspond with the permit (hydraulic) drawings included in this application. The stream and wetland numbers correspond to the NRTR and the FONSI. The pond/open water impacts were not identified as mitigable at the 4B and 4C meetings for R-2530B/B-4974. (R-2527 is only preliminary design/impacts).

Table 1 – R-2530B Wetland Impacts (acres)

Permit Site	NRTR Site	NC WAM Classification	Wetland Size	Permanent Fill in Wetlands	Excavation in Wetlands	Mechanized Clearing	Hand Clearing	Impact Description
6	W8	Headwater Forest	1.20	0.19	0.36	0.12	--	Roadway fill/Utility excavation
10	W9	Headwater Forest	0.13	0.0	--	<0.01	--	Utility Easement
14	W10	Headwater Forest	0.36	0.09	--	0.09	--	Roadway fill/Utility Easement
15	W10	Headwater Forest	0.36	0.05	--	0.02	--	Roadway fill/Utility Easement
15	W10	Headwater Forest	0.36	<0.01	<0.01	<0.01	--	Erosion control basin
19	W12	Headwater Forest	0.13	--	--	<0.01	--	R/W clearing
21	WA	Headwater Forest	0.03	0.02	--	--	<0.01	Roadway fill/Utility Easement
43	WB	Bottomland Hardwood	0.02	0.02	<0.01	--	--	Roadway fill/Lateral 'V' ditch
49	WC	Headwater Forest	0.03	--	--	0.03	--	Erosion control basin
Total Wetland Impacts:				**0.38**	**0.36**	**0.27**	**<0.01**	
Total Wetland Impacts Requested from DMS:				**1.01**				

Table 2 – R-2530B A Pond Impacts (acres)

Permit Site	NRTR Site	Pond Size	Impact Size	Impact Description
11	Pond A	0.20	0.20	Roadway fill
16	Pond B	0.23	0.23	Roadway fill
34	Pond D	0.22	0.22	Roadway fill
Total Pond Impacts:			**0.75**	

Table 3 – R-2530B/B-4974 Stream Impacts (linear feet)

Permit Site	Stream Name/ NRTR ID	Status/ Class	Permanent		Temporary Channel Impacts	ACOE Required Mitigation	DWR Required Mitigation	Permanent Impacts Description
			Channel Impacts	Bank Stabilization				
1	UT to Mountain Creek / Ditch	Intermittent WS-IV	--	19	9	--	--	Bank stabilization at the outlet of twin 9’ x 5’ barrel culverts (19').
2	UT to Mountain Creek/ST-AN 04	Perennial WS-IV	106	--	7	106	0	UT to Mountain Creek will be relocated into an 8’x 7’ RCBC under NC 24/27 with the original streambed covered with roadway fill - south side of NC 24/27 (106’).
2	UT to Mountain Creek/ST-AN 02	Perennial WS-IV	65	--	10	65	0	UT to Mountain Creek will be relocated into a lateral base ditch (65’).
3	UT to Mountain Creek/ST-AN 04	Perennial WS-IV	38	--	--	38	0	UT to Mountain Creek will be relocated into an 8’x 7’ RCBC under NC 24/27 with the original streambed covered with roadway fill - north side of NC 24/27 (38’).
3	UT to Mountain Creek/ST-AN 04	Perennial WS-IV	--	61	39	--	--	Bank stabilization at various places along UT to Mountain Creek at the outlet of the 8’x 7’ RCBC (61’).
4	UT to Mountain Creek/ST-AN 08	Intermittent WS-IV	5	--	7	5	0	UT to Mountain Creek will be impacted by embedded outlet protection from a base ditch (5’).
5	UT to Mountain Creek/ST-AN 01	Perennial WS-IV	16	--	10	16	0	UT to Mountain Creek will be impacted by embedded outlet protection from 15” and 30” stormwater pipes (16’).
7	UT to Mountain Creek / ST-B	Perennial WS-IV	--	26	10	--	--	Bank stabilization at the inlet of a 7’x7’ RCBC (26’).
7	UT to Mountain Creek / ST-B	Perennial WS-IV	60	--	--	60	0	UT to Mountain Creek will be impacted by A 7’x7’ RCBC that is longer than the existing culvert to accommodate the road widening (60’).
8	UT to Mountain Creek / ST-B	Perennial WS-IV	--	16	10	--	--	Bank stabilization at the outlet of a 7’x7’ RCBC (16’).
9	UT to Mountain Creek / ST-HH	Perennial WS-IV	127	--	10	127	0	UT to Mountain Creek will be impacted by embedded outlet protection (18’) and relocation into a 36” RCP under NC 24/27 with the original streambed covered with roadway fill (109’).
11	UT to Mountain Creek / ST-D	Perennial WS-IV	62	--	--	62	0	UT to Mountain Creek will be relocated into a 24” RCP with impacts from roadway fill (35’) and outlet protection from a base ditch (27’).
12	UT to Mountain Creek / ST-F	Perennial WS-IV	147	--	10	147	0	UT to Mountain Creek will be relocated into a 60” RCP with impacts from roadway fill (126’) and embedded outlet protection (21’).

Permit Site	Stream Name/ NRTR ID	Status/ Class	Perm. Channel Impacts	Bank Stabilization	Temp. Channel Impacts	ACOE Required Mitigation	DWR Required Mitigation	Permanent Impacts Description
13	UT to Mountain Creek / ST-E	Perennial WS-IV	23	--	10	23	0	UT to Mountain Creek will be relocated into a 60" RCP with impacts from roadway fill to the original streambed (23').
16	UT to Mountain Creek / ST-I	Intermittent WS-IV	368	--	10	368	0	UT to Mountain Creek will be relocated into a lateral base ditch with the original streambed covered with roadway fill (368').
17	UT to Mountain Creek / ST-I	Intermittent WS-IV	1,047	--	35	1,047	0	UT to Mountain Creek will be relocated into two base ditches (100') and a 42" RCP with the original streambed covered with roadway fill (947').
18	UT to Mountain Creek / ST-GG	Perennial WS-IV	151	--	34	151	0	UT to Mountain Creek will be relocated into a 42" RCP with impacts from two base ditches (21') and the original streambed covered with roadway fill (130').
19	UT to Mountain Creek / ST-GG	Perennial WS-IV	44	--	12	44	0	UT to Mountain Creek will be relocated into embedded base ditch (24') and a 42" RCP with and the original streambed covered with roadway fill (20').
20	UT to Mountain Creek / ST-FF	Intermittent WS-IV	131	--	12	131	0	UT to Mountain Creek will be relocated into embedded base ditch (15') and a 36" RCP with and the original streambed covered with roadway fill (116').
22	UT to Mountain Creek / ST-FF	Perennial WS-IV	70	--	10	70	0	UT to Mountain Creek will be relocated into embedded base ditch (11') and a 15" RCP with and the original streambed covered with roadway fill (59').
23	UT to Jacobs Creek / ST-M	Perennial WS-IV	371	--	10	371	371	UT to Jacobs Creek will be relocated into a lateral base ditch with the original streambed covered with roadway fill (371').
24	UT to Jacobs Creek / ST-N	Perennial WS-IV	96	--	12	96	0	UT to Jacobs Creek will be impacted by a standard base ditch (86') and a 48" RCP (10').
25	UT to Jacobs Creek / ST-N	Perennial WS-IV	209	--	10	209	0	UT to Jacobs Creek will be impacted by a lateral base ditch (73') and its relocation into a 48" RCP with the original streambed covered with roadway fill (136').
26	UT to Jacobs Creek / ST-M	Perennial WS-IV	--	20	20	--	--	UT to Jacobs Creek will be impacted by bank stabilization at the outlet of a lateral base ditch (20').
27	UT to Jacobs Creek / ST-M	Perennial WS-IV	--	10	20	--	--	UT to Jacobs Creek will be impacted by bank stabilization at the outlet of a standard base ditch (10').
28	UT to Jacobs Creek / ST-M	Perennial WS-IV	362	--	20	362	362	UT to Jacobs Creek will be relocated into a lateral base ditch with the original streambed covered with roadway fill (362').

Permit Site	Stream Name/ NRTR ID	Status/ Class	Perm. Channel Impacts	Bank Stabilization	Temp. Channel Impacts	ACOE Required Mitigation	DWR Required Mitigation	Permanent Impacts Description
29	UT to Jacobs Creek / ST-CC	Perennial WS-IV	16	--	10	16	0	UT to Jacobs Creek will be relocated into a 66" RCP with the original streambed covered with roadway fill (16').
30	UT to Jacobs Creek / ST-M	Perennial WS-IV	--	10	16	--	--	UT to Jacobs Creek will be impacted by bank stabilization at the outlet of a standard base ditch (10').
31	UT to Jacobs Creek / ST-Q	Perennial WS-IV	107	--	10	107	0	UT to Jacobs Creek will be impacted by a 48" RCP (107').
32	UT to Pee Dee River / ST-R	Perennial WS-IV	164	--	10	164	0	UT to Pee Dee River will be impacted by a base ditch (66') and its relocation into a 36" RCP with the original streambed covered with roadway fill (98').
33	UT to Pee Dee River / ST-R	Perennial WS-IV, B; CA	143	--	13	143	0	UT to Pee Dee River will be impacted by outlet protection (25') and its relocation into a 36" RCP with the original streambed covered with roadway fill (118').
34	UT to Pee Dee River / ST-U	Perennial WS-IV, B; CA	253	--	25	253	0	UT to Pee Dee River will be impacted by its relocation into a standard base ditch (75') and a 36" RCP with the original streambed covered with roadway fill (178').
35	UT to Pee Dee River / ST-V	Perennial WS-IV, B; CA	46	--	10	46	0	UT to Pee Dee River will be impacted by embedded outlet protection (11') and its relocation into a 42" RCP with the original streambed covered with roadway fill (35').
36	UT to Pee Dee River / ST-V	Perennial WS-IV, B; CA	--	17	--	--	--	UT to Pee Dee River will be impacted by bank stabilization at the outlet of a 9' x 7' RCBC (17').
36	UT to Pee Dee River / ST-V	Perennial WS-IV, B; CA	23	--	--	23	0	UT to Pee Dee River will be impacted by the installation of a 9' x 7' RCBC (23').
37	UT to Pee Dee River / ST-V	Perennial WS-IV, B; CA	136	--	--	136	0	UT to Pee Dee River will be impacted by its relocation into a 9' x 7' RCBC with the original streambed covered with roadway fill (136').
37	UT to Pee Dee River / ST-V	Perennial WS-IV, B; CA	--	27	10	--	--	UT to Pee Dee River will be impacted by bank stabilization at the inlet of a 9' x 7' RCBC (27').
38	Pee Dee River	Perennial WS-IV, B; CA	--	238	18	--	--	The Pee Dee River will be impacted by bank stabilization; sloping abutment armoring on the west bank under the bridges (238') and a temporary work bridge (0.02ac).

Permit Site	Stream Name/ NRTR ID	Status/ Class	Perm. Channel Impacts	Bank Stabilization	Temp. Channel Impacts	ACOE Required Mitigation	DWR Required Mitigation	Permanent Impacts Description
39	Pee Dee River	Perennial WS-IV, B; CA	--	171	20	--	--	The Pee Dee River will be impacted by bank stabilization; sloping abutment armoring on the east bank under the bridges (171') and a temporary causeway (0.02ac).
40	UT to Pee Dee River / SG	Intermittent WS-IV, B; CA	99	--	11	99	0	UT to Pee Dee River will be impacted by embedded outlet protection (10') and a 36" RCP (89').
41	UT to Pee Dee River / SH	Perennial WS-IV, B; CA	24	--	12	24	0	UT to Pee Dee River will be impacted by the installation of a 6' x 8' RCBC (24').
42	UT to Pee Dee River / SH	Perennial WS-IV, B; CA	32	--	--	32	0	UT to Pee Dee River will be impacted by the installation of a 6' x 8' RCBC (32').
42	UT to Pee Dee River / SH	Perennial WS-IV, B; CA	--	44	7	--	--	UT to Pee Dee River will be impacted by bank stabilization at the inlet of a 6' x 8' RCBC (44').
44	UT to Pee Dee River / SL-B	Intermittent WS-IV, B; CA	7	--	10	7	0	UT to Pee Dee River will be impacted by embedded outlet protection at the outlet of a 24" RCP (7').
45	UT to Rocky Creek / SA-1	Perennial WS-IV; CA	86	--	11	86	0	UT to Rocky Creek will be impacted by its relocation into a 72" RCP with the original streambed covered with roadway fill (86').
46	UT to Rocky Creek / SA-1	Perennial WS-IV; CA	75	--	--	75	0	UT to Rocky Creek will be impacted by its relocation into a 72" RCP with the original streambed covered with roadway fill (75').
46	UT to Rocky Creek / SA-1	Perennial WS-IV; CA	--	26	--	--	--	UT to Rocky Creek will be impacted by bank stabilization at the inlet of a 72" RCP (26').
47A	Rocky Creek / SA	Perennial WS-IV; CA	--	10	16	--	--	Rocky Creek will be impacted by bank stabilization at the outlet of a filtration basin (10').
47	Rocky Creek / SA	Perennial WS-IV; CA	29	--	10	29	--	Rocky Creek will be impacted by a twin barrel 11'x 9' RCBC (4') and a floodplain bench at the outlet (25').
48	Rocky Creek / SA	Perennial WS-IV; CA	125	--	33	125	0	Rocky Creek will be impacted by a twin barrel 11'x 9' RCBC (94') and a floodplain bench at the inlet (31).
50	UT to Mountain Creek / ST-B	Perennial WS-IV	109	--	10	109	0	UT to Mountain Creek will be impacted by a twin barrel 9'x 6' RCBC (74') and a floodplain bench at the inlet (35).

Permit Site	Stream Name/ NRTR ID	Status/ Class	Perm. Channel Impacts	Bank Stabilization	Temp. Channel Impacts	ACOE Required Mitigation	DWR Required Mitigation	Permanent Impacts Description
51	UT to Mountain Creek / ST-B	Perennial WS-IV	8	--	12	8	0	UT to Mountain Creek will be impacted by a floodplain bench at the outlet of a twin barrel 9'x 6' RCBC (8').
Total Stream Impacts:			**4,980**	**695**	**611**	**4,980**	**733**	
Total Permanent Impacts			**5,675**					
Total Stream Impact Requested from DMS:						**4,980**		

R-2530B/B-4974 has 695 LF of permanent impacts from bank stabilization but these impacts don't meet mitigation criteria from either the ACOE or NCDWR and have been subtracted from total permanent impacts for R-2530B/B-4974: 5,675' – 695' = 4,980'.

Utility Impacts

Wetlands at Permit Sites 10, 14, 15, and 21 have mechanized or hand clearing impacts from utility easements – these impacts **(<0.05 ac**) are included in the impact tables and permit drawings for this project.

Wetland W8 at Permit Site 6 will have utility impacts (**0.21ac**) from open trenches that the City of Albemarle will require for the installation of water and sewer lines to a new lift station. These utility wetland impacts have been included in Table 1 above. Please see utility drawings for a site narrative and impacts (attached to the PCN).

Utility impacts for R-2527 will be determined when that section reaches final design.

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:
NCDOT has avoided impacting many wetlands and streams and reduced impacts to wetlands and streams to the greatest extent practicable. Other specific examples of avoidance and minimization measures include:

- Avoiding direct discharges where practicable.

- Culvert barrels with sills will be back filled with native material or class A rip rap to sill height. Native material will consist of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Native material is subject to approval by the engineer and may be subject to permit conditions. Class A rip rap may be used to supplement the native material. If rip rap is used, native material should be placed on top to fill voids and provide a flat surface for animal passage

- For upstream and downstream floodplain bench channel improvements, the floodplain bench will be comprised of Class I rip rap with native material to top of sill elevation and coir fiber matting cover (per comment received at 4B meeting).

- Due to the water supply reservoir within project limits, a Critical Area (CA) was identified in the FONSI. The CA is defined as the area within ½ mile from the water supply reservoir normal pool. Within the CA, a 25-year storm is used for erosion control design. Although only a portion of the project falls within the CA, the entire erosion control design was based on the 25-year storm event to further protect the surrounding watershed.

- The filtration basins will provide water quality treatment for a broad spectrum of water quality parameters of concern. As stormwater is temporarily detained, suspended sediments and some phosphorus are captured through sedimentation. During infiltration and other chemical processes, metals and additional phosphorus are removed. Microbial activity that occurs in the media helps to reduce nitrogen and hydrocarbons. As the surface layer is exposed to sunlight and allowed to dry, pathogens are treated. Median filters with relatively deep media layers can help abate runoff temperatures.

- Media filters will additionally provide peak flow attenuation, reducing the peak flow for the protection of downstream conveyances, reducing the chance for degradation and sediment loss.

- Coordination of erosion control basins with hazardous spill basins to limit impacts if possible by converting basin EC basin over to permanent spill basin.

Site Specific Avoidance and Minimization Measures:

- Use of low flow sills set at stream bed elevation in main barrel of multiple barrel and in single barrel box culverts. Low flow sills were used in both barrels of box culvert at Sta. 38+76 -L- due to lack of cover (only 4' height opening), need for opening area to meet hydraulic guidelines and inability to raise proposed grade significantly due to surrounding developed areas.

- Use of high flow sills set at floodplain bench elevation on high flow barrels of multiple barreled box culverts at Sta. 24+95 -Y2- and 381+64 -L-, to help maintain the natural stream width and depth through the main barrel.

- NCDOT avoided impacts at Permit Site 41 by shortening the culvert thereby reducing permanent and temporary stream impacts and avoiding the FERC Resource Protection Management line (depicted as Do Not Disturb on permit drawings).

- Use of hazardous spill basins in and around critical area of Lake Tillery. Critical area where hazardous spill basins are required begins around Sta. 258+00 -L- and runs to the end of the project.

- Modified, linear, base ditch basins with check dams were provided at basin locations 1 (from Sta. 276+50 to 277+75 -L- (RT)), location 2 (from Sta. 290+50 to 293+00 -L- (RT)), location 3 (from Sta. 307+00 to 308+50 -L- (LT)), and location 4 (from Sta. 331+25 to 334+00 -L- (LT)). These modified basins will limit the overall basin footprint, since they are in areas of very steep terrain where traditional basins were not practical. They will provide storage for low flow events or spills, within the ditch parameters, will slow down the spills with the use of check dams and will provide a headwall that can be blocked off in case of a spill.

- The basins at stations 364+00 -L- (LT) and 382+50 -L- (RT) are designed as rock lined, detention type basins with weir outfalls approximately 18" elevated above the bottom of the basin. These basins will help to detain any spills, while minimizing maintenance and safety concerns due to the steep terrain and difficulty accessing.

- Hazardous spill basins were modified to filtration basins at Sta. 352+75 -L- (RT) and Sta. 380+00 -L- (RT) to provide some long-term water quality benefits. The filtration basins are designed and sized to capture and treat the water quality volume that will consist of all the runoff from the new built-upon area for 80 to 90% of the average annual rainfall. This will result in a water quality design storm of 1.5 inch. The filtration basins were used in areas where vegetative conveyance was not possible due to the steep terrain requiring rip rap protection in the proposed swales to protect from high velocities.

Please refer to the attached Stormwater Management Plan for additional Avoidance and Minimization measures.

Compensation:
The final design permanent impacts for R-2530B/B-4974 are **5,675 linear feet** of stream and **1.01 acre** of wetlands. The preliminary design impacts for R-2527 are **8,068 linear feet** of stream and **1.01 acre** of wetlands. The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable as described above. Table 4 summarizes the wetland and stream impacts for each section, and summarizes the mitigation requirements for the project.

Table 4 – R-2530B/B-4974 Mitigation Summary

HUC	Project Section	ACOE Required Mitigation (lf)	DWR Required Mitigation (lf)	Wetland Mitigation (ac)
03040104	R-2530B/B-4974	4,980	733	1.01
03040104	R-2527*	8068	--	1.04
R-2530B/B-4974 Total Mitigation:		**13,471**	**733**	**2.05**

*Preliminary design impacts, slope stakes plus 25 feet – please see preliminary impact table and permit drawings for R-2527 (attached to the PCN).

R-2530B/B-4974 has 695 LF of permanent impacts from bank stabilization but these impacts don't meet mitigation criteria from either the ACOE or NCDWR and have been subtracted from total permanent impacts for R-2530B/B-4974: 5,675' – 695' = 4,980'.

R-2530B/B-4974 has 0.75 acre of permanent impacts to ponds. These impacts were determined to be nonmitigable by the ACOE at the 4C Meeting held May 16, 2018.

The permanent stream and wetland impacts will be mitigated at a ratio of 2:1 with credits acquired from DMS.

REGULATORY APPROVALS

Section 404: Application is hereby made for a Regional General Permit No. 198200031 as required for the above-described activities.

Section 401: We are hereby requesting a 401 Water Quality Certification from the N. C. 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 (see Subject line).

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Jeff Hemphill at jhemphill@ncdot.gov or (919) 707-6126. A copy of this application and distribution list will also be posted on the NCDOT website at:
http://connect.ncdot.gov/resources/Environmental/Pages.

Sincerely,

Carla Dagnino

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

cc: NCDOT Permit Application Standard Distribution List

Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

September 29, 2018 Ver 3

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

https://edocs.deq.nc.gov/WaterResources/0/edoc/624704/PCN%20Help%20File%202018-1-30.pdf

A. Processing Information

County (or Counties) where the project is located:*

Stanly

Montgomery

Is this project a public transportation project?*

(•) Yes ( ) No

This is any publicly funded by municipal,state or federal funds road, rail, airport transportation project.

Is this a NCDOT Project?*

(•) Yes ( ) No

(NCDOT only) T.I.P. or state project number:

R-2530B, B-4974, R-2527

WBS #*

WBS # 34446.1.5

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

- [x] Section 404 Permit (wetlands, streams and waters, Clean Water Act)
- [ ] Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

- [ ] Nationwide Permit (NWP)
- [x] Regional General Permit (RGP)
- [ ] Standard (IP)

1c. Has the NWP or GP number been verified by the Corps?*

(•) Yes ( ) No

This form may be used to initiate the standard/individual permit process with the Corps. Please contact your Corps representative concerning submittals for standard permits. All required items that are not provided in the E-PCN can be added to the miscellaneous upload area located at the bottom of this form.

Regional General Permit (RGP) Number: 198200031 - NCDOT Bridges, Widening Projects 2015

RGP Number Other:

List all RGP numbers you are applying for not on the drop down list.

1d. Type(s) of approval sought from the DWR:*

check all that apply

- [x] 401 Water Quality Certification - Regular
- [ ] Non-404 Jurisdictional General Permit
- [ ] Individual Permit
- [ ] 401 Water Quality Certification - Express
- [ ] Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?

*

For the record only for DWR 401 Certification: ( ) Yes (•) No

For the record only for Corps Permit: ( ) Yes (•) No

1f. Is this an after-the-fact permit application?*

○ Yes ◉ No

1g. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program.

◉ Yes ○ No

Acceptance Letter Attachment

Click the upload button or drag and drop files here to attach document

FILE TYPE MUST BE PDF

1h. Is the project located in any of NC's twenty coastal counties?*

○ Yes ◉ No

1j. Is the project located in a designated trout watershed?*

○ Yes ◉ No

Link to trout information: http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx

B. Applicant Information

1a. Who is the Primary Contact?*

Jeff Hemphill

1b. Primary Contact Email:*

jhemphill@ncdot.gov

1c. Primary Contact Phone:*

(xxx)xxx-xxxx

(919)707-6126

1d. Who is applying for the permit?*

☑ Owner ☐ Applicant (other than owner)

(Check all that apply)

Is there an Agent/Consultant for this project?*

○ Yes ◉ No

2. Owner Information

2a. Name(s) on recorded deed:*

NCDOT

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address*

Street Address

1020 Birch Ridge Drive

Address Line 2

City

Raleigh

State / Province / Region

NC

Postal / Zip Code

27610

Country

US

2e. Telephone Number:*

(xxx)xxx-xxxx

(919)707-6126

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address:*

jhemphill@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project:*

R-2530B, B-4974, R-2527: NC 24/27 Widening from Albemarle to the Troy Bypass

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town:*

Albemarle, Troy

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.30960

ex: 34.208504

Longitude: *

-80.07704

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Pee Dee River/Lake Tillery

3b. Water Resources Classification of nearest receiving water: *

WS-IV,B;CA

Surface Water Lookup

3c. What river basin(s) is your project located in? *

Yadkin-PeeDee

3d. Please provide the 12-digit HUC in which the project is located. *

030401050401, 030401040201, 030401040203, 030401040202, 030401040204, 030401040305

River Basin Lookup

4. Project Description and History

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

Urban development, businesses (Albemarle) to rural,residential, recreation (Pee Dee River), cultivated land, USFS land.

4b. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? *

○ Yes ◉ No ○ Unknown

4d. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4e. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4f. List the total estimated acreage of all existing wetlands on the property:

6.8

4g. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

Approximately 15,500

4h. Explain the purpose of the proposed project: *

The purpose of these projects is to improve traffic flow and level of service (LOS) on the section of NC 24-27 between NC 740 in Albemarle to the proposed Troy Bypass, west of Troy, and to maintain a bridge across the Pee Dee River that addresses the needs of highway users.

4i. Describe the overall project in detail, including indirect impacts and the type of equipment to be used: *

The proposed projects involve widening NC 24-27 from NC 740 in Albemarle located in Stanly County to the Proposed Troy Bypass (R-623), west of Troy in Montgomery County. TIP project R-2530B involves widening existing NC 24-27 from west of NC 740 to the Pee Dee River in Stanly County from a two to three-lane facility to a four-lane divided facility. R-2530B will include a 23-foot raised median from NC 740 to SR 1731 (Sweet Home Church Road) and transition to a 46-foot depressed median from east of SR 1731 to the Pee Dee River in Stanly County. Project R-2530B will also involve a superstreet design in the areas where curb and gutter is proposed and also in the open shoulder segment at STA 153+00. TIP project B-4974 involves rehabilitating existing Bridge No. 51 over the Pee Dee River on the Stanly / Montgomery County line. TIP project R-2527 involves widening existing NC 24-27 from a two-lane facility to a four-lane divided facility with a 46-foot depressed median from the Pee Dee River to the proposed Troy Bypass, west of Troy in Montgomery County. The total length of the proposed projects is approximately 14.6 miles long.Cranes, bulldozers, barges will be utilized for the construction activities.

4j. Please upload project drawings for the proposed project.

Click the upload button or drag and drop files here to attach document

R2530B, 4974 Roadway Plansheets.pdf	63.05MB
R-2530B, B-4974 Utility Narrative.pdf	81.2KB
R-2530B, B-4974 Utilities Drawings.pdf	2.15MB
R2527_Hyd_Preliminary_Permit_Drawings_20181008.pdf	9.13MB
R-2530B,B-4974 Permit Drawings.pdf	31.32MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

(•) Yes ( ) No ( ) Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

( ) Preliminary (•) Approved ( ) Not Verified ( ) Unknown ( ) N/A

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): NCDOT Personnel

Agency/Consultant Company:

Other:

5d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

. The projects were initially verified between 2006 and 2008. Ronnie Smith from ACOE and David Wainwright of DWR field reverified the wetlands and surface waters in 2012 through 2014 - more information was requested by the Corp (rapanos forms) which were submitted in 2014 along with additional wetland forms but a tearsheet was not issued (to my knowledge).

5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

R-2530B, B-4974, R-2527 Final JD request.pdf	2.59MB

File type must be PDF

6. Future Project Plans

6a. Is this a phased project? *

(•) Yes ( ) No

7b. If yes, explain.

R-2530B, B-4974, & R-2527 were originally separate but because of logical terminii issues all three projects were combined under one NEPA document. R-2530B/B-4974 are at final design with construction Let currently March 19, 2019. R-2527 is at preliminary design and currently is slated to Let in 2021.

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

☐ Wetlands ☐ Streams-tributaries ☐ Buffers
☐ Open Waters ☐ Pond Construction

E. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project: *

See attached Stormwater Management Plan contained in the Permit Drawings and the attached cover letter

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques: *

See attached Stormwater Management Plan contained in the Permit Drawings and the attached cover letter

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

(•) Yes ( ) No

2c. If yes, mitigation is required by (check all that apply):

☑ DWR ☑ Corps

2d. If yes, which mitigation option(s) will be used for this project?

☐ Mitigation bank ☑ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.

☑ Yes ☐ No

4b. Stream mitigation requested:

(linear feet)

13,048

4c. If using stream mitigation, what is the stream temperature:

warm

NC Stream Temperature Classification Maps can be found under the Mitigation Concepts tab on the Wilmington District's RIBITS website.

4d. Buffer mitigation requested (DWR only):

(square feet)

4e. Riparian wetland mitigation requested:

(acres)

2.05

4f. Non-riparian wetland mitigation requested:

(acres)

4g. Coastal (tidal) wetland mitigation requested:

(acres)

4h. Comments

6. Buffer mitigation (State Regulated Riparian Buffer Rules) - required by DWR

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation? If yes, you must fill out this entire form - please contact DWR for more information.

○ Yes ○ No

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

1. Diffuse Flow Plan

1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

○ Yes ◉ No

For a list of options to meet the diffuse flow requirements, click here.

If no, explain why:

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

◉ Yes ○ No

Comments:

G. Supplementary Information

1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? *

◉ Yes ○ No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? *

◉ Yes ○ No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) *

◉ Yes ○ No

NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FONSI_FINAL_R2530B_B4974_R2527_4.2017.pdf 143.77MB

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? *

○ Yes ◉ No

3. Cumulative Impacts (DWR Requirement)

3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? *

◉ Yes ○ No

3c. If yes, upload a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWR policy.

Click the upload button or drag and drop files here to attach document

R-2530B, B-4974, R-2527 ICE Summary.pdf 7.46KB

File must be PDF

4. Sewage Disposal (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

○ Yes ◉ No ○ N/A

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

◉ Yes ○ No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

◉ Yes ○ No

5c. If yes, indicate the USFWS Field Office you have contacted.

Raleigh

5d. Is another Federal agency involved? *

◉ Yes ○ No ○ Unknown

What Federal Agency is involved?

USFS

5e. Is this a DOT project located within Division's 1-8? *

◉ Yes ○ No

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

The BA for this project is attached - the Biological Opinion from USFWS will be forwarded upon receipt.

Consultation Documentation Upload

Click the upload button or drag and drop files here to attach document

R-2530B_BA_092818.pdf 7.49MB

File type must be PDF

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

○ Yes ◉ No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMF

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: http://gis.ncdcr.gov/hpoweb/

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? *

◉ Yes ○ No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? *

Archaeology: The undertaking, as designed, is expected to adversely affect NRHP eligible sites 31Mg1806, 31MG1629, 31MG321, and the archaeological district composed of sites 31St195, 31St196, and 31St204/204**. FHWA is currently in consultation with the SHPO, the Catawba Nation and the USFS for the development of an MOA and subsequent data recovery plans to mitigate these effects.

7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

R-2530B, B-4974, R-2527, Historical Architecture.pdf 680.34KB

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: https://msc.fema.gov/portal/search

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

(•) Yes ( ) No

8b. If yes, explain how project meets FEMA requirements:

See attached permit drawings

8c. What source(s) did you use to make the floodplain determination? *

FEMA Floodplain Maps

Miscellaneous

Comments

Please see attached R-2530B, B-4974, R-2527 Permit Application Cover Letter for permanent and temporary impacts for this project (See Table 1 for Wetland Impacts and Table 3 for Stream Impacts).

Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

2016-10-19 R2530B 4B Merger Meeting Minutes.pdf	55.18KB
2018-05-16 R2530B 4C Merger Meeting Minutes.pdf	138.02KB
R-2527 DMS.pdf	69.49KB
R-2530B DMS.pdf	67.13KB
R-2530B B-4974 R-2527 Permit Application Cover Letter.pdf	220.11KB

File must be PDF or KMZ

Signature

*

☑ By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a “transaction” subject to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Carla Dagnino

Signature

Carla Dagnino

Date

10/16/2018

ROY COOPER
Governor

Environmental Quality

October 16, 2018

Mr. Philip S. Harris, P.E., CPM
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter:

R-2530B, NC 24 / 27 from Bird Road in Albemarle to the Pee Dee River, Stanly County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the stream and wetland mitigation for the subject project. Based on the information supplied by you on October 16, 2018, the impacts are located in CU 03040104 of the Yadkin River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Yadkin	03040104	SP	0	0	4,980.0	1.01	0	0

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

The impacts and associated mitigation needs were under projected by the NCDOT in the 2018 impact data. DMS will commit to implement sufficient compensatory wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. 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 DMS.

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

Sincerely,

James B. Stanfill
DMS Asset Management Supervisor

Cc: Ms. Crystal Amschler, USACE – Asheville Regulatory Field Office
Ms. Amy Chapman, NC Division of Water Resources
File: R-2530B

ROY COOPER
Governor

Environmental Quality

October 16, 2018

Mr. Philip S. Harris, P.E., CPM
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: DMS Mitigation Acceptance Letter:

R-2527, NC 24 / 27 from Bird Road in Albemarle to the Pee Dee River, Montgomery County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the stream and wetland mitigation for the subject project. Based on the information supplied by you on October 16, 2018, the impacts are located in CU 03040104 of the Yadkin River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Yadkin	03040104	SP	0	0	8,068.0	1.04	0	0

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

The impacts and associated mitigation needs were under projected by the NCDOT in the 2018 impact data. DMS will commit to implement sufficient compensatory wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. 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 DMS.

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

Sincerely,

James B. Stanfill
DMS Asset Management Supervisor

Cc: Ms. Crystal Amschler, USACE – Asheville Regulatory Field Office
Ms. Amy Chapman, NC Division of Water Resources
File: R-2527

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

NICHOLAS J. TENNYSON
SECRETARY

MEMO TO: All Attendees

FROM: Stephen Morgan, P.E.
Hydraulics Project Design Engineer

DATE: October 19, 2016

SUBJECT: Project 34446.1.5 (R-2530B) Stanly and Montgomery Counties
F.A. Project: BRSTP-0024(33) (B-4974)
NC 24-27 from NC 740 in Albemarle to the East of the Pee Dee River

MINUTES FOR INTERAGENCY CONCURRENCE 4B MERGER MEETING

Interagency Concurrence 4B Merger Meeting was held on October 19, 2016 at 2:30 PM in the Structures Design Conference Room for the above referenced project. The following items were addressed:

1. The following persons attended:

Name	Representing	Email
Stephen Morgan	NCDOT Hydraulics	smorgan@ncdot.gov
Ray Lovinggood	NCDOT Hydraulics	rlovinggood@ncdot.gov
Thad Duncan	NCDOT RDU	tfduncan@ncdot.gov
Alex Foster	NCDOT RDU	afoster@ncdot.gov
Beverly Robinson	NCDOT PDEA	brobinson@ncdot.gov
Colin Mellor	NCDOT NES	cmellor@ncdot.gov
Jeff Hemphill	NCDOT NES	jhemphill@ncdot.gov
James Swinson	NCDOT Utilities	jeswinson@ncdot.gov
Jeb S. Smith	NCDOT Utilities	jssmith8@ncdot.gov
Kevin Fischer	NCDOT Structures	wkfischer@ncdot.gov
Brian Wrenn	NCDWR	brian.wrenn@ncdenr.gov
Cynthia Van Der Wiele	USEPA	vanderwiele.cynthia@epa.gov
Jason Lawing	Kimley-Horn (KH)	jason.lawing@kimley-horn.com
Jeff Moore	Kimley-Horn (KH)	jeff.moore@kimley-horn.com
Bryan Vickery	Kimley-Horn (KH)	bryan.vickery@kimley-horn.com

The following persons attended by phone:

Name	Representing	Email
Andy Williams	USACE	andrew.e.williams2@usace.army.mil
Travis Wilson	NCWRC	travis.wilson@ncwildlife.org
Eric Rouse	Duke Energy Progress	eric.rouse@duke-energy.com
Mark Staley	NCDOT REU	mstaley@ncdot.gov

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN UNIT
1582 MAIL SERVICE CENTER
RALEIGH NC 27699-1582

TELEPHONE: 919-707-6200
FAX: 919-250-4036
WEBSITE: WWW.NCDOT.GOV

LOCATION:
CENTURY CENTER COMPLEX
BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC

2. Project Overview

- This will be a Division 10 managed project.
- EA was completed for the R-2530B, B-4974 and R-2527 projects. Only the R-2530B and B-4974 projects are funded and moving forward with final design.
    - USACE (Andy Williams) expressed concern about the project logical termini and if the project would be meeting the EA purpose and need if only the R-2530B and B-4974 projects are permitted.
    - Only a functional design is available for the R-2527 project. R-2527 is unfunded.
    - Preliminary designs for R-2527 may be necessary for permit.
    - It was asked if this can move forward as a phased project.
    - A final resolution to this issue was not agreed upon at this meeting. It will need to be further discussed between NCDOT and USACE.
- The project termini between B-4974 and R-2527 has revised slightly from the EA. Originally the termini was located directly on top of the FEMA stream Rocky Creek (Limited Detail) crossing (Sta. 381+50 -L- per current plans). However, it was decided at the August 11th, 2016 meeting to carry the full roadway typical section across the western crossing of Rocky Creek in order to only impact the FEMA stream crossing once. The roadway was then tapered to existing for a termini at Station 396+23 -L-, such that it tied in prior to the second (eastern) crossing of Rocky Creek (Sta. 399+89 -L-). The eastern crossing of Rocky Creek will be included in the R-2527 project.
- According to Beverly Robinson a FONSI will be completed that includes all three projects.
- Concurrence Point 2A Merger Meeting held February 2, 2011.
- Concurrence Point 4A Merger Meeting originally held in January 2014.
- A revisit of the Concurrence Point (CP) 3 and 4A Merger Meetings was held on August 17, 2016.
- ROW date scheduled for May 2017. LET date scheduled for March 2019.
- It was mentioned that a portion of the project around the Pee Dee River/Lake Tillery is subject to the Federal Energy Regulatory Commission (FERC) boundary and that coordination with Progress Energy will be required, as well as, an update to the FERC permit.

3. Review of Environmental Assessment Document

- The EA project vicinity map and figures 4A-4C and 4F-4H were shown and discussed. The revised proposed tie in point for the end of the project (termini) was shown.
- The Project Commitments were discussed.
    - The FERC Boundaries are referenced into the plans and coordination is occurring regarding future permit revisions.
    - The Norfolk Southern Rail crossing is on the R-2527 project and does not apply to this job.
    - 19 sites of the 23 potentially contaminated sites apply to R-2530B and B-4974. The Geoenvironmental Recommendations file (.GEO) has not yet been provided.
    - There are two FEMA stream crossings on the project. 1 – Pee Dee River, no anticipated impacts at this site since the existing bridge No. 50 is being retained and existing bridge No. 51 substructure is being retained. 2 – Limited Detail Stream crossing of Rocky Creek
    - Bicycle accommodations are included in the plans. Coordination between the City of Albemarle and NCDOT is ongoing to address cost sharing.
    - NES just received a survey of Schweinitz's sunflower within the project area. A Biological Assessment will be completed.
- Table S1, Summary of Environmental Effects was discussed. It was noted that the total linear feet of stream impacts totaled slightly over 9,000 feet in the EA and the preliminary total in the permit summary is approximately 5,200 feet. The preliminary wetland impacts were close to

matching the estimated impacts in the EA. The approximate 9,000 feet of linear stream impacts was for the R-2530B and B-4974 portions of the EA. Recommend impacts in EA to be revised to account for the slightly different project terminus.

- Table 4 for Existing Drainage Structures (Major Stream Crossings) and Table 9 for Proposed Bridges and Drainage Structures (Major Stream Crossings) were reviewed.
    - It was noted that in the EA all structures were called to be retained and extended. However, as design has progressed it has been determined that most all major structures will require replacement due to either capacity, structure layout, or maintenance.
    - An additional major stream crossing was added for the UT to Pee Dee River, 0.1 miles SE of the SR 1149 junction that would replace an existing 54" RCP.
- Table 10 Water Resources Data was reviewed.
    - All classified streams carried the WS-IV and CA classifications
    - The Pee Dee River and Lake Tillery also carried the B classification
    - This project will be subject to hazardous spill basins since some crossings within the project limits are within a water supply watershed. A map of the critical area and hazardous spill basins limits was shown.
    - It was mentioned that the Pee Dee River and Mountain Creek were added to the Final 2014 303(d). They were not on the 2010 303(d) list referenced in the EA. The parameters of interest is "Fish Community Fair" for Mountain Creek and "PCB Fish Tissue Advisory" for the Pee Dee River. These streams are not considered impaired due to sediment.
- Table 11, 12 and 13 for Stream Impacts within the Project Study Areas of R-2530B, B-4974 and R-2527 was referenced.
    - The table for R-2527 was referenced because the Rocky Creek crossing (Stream ID SA) was originally included on this project in the EA but is now included in the R-2530B / B-4974 project based on the revised project termini.
    - It was noted in the meeting that the DWQ Scores for all streams within the project area are fairly low (less than 50).
    - It was mentioned that the DWQ score is not just a function of quality. It is also used to determine perennial vs. intermittent. The low DWQ scores does not indicate that project avoidance and minimization efforts can be ignored.
    - The assessment for this project was completed prior to SAM forms.
    - 2:1 mitigation will be assumed for all features unless proven to be highly damaged
    - If permitting for less than 2:1 mitigation the feature would need to be reassessed and verified. A SAM form would need to be completed for these features.
    - NES will go through the project and determine which features need to be re-verified and complete quality assessment forms.
- Table 14 and 15 for Wetland Impacts was referenced. No comments were made.
- Table 21 for Potentially Hazardous Materials Sites was referenced. 19 of the 23 potential sites are in the R-2530B / B-4974 project area. Beverly Robinson will check on the Geoenvironmental Recommendations file (.GEO) and NCDOT will be providing at a later date.

4. Review of Preliminary Stormwater Management Plan
    - The existing and proposed typical sections were described and plan sheets of the proposed typical sections were shown.
        - It was questioned why the median expands from a 23' grassed median in the urban section to a 46' grassed median in the rural section. The reasoning was stated for safety measures and for superstreet design. It was mentioned that this was discussed in length at the CP2 meeting. Need to articulate reasoning for the wider median in the rural portions of the job in the permit application.

- The avoidance and minimization efforts intended to be used on this project were covered. They were as follows:
  - Maintaining existing drainage patterns to best extent practical.
  - Use of low flow sills set at stream bed elevation in main barrel of multiple barrel culverts.
  - Use of high flow sills set at floodplain bench elevation on high flow barrels of multiple barreled culverts at Sta. 38+76 -L- and 381+64 -L-, to help maintain the natural stream width and depth through the main barrel.
  - Burying circular cross pipes and using sills and burying single barrel box culverts at jurisdictional streams.
  - Use of bottomless box culvert at Sta. 305+27 -L-.
  - Construction phasing and traffic control considerations when laying out new culverts in order to reduce construction time.
  - Non-symmetric widening in areas to reduce impacts to wetlands and jurisdictional streams.
  - Shifted bulb-outs where possible to avoid additional stream and wetland impacts.
  - Use of 2:1 slopes to reduce structure length and fill slope offset to help reduce stream and wetland impacts.
  - Use of grass swales and preformed scour holes where possible.
  - Use of hazardous spill basins in and around critical area.
  - Use of open channel design where practical in areas of parallel jurisdictional stream impacts.
  - Retaining Bridge 50 and substructure of Bridge 51, avoiding impacts to Pee Dee River/Lake Tillery.
  - Use of deck drain system on Bridge 51
  - Use of retaining wall from 355+50 to 359+75 -L- RT to reduce impacts to FERC boundary, JS SG and limit impacts to Lake Tillery boat ramp parking.

5. Review of Preliminary 4B Permit Drawings
   - It was emphasized that the permit drawings provided for this meeting were only preliminary and in no way final or ready for detailed review. They were produced for the 4B meeting to help generate discussion and give a better view of potential impact areas.
   - Sheet 5 (Site 1) – Replacing existing 1 @ 87" x 63" CMPA with 2 @ 7' x 6' RCBC (Buried 1')
     - Upstream channel design discussed. No exceptions noted with current design.
     - Proposed 15-degree bend in culvert discussed. Improves entrance angle for upstream channel into culvert and helps protect parking area of nearby business.
     - Constructability discussed. Current proposed culvert layout should help phasing and potentially reduce construction time.
     - Culvert will be buried one foot. Main barrel will have a 1' sill. Second barrel will be buried with high flow sill at floodplain bench elevation.
     - It was requested that barrels be backfilled with stream bed material to help prevent trapping wildlife. Non-native backfill material was deemed acceptable for base layer. Can be covered with Class A rip rap.
     - For upstream and downstream floodplain bench channel improvements DWR requested to use rock fill border with native fill material and coir fiber matting cover.
   - Sheet 6 (Site 2) – Replacing existing 1 @ 6' x 6' RCBC with 1 @ 8' x 7' RCBC (Buried 1')
     - Sized for future development
     - Upstream confluence with Stream St-AN 02 will require some open channel improvements to tie to Stream St-AN 02+04 outside of proposed fill slope and proposed box culvert
     - Look at constructability of this culvert. May be able to shift to the east to align better with downstream channel and set up for ease of construction phasing

  - Need to avoid existing sanitary sewer system with shift of downstream portion of proposed box culvert
- Sheet 7 – No comments
- Sheet 9 (Site 3) – Replacing existing 1 @ 6' x 6' RCBC with 1 @ 7' x 7' RCBC (Buried 1')
  - Sized for future development
  - Culvert skew appears good from a constructability aspect.
  - Wetland 8 impacted from widening and fill.
  - Connectivity between the wetland and Stream St-B cut off due to fill. A proposed ditch will be necessary to reconnect and avoid ponding in wetland. Ditch not intended to drain wetland.
  - Bulb out location was previously assessed to determine if it could be moved out of wetland area and it was determined it could not be moved. This is the first introduction of a bulb out on project, as this is the transition point between the urban and rural areas of the project (typical section change from curb and gutter to paved shoulders). Moving to the east would impact parking to the church near Sta. 97+00 -L- and place the bulb out in a curve.
  - Need to document why the bulb out can't shift in narrative of permit application.
- Sheet 10 (Site 4) – Non-JS upstream and JS downstream.
  - Discussed it was not necessary to bury pipes in these instances. When burying pipes need to assess potential for head cut upstream. Would prefer not to bury if head cut is a concern.
  - Pipe will be revised to not be buried and will revise to 30" RCP without a headwall.
- Sheet 11 (Site 5) – Replacing existing 1 @ 4' x 4' Box Culvert with 1 @ 60" RCP (Buried 1')
  - Align pipe with stream skew
- Sheet 11 (Site 6) – Wetland 10 consists of two wetland groupings. The eastern portion of the wetland was originally identified as Streams St-G and St-F in the EA and were revised to a wetland after the bulb out location had been determined.
  - Discussion was had on whether the bulb out needed to be shifted to the east outside of the wetland area. It was mentioned that a crest is located to the east of this location and shifting the bulb out closer towards the crest would result in a slightly lesser design from a safety aspect. It would also place the bulb out in a curve.
  - Bulb out had previously been located further to the west, but was shifted to reduce stream and wetland impacts near Stream St-F/St-E.
  - It was mentioned that even if the bulb out is shifted the wetland would still have impacts that would fill over the existing connectivity between the stream. Therefore, a ditch would still be required to connect the wetlands to the stream and alleviate potential ponding.
  - Due to the minimal impact savings and the reduction in design safety it was decided to keep the bulb out at its current location.
- Sheet 11/12 (Site 7) – Pond B and streams entering and exiting pond will be impacted by the fill from the widening. Plan is to pick up Non-JS stream that was entering pond with a piped system.
- Sheet 12/13 (Site 8) – Site 8 is an approximate 1000' long, parallel stream impact. Not a high quality stream. Classified as intermittent. Basically a roadside swale. Candidate for a SAM form.
  - Two options were shown at Site 8, one to pick up the stream in a pipe, which would require a 42" RCP and another option to create an open channel.
  - A cross section was provided displaying the open channel option, which indicated the required cut slope would tie in at an approximate 147' offset. Using an open channel would potentially impact a house on sheet 13 that is currently shown outside of ROW and would require cutting down many trees.

  - It was decided to pick up this water in a piped system due to the stream classification and desire not to cut as far back in the wooded area as the open channel was required.
  - Align the outfall pipe from the system with the stream skew.
- Sheet 13 (Site 10) – Align cross pipe with stream skew.
  - Provide countersunk rip rap in upstream channel to help reduce potential for head cut upstream, which would result in impacts to the upstream wetland.
- Sheet 14 (Site 11) – Non-JS upstream and JS downstream.
  - Discussed it was not necessary to bury pipes in these instances. When burying pipes need to assess potential for head cut upstream. Would prefer not to bury if head cut is a concern.
  - Pipe will be revised to not be buried and will revise to 36" RCP with headwall.
- Sheet 15 (Site 12) – Mentioned to not bury the proposed pipe placed at the wetland.
- Sheet 16 (Site 13) – When designing proposed outfall pipe at Site 13 try to skew pipe to better align with stream.
  - Concern for pre/post at this outfall. Check during design. Possible site for BMP.
- Sheet 17/18 (Site 14) – Approximately 300' parallel stream impact
  - Non-JS upstream and JS downstream
  - Plan to pick up in a pipe system that is not buried. Revised to 30" RCP without a headwall.
- Sheet 18 (Site 15) – Align cross pipe with stream skew.
  - Provide countersunk rip rap in upstream channel to help reduce potential for head cut upstream.
  - Proposed pipe to be buried and include headwalls.
- Sheet 19/20 (Site 16) – Approximate 300' of parallel stream impact.
  - Large drainage area (104 AC)
  - Two options were mentioned. One to pipe, but that would require a 72" RCP (Buried 1') because of the large design year event discharge (176 cfs). Second option to provide open channel. Cross section was provided displaying the approximate open channel and tie in for the cut slope at an offset of 136'.
  - Due to amount of water it was decided to design as an open channel.
  - Concern about slope stability above ditch cut slope was mentioned. Design will need to take into account slope stability.
  - Potential to add floodplain bench on open channel, but it would further offset cut slope. Didn't feel there was a need for a floodplain bench at this location.
  - Replacing 1 @ 3' x 3' Box Culvert with 1 @ 66" RCP (Buried 1').
  - Skew pipe to align with stream.
- Sheet 21 (Site 17) – Replacing 1 @ 3' x 3' Box Culvert with 1 @ 48" RCP (revised from 60" buried on preliminary permit plans)
  - JS upstream and Non-JS downstream.
  - Revised to not bury pipe due to stream classification and concern for upstream head cut.
- Sheet 22 (Site 18) – Discussed possibility of skewing proposed pipe similar to existing and providing open channel downstream for approximately 75' before tying with JS.
  - Preferred aligning pipe with skew of stream and no open channel.
  - Proposed pipe to be buried and include headwalls.
- Sheet 23 – No comments
- Sheet 24 (Site 20) – Plan is to pick up Stream St-U on left side of road in a pipe system that will not be buried.
  - Some open channel may be required downstream at the confluence of Streams St-U and St-V.
- Sheet 24 (Site 20A) – Approximate 300' of parallel stream impact.

  - Large drainage area (163 AC)
  - Three options were discussed. One to pipe, but that would require an 84" RCP (Buried 1') because of the large design year event discharge (258 cfs). This option was not seen as favorable given the required pipe size.
  - Second option was to provide open channel. Cross section was provided displaying the approximate open channel and tie in for the cut slope at an offset of 161'. The cut slope would fall within a utility easement and potentially would impact transmission poles. Eric Rouse to check with Duke Energy's Transmission office on transmission and get their requirements for encroachment and offset. It was agreed that the open channel was not a good option given the impacts to the utility. Eric also mentioned that Duke Power usually does not like to have any impact to their easement.
  - The third option discussed was the addition of a retaining wall from approximately Sta. 300+00 to 303+00 -L- (RT). This would eliminate fill into the stream. This is the preferred option.
  - A retaining wall on the back slope of the open channel was also mentioned, however, the retaining wall would still fall within the utility easement and therefore is not as desirable an option.
- Sheet 24 (Site 21) – Replacing 1 @ 7' x 7' Bottomless RCBC with 1 @ 9' x 7' Bottomless RCBC.
  - Questioned whether it was worth using a bottomless RCBC in this location due to impact of proposed culvert footings and culvert alignment not matching up with stream alignment in the area of the widening downstream.
  - Questioned whether existing culvert should be retained and extended given that it is adequately sized
  - Proposed grade is approximately 12' higher than existing. Structures would need to evaluate existing box if retaining
  - Draft CSR to be submitted and discussed with Structures to make final decision
  - Existing 1 @ 8' x 6' RCBC immediately upstream of existing box. Plan is to retain this structure since it is in good condition.
- Sheet 25 – No comments
- Sheet 27 – Bridge 51 existing substructure to be retained. Superstructure to be replaced, rehabbed, and widened. Bridge 50 to be retained.
  - Briefly discussed deck drain system on existing and proposed bridge. Existing system has direct discharge into stream. Proposed will require deck drain system. How will this be designed given the historical and architectural implications to the bridge?
  - Will the deck drain system need to outfall into a hazardous spill basin? May be difficult to find an adequate location for the hazardous spill basin at the end bridge side (low side of bridge). This will be discussed in more detail at a separate meeting.
  - No FERC boundary impacts anticipated due to the bridges.
  - Structures still determining begin and end bridge stations, revising from existing vertical abutments to sloping abutments. Need to keep this in mind when placing proposed drainage structures near approach slab.
- Sheet 28 (Site 23) – Retaining wall located from Sta. 355+50 to 359+75 -L- (RT) to help avoid impacts to Swift Island Lake Boat Ramp parking area. Also helped to avoid impacts to FERC and Stream SG.
  - It was requested to shorten the retaining wall such that the proposed cross pipe outfalling to Stream SG would not fall within the location of the retaining wall. Shortening the wall would still limit all impacts to the parking area.
  - The retaining wall and final site design to the boat ramp parking area has not been finalized.

  - Eric Rouse requested that the design be sent to him once completed and he will forward on to Travis Sinclair. Colin Mellor will discuss this area further with Eric and Travis outside of this meeting.
  - Beverly Robinson mentioned that DEP, Wildlife Resources Commission, Duke Energy Progress, and NCDOT need to have a meeting scheduled to discuss the Swift Island Access Area further.
- Sheet 29 (Site 24) – Replacing 1 @ 54" RCP with 1 @ 6' x 6' RCBC (Buried 1'), sized for HW/D of 1.0
  - This site was added as a major structure from the EA
  - Site currently set up well for constructability
- Sheet 30 (Site 25) – Replacing 1 @ 60" RCP with 1 @ 72" RCP (Buried 1').
  - Pipe was oversized in the existing condition.
  - Proposed sized selected to provide similar open area.
- Sheet 30 (Site 26) – Replacing 2 @ 10' x 7' RCBC with 2 @ 10' x 9' RCBC (Buried 1')
  - FEMA Limited Detail Study Stream (Rocky Creek)
  - Look at constructability
  - Culvert will be buried. Main barrel will have a 1' sill up to stream bed elevation. Second barrel will be buried with high flow sill at floodplain bench elevation.
  - It was requested that sills be backfilled to help prevent trapping wildlife. Non-native backfill material was deemed acceptable.
  - For upstream and downstream floodplain bench channel improvements it was recommended to use rock fill border with native material and coir fiber matting cover.
  - It was noted that Rocky Creek is a High Quality Water (HQW) and to make sure we are following the practices for HQW as stated in the NCDOT State Stormwater Permit.

6. Action Items

See previous sections for action items.

After the meeting it was discussed that it may be a good idea for NCDOT Hydraulics, Structures and Work Zone Traffic Control to have a meeting to discuss the proposed box culverts and constructability. Kimley-Horn is to finalize the draft CSR's and include a small bullet point narrative of the phasing for the meeting.

Need to add scale to impact zoom-in's. Otherwise agencies had no problem with how the current permit drawings were set-up.

Meeting adjourned at 4:45 PM.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON III
SECRETARY

MEMO TO: All Attendees

FROM: Jason Lawing, P.E.
Hydraulics Project Design Engineer

DATE: May 16, 2018

SUBJECT: Project 34446.1.6 (R-2530B) and 39922.1.1 (B-4974)
Stanly and Montgomery Counties
NC 24-27 from NC 740 in Albemarle to the East of the Pee Dee River

MINUTES FOR INTERAGENCY CONCURRENCE 4C MERGER MEETING

Interagency Concurrence 4C Merger Meeting was held on May 16, 2018 at 10:00 AM in the Structures Design Conference Room for the above referenced project. The following items were addressed:

1. The following persons attended:

Name	Representing	Email
Stephen Morgan	NCDOT Hydraulics	smorgan@ncdot.gov
Ray Lovinggood	NCDOT PMU	rlovinggood@ncdot.gov
Andy McDaniel	NCDOT Hydraulics	ahmcdaniel@ncdot.gov
Bryan Key	NCDOT PMU	bckey@ncdot.gov
Laura Sutton	NCDOT PMU	lsutton@ncdot.gov
Colin Mellor	NCDOT EAU	cmellor@ncdot.gov
Jeff Hemphill	NCDOT EAU	jhemphill@ncdot.gov
John Olinger	Division 8 DCM	jolinger@ncdot.gov
Louis Pages	Division 8 ROW	lpages@ncdot.gov
Trey Caddell	Division 8 ROW	ldcaddell@ncdot.gov
Reuben Blakley	Division 8 Resident Engineer	rblakley@ncdot.gov
Andy Williams	USACE	andrew.e.williams2@usace.army.mil
Nicholle Braspennickx	USACE	nicholle.m.braspennickx@usace.army.mil
April Norton	NCDWR	april.norton@ncdenr.gov
Donna Hood	NCDWR	donna.hood@ncdenr.gov
David Stutts	NCDOT SMU	dstutts@ncdot.gov
Donald Hampton	NCDOT Utilities	dehampton@ncdot.gov
Michael Bright	NCDOT Utilities	mbright@ncdot.gov
Carla Dagnino	NCDOT EAU	cdagnino@ncdot.gov
Craig Lee	NCDOT PMU	cjlee@ncdot.gov
Jason Lawing	Kimley-Horn (KH)	jason.lawing@kimley-horn.com
Jeff Moore	Kimley-Horn (KH)	jeff.moore@kimley-horn.com
Bryan Vickery	Kimley-Horn (KH)	bryan.vickery@kimley-horn.com
Vance Blanton	Kimley-Horn (KH)	vance.blanton@kimley-horn.com
Bill Elam	NCDOT Hydraulics	belam@ncdot.gov

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LOCATION:
CENTURY CENTER COMPLEX
BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC

Frank Fleming	Ecological Engineering	ffleming@ecologicaleng.com

The following persons attended by phone:

Name	Representing	Email
Travis Wilson	NCWRC	travis.wilson@ncwildlife.org
Amy Chapman	NCDWR	amy.chapman@ncdenr.gov
Rick Baucom	Division 10 DCE	rwbaucom@ncdot.gov
Trent Culp	Division 10 ROW	jculp@ncdot.gov
Jason Callicutt	Division 10 ROW	jacallicutt@ncdot.gov
Leslie Pomaville	Duke Energy	leslie.pomaville@duke-energy.com
Travis Sinclair	Duke Energy	travis.sinclair@duke-energy.com
Mark Staley	NCDOT REU	mstaley@ncdot.gov

2. Project overview was given and the following was discussed:

- Project map shown and limits were explained between the R-2530B, B-4974 and R-2527 projects.
- Project consists of widening on best fit alignment along NC 24-27 from Albemarle at intersection of NC 740 to East of the Pee Dee River beyond the first crossing of Rocky Creek
- Project located in Stanly and Montgomery Counties, as well as, both Divisions 8 and 10. Pee Dee River serves as the border. This will be a Division 10 managed project.
- Project is approximately 7.1 miles in length, the first 1.2 miles is urban (within City limits) and remaining 5.9 miles is rural. Project extends through Uwharrie Mountains and therefore encounters steep terrain and rock in many locations
    - Urban typical section: 4 lane divided with 23' raised grassed median, curb and gutter, 14' outside lanes for bike accommodations, 12' inside lanes, 10' shoulders with sidewalk and 2:1 side slopes or flatter. Superstreet design incorporated with roundabout at intersection of L and Y2/Y2A (Barnard Rd/Anderson Rd)
    - Rural typical section: 4 lane divided with 46' grassed median, 12' lanes, 4' paved shoulders, 2:1 fill slopes or flatter, 6:1 outside ditch front slopes, with 4:1 back slopes and 6:1 median ditch slopes
- R-2527
    - EA and FONSI completed for the R-2530B / B-4974 and R-2527 projects. Originally only R-2530B and B-4974 projects funded.
    - Concern during 4B about project meeting the EA purpose and need if only R-2530B and B-4974 were permitted.
    - R-2527 project became funded and design started early 2017.
    - Decision at 4B to include preliminary impacts from R-2527 in permit package.
    - Drawings will be needed for the preliminary impacts. Ray Lovinggood and Bill Elam to coordinate production of these drawings.
    - R-2527 alignment in the process of revision. Anticipate design being far enough along for permit drawings in fall of 2018.
    - Preliminary impacts should include slopestakes plus 25 feet.
- Current project timeline
    - Environmental Assessment Approved December 23, 2011
    - 4B Meeting held October 19, 2016
    - FONSI Approved April 10, 2017
    - FDFI Held May 3, 2017
    - ROW Date May 19, 2017 (ROW currently being acquired)
    - LET Date March 19, 2019

- Major streams crossings discussed; Mountain Creek, Jacobs Creek, Pee Dee River/Lake Tillery and Rocky Creek. USGS topo map referenced.

3. Federal Energy Regulatory Commission (FERC) permit was discussed, conversation was led by Colin Mellor:
   - FERC boundary located around Pee Dee River / Lake Tillery (water supply watershed)
   - Pencils need to be down on design revisions prior to start of FERC application process
   - Leslie Pomaville indicated they will need to know the volumes of rip rap bank stabilization below the normal lake level.
   - Leslie Pomaville indicated that discharges directed to the lake would not normally be allowed per the shoreline guidance.
     - In particular, discussed the two outfalls on the begin bridge side. One in the median, is the replacement of an existing outfall. The other is on the left side of the roadway, a base ditch drains to the lake carrying runoff that is piped down the steep bridge embankment from an upstream linear, base ditch, hazardous spill basin.
     - Also discussed sites 40 and 41 of the permits. Site 40 replaces an existing 30" pipe with a proposed 36" pipe. Impacts from this site stay out of the normal lake level but are located within the FERC boundary. Site 41 replaces an existing 60" pipe with a proposed 1 @ 6' x 8' RCBC. Will discuss these sites further at future meeting.
   - It was decided that a follow up meeting would need to occur with Duke-Energy and NCDOT to discuss outfalls, impacts and FERC. Colin Mellor to set up the meeting. Donna Hood and Andy Williams indicated they would like to be part of that meeting. Meeting will need to occur quickly and could possibly be at the bridge site.
   - It was mentioned that the bridge work would be pulled from the R-2530B / B-4974 project and completed earlier as a separate project.
     - Anticipate November 2018 LET for bridge project
     - Eastbound Bridge 50 will have deck rehab and roadway resurfacing. This will be the initial work completed on the project. No permitted activities will be needed for Bridge 50 work. Anticipate finishing Bridge 50 work at a similar time that the R-2530B / B-4974 project will LET in March of 2019 at which time all permits will be in place and Westbound Bridge 51 work can commence.
     - Anticipate 401/404 permits in January or February of 2019 for R-2530B / B-4974.
     - Westbound Bridge 51 superstructure will be rehabilitated. Bridge is a historical structure. The existing arch structure will be retained. The bridge will be lengthened by approximately 50' on the begin bridge side and by approximately 25' on the end bridge side.
     - The existing bridge consists of deck drains that drain down behind the existing bridge bents and direct discharge into the water.
     - There was an Effects meeting on 1/19/17 between Human Environment Section (HES, Mary Pope Furr), SMU, Hydraulics, RDU, PDEA, and Renee Gledhill-Early of the State Historic Preservation Office regarding the potential for a proposed deck drain system on Bridge 51. It was determined that the proposed bridge will be allowed to have deck drains to discharge over the water similar to the existing structure.
   - Stephen Morgan mentioned a scheduled draw down of Lake Tillery later this year and trying to time this with construction activities below the normal lake level. It was decided it was most likely not feasible to coordinate these efforts due to the project timeline.
4. Review of Stormwater Management Plan (SMP) and Permit Drawings
   - A narrative was included with the SMP that documented all the avoidance and minimization efforts that were taken on the project. Some of the efforts were highlighted at the meeting.
   - Pipe burial was discussed. A pipe burial table is included in the SMP that includes all cross pipes on the project and associated information that was used to make a determination to bury or not.

The pipe bury determination was based on guidelines developed between NCDWR and Division 10. They are as follows:
  - Not a jurisdictional stream, don't bury
  - Jurisdictional on one end, don't bury
  - Jurisdictional on both ends and has a pipe slope over 4%, don't bury over concern of head cut
  - Jurisdictional on both ends and has a pipe slope less than 4%, bury
  - Bedrock prevents burial, don't bury
- It was mentioned the general guidance used when determining impacts was the slope stakes plus 10 feet.
- Donna Hood will need a waiver from burial and reasoning in the official submittal of the permit. It was discussed that the pipe burial table is included in the SMP and all cross pipes have been labeled on the plans as either to be or not to be buried.
- Donna Hood requested that everyone be updated when there are revisions to the permit drawings.
- Donna Hood mentioned she will expect high measures of erosion control on the entire project. It was responded that although only a portion of the project falls within the water supply reservoir critical area, the entire erosion control design was based on the 25-year storm event in an effort to further protect the surrounding watershed.
- All comments received from the 4B were addressed.
- Permit drawings include 51 sites. With respect to everyone's time, decided to focus on certain areas that were discussed at 4B or any major changes that have occurred since 4B. Opportunity to discuss any sites not mentioned below was also given.
- Site 1 (Sheet 2 of 84) – Replacing existing 1 @ 87" x 63" CMPA with 2 @ 9' x 5' RCBC (Buried 1')
  - No major changes from 4B. As discussed at 4B, proposed 15 degree bend in culvert improves entrance angle for upstream channel into culvert and helps protect parking area of nearby upstream business.
  - As requested from 4B, barrels will be backfilled with stream bed material to help prevent trapping wildlife.
  - Only downstream side is jurisdictional.
  - No comments made.
- Site 2 and 3 (Sheet 6 of 84) – Replacing existing 1 @ 6' x 6' RCBC with 1 @ 8' x 7' RCBC (Buried 1')
  - Since 4B this culvert has been shifted to the east to align better with the downstream channel and set up for ease of construction phasing
  - Comment received to break rip rap pattern on upstream left bank to better show tie-in with tributary that ties through a channel change from the east.
  - Comment received to make sure channel change is not a v ditch. Responded that for channel changes such as this one, the design of the channel change was based off the natural channel geometry of the stream. In this case a 6' base ditch with 2:1 side slopes.
  - Comment received to make sure the design is not impeding wildlife passage. Responded that main channel does not have any rip rap in the channel bed and the culvert is buried 1'. Also, the channel change to the east has rip rap in the channel but it is embedded to allow wildlife passage.
- Site 7 and 8 (Sheet 10 of 84) – Replacing existing 1 @ 6' x 6' RCBC with 1 @ 7' x 7' RCBC (Buried 1')
  - No major changes from 4B.
  - Bulb out previously in this area shifted west to avoid additional wetland impacts
  - Commented that this area will not constitute a total take on the wetland
  - Commented that a new PUE added at 90+75 -L- (RT) will require some additional wetland impacts (mechanized clearing).

- Site 11 (Sheet 15 and 17 of 84)
  - Existing pond to be filled in and replaced with 3' standard base ditch (matching the upstream jurisdictional stream typical section).
  - Revised during ROW negotiations with the property owner
  - Required PUE was impacting pond. NCDOT did not want to maintain pond and homeowner no longer wanted pond.
  - Comment from Andy Williams that mitigation for the pond will not be required.
  - Comment from Donna Hood to make sure proposed ditch is stable. Suggested either coir fiber matting or rip rap in the channel bottom and side slopes. Make sure the rip rap would be embedded to allow aquatic passage.
- Site 14 and 15 (Sheet 17 of 84)
  - Andy Williams said these wetlands would not be considered total takes.
- Site 17 (Sheet 22 and 24 of 84)
  - Discussed at 4B and decided to pipe this area due to the stream classification and desire not to cut as far back in the wooded area as the open channel would have required. Approximate 1,000 feet of stream impact.
  - Not a high quality stream. Classified as intermittent.
  - Open channel required a cut slope that would tie approximately 147' offset and potentially impact a house on sheet 24 of 84.
  - No comments made.
- Site 28 (Sheet 38 and 40 of 84)
  - Approximate 300' of stream impact.
  - Discussed at 4B and decided to design as open channel due to amount of water.
  - Large drainage area (104 acres) would require 72" pipe if piped.
  - No comments made.
- Site 35 and 36 (Sheet 24 of 84)
  - Use of fill slopes steeper than 2:1 with reinforced soil slopes from Sta. 298+00 -L- to 303+00 -L- (RT) to avoid impacts due to fill to the parallel jurisdictional stream.
  - Andy Williams commented to document the avoidance and minimization efforts at this location well in the SMP narrative
  - Donna Hood commented that since the slopes were steeper than 2:1 that extra armoring would be necessary in the erosion control plans so nothing gets into the jurisdictional stream
- Site 36 and 37 (Sheet 24 of 84) – Replacing 1 @ 7' x 7' RCBC Bottomless RCBC with 1 @ 9' x 7' RCBC.
  - Decided not to bury and not to use bottomless structure due to impact of proposed culvert footings and culvert alignment not matching up with stream alignment in the area of the downstream widening.
  - 4' long baffles will be used throughout the box on 25' centers with Class B rip rap between baffles to provide a continuous low flow channel. Existing channel consists of rock therefore excavated material is not anticipated from the stream bed at the project site during construction.
  - Retaining existing 1 @ 8' x 6' RCBC immediately upstream of existing box. Good condition.
  - Donna Hood commented to make sure banks are heavily armored between the two culverts. Responded that design calls for Class I rip rap on banks and the existing stream bed channel consists of natural rock.
  - Stephen Morgan commented to make sure wingwalls are drawn correctly. Responded that wingwalls were drawn to avoid the existing culvert wingwalls. Need to provide skew angle of wingwalls on CSR in order to communicate to structures.
- Site 38 and 39 (Sheet 54 of 84)

  - Discussed earlier in meeting during FERC discussion.
- Sheet 56 of 84 - Filtration basin
  - Hazardous spill basin at Sta. 352+75 -L- (RT) was modified to filtration basin to provide some long-term water quality benefits. Sized and designed to capture and treat the water quality volume that will consist of all the runoff from the new built-upon area for 80 to 90% of the average annual rainfall. Resulting in a water quality design storm of 1.5 inches.
  - Filtration basin placed in area of old roadbed of NC 73.
  - Donna Hood commented that she wants to see a way to isolate in case of a spill. Concerned the underdrain will allow the spill to continue to flow downstream. Andy McDaniel and Bryan Vickery discussed an idea to possibly cap the underdrain pipe within the outlet structure in the case of a spill.
- Site 41 (Sheet 58 of 84) – Replacing existing 1 @ 60" RCP with 1 @ 6' x 8' RCBC
  - Not buried due to the culvert being located in the backwater of Lake Tillery
  - Culvert oversized (HW/D of 1.0) due to the tailwater condition.
  - No comments made.
- Site 47 and 48 (Sheet 62 of 84) – Replacing existing 2 @ 10' x 7' RCBC with 2 @ 11' x 9' RCBC (Buried 1')
  - FEMA Limited Detail Study Stream, MOA Type 2b proposed
  - As requested from 4B, barrels will be backfilled with stream bed material to help prevent trapping wildlife.
  - Use of high flow sill to help maintain the natural stream width and depth through the main barrel.
  - No comments made.
- Site 47A (Sheet 62 of 84) – Filtration Basin
  - Hazardous spill basin at Sta. 380+00 -L- (RT) was modified to filtration basin to provide some long-term water quality benefits similar to one mentioned above.
  - Similar concern and potential solution to the filtration basin above.
- Site 47 (Sheet 62 of 84) – Hazardous Spill Basin
  - Donna Hood verified that the weir of the hazardous spill basin was to be constructed out of Class I rip rap only. This was confirmed and was designed as such based on previous concern from NCDOT about constant standing water and maintenance issues if the weir were to be constructed of dirt.
  - Donna Hood commented that she would prefer to see the weir constructed of dirt and lined with rip rap to provide a way to stop the water in the case of a spill. Responded that the flow could be stopped through the use of shoveled earth material or stacked bags per the guidelines. Design to be discussed further to determine if weir will be revised.
  - Donna Hood stated that all hazardous spill basins will need to provide a means to stop the water in the case of a spill. While not her preference, Donna said sand bags would be acceptable, but need to be sure they are on site.
- Site 48 (Sheet 62 of 84)
  - Andy Williams commented about the 10' of temporary surface impacts upstream of the proposed channel improvements. Discussed extending the temporary surface impacts to the limits of the PDE.
- Site 50 and 51 (Sheet 67 of 84) – Replacing existing 2 @ 48" CMP with 2 @ 9' x 6' RCBC (Buried 1')
  - Downstream of first major crossing on -L-
  - Added to project after 4B meeting, when improvements were needed along Hilco and Barnard Street for superstreet design revision
  - Use of high flow sill to help maintain the natural stream width and depth through the main barrel.

- No comments made.

- Final Impact Summary Sheet
  - Comment to remove the R-2527 totals from sheet 84 of 84
  - Comment to remove the pond impacts from sheets 80 and 82. Instead provide a sum of the pond impacts on sheet 84.

5. Action Items

   See previous sections for action items.

   Meeting adjourned at 12:00 PM.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

General Project Information

WBS Element:	34446.1.6	TIP Number:	R-2530B/B-4974	Project Type:	Roadway Widening	Date:	2/22/2018
NCDOT Contact:	Stephen Morgan, P.E.		Contractor / Designer:	Kimley-Horn & Associates			
Address:	NCDOT Hydraulics Unit 1020 Birch Ridge Dr. Raleigh, NC 27610		Address:	200 South Tryon Street, Suite 200 Charlotte, NC 28202			
Phone:	919-707-6739		Phone:	704-319-5683			
Email:	smorgan@ncdot.gov		Email:	jason.lawing@kimley-horn.com			
City/Town:	Albemarle		County(ies):	Stanly	Montgomery		
River Basin(s):	Yadkin-Pee Dee		CAMA County?	No	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	7.133 miles	Surrounding Land Use:	Urban (1.2 miles) and Rural (5.9 miles)

	Proposed Project	Existing Site
Project Built-Upon Area (ac.)	78.1 ac.	42.0 ac.
Typical Cross Section Description:	Urban Typical Section (1.2 mi.) - 4 lane divided with 23' raised grassed median, curb and gutter, 14' outside lanes, 12' inside lanes, 10' shoulders with sidewalk, and 2:1 side slopes or flatter. Rural Typical Section (5.9 mi.) - 4 lane divided with 46' grassed median, 12' lanes, 4' paved shoulders, 2:1 fill slopes or flatter, 6:1 outside ditch front slopes with 4:1 back slopes and 6:1 median ditch slopes.	Urban Typical Section (from begin to -Y5) - 3 lane with center two way turn lane, curb and gutter, 11' lanes, grassed shoulders with 2:1 side slopes or flatter. Rural Typical Section (from -Y5- to end of project) - 2 lane shoulder section with 11' lanes and 2:1 side slopes or flatter.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 21,500 Year: 2039	Existing: 16,400 Year: 2019
General Project Narrative: (Description of Minimization of Water Quality Impacts)	See attached narrative.	

Waterbody Information

Surface Water Body (1):	Mountain Creek		NCDWR Stream Index No.:	13-5-(0.7)	
NCDWR Surface Water Classification for Water Body		Primary Classification:	Water Supply IV (WS-IV)	None	
		Supplemental Classification:			
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:				Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

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WBS Element:	34446.1.6	TIP No.:	R-2530B/B-4974	County(ies):	Stanly Montgomery	Page	2	of	5

Additional Waterbody Information

Surface Water Body (2):	Jacobs Creek		NCDWR Stream Index No.:	13-9-(0.5)		
NCDWR Surface Water Classification for Water Body		Primary Classification:	Water Supply IV (WS-IV)			
		Supplemental Classification:				
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (3):	Pee Dee River		NCDWR Stream Index No.:	13-(1)		
NCDWR Surface Water Classification for Water Body		Primary Classification:	Water Supply IV (WS-IV)	Class B		
		Supplemental Classification:				
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A	
Deck Drains Discharge Over Water Body?	Yes	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (4):	Rocky Creek		NCDWR Stream Index No.:	13-8-(2)		
NCDWR Surface Water Classification for Water Body		Primary Classification:	Water Supply IV (WS-IV)	None		
		Supplemental Classification:				
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?		Comments:				
NRTR Stream ID:				Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

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WBS Element: 34446.1.6 **TIP No.:** R-2530B/B-4974 **County(ies):** Stanly Montgomery

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
13	-L- 145+50 Rt. 35.332498, -80.134632	(1)Mountain Creek	0.0	4.0	4.0	0.6	60	150	2.41%	1.8	1.9	2.3	2.1	No	No
15	-L- 178+50 Rt. 35.324764, -80.129270	(2)Jacobs Creek	0.0	6.0	4.0	0.8	81	135	1.82%	1.5	1.9	1.9	2.0	No	No
17	-L- 197+25 Rt. 35.321332, -80.124634	(1)Mountain Creek	0.0	6.0	4.0	2.0	198	550	2.37%	4.6	1.9	5.9	2.0	No	No
21	-L- 259+00 Lt. 35.316015, -80.104992	(3)Pee Dee River	0.0	4.0	4.0	0.2	17	100	3.00%	0.5	1.9	0.7	2.0	No	No
28	-L- 353+00 Lt. 35.307702, -80.075887	(3)Pee Dee River	0.0	6.0	4.0	1.2	122	350	0.40%	2.7	1.3	3.4	1.3	No	No
31	-L- 388+50 Lt. 35.306937, -80.064348	(4)Rocky Creek	0.0	6.0	4.0	0.9	91	450	0.30%	1.8	1.0	2.3	1.1	No	No

Additional Comments

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

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(Version 2.07; Released October 2016)

WBS Element: 34446.1.6 **TIP No.:** R-2530B/B-497 **County(ies):** Stanly Montgomery

Level Spreaders, Hazardous Spill Basins, and Forebays

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Level Spreader, Hazardous Spill Basin, or Forebay?	Drainage Area (ac)	New Built-Upon Area (ac)	Required / Minimum Treatment			Treatment Achieved		BMP Associated w/ Buffer Rules?
22	-L- 277+75 RT 35.313706 / -80.099932	(3)Pee Dee River	Hazardous Spill Basin	3.64	0.30	2yr, tc=10 min, td= 5 min storm runoff + 1,550 cf (cf)	3757.0	cf	281.0	cf	N/A
24	-L- 297+50 RT 35.313232 / -80.093109	(3)Pee Dee River	Hazardous Spill Basin	5.77	0.62	2yr, tc=10 min, td= 5 min storm runoff + 1,550 cf (cf)	5130.0	cf	4600.0	cf	N/A
25	-L- 307+00 LT 35.312153 / -80.090215	(3)Pee Dee River	Hazardous Spill Basin	15.70	1.02	2yr, tc=10 min, td= 5 min storm runoff + 1,550 cf (cf)	9298.0	cf	1484.0	cf	N/A
27	-L- 334+00 LT 35.309387 / -80.081840	(3)Pee Dee River	Hazardous Spill Basin	2.83	0.53	2yr, tc=10 min, td= 5 min storm runoff + 1,550 cf (cf)	3864.0	cf	200.0	cf	N/A
29	-L- 364+00 LT 35.306748 / -80.072442	(3)Pee Dee River	Hazardous Spill Basin	3.95	1.44	2yr, tc=10 min, td= 5 min storm runoff + 1,550 cf (cf)	4836.0	cf	1436.0	cf	N/A
30	-L- 382+00 RT 35.306310 / -80.066462	(4)Rocky Creek	Hazardous Spill Basin	10.60	0.39	2yr, tc=10 min, td= 5 min storm runoff + 1,550 cf (cf)	6781.0	cf	1492.0	cf	N/A

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

Additional Comments

Site constraints prohibited sizing guidance for HSB volumes. See attached project narrative for additional information.

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Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

WBS Element: 34446.1.6 **TIP No.:** R-2530B/B-4974 **County(ies):** Stanly Montgomery

Other Best Management Practices

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	BMP Type	Drainage Area (ac)	New Built-Upon Area (ac)	Volume Treated (ac-ft)	Precipitation Depth Treated over NBUA (in)	BMP Associated w/ Buffer Rules?
28	11+67 -Y16- RT 35.3068863/-80.0761699	(3)Pee Dee River	Filtration Basin	2.2	0.1	0.193	24.37	No
30	380+07 -L- RT 35.3061650/-80.0670733	(4)Rocky Creek	Filtration Basin	2.0	0.7	0.177	3.24	No

Additional Comments

R-2530 Stormwater Management Plan
General Project Narrative and
Description of Minimization of Water Quality Impacts:

- This is a Division 10 managed project.
- Maintaining existing drainage patterns to best extent practical.
- Avoiding direct discharges where practicable.
- Use of low flow sills set at stream bed elevation in main barrel of multiple barrel and in single barrel box culverts. Low flow sills were used in both barrels of box culvert at Sta. 38+76 -L- due to lack of cover (only 4' height opening), need for opening area to meet hydraulic guidelines and inability to raise proposed grade significantly due to surrounding developed areas.
- Use of high flow sills set at floodplain bench elevation on high flow barrels of multiple barreled box culverts at Sta. 24+95 -Y2- and 381+64 -L-, to help maintain the natural stream width and depth through the main barrel.
- Culvert barrels with sills will be back filled with native material or class A rip rap to sill height. Native material will consist of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Native material is subject to approval by the engineer and may be subject to permit conditions. Class A rip rap may be used to supplement the native material. If rip rap is used, native material should be placed on top to fill voids and provide a flat surface for animal passage.
- Box culvert at Sta. 363+00 -L- not buried due to the culvert being in backwater from Lake Tillery (culvert oversized due to tailwater condition).
- Box culvert at Sta. 305+27 -L- not buried due to presence of rock. A bottomless culvert was considered, but not chosen because it would not greatly reduce stream impact length because the stream meanders outside the proposed culvert alignment in the areas of widening. The footings required for the bottomless culvert would also reduce the stream impact savings. Instead a combination of 4' long sills and baffles placed at 25' centers will be used through the culvert. Class B rip rap between sills and baffles in the culvert shall provide a continuous low flow channel. Existing channel consists of rock therefore excavated native material is not anticipated from the stream bed at the project site during construction. Culvert will be backfilled with Class B rip rap to sill/baffle height.
- For upstream and downstream floodplain bench channel improvements, the floodplain bench will be comprised of Class I rip rap with native material to top of sill elevation and coir fiber matting cover (per comment received at 4B meeting).
- Existing culverts replaced in many locations to meet current guidelines and requirements. This should help reduce velocities at culvert outlets.
- Bank stabilization used at culvert inlets and outlets to help minimize erosion.
- Burying box culverts and circular cross pipes at jurisdictional streams. Pipe burial allows for wildlife passage and helps minimize channel erosion at inlet and outlet of the pipes. Based on discussion at FDFI with Larry Thompson (Division 10 DEO) and follow up meeting with Rob Ridings (DWR) on May 19, 2017, the following pipe guidelines were used (an attached table has been created to document the crossing sites). Pipe have been labeled in the plans with either "Bury" or "Not Buried":
    - Not a JS, don't bury

    - JS only on one end, don't bury
    - JS on both ends and has pipe slope over 4%, don't bury over concern of head cut
    - JS on both ends and has pipe slope less than 4%, bury
    - Extensions of current pipes that don't involve replacement, don't bury
    - Bedrock prevents burial, don't bury
- Construction phasing and traffic control considerations were considered when laying out new culverts to reduce construction time.
- Non-symmetric widening in areas to reduce impacts to wetlands and jurisdictional streams.
- Shifted bulb-outs where possible to avoid additional stream and wetland impacts.
- Use of 2:1 slopes to reduce structure length and fill slope offset to help reduce stream and wetland impacts.
- Use of grass swales where possible. All grass swale lengths exceed the minimum length guidance.
- Minimized directly connected impervious surfaces where possible. Runoff from road in shoulder section will drain through grassed ditches in median and outside (cut and lateral ditches) prior to outfall connection.
- Grassed shoulder typical section utilized as much as possible throughout the project to encourage sheet flow off of the roadway. Approximately 5.9 of 7.1 miles are grassed shoulder typical section.
- A grassed median (46' wide typical) utilized as much as possible throughout the project.
- Grassed conveyances used in leu of closed system to the maximum extent practicable.
- Channel Changes were utilized at four (4) parallel stream impacts and matched existing stream typical section to the maximum extent practicable. This can be seen at 38+90 to 40+35 -L-, 52+72 to 53+25 -L-, 235+27 to 238+00 -L-, and 292+50 to 295+27 -L-.
- Use of splitter boxes in multiple locations to limit low flow toward wetlands and offsite swales. Also used in areas of directly connected impervious areas. Can be seen at stations 59+84 -L- (RT), 88+15 -L- (RT), 91+96 -L- (RT), 276+00 -L- (RT), and 295+95 -L- (RT). Splitter boxes at Sta. 276+00 -L- (RT) and Sta. 295+95 -L- divert the first flush (minimum of the 1" storm) to the linear basins (85 to 90% of storms)
- Use of hazardous spill basins in and around critical area of Lake Tillery. Critical area where hazardous spill basins are required begins around Sta. 258+00 -L- and runs to the end of the project.
    - Project is located through the Uwharrie Mountains and therefore the project encounters steep terrain and the presence of rock. This is especially true around the area of Lake Tillery where the basins are required. Project design includes steep fill slopes which causes difficulty accessing sites for maintenance.
    - Modified, linear, base ditch basins with check dams were provided at basin locations 1 (from Sta. 276+50 to 277+75 -L- (RT)), location 2 (from Sta. 290+50 to 293+00 -L- (RT)), location 3 (from Sta. 307+00 to 308+50 -L- (LT)), and location 4 (from Sta. 331+25 to 334+00 -L- (LT)). These modified basins will limit the overall basin footprint, since they are in areas of very steep terrain where traditional basins were not practical. They will provide storage for low flow events or spills, within the ditch parameters, will slow down the spills with the use of check dams and will provide a headwall that can be blocked off in case of a spill.

- The basins at stations 364+00 -L- (LT) and 382+50 -L- (RT) are designed as rock lined, detention type basins with weir outfalls approximately 18" elevated above the bottom of the basin. These basins will help to detain any spills, while minimizing maintenance and safety concerns due to the steep terrain and difficulty accessing.
- Hazardous spill basins were modified to filtration basins at Sta. 352+75 -L- (RT) and Sta. 380+00 -L- (RT) to provide some long-term water quality benefits. The filtration basins are designed and sized to capture and treat the water quality volume that will consist of all the runoff from the new built-upon area for 80 to 90% of the average annual rainfall. This will result in a water quality design storm of 1.5 inch.
- The filtration basins were used in areas where vegetative conveyance was not possible due to the steep terrain requiring rip rap protection in the proposed swales to protect from high velocities.
- The filtration basins will provide water quality treatment for a broad spectrum of water quality parameters of concern. As stormwater is temporarily detained, suspended sediments and some phosphorus are captured through sedimentation. During infiltration and other chemical processes, metals and additional phosphorus are removed. Microbial activity that occurs in the media helps to reduce nitrogen and hydrocarbons. As the surface layer is exposed to sunlight and allowed to dry, pathogens are treated. Median filters with relatively deep media layers can help abate runoff temperatures.
- Media filters will additionally provide peak flow attenuation, reducing the peak flow for the protection of downstream conveyances, reducing the chance for degradation and sediment loss.
- Coordination of erosion control basins with hazardous spill basins to limit impacts if possible by converting basin EC basin over to permanent spill basin.

- Eastbound Bridge 50 will remain as is with no changes. Westbound Bridge 51 superstructure will be rehabilitated. The existing arch spandrel substructure will be retained. The bridge will be lengthened by approximately 50' on the begin bridge side and by approximately 25' on the end bridge side.
- 6" diameter deck drains will be used on Bridge 51. The drains will be placed to avoid bridge piers and spandrel bents. They will range from 12' to 21' spacing.
    - The existing bridge consists of deck drains that drain down behind the existing bridge bents and direct discharge into the water. It was determined that the proposed bridge is exempt from the rule not allowing deck drains to discharge over water because the bridge is already in place and already has deck drains that direct discharge into the water.
    - There was an Effects meeting on 1/19/17 between Human Environment Section (HES, Mary Pope Furr), SMU, Hydraulics, RDU, PDEA, and Renee Gledhill-Early of the State Historic Preservation Office regarding the proposed deck drain system on Bridge 51
    - Renee expressed concern with the visual impacts of pipes on the side of the bridge and expected an adverse effect if a bridge deck drain system was used (would have a negative impact to the architectural aesthetics of the existing bridge). The collection system would have to be located on the outside of the bridge and would be hanging from the deck. Even with using a flat grade to a proposed deck drain system, there

would be an exposed, hanging system up to 3' below the deck due to the overall length of the bridge and required slopes.
    - In the meeting, it was agreed that NCDOT will proceed with a drainage design that does not include use of an enclosed deck drainage system
    - The super-elevation of the bridge was increased to 0.025 ft/ft to reduce the number of deck drains
    - The long length of the proposed bridge (1,125') over the large waterbody of the Pee Dee River with the use of deck drains will provide dispersed discharge. The dispersed discharge will include the multiple deck drains above the water body such that runoff is distributed over a large area allowing for rapid mixing and dilution with the receiving water.
- Use of fill slopes steeper than 2:1 with reinforced soil slopes from Sta. 298+00 -L- to 303+00 -L- (RT) to avoid impacts due to fill to the parallel jurisdictional stream.
- Use of fill slopes steeper than 2:1 with reinforced soil slopes from Sta. 355+62.93 -L- to 358+95.24 -L- (RT) to avoid impacts due to fill within the FERC boundary and to avoid encroachment on the boat ramp parking area.
- Environmental Assessment (EA) was completed for the R-2530B, B-4974 and R-2527 projects.
    - There was concern at the 4B meeting about the project logical termini and if the project would be meeting EA purpose and need if only the R-2530B and B-4974 projects are permitted.
    - At the time of the 4B, it was decided that the R-2527 project will be added to the permit drawing impact summary tables for the R-2530B / B-4974 project since it was unfunded at the time with no anticipated date of funding. The impacts listed in the FONSI will be used for R-2527.
    - Since the 4B meeting, the R-2527 was funded in March/April of 2017 with a ROW date in 2019. At the 4C meeting it was decided that preliminary drawings on R-2527 will be needed for the preliminary impacts. The preliminary impacts should include slopestakes plus 25 feet.
    - A Finding of No Significant Impact (FONSI) has been completed that includes all three projects.
- Due to the water supply reservoir within project limits, a Critical Area (CA) was identified in the FONSI. The CA is defined as the area within ½ mile from the water supply reservoir normal pool. Within the CA, a 25-year storm is used for erosion control design. Although only a portion of the project falls within the CA, the entire erosion control design was based on the 25-year storm event in an effort to further protect the surrounding watershed.

R-2530B Cross Pipe Table with Bury Determination and Bury Guidelines

#	Alignment	Station	JS?	Size	Upstream Channel Slope	Pipe Slope	Bury?	Plansheet	Why Buried or Not Buried
1	-Y2A-	14+03	No	18	0.38%	1.30%	No	33	Non JS (Not Buried)
2	-Y6-	12+32	No (at downstream end only)	30	1.10%	1.10%	No	7	JS downstream only (Not Buried)
3	-L-	74+67	No	18	4.00%	1.80%	No	8	Non JS (Not Buried)
4	-D/W-	89+50 -L-	No	48	1.33%	1.40%	No	9	Non JS (Not Buried)
5	-L-	101+73	No (at downstream end only)	36	0.50%	4.48%	No	9 & 10	JS downstream only (Not Buried)
6	-L-	115+82	Yes	60	1.10%	0.98%	Yes	11	Pipe slope <4% (Buried)
7	-L-	143+65	No (at downstream end only)	36	1.24%	5.80%	No	13	JS downstream only (Not Buried)
8	-L-	149+21	Yes	42	3.33%	5.00%	No	13	Pipe slope >4% (Not Buried)
9	-Y8-	16+96	No	18	1.40%	2.50%	No	13	Non JS (Not Buried)
10	-Y8-	23+82	No	18	4.90%	4.80%	No	33	Non JS (Not Buried)
11	-L-	157+26	No (at downstream end only)	36	1.60%	3.80%	No	14	JS downstream only (Not Buried)
12	-L-	180+51	No	24	10.00%	1.00%	No	15	Non JS (Not Buried)
13	-Y9-	18+10	No	18	8.68%	2.20%	No	16	Non JS (Not Buried)
14	-Y10-	10+92	No	24	2.37%	3.80%	No	17	Non JS (Not Buried)
15	-L-	199+00	No	30	4.90%	1.00%	No	17	Non JS (Not Buried)
16	-L-	217+96	Yes	48	4.50%	7.10%	No	18	Pipe slope >4% (Not Buried)
17	-L-	237+31	Yes	66	5.90%	2.60%	Yes	19 & 20	Pipe slope <4% (Buried)
18	-L-	243+31	No	30	3.50%	3.80%	No	20	Non JS (Not Buried)
19	-L-	259+57	No (at upstream end only)	48	1.10%	1.50%	No	21	JS upstream only (Not Buried)
20	-Y12-	12+50	No	18	3.40%	3.40%	No	22	Non JS (Not Buried)
21	-Y12-	14+86	No	24	2.90%	1.00%	No	22	Non JS (Not Buried)
22	-L-	277+42	Yes	36	10.90%	3.70%	Yes	22	Pipe slope <4% (Buried)
23	-Y16-	14+54	No	24	3.60%	4.80%	No	28	Non JS (Not Buried)
24	-L-	359+16	No (at downstream end only)	36	5.00%	4.50%	No	28	JS downstream only (Not Buried)
25	-L-	371+65	No (at downstream end only)	24	10.00%	3.80%	No	30	JS downstream only (Not Buried)
26	-L-	375+34	Yes	72	0.50%	1.70%	Yes	30	Pipe slope <4% (Buried)

Pipe Bury Guidelines:

- Not a JS - Don't Bury
- JS only on one end - Don't Bury
- JS on both ends and has pipe slope over 4% - Don't Bury
- JS on both ends and has pipe slope less than 4% - Bury
- Extensions of current pipes that don't involve replacement - Don't Bury
- Bedrock prevents burial - Don't Bury

09/08/18

TIP PROJECT: R-2530B

CONTRACT: C203751

10/15/2018

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANLY & MONTGOMERY COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2530B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34446.1.6		P.E.
34446.2.5	STBG-0024(083)	R/W
34446.2.6	STBG-0024(083)	UTL
34446.3.4	STBG-0024(083)	CONST.

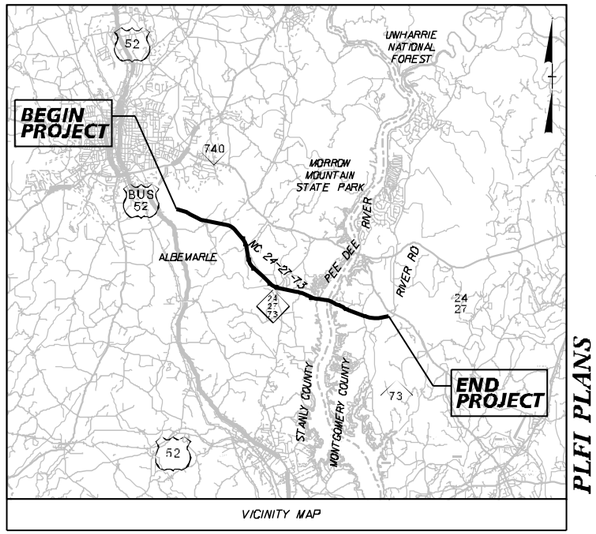
PERMIT DRAWING SHEET 1 OF 84

WETLAND AND SURFACE WATER IMPACTS PERMIT

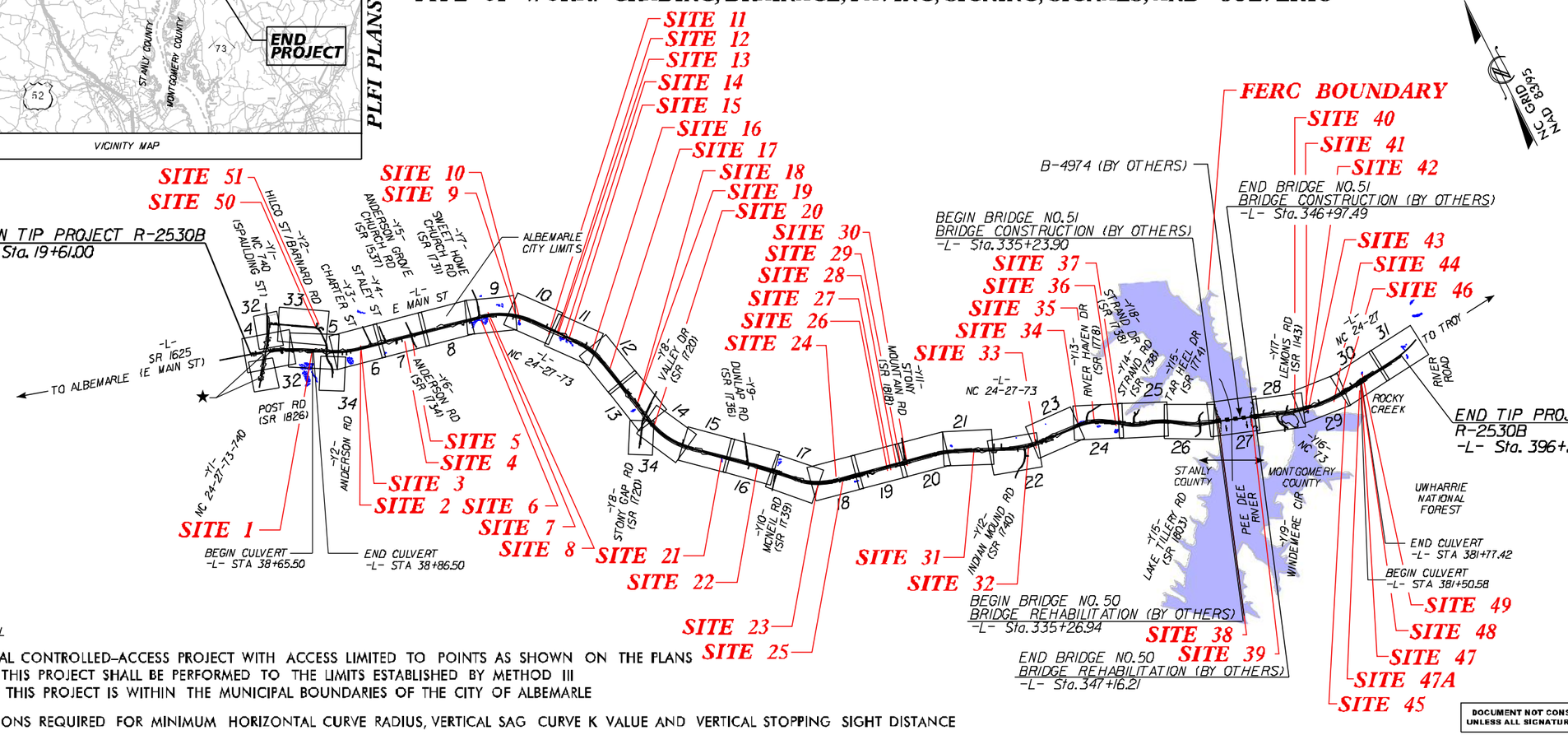
LOCATION: NC 24-27 FROM NC 740 IN ALBEMARLE TO EAST OF THE PEE DEE RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, SIGNALS, AND CULVERTS

PLFI PLANS



VICINITY MAP



★ TRAFFIC SIGNAL

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF ALBEMARLE

DESIGN EXCEPTIONS REQUIRED FOR MINIMUM HORIZONTAL CURVE RADIUS, VERTICAL SAG CURVE K VALUE AND VERTICAL STOPPING SIGHT DISTANCE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

AADT 2019 = 16,400
AADT 2039 = 21,500
K = 9%
D = 55%
T = 10%*
V = 50/60 MPH
* (TTST 4% + DUAL 6%)
FUNCTIONAL CLASSIFICATION: URBAN/RURAL ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2530B = 6.908 MILES
LENGTH STRUCTURE TIP PROJECT B-4974 = 0.225 MILES
TOTAL LENGTH TIP PROJECT R-2530B = 7.133 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 19, 2017

LETTING DATE: MARCH 19, 2019

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

RHODES S. HUNT, P.E.
PROJECT DESIGN ENGINEER

LAURA SUTTON, P.E.
TEAM LEAD
NCDOT PROJECT MANAGEMENT UNIT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

(13) LINDA AN L CRESS	(26) JAMES J NOLAN
(20) STANLY SQUARE INC.	(28) CHARLES E. & NANCY T. BURRIS
(25) GUSTAVO C. VENEGAS	(33) V F W POST 2908

NOTES:
1. END RETAINING WALL #1 -L- STA 32+35.00 (49.50' RT)
2. CONTRACTOR TO INSTALL CONCRETE PARKING BUMPERS 3' FROM FACE OF CURB FROM -L- STA 30+44 TO 32+16 (RT)
3. TOE PROTECTION - EST 25 SY PSRM SEE DETAIL 5, SHEET 2D-1
4. SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS, SEE DETAIL 9, SHEET 2D-1
5. REMOVE CB AND 18"
6. GRADE AREA TO DRAIN OVER CURB FROM -L- STA 39+78 TO 40+94 (LT) & STA 41+46 TO 42+65 (LT) (SEE CROSS SECTIONS)
7. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS, EST 7 SY GFD
8. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
9. DO NOT DISTURB EXISTING AREA LIGHTS

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING
SHEET 2 OF 84

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
5/14/99
ROW REV. - 2/2/18 - ADJUSTED ROW AND PUE ON PARCEL 25; ADJUSTED ROW, PUE AND TCE ON PARCEL 26; WIDENED DRIVEWAY NEAR -L- STA 44+50 (RT); AND ADDED DRIVEWAY AND DRIVEWAY PIPE TO PARCEL 26 N-SAR -Y2A- STA 13+50 (LT). - JWM
ROW REV. - 3/29/18 - CHANGED TCE TO PUE ON PARCEL 22B. - JWM
ROW REV. - 5/3/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 17 AND 23. - JWM
ROW REV. - 8/22/18 - ADJUSTED ROW ON PARCELS 25 AND 26. - JWM

10/15/2018

SITE 1

MATCHLINE -L- STA 32+00 (SEE SHEET 4)

MATCHLINE -L- STA 46+00 (SEE SHEET 6)

MATCHLINE -Y2A- STA 14+00 (SEE SHEET 34)

-DRW1- POT Sta. 10+00.00 = -L- POT Sta. 32+62.66 △ = 90°

BEGIN CULVERT -L- STA 38+65.50

2 @ 9' X 5' RCBC W/ HEADWALLS (BURIED 1')

END CULVERT -L- STA 38+86.50

NC 24-27-73
S 60° 40' 27.2" E

-Y2- PC Sta. 30+34.00

-Y2- PT Sta. 32+78.30
S 29° 19' 32.8" W

-L- POT Sta. 42+99.00 = -Y2- POT Sta. 32+89.63 △ = 90°

-L- PC Sta. 44+33.71

-L- POT Sta. 42+79.00 = -Y2A- POT Sta. 10+00.00 △ = 90°
S 29° 19' 32.8" W

-Y2A- PC Sta. 10+15.10

END CONSTRUCTION -DRW1- POT Sta. 10+75.00
S 29° 19' 23.4" W
-DRW1- POT Sta. 11+00.00

-Y2A- PRC Sta. 13+66.19

CHANNEL IMPROVEMENTS CLASS 1 RIP RAP EST 25 TONS EST 35 SY GFD SEE DETAIL 50, SHEET 2D-3

OUTLET PROTECTION CLASS 'B' RIP RAP EST 2 TONS EST 5 SY GFD

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

FILL IN AREA BETWEEN DRIVEWAYS

GRADE AREA TO DRAIN

PLACE CLASS 'B' RIP RAP SLOPE PROTECTION FROM END OF CURB AND GUTTER TO BEGIN DITCH EST 5 TONS EST 10 SY GFD

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

CHANNEL CHANGE W/CLASS 1 RIP RAP GEOTEXTILE ON BANKS ONLY EST 190 TONS, EST 235 SY GFD SEE DETAIL 15, SHEET 2D-1

STANDARD 5' BASE DITCH W/CLASS 1 RIP RAP GEOTEXTILE ON BANKS ONLY EST 140 TONS, EST 140 SY GFD SEE DETAIL 16, SHEET 2D-1 EST 50 CY DDE S = 1.1%

CHANNEL IMPROVEMENTS CLASS 1 R.P. RAP EST 50 TONS EST 70 SY GFD SEE DETAIL 49, SHEET 2D-3

STANDARD 2' BASE DITCH EST 60 CY DDE S = 0.16% SEE DETAIL 31, SHEET 2D-2

BANK STABILIZATION

REMOVE EXISTING 1 @ 87"X63" CMAP (STRUCTURE PAY ITEM)

DO NOT DISTURB SIGNS

CLEAN OUT DEBRIS FROM EXISTING CURB CUT

REMOVE INSTALL CURB CUT AND CONCRETE FLUME

REMOVE CB AND 36"

REMOVE CB AND 15"

REMOVE 15" CB, 15" AND 18"

REMOVE SYSTEM

REMOVE DI, 15" AND 36"

REMOVE 15" AND CB'S

REMOVE 15" AND 36"

REMOVE 18" AND CB

REMOVE 15" DI

REMOVE 12"

REMOVE 15"

REMOVE 18"

REMOVE CB

REMOVE 8' OF 13"

RETAIN 48"

RETAIN 15"

RETAIN 12"

RETAIN 18"

TIE PROF CB INTO EX 13"

REMOVE CB AND EX 18"

END SPILL CURB -L- STA 32+35 (31' LT)

SEE NOTE 4

SEE NOTE 6

SEE NOTE 7

SEE NOTE 9

SEE NOTE 3

MATCHLINE -Y2- STA 28+00 (SEE SHEET 33)

-Y2- BARNARD RD S 30° 05' 05.0" W

-Y2A- ANDERSON RD

MONO CONC ISLAND

GRADE

SEE SHEET 2B-5 FOR ROUNDABOUT DETAIL
SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 52 FOR -Y2- PROFILE
SEE SHEET 53 FOR -Y2A- PROFILE
SEE SHEET 58 FOR -DRW1- PROFILE
SEE SHEET 62 FOR ROUNDABOUT PROFILES
SEE SHEET C-1 THRU C-X FOR CULVERT PLANS

50' 0' 50' 100' 150'
GRAPHIC SCALE

(13) LINDA AN L CRESS	(26) JAMES J NOLAN
(20) STANLY SQUARE INC.	(28) CHARLES E. & NANCY T. BURRIS
(25) GUSTAVO C. VENEGAS	(33) V F W POST 2908

NOTES:
1. END RETAINING WALL #1 -L- STA. 32+35.00 (49.50' RT)
2. CONTRACTOR TO INSTALL CONCRETE PARKING BUMPERS 3' FROM FACE OF CURB FROM -L- STA 30+44 TO 32+16 (RT)
3. TOE PROTECTION - EST. 25 SY PSRM SEE DETAIL 5, SHEET 2D-1
4. SPECIAL LATERAL 'V' DITCH WITH 2H FRONT SLOPES TO LIMIT IMPACTS, SEE DETAIL 9, SHEET 2D-1
5. REMOVE CB AND 18"
6. GRADE AREA TO DRAIN OVER CURB FROM -L- STA 39+78 TO 40+94 (LT) & STA 41+46 TO 42+65 (LT) (SEE CROSS SECTIONS)
7. OUTLET PROTECTION - CLASS 'B' RIP RAP EST. 2 TONS, EST. 7 SY GFD
8. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANAGEMENT PLANS)
9. DO NOT DISTURB EXISTING AREA LIGHTS

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING
SHEET 3 OF 84

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

ROW REV. - 2/2/18 - ADJUSTED ROW AND PUE ON PARCEL 25; ADJUSTED ROW, PUE AND TCE ON PARCEL 26; WIDENED DRIVEWAY NEAR -L- STA 44+50 (RT); AND ADDED DRIVEWAY AND DRIVEWAY PIPE TO PARCEL 26 N-SAR -Y2A- STA 13+50 (LT). - JWM

ROW REV. - 3/29/18 - CHANGED TCE TO PUE ON PARCEL 22B. - JWM

ROW REV. - 5/3/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 17 AND 23. - JWM

ROW REV. - 8/22/18 - ADJUSTED ROW ON PARCELS 25 AND 26. - JWM

5/14/99

10/15/2018

SITE 1

MATCHLINE -L- STA 32+00 (SEE SHEET 4)

MATCHLINE -L- STA 46+00 (SEE SHEET 6)

MATCHLINE -Y2- STA 28+00 (SEE SHEET 33)

MATCHLINE -Y2A- STA 14+00 (SEE SHEET 34)

BEGIN CULVERT -L- STA 38+65.50

2 @ 9' X 5' RCBC W/ HEADWALLS (BURIED 1')

END CULVERT -L- STA 38+86.50

-DRWI- POT Sta. 10+00.00 = -L- POT Sta. 32+62.66 △ = 90°

END CONSTRUCTION -DRWI- POT Sta. 10+75.00

S 29° 19' 23.4" W

-DRWI- POT Sta. 11+00.00

-L- POT Sta. 42+79.00 = -Y2A- POT Sta. 10+00.00 △ = 90°

S 29° 19' 32.8" W

-Y2A- PC Sta. 10+15.10

-Y2- PC Sta. 30+34.00

-Y2- PT Sta. 32+78.30

S 29° 19' 32.8" W

-L- POT Sta. 42+99.00 = -Y2- POT Sta. 32+89.63 △ = 90°

-L- PC Sta. 44+33.71

-Y2A- PRC Sta. 13+66.19

NC 24-27-73
S 60° 40' 27.2" E

CHANNEL IMPROVEMENTS CLASS 'I' R.P. RAP EST. 50 TONS EST. 70 SY GFD SEE DETAIL 49, SHEET 2D-3

CHANNEL CHANGE W/CLASS 'I' RIP RAP GEOTEXTILE ON BANKS ONLY EST. 190 TONS, EST. 235 SY GFD SEE DETAIL 13, SHEET 2D-1

STANDARD 5' BASE DITCH W/CLASS 'I' RIP RAP GEOTEXTILE ON BANKS ONLY EST. 140 TONS EST. 140 SY GFD SEE DETAIL 11A, SHEET 2D-1 EST. 50 CY, DDE S = 1.1%

STANDARD 2' BASE DITCH EST. 60 CY, DDE S = 0.16% SEE DETAIL 31, SHEET 2D-2

SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

PLACE CLASS 'B' RIP RAP SLOPE PROTECTION FROM END OF CURB AND GUTTER TO BEGIN DITCH EST. 5 TONS EST. 10 SY GFD

OUTLET PROTECTION CLASS 'B' RIP RAP EST. 2 TONS EST. 5 SY GFD

GRADE AREA TO DRAIN

FILL IN AREA BETWEEN DRIVEWAYS

REMOVE EXISTING 1 @ 87"X63" CMAP (STRUCTURE PAY ITEM)

DO NOT DISTURB SIGNS

CLEAN OUT DEBRIS FROM EXISTING CURB CUT

INSTALL CURB CUT AND CONCRETE FLUME

BANK STABILIZATION

RETAIN 48"

RETAIN 18"

RETAIN 12"

RETAIN 12"

RETAIN 18"

SEE NOTE 4

SEE NOTE 6

SEE NOTE 9

SEE NOTE 3

SEE NOTE 7

RAMA REALTY LLC

CITY ELECTRIS

DILON W LAMBERT ET AL

ALAN HOWARD

DERICK J. & HEATHER L. PEGRAMM

JACKSON M. & PENNY L. MORTON

PAMELA P. SMITH

CLARY LAMBERT

GARY D. SMITH

ALBEMARLE OIL COMPANY

PEJA INC.

CITADEL STANLY GARDENS OF MEMORIAL

STANLY GARDENS OF MEMORY, INC. / GARDENS OF PEACE SECTION

A.L. TOWDER

KEITH AND NANCY CARPENTER

ALDINE LLC DIV 466 ST 2

CITY OF ALBEMARLE ABC BOARD

SOUTH CENTRAL COMMUNICATIONS CO., INC.

BARNHARD RD

-Y2A- ANDERSON RD

BV 4-52

BV 4-53

MAP NO. 5488 GRID NO. 1

GRAPHIC SCALE 50' 0' 50' 100' 150'

SEE SHEET 2B-5 FOR ROUNDABOUT DETAIL
SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 52 FOR -Y2- PROFILE
SEE SHEET 53 FOR -Y2A- PROFILE
SEE SHEET 58 FOR -DRWI- PROFILE
SEE SHEET 62 FOR ROUNDABOUT PROFILES
SEE SHEET C-1 THRU C-X FOR CULVERT PLANS

5/14/99

REVISIONS

10/15/2018

Kimley»Horn ©2018
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

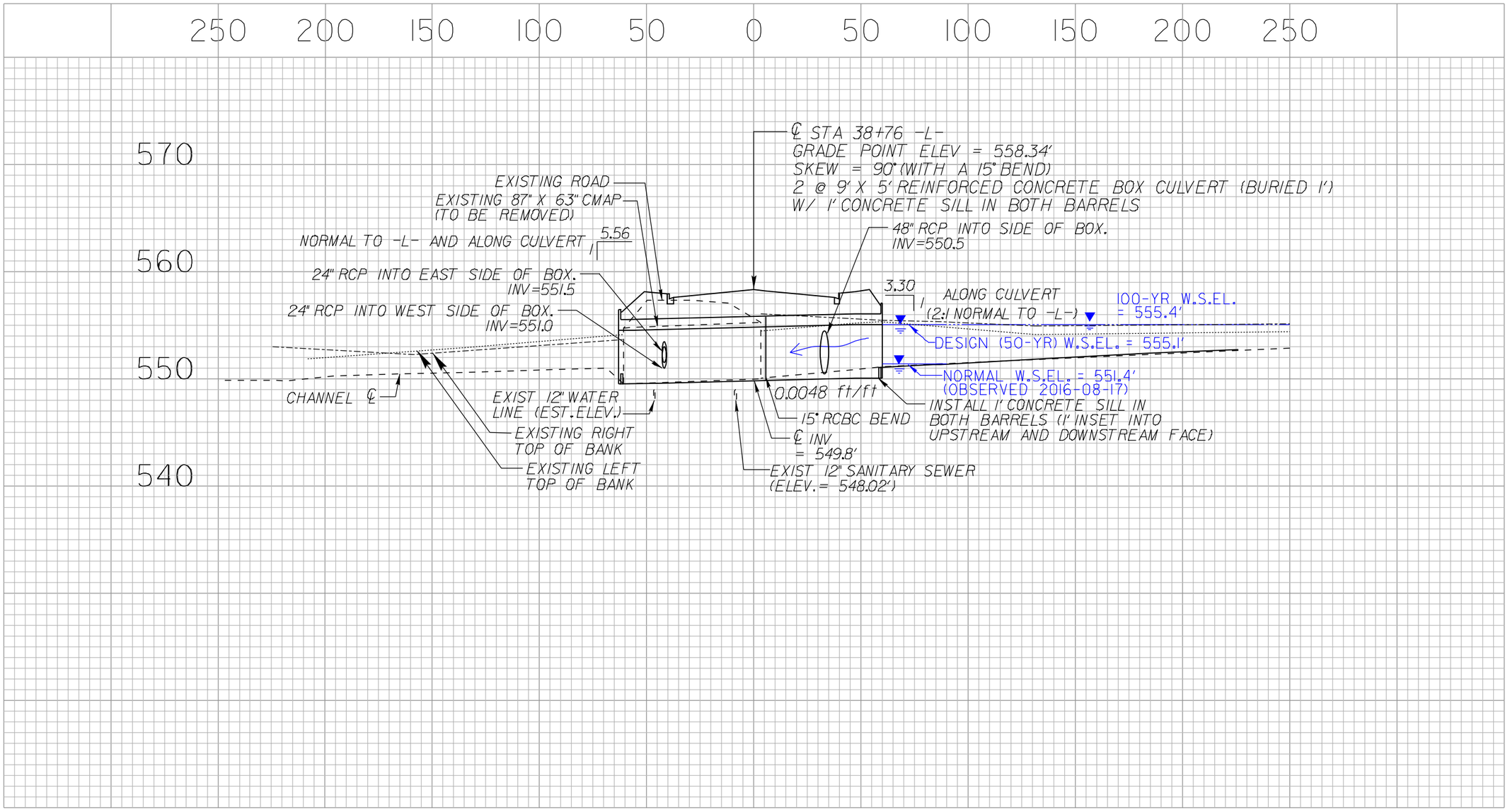
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 4 OF 84

SITE 1



Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

ROW REV. - 7/10/17 - ADDED DRIVEWAY ACCESS AND TCE TO PARCELS 35, 36, 37, 39, AND 40; AND ADJUSTED DRAINAGE STRUCTURES 0618 AND 0619. - JWM
ROW REV. - 1/25/17 - ADJUSTED DRIVEWAY ACCESS AND TCE TO PARCELS 29, 30, AND 31. - JWM
ROW REV. - 12/5/17 - ADJUSTED PUE ON PARCEL 33, ADDED DRIVEWAY ACCESS AND ADJUSTED ROW AND TCE ON PARCEL 38. - JWM

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 5 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

SITE 3

SITE 2

-DRWIA- POT Sta. 10+00.00 =
-L- POC Sta. 47+60.00
Δ = 90°

-DRWIB- POT Sta. 10+00.00 =
-L- POC Sta. 48+95.00
Δ = 90°

-DRWIC- POT Sta. 10+00.00 =
-L- POC Sta. 50+21.00
Δ = 90°

-L- STA 46+00 (SEE SHEET 5)

50+00

S 23°05'39" W

S 20°30'52" W

S 18°06'34.0" W

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1 WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY

REMOVE '2' OF EXIST 15" PIPE AND TIE INTO PROPOSED DITCH

OUTLET PROTECTION CLASS 'B' RIPRAP EST 2 TONS EST 7 SY GFD

BM=B
ELEV = 566.8'
N 582990 E 1654721
-L- STATION 50+11.70
55.84' LEFT
RR SPIKE IN BASE OF POWER POLE

RETAIN 15'

JUNCTION BOX NOT VISIBLE (APPROX. LOCATION)

PROPOSED BASIN LOCATION

TIE TO EAST STREAM

REMOVE EXISTING 1 @ 6'X 5' RCBC (STRUCTURE PAY ITEM)

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 50 TONS, EST 125 SY GFD SEE DETAIL 13, SHEET 2D-1

BANK STABILIZATION

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 25 TONS, EST 25 SY GFD SEE DETAIL 10, SHEET 2D-1

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 25 TONS, EST 30 SY GFD SEE DETAIL 52, SHEET 2D-3

1 @ 8' X 7' RCBC W/ HEADWALLS (BURIED 1')

BANK STABILIZATION
RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP (BOTH BANKS)
EST 5 TONS
EST 8 SY GFD
SEE DETAIL 10, SHEET 2D-1

STANDARD 4' BASE DITCH SEE DETAIL 8, SHEET 2D-1

OUTLET PROTECTION CLASS 'I' RIP RAP EST 20 TONS EST 39 SY GFD

-L-
NC 24-27-73
E MAIN ST
S 77°51'45.0" E

REMOVE CB AND 24"

24" RCP

12" pvc

RETAIN 30'

55+00

15+00

-Y3-
CHARTER ST
S 75°59'41.0" W

BEGIN CONSTRUCTION
-Y3- POT Sta. 14+88.00

DO NOT DISTURB SIGN

BM=10
ELEV = 572.19'
N 582805 E 1655579
-L- STATION 58+96.45
72.41' LEFT
RR SPIKE IN BASE OF WHITE OAK

-L- POT Sta. 56+76.42 =
-Y3- POT Sta. 16+43.00
Δ = 79°51'26.0"

SPECIAL LATERAL 'V' DITCH SEE DETAIL 23, SHEET 2D-1

42" RCP-IV

42" 2-6 C&G

MATCHLINE -L- STA 59+50 (SEE SHEET 7)

END CONSTRUCTION
-DRWIA- POT Sta. 11+16.00
-DRWIA- POT Sta. 11+25.00

END CONSTRUCTION
-DRWIB- POT Sta. 11+11.00
-DRWIB- POT Sta. 11+25.00

END CONSTRUCTION
-DRWIC- POT Sta. 10+92.00

-DRWIC- POT Sta. 11+00.00

END SPILL CURB
-L- STA. 52+84
(37.50' RT)

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 10 TONS EST 40 SY GFD SEE DETAIL 51 SHEET 2D-3

CHANNEL CHANGE W/CLASS I RIP RAP GEOTEXTILE ON BANKS ONLY EST 50 TONS, EST 35 SY GFD SEE DETAIL 11, SHEET 2D-1

TIE EXIST CHANNEL TO PROPOSED

-L- PT Sta. 53+33.69

2' LATERAL BASE DITCH SEE DETAIL 2', SHEET 2D-1

OUTLET PROTECTION CLASS 'B' RIP RAP EST 3 TONS EST 10 SY CFD

NOTES:
1. BEGIN SPILL CURB -L- STA.46+67 (37.5' RT)
2. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-1 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 53 FOR -Y3- PROFILE
SEE SHEET 58 FOR -DRWIA- PROFILE
SEE SHEET 58 FOR -DRWIB- PROFILE
SEE SHEET 58 FOR -DRWIC- PROFILE
SEE SHEET C-1 THRU C-X FOR CULVERT PLANS

(28) CHARLES E. & NANCY T. BURRIS
(29) CHARLES E. & NANCY T. BURRIS
(30) LEWIS FURR ET AL
(32) CHUCKY L NANCE
(33) V F W POST 2908
(35) TOMMY ALLEN MORTON
(36) TOMMY A & BEATRICE E MORTON
(38) SOUTH CENTRAL OIL CO. INC.
(40) BROADUS EUDY

DONALD A WALTER
CITADEL/STANLY GARDENS OF MEMORIAL
SOUTH CENTRAL OIL CO. INC.
STANLY GARDENS OF MEMORY INC MASONIC GARDEN SECTION
STANLY GARDENS OF MEMORY INC CHIME TOWER SECTION
LEWIS FURR ET AL
TOMMY ALLEN MORTON
BETTY G TROGDEN
BROADUS EUDY
V F W POST 2908

R-2530B 0057-0056
R-2530B 0055-00
S 88°53'26" E 418.54'
5' TRANSMISSION MATERIAL UNKNOWN
6' CONC CURB
5' CONC SIDEWALK
6' CONC SIDEWALK
20' DR
MONO CONC ISLAND
REMOVE CB AND 18"
18" RCP-IV
15" RCP-IV
42" RCP-IV
GREU TL-3
BANK STABILIZATION
NOT BURY
GRID NAD 83/95

5/14/99

REVISIONS

ROW REV. - 7/10/17 - ADDED DRIVEWAY ACCESS AND TCE TO PARCELS 35, 36, 37, 39, AND 40; AND ADJUSTED DRAINAGE STRUCTURES 0618 AND 0619. - JWM
ROW REV. - 1/25/17 - ADJUSTED DRIVEWAY ACCESS AND TCE TO PARCELS 29, 30, AND 31. - JWM
ROW REV. - 12/15/17 - ADJUSTED PUE ON PARCEL 33, ADDED DRIVEWAY ACCESS AND ADJUSTED ROW AND TCE ON PARCEL 38. - JWM

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 6 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 3

SITE 2

-DRWIC- POT Sta. 10+00.00 =
-L- POC Sta. 50+21.00
Δ = 90°

-DRWIB- POT Sta. 10+00.00 =
-L- POC Sta. 48+95.00
Δ = 90°

-DRWIA- POT Sta. 10+00.00 =
-L- POC Sta. 47+60.00
Δ = 90°

SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1 WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2B-1

REMOVE '2' OF EXIST 15" PIPE AND TIE INTO PROPOSED DITCH

OUTLET PROTECTION CLASS 'B' RIPRAP EST 2 TONS EST 7 SY GFD

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 50 TONS, EST 125 SY GFD SEE DETAIL 3, SHEET 2D-1

BANK STABILIZATION

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 25 TONS, EST 25 SY GFD SEE DETAIL 10, SHEET 2D-1

CHANNEL IMPROVEMENTS CLASS 'B' RIP RAP EST 25 TONS, EST 30 SY GFD SEE DETAIL 52, SHEET 2D-3

PROPOSED BASIN LOCATION

TIE TO EXIST STREAM

REMOVE EXISTING 6'X5' RCBC STRUCTURE/PAY ITEM

1 @ 8' X 7' RCBC W/ HEADWALLS (BURIED 1')

BANK STABILIZATION
RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP (BOTH BANKS) EST 5 TONS EST 8 SY GFD SEE DETAIL 10, SHEET 2D-1

STANDARD 4' BASE DITCH SEE DETAIL 8, SHEET 2D-1

OUTLET PROTECTION CLASS 'I' RIP RAP EST 20 TONS EST 39 SY GFD

-L- NC 24-27-73 E MAIN ST S 77°51'45.0" E

REMOVE CB AND 24"

24" RCP

RETAIN, 30'

-Y3- CHARTER ST S 15°41'10" W

BEGIN CONSTRUCTION -Y3- POT Sta. 14+88.00

DO NOT DISTURB SIGN

-L- POT Sta. 56+76.42 =
-Y3- POT Sta. 16+43.00
Δ = 79°51'26.0"

SPECIAL LATERAL 'V' DITCH SEE DETAIL 23, SHEET 2D-1

42" RCP-IV

MATCHLINE -L- STA 59+50 (SEE SHEET 7)

MONO CONC ISLAND

REMOVE CB AND 18"

18" RCP-IV

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 10 TONS EST 40 SY GFD SEE DETAIL 5, SHEET 2D-3

CHANNEL CHANGE W/CLASS I RIP RAP GEOTEXTILE ON BANKS ONLY EST 50 TONS, EST 85 SY GFD SEE DETAIL 11, SHEET 2D-1

TIE EXIST CHANNEL TO PROPOSED

-L- PT Sta. 53+33.69

END SPILL CURB -L- STA. 52+84 (37.50 RT)

2' LATERAL BASE DITCH SEE DETAIL 2, SHEET 2D-1

OUTLET PROTECTION CLASS 'B' RIP RAP EST 3 TONS EST 10 SY GFD

END CONSTRUCTION
-DRWIA- POT Sta. 11+16.00
-DRWIA- POT Sta. 11+25.00

END CONSTRUCTION
-DRWIB- POT Sta. 11+11.00
-DRWIB- POT Sta. 11+25.00

END CONSTRUCTION
-DRWIC- POT Sta. 10+92.00

-DRWIC- POT Sta. 11+00.00

-L- STA 46+00 (SEE SHEET 5)

NOTES:
1. BEGIN SPILL CURB -L- STA. 46+67 (37.5' RT)
2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

(28) CHARLES E. & NANCY T. BURRIS
(29) CHARLES E. & NANCY T. BURRIS
(30) LEWIS FURR ET AL
(32) CHUCKY L NANCE
(36) TOMMY A & BEATRICE E MORTON
(40) BROADUS EUDY

SEE SHEET 2B-1 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 53 FOR -Y3- PROFILE
SEE SHEET 58 FOR -DRWIA- PROFILE
SEE SHEET 58 FOR -DRWIB- PROFILE
SEE SHEET 58 FOR -DRWIC- PROFILE
SEE SHEET C-1 THRU C-X FOR CULVERT PLANS

5/14/99

REVISIONS

10/15/2018

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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

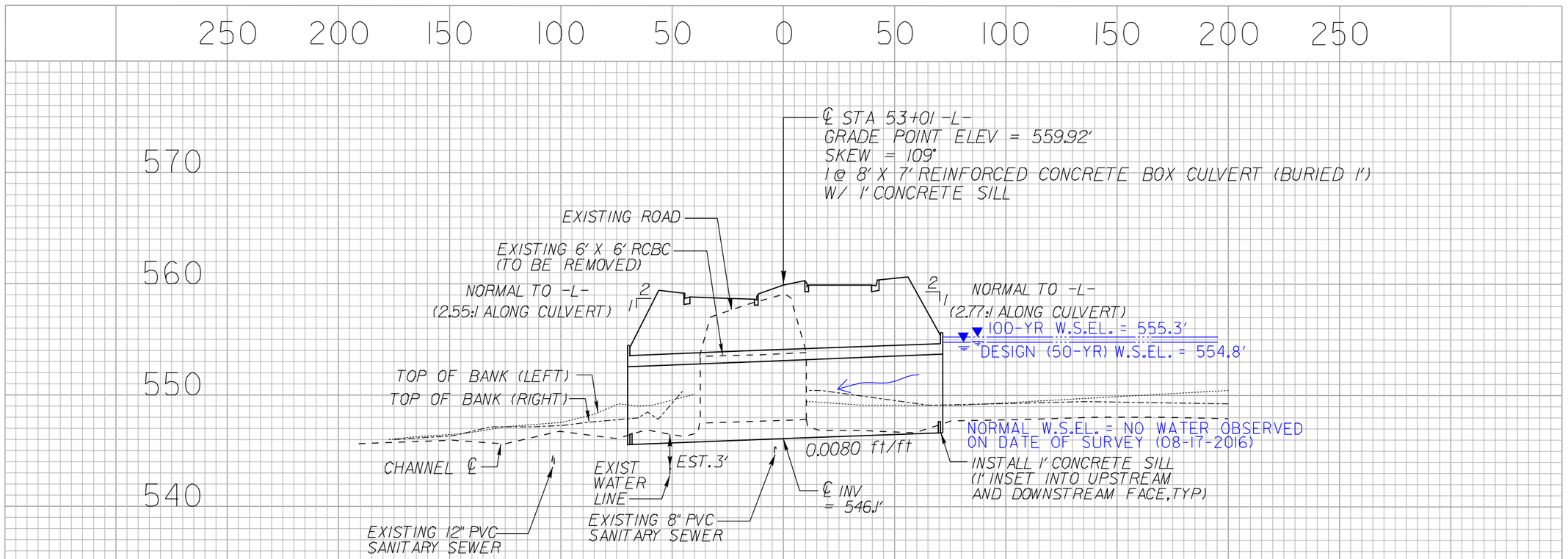
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	------

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 7 OF 84

SITE 2 & 3



5/14/99

REVISIONS

ROW REV. - 5/30/18 - ADDED DRIVEWAY ACCESS (-DRW2A-) AND ICE TO PARCEL 46, AND ADDED DRIVEWAY ACCESS (-DRW2B-) TO PARCEL 51; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 41, 44, 45, AND 52. - JWM

ROW REV. - 8/10/18 - WIDENED DRIVEWAY ACCESS AND ADJUSTED DRAINAGE DESIGN ON PARCEL 57. - JWM

10/15/2018

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y4- POT Sta. 10+00.00

-Y4- ST ALEY ST S 2°47'55.0" W

BEGIN CONSTRUCTION -Y4- POT Sta. 13+11.00

-Y5- POT Sta. 10+00.00

-Y5- ANDERSON GROVE CHURCH RD (SR 1537) S 0°00'53.0" E

BEGIN CONSTRUCTION -Y5- POT Sta. 13+51.00

-L- NC 24-27-7.3 E MAIN ST S 77°51'45.0" E

-L- POT Sta. 69+43.63 = -Y5- POT Sta. 14+36.00 △ = 77°50'52.0"

-DRW2- POT Sta. 10+00.00 = -L- POT Sta.64+10.00 △ = 90°

-DRW2A- POT Sta. 10+00.00 = -L- POT Sta.64+60.00 △ = 90°

-DRW2B- POT Sta. 10+00.00 = -L- POT Sta.66+00.00 △ = 90°

-L- POT Sta. 69+37.86 = -Y6- POT Sta. 10+00.00 △ = 91°26'24"

-L- POT Sta. 61+35.65 = -Y4- POT Sta. 15+10.00 △ = 80°39'40.0"

END CONSTRUCTION -DRW2- POT Sta.10+94.00

-DRW2- POT Sta. 11+50.00

END CONSTRUCTION -DRW2A- POT Sta.10+92.00

-DRW2A- POT Sta. 11+50.00

END CONSTRUCTION -DRW2B- POT Sta.10+78.00

-DRW2B- POT Sta. 11+50.00

-Y6- POC Sta. 12+86.00

-Y6- PT Sta. 14+08.81

-Y6- POT Sta. 14+24.00

-Y6- PC Sta. 11+42.93

SITE 4

SITE 5

MATCHLINE -L- STA 59+50 (SEE SHEET 6)

MATCHLINE -L- STA 73+50 (SEE SHEET 8)

GEORGE INGRAM & WIFE, SHERRIE INGRAM

RANDY MAULDIN

SARAH JOHNSON

SOUTH CENTRAL OIL CO. INC.

CARLA R TUCKER

RRMM, INC.

WOODROW W. DENNIS HEIRS

ANDERSON GROVE BAPTIST CHURCH INC

ANDERSON GROVE BAPTIST CHURCH CEMETERY

JUNE ALLEN

PAUL BOWERS & WIFE, TAMMY BOWERS

DAVID T LOWDER & M L YARBOROUGH

NELLIE HEARNE

GARY L & LOU I WHITLEY SR

GARY J & NANCY L DEECK

REBA AUSTIN

HOYLE DALE PORTER JR ET AL

ALBEMARLE CITY LIMITS

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

STANDARD 'V' DITCH W CLASS 'B' RIP RAP EST 10 TONS EST 20 SY GFD S = 21.2% EST 10 CY DDE SEE DETAIL 7 SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 23, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1 WITH 2:1 FRONT SLOPES

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1 WITH 2:1 FRONT SLOPES

OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 7 SY GFD

STANDARD 2' BASE DITCH S = 5.0% EST 15 CY DDE SEE DETAIL 31 SHEET 2D-2

COUNTER SUNK OUTLET PROTECTION W/CLASS 'B' RIP RAP EST 8 TONS EST 16 SY GFD

COUNTER-SUNK OUTLET PROTECTION W/CLASS 'B' RIP RAP EST 10 TONS EST 20 SY GFD

GRADE TO DRAIN

RETAIN 12"

RETAIN 30"

RETAIN 24"

RETAIN 15"

REMOVE 18"

REMOVE 15"

REMOVE 12"

REMOVE 24"

REMOVE DI

REMOVE DI'S AND 6"

REMOVE 18" AND CB

REMOVE 24" 3Ø" RCP-V (DO NOT BURY)

SEE NOTE 1

SEE NOTE 2

SEE NOTE 3

SEE NOTE 4

CB AND SPLITTER BOX SEE DETAIL 63, SHEET 2D-1

BM#12 ELEV 593.14' N 582488 E 1656939 -L- STATION 72+92.27 47.95' LEFT RR SPIKE IN BASE OF PP

MONO CONC ISLAND

5' CONC SIDEWALK

2'-6" C&G

PDE

PUE

DUE

TS

(40) BROADUS EUDY

(42) CLARENCE ANDERSON

(46) WALTER T & SHARON TARLTON III

(49) ROBERT C & ELIZABETH F SAVILLE

(54) J. D. DENNIS JR. REVOC LIVING TRUST

NOTES:
1. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS, EST 7 SY GFD
2. SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1
3. REMOVE 12" AND DI
4. SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY SEE DETAIL 9, SHEET 2D-1

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (FOND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING SHEET 8 OF 84

50' 0' 50' 100' 150' GRAPHIC SCALE

SEE SHEET 2B-1 & 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 53 FOR -Y4- PROFILE
SEE SHEET 53 FOR -Y5- PROFILE
SEE SHEET 53 FOR -Y6- PROFILE
SEE SHEET 58 FOR -DRW2- PROFILE
SEE SHEET 58 FOR -DRW2A- PROFILE

5/14/99

REVISIONS

ROW REV. – 5/30/18 – ADDED DRIVEWAY ACCESS (-DRW2B-) AND ICE IO PARCEL 46, AND ADDED DRIVEWAY ACCESS (-DRW2B-) TO PARCEL 51; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 41, 44, 45, AND 52. – JWM

ROW REV. – 8/10/18 – WIDENED DRIVEWAY ACCESS AND ADJUSTED DRAINAGE DESIGN ON PARCEL 57. – JWM

10/15/2018

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421 FAYETTEVILLE STREET, SUITE 600
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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y4- POT Sta. 10+00.00

-Y5- POT Sta. 10+00.00

-Y5- ANDERSON GROVE CHURCH RD SR 1537 S 0°00'53.0" E

-Y4- STALEY ST S 2°47'55.0" W

BEGIN CONSTRUCTION -Y4- POT Sta. 13+11.00

BEGIN CONSTRUCTION -Y5- POT Sta. 13+51.00

-L- NC 24-27-7.3 E MAIN ST S 77°51'45.0" E

-DRW2- POT Sta. 10+00.00 = -L- POT Sta. 64+10.00 Δ = 90°

-DRW2A- POT Sta. 10+00.00 = -L- POT Sta. 64+60.00 Δ = 90°

-DRW2B- POT Sta. 10+00.00 = -L- POT Sta. 66+00.00 Δ = 90°

-L- POT Sta. 69+37.86 = -Y6- POT Sta. 10+00.00 Δ = 91°26'24"

-L- POT Sta. 69+43.63 = -Y5- POT Sta. 14+36.00 Δ = 77°50'52.0"

MATCHLINE -L- STA 59+50 (SEE SHEET 6)

MATCHLINE -L- STA 73+50 (SEE SHEET 8)

SITE 4

SITE 5

END CONSTRUCTION -DRW2- POT Sta. 10+94.00

-DRW2- POT Sta. 11+50.00

END CONSTRUCTION -DRW2A- POT Sta. 10+92.00

-DRW2A- POT Sta. 11+50.00

END CONSTRUCTION -DRW2B- POT Sta. 10+78.00

-DRW2B- POT Sta. 11+50.00

-L- POT Sta. 61+35.65 = -Y4- POT Sta. 15+10.00 Δ = 80°39'40.0"

-Y6- POT Sta. 14+24.00

END CONSTRUCTION -Y6- POC Sta. 12+86.00 -Y6- PT Sta. 14+08.81

-Y6- PC Sta. 11+42.93

-Y6- SR 1734 ANDERSON RD

S 13°34'39.1" W

S 14°07'11.4" E

(40) BROADUS EUDY

(42) CLARENCE ANDERSON

(46) WALTER T & SHARON TARLTON III

(49) ROBERT C & ELIZABETH F SAVILLE

(54) J. D. DENNIS JR. REVOC LIVING TRUST

NOTES:
1. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS, EST 7 SY GFD
2. SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1
3. REMOVE 12" AND DI
4. SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY SEE DETAIL 9, SHEET 2D-1

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (FOND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING SHEET 9 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

SEE SHEET 2B-1 & 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 53 FOR -Y4- PROFILE
SEE SHEET 53 FOR -Y5- PROFILE
SEE SHEET 53 FOR -Y6- PROFILE
SEE SHEET 58 FOR -DRW2- PROFILE
SEE SHEET 58 FOR -DRW2A- PROFILE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	9

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY PE:

CONST ENG:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

ROW REV. - 11/22/17 - CONVERTED PUE TO FEE SIMPLE R/W ON PARCEL 75. - JWM
ROW REV. - 12/15/17 - ADJUSTED ROW, C/A AND PUE ON PARCEL 67. - JWM
ROW REV. - 4/13/18 - REVISED PROPERTY LINES BETWEEN PARCELS 67 AND 72. - JWM
ROW REV. - 5/15/18 - ADDED DRIVEWAY ACCESS TO PARCEL 73. - JWM

10/15/2018

NC GRID NAD 83/95

BEGIN CONSTRUCTION
-Y7- POC Sta. 15+34.00

-Y7- PT Sta. 15+83.72

-Y7-
(SR 1731)
SWEET HOME
CHURCH RD

S 19° 26' 12.0" W

15+00

90+00

95+00

100+00

MATCHLINE -L- STA 87+75 (SEE SHEET 8)

MATCHLINE -L- STA 101+00 (SEE SHEET 10)

SITE 6

SITE 7

SITE 8

SITE 9

HAROLD KENDALL

ANNIE GRAY DENNIS

HAROLD MICHAEL KENDALL

JERRY HOLT SR. AND CAROLYN HOLT

CONLEY HOWELL

STANLY WATER & SEWER AUTHORITY

JOHN C HOLBROOK JR.

ALEX TRENT DENNIS

AMY CURLEE

CYBERDYNE PROPERTY DEVELOPMENT GROUP, LLC

ALBEMARLE CITY LIMITS

-L-
NC 24-27-73
E MAIN ST
S 77° 51' 45.0" E

BM#15
ELEV = 555.50'
N 581963 E 1659193
-L- STATION 95+98.92
55.33' LEFT
PAINTED FLANGE BOLT ON FH

CHANNEL IMPROVEMENTS
CLASS I RIP RAP
EST 35 TONS
EST 40 SY GFD
SEE DETAIL 55, SHEET 2D-3

BANK STABILIZATION

1 @ 7' X 7' RCBC W/ HEADWALLS (BURIED 1')

REMOVE EXISTING 1 @ 6' X 5' RCBC (STRUCTURE PAY ITEM)

BEGIN SPILL CURB
-L- STA 91+22.10
(60' LT)

FALSE SUMP
SEE DETAIL 25
SHEET 2D-2

BY8-60

SEE NOTE 2

SEE NOTE 1

REMOVE 18"

REMOVE 12"

REMOVE 15"

REMOVE 56' OF EXIST 12" RCP

15" RCP-IV

18" RCP-IV

24" RCP-IV

30" RCP-IV

36" RCP-II

GREU TL-3

CAT-1

2-6' C&G

1'-6' C&G

2-8' C&G

5' CONC SIDEWALK

MONO CONC ISLAND

20' DR

GRADE AREA TO DRAIN

OUTLET PROTECTION
CLASS I RIP RAP
EST 3 TONS
EST 7 SY GFD

-L- PC Sta. 91+40.97

-L- POT Sta. 90+77.27 =
-Y7- POT Sta. 18+70.00
Δ = 97°17'57.0"

OUTLET PROTECTION
CLASS I RIP RAP
EST 26 TONS
EST 52 SY GFD

48" RCP-IV
(DO NOT BURY)

NCDOT "L" HEADWALL
STD. 838.05

CB AND SPLITTER BOX
SEE DETAIL 64
SHEET 2D-4

OUTLET PROTECTION
CLASS B RIP RAP
EST 2 TONS
EST 7 SY GFD

SPECIAL 4' LATERAL BASE DITCH
SEE DETAIL 1, SHEET 2D-1
W/2:1 FRONT SLOPES TO
LIMIT IMPACTS

4' LATERAL BASE DITCH
W/CLASS I RIP RAP
EST 482 TONS
EST 482 SY GFD
SEE DETAIL 28, SHEET 2D-2

18" CSP
W/ ELBOWS

OUTLET PROTECTION
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GFD

LATERAL V DITCH
SEE DETAIL 66, SHEET 2D-4

CHANNEL IMPROVEMENTS
CLASS I RIP RAP
EST 35 TONS
EST 35 SY GFD
SEE DETAIL 54, SHEET 2D-3

BANK STABILIZATION

END C&G SECTION
BEGIN SHOULDER SECTION
-L- Sta. 100+17.46

36" RCP-II

COUNTERSUNK
OUTLET PROTECTION
CLASS I RIP RAP
EST 15 TONS
EST 30 SY GFD

END SPILL CURB
-L- STA 100+52
(44' LT)

OUTLET PROTECTION
CLASS B RIP RAP
EST 2 TONS
EST 5 SY GFD

RETAIN 12"

SEE NOTE 2

PUE

DUE

BL-20

ISBK

ISBK&MTL CHURCH

(68) PATRICIA HATLEY

(69) ANNIE GRAY DENNIS

(72) CITY OF ALBEMARLE

(79) BOBBY F & SANDRA R BEAMAN

NOTES:
1. CB AND SPLITTER BOX SEE DETAIL 66, SHEET 2D-4
2. SPECIAL LATERAL V DITCH SEE DETAIL 3, SHEET 2D-1
3. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING SHEET 10 OF 84

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 53 FOR -Y7- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

5/14/99

REVISIONS

ROW REV. - 11/22/17 - CONVERTED PUE TO FEE SIMPLE R/W ON PARCEL 75. - JWM
ROW REV. - 12/15/17 - ADJUSTED ROW, C/A AND PUE ON PARCEL 67. - JWM
ROW REV. - 4/13/18 - REVISED PROPERTY LINES BETWEEN PARCELS 67 AND 72. - JWM
ROW REV. - 5/1/18 - ADDED DRIVEWAY ACCESS TO PARCEL 73. - JWM

10/15/2018

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BEGIN CONSTRUCTION -Y7- POC Sta. 15+34.00

-Y7- PT Sta. 15+83.72

-Y7- (SR 1731) SWEET HOME CHURCH RD S 19°26'12.0"W

SITE 8

SITE 9

SITE 7

SITE 6

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 35 TONS EST 40 SY GFD SEE DETAIL 55, SHEET 2D-3

BANK STABILIZATION

@ 7'X7' RCBC W/ HEADWALLS (BURIED 1')

REMOVE EXISTING @ 6'X 5' RCBC STRUCTURE PAY ITEM

BEGIN SPILL CURB -L- STA. 91+22.10 (60' LT)

FALSE SUMP SEE DETAIL 25, SHEET 2D-2

SEE NOTE 2

END C&G SECTION BEGIN SHOULDER SECTION -L- Sta. 100+17.46

36" RCP-II

COUNTER-SUNK OUTLET PROTECTION CLASS I RIP RAP EST 15 TONS EST 30 SY GFD

END SPILL CURB -L- STA. 100+52 (11' LT)

REMOVE 18"

REMOVE 12" C&G

5' CONC SIDEWALK

MONO CONC. ISLAND

2-6" C&G

1'-6" C&G

2'-6" C&G

20' DR

GREU TL-3

CAT-1

15" RCP-IV

18" RCP-IV

24" RCP-IV

30" RCP-IV

48" RCP-IV DO NOT BURY

CB

CB 1

CB 2

CB 3

2CI

TB2GI

4 PS

2 PS

PUE

GRADE AREA TO DRAIN

REMOVE 96' OF EXIST. 12" RCP

SEE NOTE 1

OUTLET PROTECTION CLASS I RIP RAP EST 7 TONS EST 7 SY GFD

OUTLET PROTECTION CLASS I RIP RAP EST 26 TONS EST 20 SY GFD

OUTLET PROTECTION CLASS B RIP RAP EST 3 TONS EST 10 SY GFD

OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 5 SY GFD

-L- PC Sta. 91+40.97

-L- POT Sta. 90+77.27 = -Y7- POT Sta. 18+70.00 Δ = 97°17'57.0"

18" CSP W/ ELBOWS

4' LATERAL BASE DITCH W/CLASS I RIP RAP EST 480 TONS EST 480 SY GFD SEE DETAIL 28, SHEET 2D-2

LATERAL 'V' DITCH SEE DETAIL 66, SHEET 2D-4

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 35 TONS EST 35 SY GFD SEE DETAIL 54, SHEET 2D-3

BANK STABILIZATION

NCDOT -L- HEADWALL STD. 838.05

CB AND SPLITTER BOX SEE DETAIL 66, SHEET 2D-4

OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 7 SY GFD

SPECIAL 4' LATERAL BASE DITCH SEE DETAIL 1, SHEET 2D-1 W/2:1 FRONT SLOPES TO LIMIT IMPACTS

NC 24-27-73 E MAIN ST S 77°51'45.0" E

MATCHLINE -L- STA 87+75 (SEE SHEET 8)

MATCHLINE -L- STA 101+00 (SEE SHEET 10)

68 PATRICIA HATLEY

69 ANNIE GRAY DENNIS

72 CITY OF ALBEMARLE

79 BOBBY F & SANDRA R BEAMAN

NOTES:
1. CB AND SPLITTER BOX SEE DETAIL 66, SHEET 2D-4
2. SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
3. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING SHEET 11 OF 84

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 53 FOR -Y7- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

8/23/99

PERMIT DRAWING SHEET 12 OF 84	0 5 10	PROJ. REFERENCE NO. R-2530B	SHEET NO.

SITE 6

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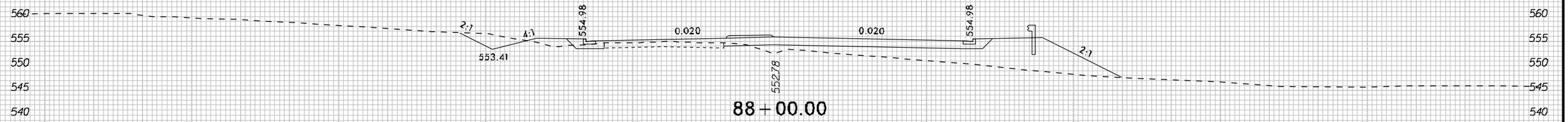

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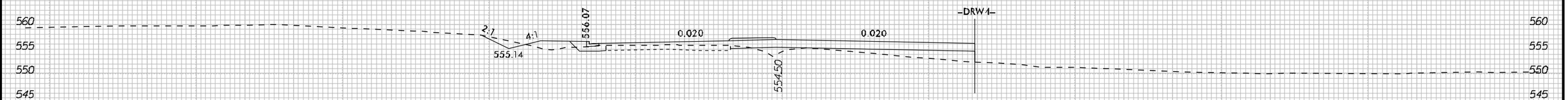

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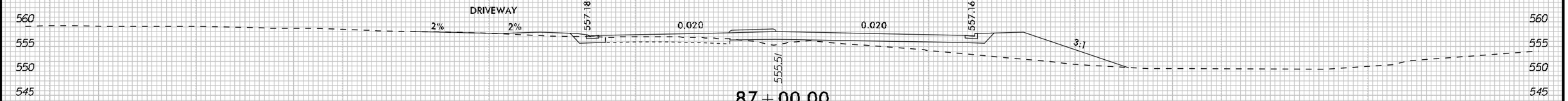

87+00.00

-L- NC 24-27-73

10/15/2018

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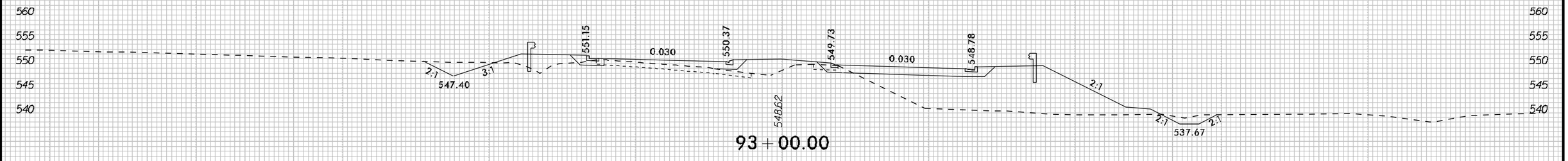
8/23/99

PERMIT DRAWING SHEET 13 OF 84	0 5 10	PROJ. REFERENCE NO.	SHEET NO.
		R-2530B	



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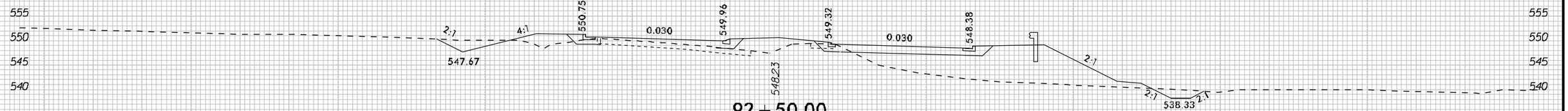

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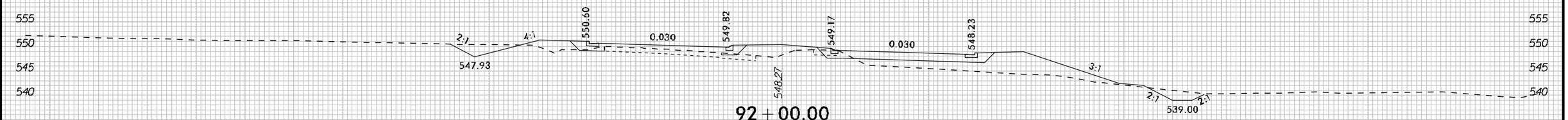

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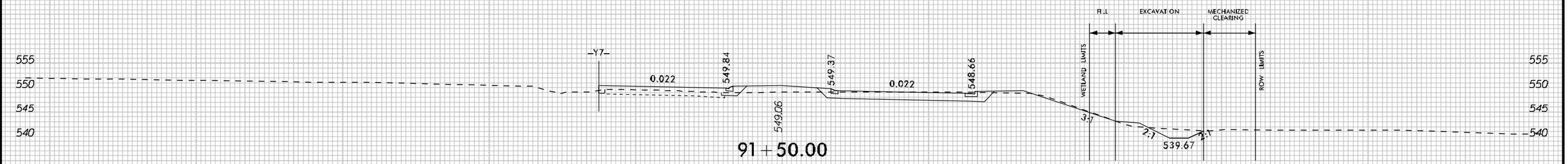
SITE 6



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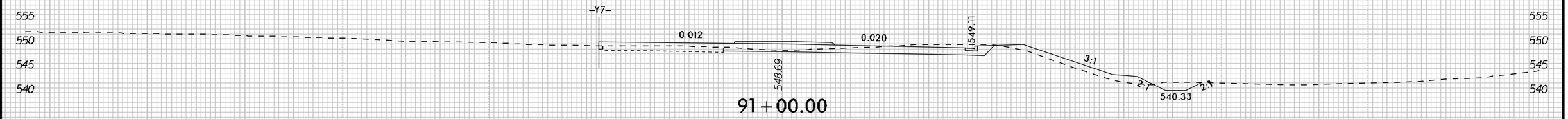

91 + 00.00

-L- NC 24-27-73

10/15/2018

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

5/14/99

REVISIONS

10/15/2018

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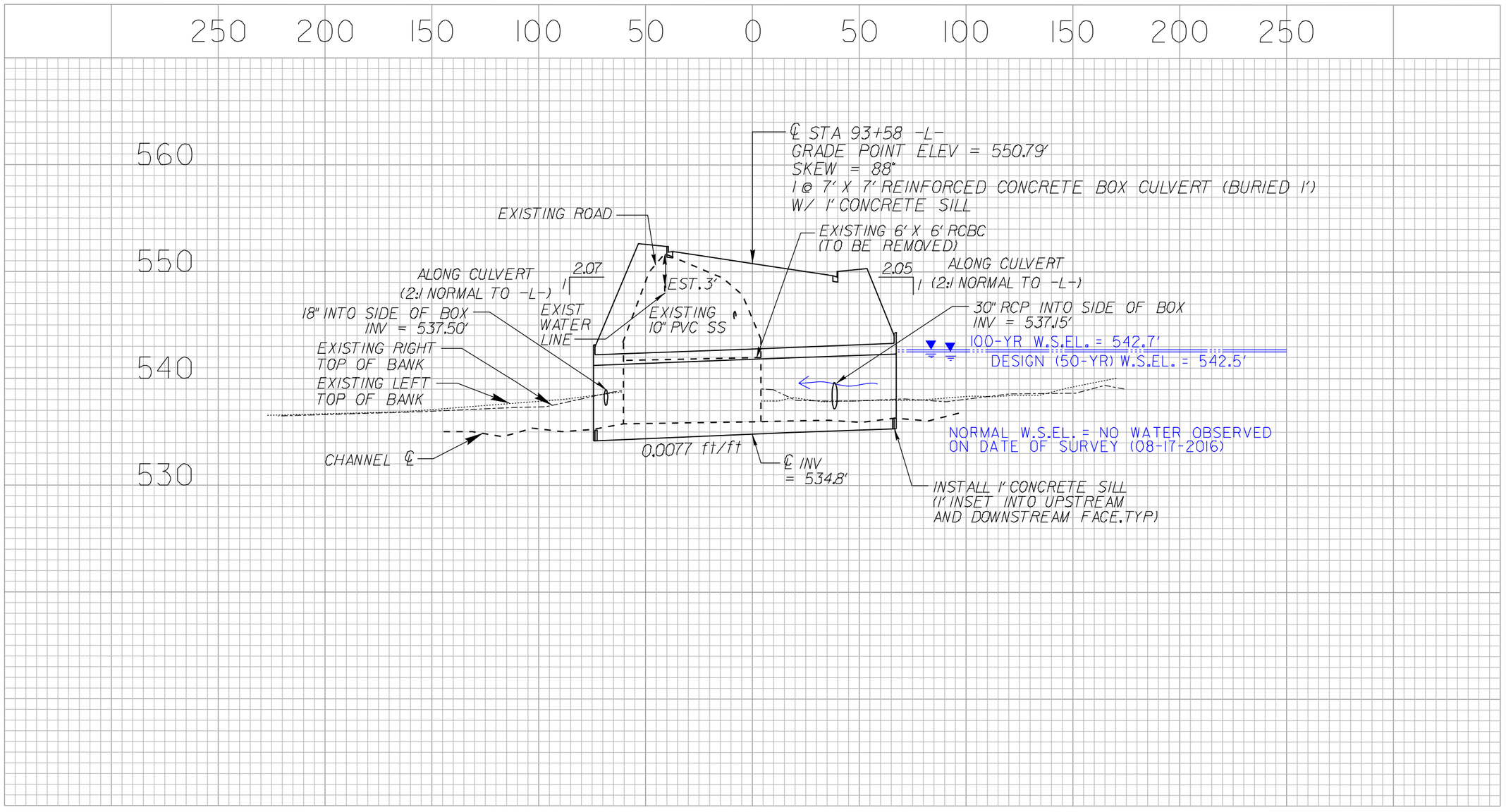
ROW/DRAINAGE REF.
CONST. R/W

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 14 OF 84

SITE 7 & 8



PROJECT REFERENCE NO.	SHEET NO.
R-2530B	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 15 OF 84

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

DRAPHIC SCALE 50' 0' 50' 100' 150'

REVISIONS
ROW REV. - 10/30/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 74 AND 84. - JWM
ROW REV. - 12/1/17 - REVISED TDE AND DRAINAGE DESIGN ON PARCEL 87. - JWM
ROW REV. - 5/30/18 - SHIFTED DRIVEWAY ACCESS AND C/A BREAK, AND REVISED DRAINAGE DESIGN ON PARCEL 78. - JWM
ROW REV. - 8/10/18 - WIDENED DRIVEWAY ACCESS ON PARCEL 79, AND ADJUSTED DRAINAGE DESIGN ON PARCEL 85. - JWM

5/14/99

10/15/2018

(87) ROBERT A & KRISTY L WILHDIT
(82) ALICE M. BEAMAN TRUST
(79) ...Y F & ...R BEAMAN
(85) JAMES J SCHAO
(89) WESFELL LIMITED PARTNERSHIP
(83) JOSEPH J MCRAE JR.
(81) THADDEUS A FURR
(86) THADDEUS A FURR
(80) STANLY CO. BOARD OF EDUCATION
(84) TIMOTHY PARRISH
(74) CYBERDYNE PROPERTY DEVELOPMENT GROUP, LLC
(77) AMY CURLEE
PHILLIP ACAN FURR
KENNETH R FURR ET AL

NC GRID NAD 83/95

R-2530B 0083-0082
R-2530B 0082-0081
R-2530B 0081-0080

-L- PT Sta. 107+07.46
105+00
110+00
BEGIN CONSTRUCTION
-DRW6- POT Sta. 10+00.00
-DRW6- POT Sta. 11+20.00 =
-L- POT Sta. 111+79.00
Δ = 90°
-DRW5- POT Sta. 11+20.00
-DRW5- POT Sta. 11+05.00
END CONSTRUCTION
-DRW5- POT Sta. 10+00.00
-L- POT Sta. 101+00.00
Δ = 90°
S 36°45'28.5" W
S 57°19'51.6" W
-DRW5-
-DRW6-
-L-
NC 24-27-73
S 38°40'08.4" E
MATCHLINE -L- STA 101+00 (SEE SHEET 9)
MATCHLINE -L- STA 114+00 (SEE SHEET 11)

OUTLET PROTECTION
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GFD

PROPOSED BASIN LOCATION

LATERAL 'V' DITCH
W/CLASS 'B' RIP RAP
EST 30 TONS, EST 60 SY GFD
SEE DETAIL 18, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH
W/CLASS 'B' RIP RAP
EST 30 TONS, EST 70 SY GFD
SEE DETAIL 67, SHEET 2D-4

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

STANDARD 'V' DITCH
W/CLASS 'B' RIP RAP
EST 5 TONS
EST 10 SY GFD
S = 10.0%, DDE = 5 CY
SEE DETAIL 62, SHEET 2D-4

TIE PROPOSED DITCH TO EXISTING SWALE

FILL IN EXISTING POND
3' STANDARD BASE DITCH
W/CLASS I RIP RAP
GEOTEXTILE ON BANKS ONLY
EST 185 TONS, EST 250 SY GFD
SEE DETAIL 75, SHEET 2D-5
S = 1.23%

RETAIN 15'

REMOVE 24"
REMOVE 18"
REMOVE 12"
REMOVE 15" AND DI
REMOVE 18" AND DI

18" RCP-IV
36" RCP-III
18" RCP-II
(DO NOT BURY)

BMP5
ELEV = 570.41'
6812.3' (L) 1660047
STATION 107+20.12
85' RIGHT
RR SPIKE IN BASE OF PP

SITE 9
SITE 10
SITE 11

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW5- & -DRW6- PROFILES

REVISIONS	
ROW REV. - 10/30/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 74 AND 84. - JWM	
ROW REV. - 12/1/17 - REVISED TDE AND DRAINAGE DESIGN ON PARCEL 87. - JWM	
ROW REV. - 5/30/18 - SHIFTED DRIVEWAY ACCESS AND C/A BREAK, AND REVISED DRAINAGE DESIGN ON PARCEL 78. - JWM	
ROW REV. - 8/10/18 - WIDENED DRIVEWAY ACCESS ON PARCEL 79, AND WIDENED -DRW6- AND ADJUSTED DRAINAGE DESIGN ON PARCEL 85. - JWM	

10/15/2018

5/14/99

(87) ROBERT A & KRISTY L WILHDIT

PERMIT DRAWING
SHEET 16 OF 84

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

(79) ALICE M. BEAMAN TRUST
(82) ALICE M. BEAMAN TRUST
(85) JAMES J SCHAD
(89) WESFELL LIMITED PARTNERSHIP
(83) JOSEPH MCRAE
(81) MADDELL & FURR
(86) KENNETH R FURR ET AL
(87)
(77) AMY CISLER
(74) CYPRESSTREE PROPERTY DEVELOPMENT GROUP, LLC
(80) STANLY CO BOARD OF EDUCATION
(84) TIMOTHY PARRISH

NC GRID
NAD 83/95

-L- PT Sta. 107+07.46
-DRW6- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW5- POT Sta. 10+05.00
-DRW6- POT Sta. 11+20.00
-L- POT Sta. 111+79.00
Δ = 90°
-DRW5- POT Sta. 11+20.00
-L- POT Sta. 10+90.00
Δ = 90°
S 36°45'28.5" W
S 5°19'51.6" W
NC 24-27-73
S 38°40'08.4" E
105+00
110+00
MATCHLINE -L- STA 101+00 (SEE SHEET 9)
MATCHLINE -L- STA 114+00 (SEE SHEET 11)

SITE 9
SITE 10
SITE 11

OUTLET PROTECTION CLASS B RIP RAP
EST 3 TONS, EST 10 SY GFD
PROPOSED BASIN LOCATION
ACCESS POINT
PDE
TDE
PUE
LATERAL 'V' DITCH W/CLASS B RIP RAP EST 30 TONS, EST 60 SY GFD SEE DETAIL 18, SHEET 2D-1
SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 20 TONS, EST 70 SY GFD SEE DETAIL 67, SHEET 2D-4
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
STANDARD 'V' DITCH W/CLASS 'B' RIP RAP EST. 5 TONS EST. 20 SY GFD S = 10.0%, DDE = 6' CY SEE DETAIL 62, SHEET 2D-4
FALSE SUMP SEE DETAIL 24 SHEET 2D-2
REMOVE 24"
REMOVE 18"
REMOVE 12"
REMOVE 15" AND DI
REMOVE 18" AND DI
36" RCP-III DO NOT BURY
18" RCP-IV
18" RCP-III
2GI
2GI-D
4' PS
2' PS
RETAIN 15'
RETAIN 16'
TIE PROPOSED DITCH TO EXISTING SWALE
FILL IN EXISTING POND
3' STANDARD BASE DITCH W/CLASS 1 RIP RAP GEOTEXTILE ON BANKS ONLY EST 185 TONS, EST 250 SY GFD SEE DETAIL 75, SHEET 2D-5 S = 1.23%

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW5- & -DRW6- PROFILES

5/14/99

REVISIONS

ROW REV. - 12/17 - REVISED TDE AND DRAINAGE DESIGN ON PARCEL 87 - JWM

10/15/2018

PERMIT DRAWING
SHEET 17 OF 84

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID 83'95

MATCHLINE -L- STA 114+00 (SEE SHEET 10)

MATCHLINE -L- STA 127+50 (SEE SHEET 12)

SITE 12

SITE 16

SITE 14

SITE 15

SITE 11

SITE 13

115+00

125+00

10+00

-DRW7- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-DRW7- POT Sta. 10+30.00
-DRW7- PC Sta. 10+50.43
-DRW7- PT Sta. 11+02.61

-L- NC 24-27-73
S 38° 40' 08.4" E

-DRW7- S 18° 45' 05.2" W

-L- SC Sta. 124+07.90

-DRW7- POT Sta. 11+58.00 =
-L- POC Sta. 125+15.00
△ = 90°

S 58° 36' 35.8" W

Sta. 121+27.90

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 50 TONS EST 120 SY GFD SEE DETAIL 29, SHEET 2D-2

PROPOSED BASIN LOCATION

COUNTER SINK OUTLET PROTECTION CLASS I RIP RAP EST 20 TONS EST 75 SY GFD

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

BERM 'V' DITCH W/CLASS 'B' RIP RAP EST 60 TONS EST 135 SY GFD SEE DETAIL 20, SHEET 2D-1

GRADE TO DRAIN

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 30 TONS EST 75 SY GFD SEE DETAIL 67, SHEET 2D-4

LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 50 TONS EST 135 SY GFD SEE DETAIL 18, SHEET 2D-1

ENVIRONMENTALLY SENSITIVE AREA

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

PROPOSED BASIN LOCATION

SPECIAL 2' LATERAL BASE DITCH SEE DETAIL 2, SHEET 2D-1 W/3:1 FRONT SLOPES TO LIMIT OF DISTURBANCE

OUTLET PROTECTION CLASS B RIP RAP EST 5 TONS EST 14 SY GFD

3' STANDARD BASE DITCH W/CLASS I RIP RAP GEOTEXTILE ON BANKS ONLY EST 185 TONS, EST 230 SY GFD SEE DETAIL 25, SHEET 2D-5 S= 1.23%

FILL IN EXISTING POND

REMOVE EXIST 4' x 4' RCX CULVERT (APPROXIMATE LOCATION)

REMOVE 30" RCP

REMOVE 15" RCP

REMOVE 18" JB W/MH

REMOVE 12"

REMOVE 5'

RETAIN 18'

ACCESS POINT

PUE ACCESS POINT

CONC ISLAND

ROCK WALL

GAZEBO

JAMES J SCHAD

ROBERT A & KRISTY L WILHOIT

R-2530B 0079-0018

R-2530B 0003-0004

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW7- PROFILE

5/14/99

REVISIONS

ROW REV. - 12/17 - REVISED TDE AND DRAINAGE DESIGN ON PARCEL 87. - JWM

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 18 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID 83/95

SITE 12

SITE 16

SITE 14

SITE 11

SITE 13

SITE 15

-L- NC-24-27-73
S 38° 40' 08.4" E

Sta. 121+27.90

-DRW7- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW7- POT Sta. 10+30.00
-DRW7- PC Sta. 10+50.43
-DRW7- PT Sta. 11+02.61

-DRW7- POT Sta. 11+58.00 =
-L- POC Sta. 125+15.00
Δ = 90°

-L- SC Sta. 124+07.90

S 18° 45' 05.2" W

S 58° 36' 35.8" W

MATCHLINE -L- STA 114+00 (SEE SHEET 10)

MATCHLINE -L- STA 127+50 (SEE SHEET 12)

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 56 TONS EST 120 SY GFD SEE DETAIL 29, SHEET 2D-2

PROPOSED BASIN LOCATION

COUNTER SUNK OUTLET PROTECTION CLASS I RIP RAP EST 20 TONS EST 75 SY GFD

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

BERM 'V' DITCH W/CLASS 'B' RIP RAP EST 60 TONS EST 135 SY GFD SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

GRADE TO DRAIN

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 30 TONS EST 75 SY GFD SEE DETAIL 37, SHEET 2D-4

LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 50 TONS EST 175 SY GFD SEE DETAIL 18, SHEET 2D-1

DITCH-4 18" CSP W/ ELBOWS

DITCH-1 18" CSP W/ELBOWS

60" RCP-III (BURY 1 FT)

36" RCP-III

30" RCP-III

18" RCP-IV

15" RCP-IV

CONC ISLAND

REMOVE EXIST 4' x 4' RCB CULVERT

REMOVE 18" W/MH

QUIET PROTECTION CLASS B RIP RAP EST 3 TONS EST 14 SY GFD

SPECIAL 2' LATERAL BASE DITCH SEE DETAIL 2, SHEET 2D-2 W/3:1 FRONT SLOPES TO LIMIT CLEARING

3' STANDARD BASE DITCH W/ CLASS B RIP RAP GEOTEXTILE ON BANKS ONLY EST 185 TONS EST 250 SY GFD SEE DETAIL 25, SHEET 2D-2 S= 1.23%

FILL IN EXISTING POND

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

PROPOSED BASIN LOCATION

ACCESS POINT

PUE ACCESS POINT

ENVIRONMENTALLY SENSITIVE AREA

JAMES J. SCHAUT

ROBERT A. & KRISTY L. WILHOIT

NOTES:
1. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW7- PROFILE

5/14/99

REVISIONS

10/15/2018

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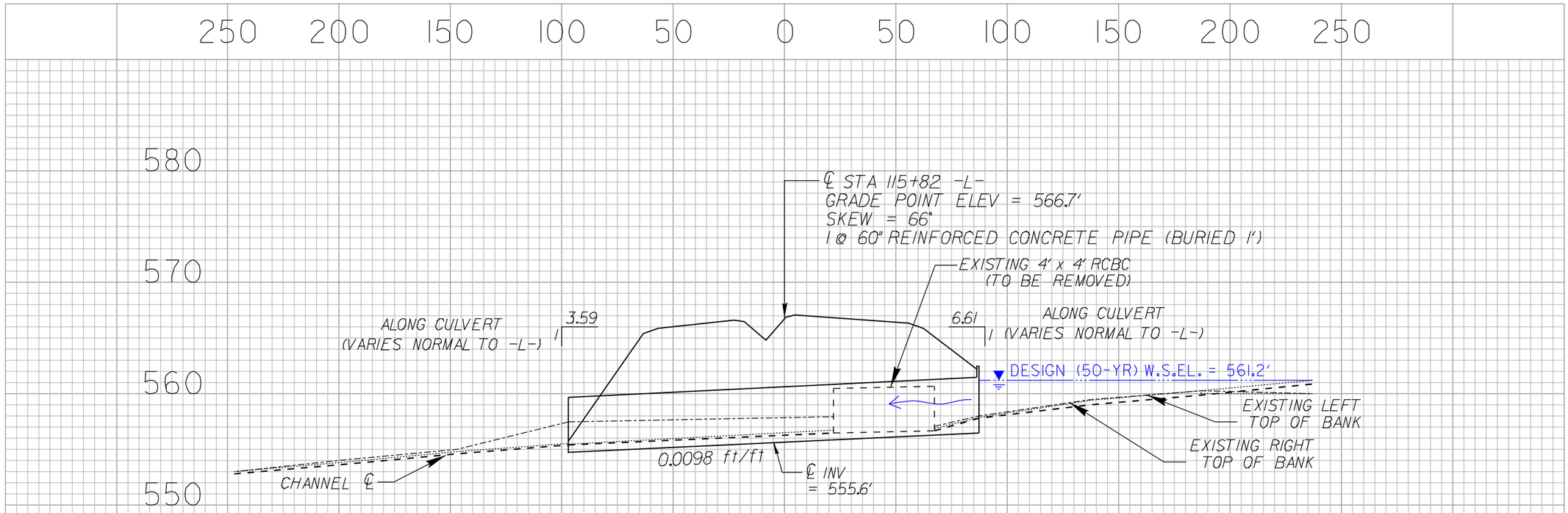
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 19 OF 84

SITE 12 & 13



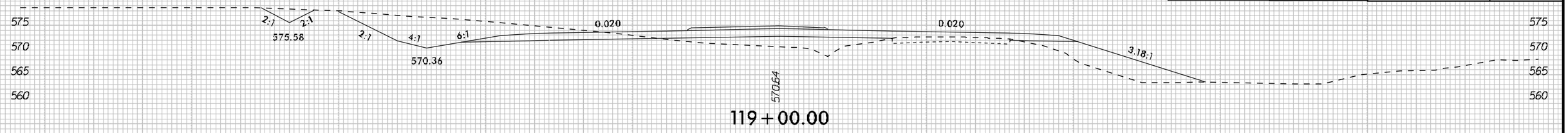
8/23/99

PERMIT DRAWING
SHEET 20 OF 84

0 5 10

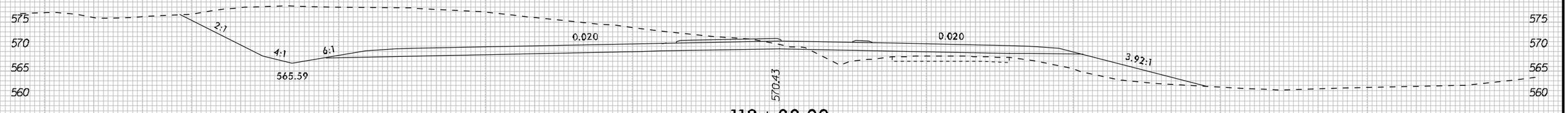
PROJ. REFERENCE NO.
R-2530B

SHEET NO.



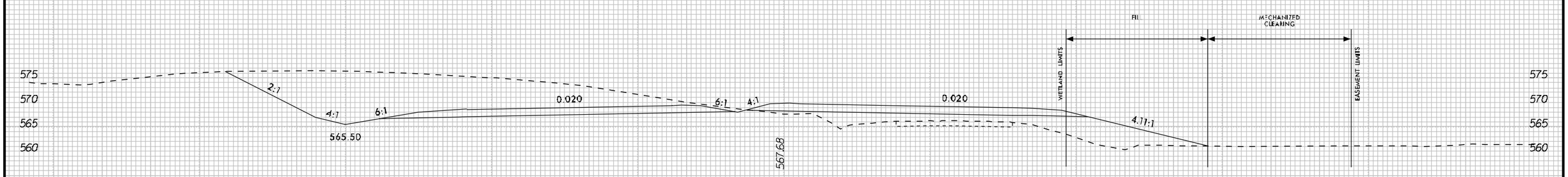
119+00.00

118+50.00

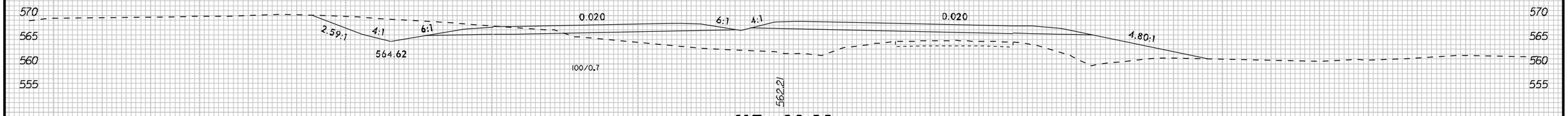


118+00.00

SITE 14



117+50.00



117+00.00

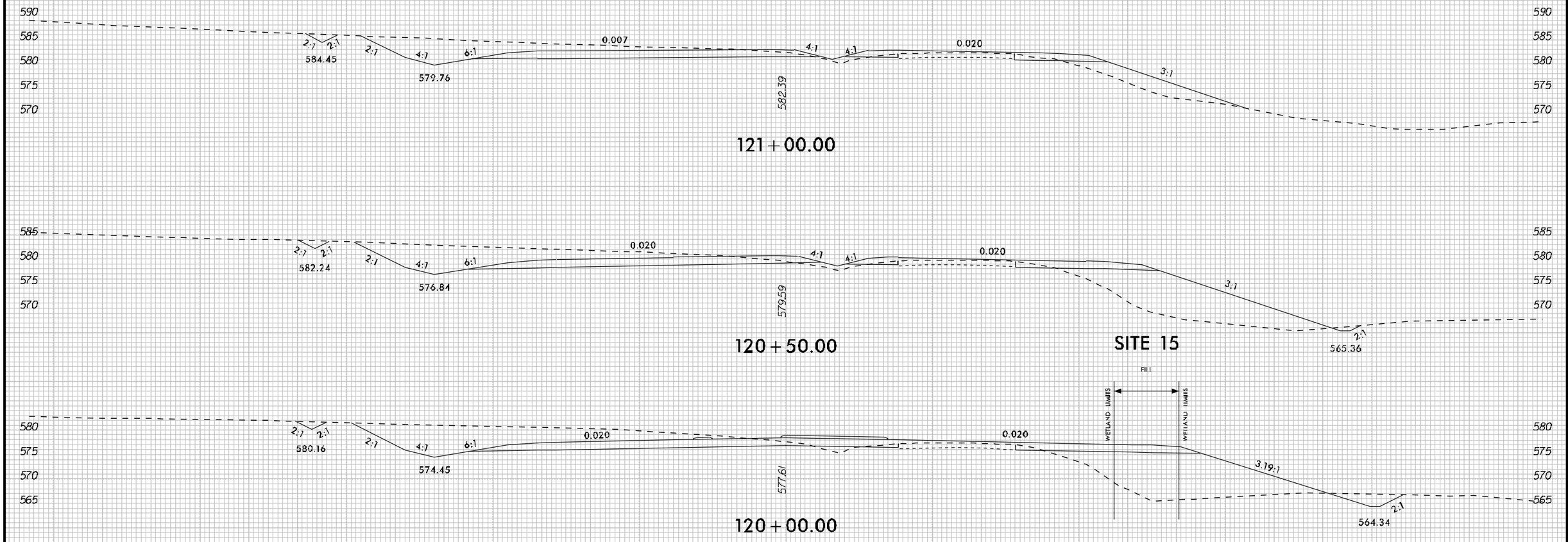
-L- NC 24-27-73

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

10/15/2018

8/23/99

PERMIT DRAWING SHEET 21 OF 84	0 5 10	PROJ. REFERENCE NO. R-2530B	SHEET NO.



-L- NC 24-27-73

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 22 OF 84

GRAPHIC SCALE 50' 0' 50' 100' 150'

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

REVISIONS
5/14/99 ROW REV. - 10/30/17 - UPDATED PROPERTY OWNER NAME FOR PARCEL 92. - JWM

10/15/2018

R-2530B 0004-0005 | R-2530B 0005-0006 | R-2530B

130+00 | 135+00 | 140+00

SITE 16 | SITE 17

-L- ST Sta. 133+23.98

NC 24-27 ?3
S 11° 41' 00.0" E

-L- CS Sta. 130+43.98

STANDARD 2.5' BASE DITCH W/CLASS 'B' RIP RAP
EST 30 TONS
EST 70 SY GFD
S = 12.2%, DDE = 80 CY
SEE DETAIL 46, SHEET 2D-2

3' LATERAL BASE DITCH W/CLASS 'I' RIP RAP
EST 173 TONS
EST 375 SY GFD
SEE DETAIL 26 SHEET 2D-2

LATERAL 'V' DITCH W/CLASS 'B' RIP RAP
EST 50 TONS
EST 115 SY GFD
SEE DETAIL 18 SHEET 2D-1

TIE PROPOSED BASE DITCH INTO EXISTING STREAM

4" SPRING BOX PIPE

SPRING BOX

FALSE SUMP SEE DETAIL 24/SHEET 2D-2

15" CSP W/ELBOWS

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

SPECIAL 3' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 105 TONS
EST 165 SY GFD
SEE DETAIL 26, SHEET 2D-2

BERM 'V' DITCH W/CLASS 'B' RIP RAP
EST 40 TONS
EST 90 SY GFD
SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH W/CLASS 'B' RIP RAP
EST 110 TONS
EST 240 SY GFD
SEE DETAIL 20, SHEET 2D-1

FALSE SUMP SEE DETAIL 24/SHEET 2D-2

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

FALSE SUMP SEE DETAIL 24/SHEET 2D-2

TOE PROTECTION
EST 135 SY RSRM
SEE DETAIL 5, SHEET 2D-1

FALSE SUMP SEE DETAIL 26 SHEET 2D-2

REMOVE 2-24" RCP

ACCESS POINT

RETAIN 12"

PROPOSED BASIN LOCATION

BM#18
ELEV = 583.60'
N 579166 E 1661398
-L- STATION 132+19.65
12.69' RIGHT
RR SPIKE IN BASE OF PP

ENVIRONMENTALLY SENSITIVE AREA

MATCHLINE -L- STA 141+00 (SEE SHEET 13)

MATCHLINE -L- STA 127+50 (SEE SHEET 11)

(89) WESFELL LIMITED PARTNERSHIP

(88) WESFELL LIMITED PARTNERSHIP

(91) JOHN CLIFTON WHITLEY

(92) JAMES PECK, JR. & TERRY ALMOND PECK

(90) BERNICE B WHITLEY

SEE SHEET 39 FOR -L- PROFILE

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 23 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

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RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

5/14/99 REVISIONS
ROW REV. - 10/30/17 - UPDATED PROPERTY OWNER NAME FOR PARCEL 92. - JWM

10/15/2018

(89) WESFELL LIMITED PARTNERSHIP

SITE 16

SITE 17

-L- ST Sta. 133+23.98

NC 24-27 73
S 11° 41' 00.0" E

STANDARD 2.5' BASE DITCH W/CLASS 'B' RIP RAP
EST 30 TONS
EST 70 SY GFD
S = 12.2% DDE = 80 LF
SEE DETAIL 46, SHEET 2D-2

3' LATERAL BASE DITCH W/CLASS 'I' RIP RAP
EST 173 TONS
EST 375 SY GFD
SEE DETAIL 26 SHEET 2D-2

LATERAL 'V' DITCH W/CLASS 'B' RIP RAP
EST 50 TONS
EST 145 SY GFD
SEE DETAIL 18 SHEET 2D-1

TIE PROPOSED BASE DITCH INTO EXISTING STREAM

4" SPRING BOX PIPE

SPRING BOX

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

15" CSP W/ELBOWS

DITCH

-L- CS Sta. 130+43.98

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

SPECIAL 3' LATERAL BASE DITCH W/CLASS 'B' RIP RAP
EST 165 TONS
EST 165 SY GFD
SEE DETAIL 26, SHEET 2D-2

BERM 'V' DITCH W/CLASS 'B' RIP RAP
EST 40 TONS
EST 90 SY GFD
SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH W/CLASS 'B' RIP RAP
EST 110 TONS
EST 240 SY GFD
SEE DETAIL 20, SHEET 2D-1

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

24" RCP-III

18" RCP-III

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

TOE PROTECTION EST 135 SY EGBM SEE DETAIL 5, SHEET 2D-1

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

REMOVE 2-2GI

ACCESS POINT

RETAIN, TYP.

PROPOSED BASIN LOCATION

ENVIRONMENTALLY SENSITIVE AREA

(88) WESFELL LIMITED PARTNERSHIP

(90) JAMES PECK JR. & TERRY ALJOUS PECK

(91) JOHN CLIFTON WHITLEY

(92)

ISBKD

MATCHLINE -L- STA 127+50 (SEE SHEET 13)

MATCHLINE -L- STA 141+00 (SEE SHEET 13)

SEE SHEET 39 FOR -L- PROFILE

5/14/99

NOTES:
1. 2' LATERAL BASE DITCH SEE DETAIL 21, SHEET 2D-1
2. OUTLET PROTECTION - CLASS B RIP RAP EST 2 TONS, EST 7 SY GFD
3. OUTLET PROTECTION - CLASS B RIP RAP EST 2 TONS, EST 7 SY GFD
4. SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
5. REINFORCED SOIL SLOPES FROM -L- STA 147+15 TO 147+65 (LT)
6. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
7. SHOP CURVED GUARDRAIL (R=25')

(89) WESFELL LIMITED PARTNERSHIP
(97) D & G PROPERTIES
(99) STONY GAP PROPERTIES LLC

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING SHEET 24 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
ROW REV. - 10/3017 - UPDATED PROPERTY OWNER NAME FOR PARCEL 92. - JWM
ROW REV. - 11/2217 - RELOCATED DRIVEWAY ON PARCEL 91, AND REVISED C/A, PDE, AND TCE - JWM
ROW Rev. - 8/10/18 - ADDED ACCESS BREAK, TCE, AND REDESIGNED DRIVEWAY CONNECTION ON PARCEL 93. - JWM

10/15/2018

MATCHLINE -L- STA 141+00 (SEE SHEET 12)

MATCHLINE -L- STA 155+25 (SEE SHEET 14)

MATCHLINE -Y8- STA 21+00 (SEE SHEET 34)

SITE 17

SITE 18

SITE 19

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP EST 50 TONS EST 50 SY GFD ON BANKS ONLY S = 4.4%, DDE = 15 CY SEE DETAIL 38, SHEET 2D-2

4' LATERAL BASE DITCH W/CLASS I RIP RAP EST 30 TONS EST 30 SY GFD SEE DETAIL 28, SHEET 2D-2

BEGIN SBG STA. 143+75.00 -L- (LT)

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP EST 20 TONS EST 20 SY GFD ON BANKS ONLY S = 5.3%, DDE = 10 CY SEE DETAIL 38, SHEET 2D-2

TOE PROTECTION EST 73 SY RSRM SEE DETAIL 5 SHEET 2D-1

FALSE SUMP SEE DETAIL 25, SHEET 2D-2

OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 7 SY GFD

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP EST 20 TONS EST 30 SY GFD ON BANKS ONLY S = 2.1%, DDE = 10 CY SEE DETAIL 38, SHEET 2D-2

REMOVE EXISTING 12" AND LAY BACK SLOPES TO MATCH EXIST STREAM STANDARD 4' BASE DITCH W/CLASS I RIP RAP EST 30 TONS EST 40 SY GFD ON BANKS ONLY S = 3.00% DDE = 15 CY SEE DETAIL 35, SHEET 2D-2

PROPOSED BASIN LOCATION

2' LATERAL BASE DITCH W/CLASS B RIP RAP EST 25 TONS, EST 55 SY GFD SEE DETAIL 22, SHEET 2D-1

OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 10 SY GFD

18" RCP-III (DO NOT BURY)

END SBG STA. 149+50.00 -L- (LT)

42" RCP-III (DO NOT BURY)

BEGIN SBG STA. 147+00.00 -L- (LT)

6' MONO CONC ISLAND

REMOVE 18"

REMOVE 2-24"

36" RCP-III (DO NOT BURY)

42" RCP-III

42" RCP-II

GRADE TO DRAIN

REMOVE 12"

REMOVE 24"

12" DR (6" CONC)

16' DR

20'R

5'R

SEE NOTE 1

SEE NOTE 2

SEE NOTE 3

SEE NOTE 4

SEE NOTE 5

SEE NOTE 7

18" CSP W/ELBOWS

15" CSP W/ELBOWS

42" RCP-III (DO NOT BURY)

15" RCP-III

15" RCP-IV

REMOVE 18"

CONC ISLAND

RETAIN 15"

TIE TO EXISTING DITCH

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

-Y8- PT Sta. 14+44.34

-L- TS Sta. 154+34.90

REMOVE 12"

SPECIAL LATERAL 'V' DITCH EST 3 SY SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 CHORD SHEET 2D-1

-L- POT Sta. 153+13.00
-Y8- POT Sta. 13+00.00
Δ = 64°08'38.0"

-Y8- PRC Sta. 20+91.02

-Y8- PC Sta. 18+71.83

-L- POT Sta. 154+77.73
-Y8- POT Sta. 14+77.73
Δ = 64°08'38.0"

-L- PRC Sta. 155+91.02

-L- PC Sta. 153+77.83

-L- PT Sta. 154+34.90

-Y8- PRC Sta. 20+91.02

-Y8- PC Sta. 18+71.83

SPECIAL 2' LATERAL BASE DITCH SEE DETAIL 12, SHEET 2D-1

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14, SHEET 2D-1

BM#19 ELEV = 548.61' N 578136 E 1661612 -L- STATION 142+72.00 12.76' RIGHT RR SPIKE IN BASE OF PP

PROPOSED BASIN LOCATION

CONNECT EXISTING DRIVEWAY SWALE TO PROPOSED ROADSIDE DITCH

SPECIAL 2' LATERAL BASE DITCH W/CLASS I RIP RAP -SI 150 TONS EST 225 SY GFD SEE DETAIL 27, SHEET 2D-2

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1 STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP EST 20 TONS EST 30 SY GFD ON BANKS ONLY S = 8.33%, DDE = 10 CY SEE DETAIL 38, SHEET 2D-2

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

ISR -Y8- (7201) STONY GAP RD

JOHN CLIFTON WHITLEY (91)
CARL EARNHARDT JR.
ROBERT D & MARY JANE JADLOCKI
TJ VENTURES LLC (101)
TJ VENTURES LLC (98)
GUS SCHAD (93)
GUS SCHAD (100)
JAMES PECK, JR. & TERRY ALMOND PECK (92)
STONY GAP PROPERTIES LLC (95)
DR JOEL LEE MAULDIN SR. HEIRS (96)
TJ VENTURES LLC (97)

NC GRID NAD 83/95

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 54 FOR -Y8- PROFILE

NOTES:
1. 2' LATERAL BASE DITCH SEE DETAIL 21, SHEET 2D-1
2. OUTLET PROTECTION - CLASS B RIP RAP EST 2 TONS, EST 7 SY GFD
3. OUTLET PROTECTION - CLASS B RIP RAP EST 2 TONS, EST 7 SY GFD
4. SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
5. REINFORCED SOIL SLOPES FROM -L- STA 147+15 TO 147+65 (LT)
6. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
7. SHOP CURVED GUARDRAIL (R=25')

(89) WESFELL LIMITED PARTNERSHIP

(97) D & G PROPERTIES

(99) STONY GAP PROPERTIES LLC

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING SHEET 25 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

ROW REV - 10/30/17 - UPDATED PROPERTY OWNER NAME FOR PARCEL 92 - JWM
ROW REV - 11/22/17 - RELOCATED DRIVEWAY ON PARCEL 91, AND REVISED C/A, PDE, AND TCE - JWM
ROW REV - 8/10/18 - ADDED ACCESS BREAK, TCE, AND REDESIGNED DRIVEWAY CONNECTION ON PARCEL 93. - JWM

10/15/2018

MATCHLINE -L- STA 141+00 (SEE SHEET 2)

MATCHLINE -L- STA 155+25 (SEE SHEET 14)

MATCHLINE -Y8- STA 21+00 (SEE SHEET 34)

SITE 17

SITE 18

SITE 19

-Y8- PT Sta. 14+44.34

-L- TS Sta. 154+34.90

-L- POT Sta. 153+13.00

-Y8- POT Sta. 14+00.00

Δ = 64°08'38.0"

-Y8- PRC Sta. 20+91.02

-Y8- PC Sta. 18+71.83

NC 24-27-73
S 11° 41' 00.0" E

NC GRID NAD 8395

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 54 FOR -Y8- PROFILE

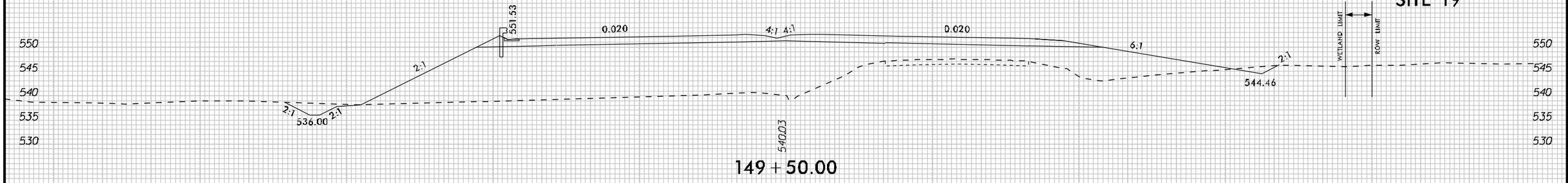
8/23/99

PERMIT DRAWING SHEET 26 OF 84	0 5 10	PROJ. REFERENCE NO. R-2530B	SHEET NO.

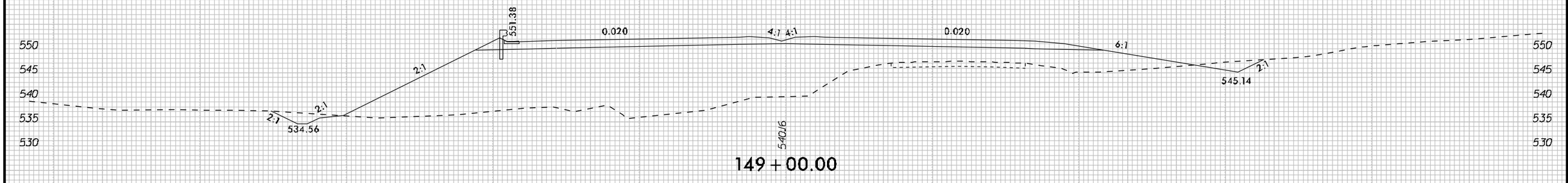
MECHANIZED CLEARING

WETLAND LIMIT | ROW LIMIT

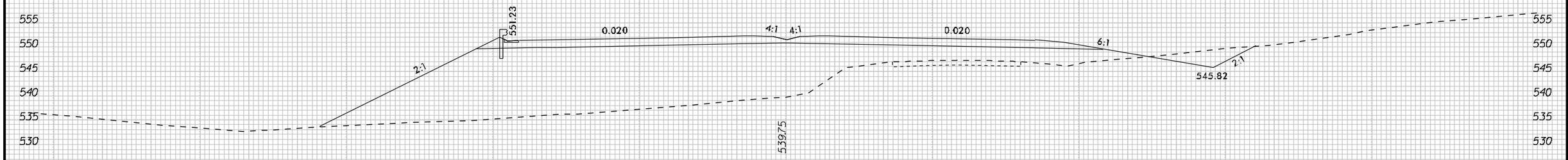
SITE 19



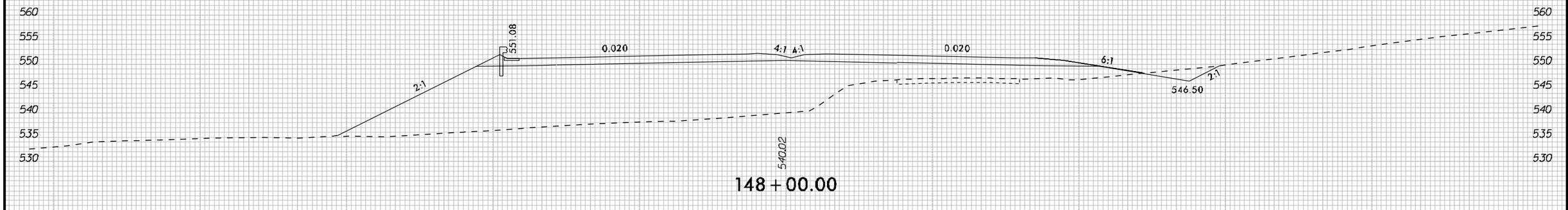
149 + 50.00



149 + 00.00



148 + 50.00



148 + 00.00

-L- NC 24-27-73

10/15/2018

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 27 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

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RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
ROW REV. - 7/3/17 - UPDATED DEED BOOK AND PAGE INFORMATION FOR PARCEL 105 - JWM
ROW REV. - 11/22/17 - RELOCATED DRIVEWAY TO -L- STA 164+50 RT ON PARCEL 104, AND ADDED TCE. - JWM
ROW REV. - 5/30/18 - ADJUSTED TCE ON PARCEL 102, AND ADDED DRIVEWAY ACCESS, TCE, AND ADJUSTED CA ON PARCEL 103 - JWM
ROW REV. - 7/26/18 - ADDED "DO NOT DISTURB TREE" NOTE AND ADJUSTED DRIVEWAY AND TCE ON PARCEL 102; REMOVED DRIVEWAY AND ADJUSTED TCE ON PARCEL 103 - JWM

5/14/99

10/15/2018

SITE 20

ROBERT D & MARY JANE JADLOCKI

(100) GUS SCHAD

(101) TJ VENTURES LLC

(102) JENEECE LOWDER SMITH

(103) JENEECE LOWDER SMITH

(105) JENEECE LOWDER SMITH

(99) STONY GAP PROPERTIES LLC

(104) BARRIER FAMILY LIMITED PARTNERSHIP

BM=22
ELEV = 547.90'
N 576868 E 1661880
-L- STATION 155+68.15
7.82' RIGHT
PAINTED FLANGE BOLT ON FH

BM=23
ELEV = 575.09'
N 575845 E 1662455
-L- STATION 167+63.34
47.21' LEFT
RR SPIKE IN
BASE OF PP

-L- SC Sta. 156+74.90

-DRW9- POT Sta. 10+00.00
-DRW9- PC Sta. 10+18.42
BEGIN CONSTRUCTION
-DRW9- POC Sta. 10+40.00
-DRW9- PT Sta. 10+79.15

-L- NC 24-27-73

-DRW9- S 34° 39' 41" W

-DRW9- POT Sta. 11+80.00 =
-L- POC Sta. 167+59.00
Δ = 90°

MATCHLINE -L- STA 155+25 (SEE SHEET 3)

MATCHLINE -L- STA 168+50 (SEE SHEET 15)

MATCHLINE (SEE SHEET 34)

NC GRID NAD 8395

STANDARD 4' BASE DITCH W/COUNTER SUNK CLASS I RIP RAP
EST 15 TONS
EST 30 SY GFD ON BANKS ONLY
S = 2.5% DDE = 6 CY
SEE DETAIL 3B, SHEET 2D-2

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

PROPOSED BASIN LOCATION

36" (DO NOT BURY)
FALSE SUMP
SEE DETAIL 4
SHEET 2D-1

TOE PROTECTION
EST 25 TONS
CLASS 'B' RIP RAP
EST 60 SY GFD
SEE DETAIL 3Z
SHEET 2D-2

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

REMOVE 15"

REMOVE 24"

REMOVE 12"

2' SPECIAL LATERAL BASE DITCH
W/CLASS 'A' RIP RAP
EST 320 TONS
EST 725 SY GFD
SEE DETAIL 6
SHEET 2D-1

SPECIAL LATERAL V DITCH
SEE DETAIL 3, SHEET 2D-1

15" RCP-III

RETAIN

RETAIN 6"

RETAIN 15"

ACCESS POINT

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW9- PROFILE

PERMIT DRAWING
SHEET 28 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

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421 FAYETTEVILLE STREET, SUITE 600
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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 20

-L- SC Sta. 156+74.90

STANDARD 'A' BASE DITCH W/COUNTER SUNK CLASS I RIP RAP EST. 5 TONS EST 80 SY GFD ON BANKS ONLY S = 2.5% DDE = 6 CY SEE DETAIL 3B, SHEET 2D-2

SPECIAL LATERAL V DITCH SEE DETAIL 3, SHEET 2D-1

FALSE SUMP SEE DETAIL 4 SHEET 2D-

DDE PROTECTION, EST 25 TONS CLASS 'B' RIP RAP EST 60 SY GFD SEE DETAIL 3B SHEET 2D-2

PROPOSED BASIN LOCATION

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

REMOVE 15"

REMOVE 24"

SPECIAL LATERAL V DITCH SEE DETAIL 3, SHEET 2D-1

2' SPECIAL LATERAL BASE DITCH W/CLASS 'B' RIP RAP EST 320 TONS EST 725 SY GFD SEE DETAIL 6 SHEET 2D-1

-DRW9- POT Sta. 10+00.00
-DRW9- PC Sta. 10+18.42
BEGIN CONSTRUCTION
-DRW9- POC Sta. 10+40.00
-DRW9- PT Sta. 10+79.15

-DRW9- POT Sta. 11+80.00 =
-L- POC Sta. 167+59.00
Δ = 90°

NC 24-27-73

ROBERT D & MARY JANE JADLOCKI

JENEECE LOWDER SMITH

STONY GAP PROPERTIES LLC

BARRIER FAMILY LIMITED PARTNERSHIP

MATCHLINE -L- STA 155+25 (SEE SHEET 3)

MATCHLINE -L- STA 168+50 (SEE SHEET 15)

MATCHLINE (SEE SHEET 34)

BM#43
ELEV = 575.09
N 875845.6 1662455
-L- STATION 167+63.34
47.2' LEFT
RR SPIKE IN
BASE OF PP

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW9- PROFILE

REVISIONS

ROW REV. - 7/3/17 - UPDATED DEED BOOK AND PAGE INFORMATION FOR PARCEL 105 - JWM
ROW REV. - 11/22/17 - RELOCATED DRIVEWAY TO -L- STA 164+50 RT ON PARCEL 104, AND ADDED TCE. - JWM
ROW REV. - 5/30/18 - ADJUSTED TCE ON PARCEL 102, AND ADDED DRIVEWAY ACCESS, TCE, AND ADJUSTED CA ON PARCEL 103 - JWM
ROW REV. - 7/26/18 - ADDED "DO NOT DISTURB TREE" NOTE AND ADJUSTED DRIVEWAY AND TCE ON PARCEL 102; REMOVED DRIVEWAY AND ADJUSTED TCE ON PARCEL 103 - JWM

5/14/99

10/15/2018

5/14/99

REVISIONS

ROW REV. – 7/13/17 – COMBINED PARCELS 106 AND 107 INTO 105; AND UPDATED DEED BOOK AND PAGE INFORMATION FOR PARCEL 105. – JWM

ROW REV. – 11/22/17 – REMOVED DRIVEWAY AND TCE FROM PARCEL 104 NEAR –L– STA 170+90 RT. – JWM

ROW REV. – 3/9/18 – UPDATED CA AND PUE ON PARCEL 109 COMBINED PARCELS 110 AND 111 INTO 110; COMBINED PARCELS 112 AND 114 INTO 112; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 110 AND 112. – JWM

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 29 OF 84

GRAPHIC SCALE 50' 0' 50' 100' 150'

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/93 NC GRID

MATCHLINE –L– STA 168+50 (SEE SHEET 14)

MATCHLINE –L– STA 182+50 (SEE SHEET 16)

–L– ST Sta. 171+54.95

–L– CS Sta. 169+14.95

–L– NC 24-27-73 S 48°14'07.2" E

R-2530B 0035-0036

105 JENEECE LOWDER SMITH

108A DANIEL SHANE HUNEYCUTT

106 ZULA M & JOE ALMOND

104 BARRIER FAMILY LIMITED PARTNERSHIP

109 DONALD A & ROBIN B SHAVER

110 JOHNNY W & JUDY S BARBEE JR

112 EAST SIDE VOLUNTEER FIRE DEPARTMENT

113 TROY A & CRYSTAL F STOCKTON

SITE 21

OUTLET PROTECTION CLASS B RIP RAP FST 2 TONS EST 7 SY GFD

SPECIAL LATERAL DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

REMOVE 18" 15" RCP-IV

REMOVE 12" 15" RCP-IV

6' MONO CONC ISLAND

24" RCP-III (DO NOT BURY)

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

TRANSITION PROTECTION EST 25 SY RSRM

SPECIAL CUT DITCH SEE DETAIL 23 SHEET 2D-1

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 19 SHEET 2D-1

SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1

TIE PROPOSED DITCH INTO EXISTING

STANDARD 'V' DITCH W/CLASS 'B' RIP RAP EST 10 TONS EST 20 SY GFD S= 10.0% DDE= .3 CY SEE DETAIL 6J, SHEET 2D-4

PROPOSED BASIN LOCATION

ACCESS POINT

PUE

SEE SHEET 40 FOR –L– PROFILE

5/14/99

REVISIONS

ROW REV. – 7/13/17 – COMBINED PARCELS 106 AND 107 INTO 105; AND UPDATED DEED BOOK AND PAGE INFORMATION FOR PARCEL 105. – JWM
ROW REV. – 11/22/17 – REMOVED DRIVEWAY AND TCE FROM PARCEL 104 NEAR –L– STA 170+90 RT. – JWM
ROW REV. – 3/19/18 – UPDATED C/A AND PUE ON PARCEL 109; COMBINED PARCELS 110 AND 111 INTO 110; COMBINED PARCELS 112 AND 114 INTO 112; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 110 AND 112. – JWM

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 30 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

105 JENEECE LOWDER SMITH

R-2530B 0035-0036

-L- ST Sta. 171+54.95

-L- CS Sta. 169+14.95

MATCHLINE -L- STA 168+50 (SEE SHEET 14)

MATCHLINE -L- STA 182+50 (SEE SHEET 16)

NC 24-27-73
S 48°14'07.2" E

170+00 175+00 180+00

OUTLET PROTECTION /CLASS B RIP RAP FST 2 TONS EST 7 SY GRD

SPECIAL LATERAL DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

STANDARD 'V' DITCH W/CLASS 'B' RIP RAP EST 10 TONS EST 20 SY GRD S= 10.0% DD= 1.3 CY/LF SEE DETAIL 27, SHEET 2D-1

24" RCP-III (DO NOT BURY)

REMOVE 18"

REMOVE 24"

REMOVE 15"

REMOVE 12"

15" RCP-IV

18" RCP-III

2GI-A

2GI

6' MONO CONC ISLAND

TBZGH

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

TRANSITION PROTECTION EST 25 SY RSRM

SPECIAL CUT DITCH SEE DETAIL 23 SHEET 2D-1

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14 SHEET 2D-1

SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1

OUTLET PROTECTION CLASS B RIP RAP FST 5 TONS EST 14 SY GRD

TIE PROPOSED DITCH INTO EXISTING

PROPOSED BASIN LOCATION

ACCESS POINT

PUE

C/A

RW

SITE 21

104 BARRIER FAMILY LIMITED PARTNERSHIP

106 MTH FAMILY LLC & W & VOE ALMOND

109 DONALD A & ROBIN B SHAVER

110 JOHNNY W & JUDY S BARBEE JR

112 EAST SIDE VOLUNTEER FIRE DEPARTMENT

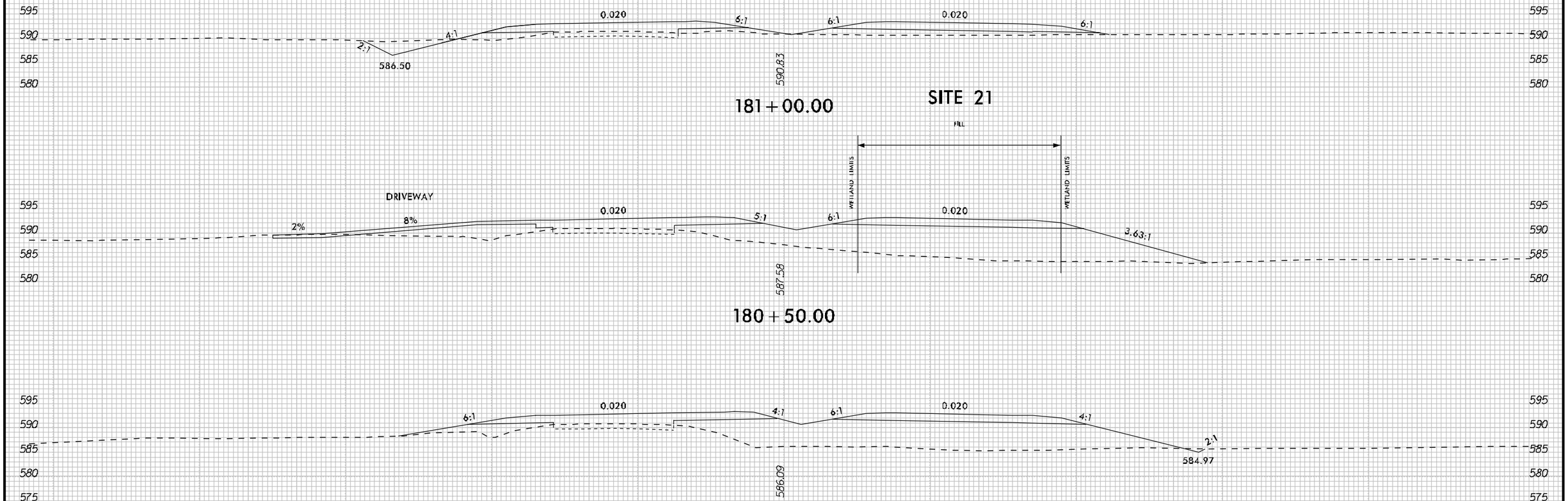
113 TROY A & CRYSTAL F STOCKTON

108A DANIEL SHANE HUNEYCUTT

SEE SHEET 40 FOR -L- PROFILE

8/23/99

PERMIT DRAWING SHEET 31 OF 84	0 5 10	PROJ. REFERENCE NO. R-2530B	SHEET NO.

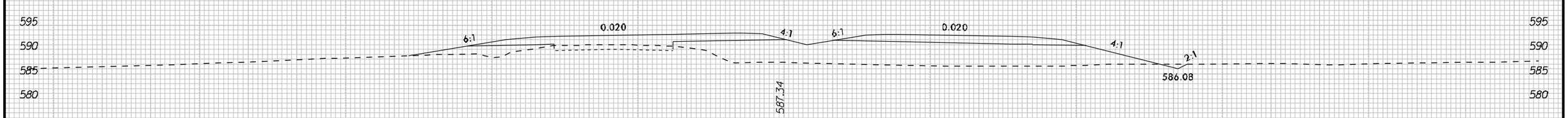


181+00.00

SITE 21

180+50.00

180+00.00



179+50.00

-L- NC 24-27-73

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

10/15/2018

5/14/99

REVISIONS

ROW REV. - 3/9/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 115 AND 117, UPDATED C/A LIMITS AND ADDED R/W ON PARCEL 115; ADDED 60' ACCESS BREAK TO PARCEL 117. - JWM

ROW REV. - 3/19/18 - COMBINED PARCELS 112 AND 114 INTO 112, AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 112. - JWM

ROW REV. - 7/26/18 - ADDED 60' ACCESS BREAK TO PARCEL 118. - JWM

10/15/2018

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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA 182+50 (SEE SHEET 15)

MATCHLINE -L- STA 196+50 (SEE SHEET 17)

RETAIN 15"

BEGIN CONSTRUCTION
-Y9- POC Sta.14+13.00

15+00

113 TROY A & CRYSTAL F STOCKTON

117 STONY GAP PROPERTIES, LLC

115 STONY GAP PROPERTIES, LLC

BYII-64

NC GRID NAD 83/95

-Y9- PT Sta. 17+20.88

-Y9- (SR 1736) DUNLAP RD S 27° 01' 23.0" W

180+00

185+00

195+00

SITE 22

BM#26
ELEV = 580.73'
N 574088 E 1664427
-L- STATION 194+07.81
74.68' LEFT
SPIKE IN BASE IN 2"PIN OAK

STANDARD 2.5' BASE DITCH W COUNTER-SUNK CLASS B RIP RAP EST 2 TONS EST 10 SY GFD ON BANKS ONLY SEE DETAIL 46, SHEET 2D-2

TRANSITION PROTECTION EST 100 SY FSRM

-L- NC 24-27-73

-L- PC Sta. 189+69.57

OUTLET PROTECTION CLASS II RIP RAP EST 2 TONS EST 7 SY GFD

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

18" RCP-V (DO NOT BURY)

R2530-7

REMOVE 15"

REMOVE 18"

REMOVE 15"

REMOVE 18"

15" RCP-III

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

FALSE SUMP SEE DETAIL 1, SHEET 2D-1

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

15" RCP-IV

15" RCP-V

GRADE TO DRAIN

ACCESS POINT

BEGIN SBG
STA. 196+00.00
-L- (LT)

GREU TL-3

RETAIN 2.5'

4' PS
2' PS
12' DR
76' DR
7'-8" PS

OTCB-4

BERM 'V' DITCH SEE DETAIL 19 SHEET 2D-1

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14, SHEET 2D-1

-L- POT Sta. 188+57.90 =
-Y9- POT Sta. 19+52.00
Δ = 70°15'30.2"

-L- POT Sta. 189+05.00 =
-DRW9A- POT Sta. 10+00.00
Δ = 90°

S 41° 45' 52.8" W

END CONSTRUCTION
-DRW9A- POT Sta. 11+59.00

-DRW9A- POT Sta. 11+75.00

PROPOSED BASIN LOCATION

112 EAST SIDE VOLUNTEER FIRE DEPARTMENT

116 THOMAS C PHILLIPS

118 THOMAS C & HAZEL P PHILLIPS

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING
SHEET 32 OF 81

50' 0' 50' 100' 150'
GRAPHIC SCALE

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 55 FOR -Y9- PROFILE
SEE SHEET 59 FOR -DRW9A- PROFILE

5/14/99

REVISIONS

ROW REV. – 3/9/18 – UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 115 AND 117, UPDATED C/A LIMITS AND ADDED R/W ON PARCEL 115; ADDED 60' ACCESS BREAK TO PARCEL 117. – JWM

ROW REV. – 3/19/18 – COMBINED PARCELS 112 AND 114 INTO 112, AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 112. – JWM

ROW REV. – 7/26/18 – ADDED 60' ACCESS BREAK TO PARCEL 118. – JWM

10/15/2018

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RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RETAIN 15"

BEGIN CONSTRUCTION
-Y9- POC Sta.14+13.00

15+00

TROY A & CRYSTAL F STOCKTON

STONY GAP PROPERTIES, LLC

BYU-64

-Y9- PT Sta. 17+20.88

-Y9- (SR 1736) DUNLAP RD S 27° 01' 23.0" W

-L- PC Sta. 189+69.57

NC 24-27-73

NO GRD 8395

SITE 22

OUTLET PROTECTION CLASS II RIP RAP EST 2 TONS EST 7 SY GFD

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

18" RCP-V (DO NOT BURY)

STANDARD 2.5' RAS - DITCH W/ COUNTER-SUNK CLASS B RIP RAP EST 2 TONS EST 10 SY GFD "ON" BANKS ONLY SEE DETAIL 46, SHEET 2D-2

TRANSITION PROTECTION EST 100 SY FSRM

REMOVE 15"

REMOVE 18"

REMOVE 18"

REMOVE 15"

REMOVE 15"

15" RCP-IV

15" RCP-V

15" RCP-III

FALSE SUMP SEE DETAIL 3A, SHEET 2D-2

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

FALSE SUMP SEE DETAIL 2A, SHEET 2D-2

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

OUTLET PROTECTION CLASS II RIP RAP EST 3 TONS EST 10 SY GFD

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19 SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19 SHEET 2D-1

-L- POT Sta. 188+57.90 =
-Y9- POT Sta. 19+52.00
Δ = 70°15'30.2"

-L- POT Sta. 189+05.00 =
-DRW9A- POT Sta. 10+00.00
Δ = 90°
S 41° 45' 52.8" W

END CONSTRUCTION
-DRW9A- POT Sta. 11+59.00
-DRW9A- POT Sta. 11+75.00

PROPOSED BASIN LOCATION

EAST SIDE VOLUNTEER FIRE DEPARTMENT

THOMAS C & HAZEL P PHILLIPS

THOMAS C PHILLIPS

ACCESS POINT

BEGIN SBG
STA. 198+00.00
-L- (L1)

GREU TL-3

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14, SHEET 2D-1

MATCHLINE -L- STA 182+50 (SEE SHEET 15)

MATCHLINE -L- STA 196+50 (SEE SHEET 17)

LEGEND

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)
- T S — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- E E — DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 33 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 55 FOR -Y9- PROFILE
SEE SHEET 59 FOR -DRW9A- PROFILE

5/14/99

REVISIONS

ROW REV. - 3.9.18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 117. - JWM

10/15/2018

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ROADWAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID 83/95

SITE 23

MATCHLINE -L- STA 196+50 (SEE SHEET 16)

MATCHLINE -L- STA 210+00 (SEE SHEET 18)

-L- PT Sta. 197+56.71

200+00

205+00

RETAIN 30"

STANDARD 4' BASE DITCH W/COUNTER SUNK CLASS 'B' RIP RAP EST 15 TONS EST 30 SY GFD ON BANKS ONLY S= 1.4% D3E= 5 CY SEE DETAIL 3B SHEET 2D-2

END SBC STA. 199+25.00 -L- (LT)

PROPOSED BASIN LOCATION

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

35' CSP W/ELBOWS DO NOT BURY

R2530B-8

GRADE TO DRAIN

18" CSP W/ELBOW

REMOVE 12"

REMOVE 18"

BDO

FALSE SUMP SEE DETAIL 25, SHEET 2D-2

18" RCP-IV

ACCESS POINT

BERM 'V' DITCH W/ CLASS 'B' RIP RAP EST 50 TONS EST 115 SY GFD SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19 SHEET 2D-1

PROPOSED DIVERSION LOCATION

-L- NC 24-27-73

REMOVE 24"

15" RCP-III

30" RCP-III (DO NOT BURY)

7'-8" PS GREU TL-3 4 PS

2' PS

4' PS

GRADE TO DRAIN

15" RCP-IV

15" RCP-II

TB2GI

2GI

-L- NC 24-27-73 S 44°18'48.9" E

15" CSP W/ELBOWS

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

OTCB-4

-L- TS Sta. 203+20.18

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

BERM 'V' DITCH W/CLASS 'B' RIP RAP EST 50 TONS EST 115 SY GFD SEE DETAIL 20, SHEET 2D-1

2' LATERAL BASE DITCH W/CLASS 'B' RIP RAP EST 50 TONS EST 135 SY GFD SEE DETAIL 22, SHEET 2D-1

2' LATERAL BASE DITCH SEE DETAIL 21 SHEET 2D-1

PROPOSED BASIN LOCATION

SEE NOTE 1 24" RCP-II (DO NOT BURY)

SEE NOTE 2

-L- POT Sta. 197+69.10 = -Y10- POT Sta. 10+00.00

Δ = 82°52'25.9"

OUTLET PROTECTION CLASS 'B' RIP RAP EST 5 TONS EST 14 SY GFD

END CONSTRUCTION -Y10- POT Sta. 13+04.00

-Y10- (SR 1739) MCNEIL RD S 38°33'37.0" W

15+00

119 VERNON E FURR & S F WINSLOW

121 WILLIAM & APRIL D HARRYMAN

122 VERNON E FURR & S F WINSLOW

123 RICHARD W MORRIS

124 TODD SCHADE

117 STONY GAP PROPERTIES, LLC

118 THOMAS C & HAZEL P PHILLIPS

120 MCNEIL ROAD ASSOCIATES INC.

BM#29 ELEV = 606.58' N 573443.E 1665607 -L- STATION 207+60.83 443.88' LEFT RR SPIKE IN BASE 18"MAPLE

BM#28 ELEV =585.95' N 573231.E 1665262 -L- STATION 206+07.47 61.26' LEFT CHISELED 'X' ON SW FLANGE BOLT ON FH

ASH RD

NC 24-27-73

BY13-66

BY12-65

BL-30

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING SHEET 34 OF 84

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

NOTES:
1. SPECIAL CUT DITCH WITH HINGE. SEE DETAIL 14, SHEET 2D-1
2. SPECIAL LATERAL 'V' DITCH W/ CLASS B RIP RAP EST 70 TONS, EST 150 SY GFD SEE DETAIL 6T, SHEET 2D-4
3. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 55 FOR -Y10- PROFILE

5/14/99

REVISIONS

ROW REV. - 3.9.18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 117. - JWM

10/15/2018

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 23

PERMIT DRAWING
SHEET 35 OF 84

GRAPHIC SCALE 50' 0' 50' 100' 150'

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

NOTES:
1. SPECIAL CUT DITCH WITH HINGE. SEE DETAIL 14, SHEET 2D-1
2. SPECIAL LATERAL 'V' DITCH W/ CLASS B RIP RAP
   EST. 70 TONS, EST. 150 SY GFD
   SEE DETAIL 67, SHEET 2D-4
3. TEMPORARY SHORING (TYP.)
   (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 55 FOR -Y10- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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RALEIGH, NC 27601

ROADWAY REV.
CONST REV.

PERMIT DRAWING
SHEET 36 OF 84

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

REVISIONS
5/14/19

NC GRID NAD 83/95

SITE 24

SITE 23

SITE 25

-L- CS Sta. 214+67.42

-L- ST Sta. 217+47.42

MATCHLINE -L- STA 210+00 (SEE SHEET 17)

MATCHLINE -L- STA 223+75 (SEE SHEET 19)

STANDARD 2' BASE DITCH W/CLASS I RIP RAP
EST 50 TONS
EST 75 SY GFD
S = 6.20%, DDE = 50 CY
SEE DETAIL 33, SHEET 7D-7

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP
EST 80 TONS
EST 80 SY GFD ON BANKS ONLY
S=4.3%, DDE=30 CY
SEE DETAIL 38, SHEET 2D-2

BERM 'V' DITCH W/CLASS B RIP RAP
EST 50 TONS
EST 115 SY GFD
SEE DETAIL 20, SHEET 2D-1

15" CSP W/ELBOWS

FALSE SUMP SEE DETAIL 25, SHEET 2D-2

3' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 200 TONS
EST 265 SY GFD
SEE DETAIL 26, SHEET 2D-2

TIE TO EXISTING STREAM

PROPOSED DIVERSION LOCATION

PROPOSED BASIN LOCATION

48" RCP-III (DO NOT BURY)

SBG -L- 50.00

15" RCP-III

REMOVE 24"

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP
EST 40 TONS
EST 40 SY GFD ON BANKS ONLY
S=2.8%, DDE=9 CY
SEE DETAIL 36, SHEET 2D-2

STANDARD 'Y' DITCH W/CLASS B RIP RAP
EST 8 TONS
EST 16 SY GFD
S=7.6%, DDE= 3 CY
SEE DETAIL 52, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 8 SHEET 2D-1

SPECIAL LATERAL 'W' DITCH W/CLASS 3 RIP RAP
EST 55 TONS
EST 125 SY GFD
SEE DETAIL 67 SHEET 2D-4

-L- NC 24-27-73 S 78°06'32" E

BEGIN SBG STA. 217+50.00 -L- (RT)

BM#30
ELEV = 498.21'
N 572633 E 1666566
-L- STATION 220+79.65
9.93' RIGHT
RR SPIKE IN BASE 30"PIN OAK

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

(125) FRANCES C UNDERWOOD
(126) PATRICIA LI WYNNE ET AL
(128) G S DEVELOPMENT CORP.

SEE SHEET 42 FOR -L- PROFILE

10/15/2018

5/14/99

REVISIONS

PERMIT DRAWING
SHEET 37 OF 84

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH
GRID
NC 83/95
NAD

MATCHLINE -L- STA 210+00 (SEE SHEET 17)

MATCHLINE -L- STA 223+75 (SEE SHEET 19)

-L- CS Sta. 214+67.42

-L- ST Sta. 217+47.42

-L-
NC 24-27-73
S 78° 06' 32" E

SITE 23

SITE 24

SITE 25

GREU TL-3

BERM "V" DITCH W/CLASS B RIP RAP EST 50 TONS EST 125 SY GFD SEE DETAIL 20, SHEET 20-1

STANDARD 3' BASE DITCH W/CLASS I RIP RAP EST 30 TONS EST 75 SY GFD S=4.3% DDE= 50 CY SEE DETAIL 33, SHEET 20-2

STANDARD 4' BASE DITCH W COUNTER-SUNK CLASS I RIP RAP EST 80 TONS EST 80 SY GFD ON BANKS ONLY S=4.3% DDE=30 CY SEE DETAIL 28, SHEET 20-2

FALSE SUMP SEE DETAIL 25, SHEET 20-2

18" CSP W/ELBOWS

OTCB-A

2GI-A

2GI

FALSE SUMP SEE DETAIL 24, SHEET 20-2

15" RCP-III

REMOVE 24"

12" DR

4' PS

2' PS

TIE TO EXISTING STREAM

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 280 TONS EST 265 SY GFD SEE DETAIL 26, SHEET 20-2

PROPOSED DIVERSION LOCATION

PROPOSED BASIN LOCATION

SBG -50.00

48" RCP-III (DO NOT BURY)

15" CSP W/ELBOWS

BEGIN SBG STA 224+50.00 -L- RTN

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS B RIP RAP EST 40 TONS EST 40 SY GFD ON BANKS ONLY S=2.8% DDE=30 CY SEE DETAIL 26, SHEET 20-2

STANDARD "Y" DITCH W/CLASS B RIP RAP EST 25 TONS EST 75 SY GFD S=7.6% DDE= 3 CY SEE DETAIL 32, SHEET 20-1

SPECIAL LATERAL "V" DITCH SEE DETAIL 8 SHEET 20-1

SPECIAL LATERAL "V" DITCH W/CLASS 3 RIP RAP EST 55 TONS EST 125 SY GFD SEE DETAIL 67, SHEET 20-4

RETAIN 30"

REMOVE 15"

30" DR 15"

25' R

ACCESS POINT

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

(125) FRANCES C UNDERWOOD
(126) PATRICIA LI WYNNE ET AL
(128) G S DEVELOPMENT CORP.

SEE SHEET 42 FOR -L- PROFILE

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 38 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
5/14/99
ROW REV. - 7/26/18 - ADDED 60' ACCESS BREAK TO PARCEL 127. - JWM
10/15/2018

NC GRID NAD 83/95

-DRW9B- POT Sta. 10+00.00 =
-L- POT Sta. 226+22.00
Δ = 90°

-L-
NC 24-27-73
S 78°06'32.0" E

S 11°53'28.0" W

225+00 230+00 235+00

BM#31
ELEV = 441.44'
N 572471E 1667714
-L- STATION 232+36.99
68.09' LEFT
RR SPIKE IN BASE 36" DOUBLE OAK

PROPOSED BASIN LOCATION

SITE 29
SITE 28
SITE 26
SITE 27

SPECIAL LATERAL 'V' DITCH
W/CLASS B RIP RAP
EST 53 TONS
EST 125 SY GFD
SEE DETAIL 67, SHEET 2D-4

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

FALSE SUMP
SEE DETAIL 25, SHEET 2D-2

SPECIAL LATERAL 'V' DITCH
W/CLASS B RIP RAP
EST 70 TONS, EST 60 SY GFD
SEE DETAIL 67, SHEET 2D-4

REMOVE 24"
REMOVE 18"
REMOVE 15"
24" RCP-III
30" RCP-IV
TRANSITION PROTECTION
EST 25 SY PSRM

SPECIAL 3' LATERAL BASE DITCH
W/CLASS I RIP RAP
EST 300 TONS
EST 430 SY GFD
SEE DETAIL 34, SHEET 2D-2

FALSE SUMP
SEE DETAIL 24, SHEET 2D-2

END SBG
STA. 225+56.00
-L- (RT)

BEGIN SBG
STA. 224+89.35
-L- (RT)

END SBG
STA. 229+50.00
-L- (RT)

BEGIN SBG
STA. 235+00.00
-L- (RT)

SHOP CURVED GUARDRAIL R=55'
SHOP CURVED GUARDRAIL R=20'

STANDARD 3' BASE DITCH
W/CLASS I RIP RAP
EST 35 TONS
EST 50 SY GFD
S = 3.3%
DDE = 30 CY
SEE DETAIL 33, SHEET 2D-2

STANDARD 2' BASE DITCH
S = 0.50%
DDE = 5 CY
SEE DETAIL 31, SHEET 2D-2

RIP RAP EMBANKMENT PROTECTION
W/CLASS I RIP RAP
EST 6 TONS
EST 10 SY GFD
SEE DETAIL 10
SHEET 2D-1

RIP RAP EMBANKMENT PROTECTION
W/CLASS I RIP RAP
EST 3 TONS
EST 5 SY GFD
SEE DETAIL 10, SHEET 2D-1

TOE PROTECTION
CLASS B RIP RAP
EST 40 TONS
EST 90 SY GFD
SEE DETAIL 32
SHEET 2D-2

OUTLET PROTECTION
CLASS B RIP RAP
EST 5 TONS
EST 14 SY GFD

CHANNEL CHANGE
W/CLASS I RIP RAP
EST 300 TONS
EST 250 SY GFD
(BANKS ONLY)
SEE DETAIL 38,
SHEET 2D-2

BANK STABILIZATION
RANK STABALIZATION

PROPOSED BASIN LOCATION

ACCESS POINT

END CONSTRUCTION
-DRW9B- POT Sta. 11+63.00

MATCHLINE -L- STA 223+75 (SEE SHEET 18)
MATCHLINE -L- STA 237+00 (SEE SHEET 20)

TODD SCHAD (28)
G S DEVELOPMENT CORP. (128)
JAMES J SCHAD (129)
FRANCES C UNDERWOOD (125)
MCNEIL ROAD ASSOCIATES INC. (120)
PATRICIA U WYNNE ET AL (126)
FRANCES C. UNDERWOOD (127)
FRANCES C UNDERWOOD (130)

AT&T CORP., UNKNOWN COUNT

SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW9B- PROFILE

5/14/99

REVISIONS

ROW REV. - 7/26/18 - ADDED 60' ACCESS BREAK TO PARCEL 127. - JWM

10/15/2018

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 39 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

TODD SCHAD

C. S DEVELOPMENT CORP.

JAMES L SCHAD

FRANCES C. UNDERWOOD

MATCHLINE -L- STA 223+75 (SEE SHEET 18)

MATCHLINE -L- STA 237+00 (SEE SHEET 20)

-DRW9B- POT Sta. 10+00.00
-L- POT Sta. 226+22.00
Δ = 90°

-L-
NC 24-27-73
S 78°06'32.0" E

S 11°53'28.0" W

225+00

230+00

235+00

SITE 29

SITE 28

SITE 26

SITE 27

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 53 TONS EST 125 SY GFD SEE DETAIL 67, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

FALSE SUMP SEE DETAIL 25, SHEET 2D-2

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 70 TONS, EST 60 SY GFD SEE DETAIL 67, SHEET 2D-1

PROPOSED BASIN LOCATION

ACCESS POINT

24" RCP-III

REMOVE 24"

REMOVE 18"

REMOVE 15"

TRANSITION PROTECTION EST 25 SY RSRM

14' DR

16' DR

12' DR

4' PS

2' PS

7'-8" PS

2GI

TB2GI

30" RCP-IV

30" CSP W/ELBOWS

END SBG STA. 225+56.00 -L- (RT)

BEGIN SEG STA. 226+89.35 -L- (RT)

END SBG STA. 228+50.00 -L- (RT)

BEGIN SBG STA. 235+07.00 -L- (RT)

SHOP CURVED GUARDRAIL R=65'

SHOP CURVED GUARDRAIL R=20'

SPECIAL 3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 300 TONS EST 430 SY GFD SEE DETAIL 34, SHEET 2D-2

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

BREU TL-3

PDE

RANK STABALIZATION

BANK STABILIZATION

STANDARD 2' BASE DITCH S = 0.50% DDE = 5 CY SEE DETAIL 31, SHEET 2D-2

CHANNEL CHANGE W/CLASS I RIP RAP EST 200 TONS EST 230 SY GFD (BANKS ONLY) SEE DETAIL 30, SHEET 2D-2

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 3 TONS, EST 6 SY GFD SEE DETAIL 10, SHEET 2D-1

STANDARD 2' BASE DITCH W/CLASS I RIP RAP EST 85 TONS EST 50 SY GFD S = 3.3% DDE = 30 CY SEE DETAIL 33, SHEET 2D-2

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 6 TONS EST 10 SY GFD SEE DETAIL 10 SHEET 2D-1

TOE PROTECTION CLASS B RIP RAP EST 40 TONS EST 20 SY GFD SEE DETAIL 42, SHEET 2D-2

OUTLET PROTECTION CLASS B RIP RAP EST 20 TONS EST 14 SY GFD

PROPOSED BASIN LOCATION

END CONSTRUCTION -DRW9B- POT Sta. 11+63.00

SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW9B- PROFILE

PERMIT DRAWING
SHEET 40 OF 84

GRAPHIC SCALE 50' 0' 50' 100' 150'

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

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RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ROADWAY PE:
CONST. ENG:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99
REVISIONS
10/15/2018

(129) JAMES J SCHAD

(131) ANDREW S UNDERWOOD ET AL
R-2530B 0066-0067

(32) PATRICIA WYNNE ET AL
R-2530B 0067-0068

(33) OSCAR BANKS HINSON

GRID NAD 83/95 NC

BEGIN CONSTRUCTION
-Y11- POT Sta.12+75.00

PUE

SITE 29

SPECIAL LATERAL 'V' DITCH
W/CLASS B RIP RAP
EST 70 TONS
EST 60 SY GFD
SEE DETAIL 67, SHEET 2D-4

-Y11- (SR 1818) STONY MOUNTAIN RD S 17°32'19.0" W

240+00

15+00

-L- POT Sta. 238+36.90 =
-Y11- POT Sta. 17+59.00
Δ = 95°38'51.0"

TS S TS TS SIS TDE

SITE 30

-L- NC 24-27-73 S 78°06'32.0" E

PROPOSED BASIN LOCATION

245+00

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

PROPOSED DIVERSION LOCATION

ACCESS POINT

250+00

TRANSITION PROTECTION EST 30 SY PSRM

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

CHORD

BL-35

REMOVE EXIST GUARDRAIL

GRADE TO DRAIN

30" RCP-III (DO NOT BURY)

REMOVE 18"

REMOVE 15"

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

18" DR

12" DR

4' PS

2' PS

7'-8' PS

2GI

TB2GI

15" RCP-III

15" CSP W/ELBOWS

STANDARD 2.5' BASE DITCH W/CLASS 'B' RIP RAP
EST 15 TONS
EST 20 SY GFD
S = 4.0%, DE = 15 CY
SEE DETAIL 46, SHEET 2D-2

BL-34

FLATTEN SLOPES FROM -L- STA 241+00 TO 242+00 RT (SEE CROSS SECTIONS)

35" RCP-III (DO NOT BURY)

OUTLET PROTECTION CLASS B RIP RAP EST 8 TONS EST 21 SY GFD

PROPOSED BASIN LOCATION

TOE PROTECTION EST 45 SY PSRM SEE DETAIL 5 SHEET 2D-1

TRANSITION PROTECTION EST 25 SY PSRM

GRADE TO DRAIN

-L- SC Sta. 248+66.65

-L- TS Sta. 246+66.65

REMOVE EXIST 3' x 3' BOX CULVERT

CHANNEL CHANGE W/CLASS I RIP RAP
EST 300 TONS
EST 250 SY GFD (BANKS ONLY)
SEE DETAIL 20, SHEET 2D-2

BANK STABILIZATION

SITE 28

CULVERT #1
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	572371.28	1668180.17	419.28
CUL2	572370.98	1668182.45	419.28
CE1	572371.04	1668182.10	423.18
HW1	572371.78	1668181.32	423.78
CUL3	572312.09	1668167.82	418.55
CUL4	572311.63	1668170.49	418.55
CE2	572311.69	1668169.23	421.57
HW2	572312.04	1668169.65	423.14

66" RCP-III (BURY 1 FT)

MATCHLINE -L- STA 237+00 (SEE SHEET 19)

MATCHLINE -L- STA 251+00 (SEE SHEET 21)

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 55 FOR -Y11- PROFILE

PERMIT DRAWING
SHEET 41 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

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RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

10/15/2018

NC GRID NAD 83/95

BEGIN CONSTRUCTION
-Y11- POT Sta.12+75.00

SITE 29

SPECIAL LATERAL V DITCH W/CLASS B RIP RAP
EST. 70 TONS
EST. 60 SY GFD
SEE DETAIL 67, SHEET 2D-4

-Y11-
(SR 1818)
STONY MOUNTAIN RD
S 17°32'19.0" W

240+00

15+00

-L- POT Sta. 238+36.90 =
-Y11- POT Sta. 12+59.00
Δ = 95°38'51.0"

TS S TS
TS S TS
TDE

SITE 30

-L-
NC 24-27-73
S 78°06'32.0" E

PROPOSED BASIN LOCATION

245+00

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

PROPOSED DIVERSION LOCATION

ACCESS POINT

250+00

TRANSITION PROTECTION
EST 30 SY RSRM

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH
SEE DETAIL 23, SHEET 2D-1

CHORD

REMOVE EXIST GUARDRAIL

GRADE TO DRAIN

30" RCP-III
(DO NOT INJURY)

REMOVE 15"

REMOVE 15"

15" RCP-III

15" RCP-III

FALSE SUMP
SEE DETAIL 24, SHEET 2D-2

30" RCP-III
(DO NOT INJURY)

REMOVE 15"

FLATTEN SLOPES FROM
-L- STA 239+00 TO 242+00 RT
(SEE CROSS SECTIONS)

STANDARD 2.5' BASE DITCH
W/CLASS 'B' RIP RAP
EST. 10 TONS
SEE 20 SY GFD
S = 4.0%, TDE = 15' CY
SEE DETAIL 46, SHEET 2D-2

15" CSP W/ ELBOWS

PROPOSED BASIN LOCATION

REMOVE EXIST 21" x 3' BOX CULVERT

CHANNEL CHANGE
W/CLASS 'B' RIP RAP
337 SCD TONS
281 250 SY GFD (BASINS ONLY)
SEE DETAIL 22, SHEET 2D-2

BANK STABILIZATION

OUTLET PROTECTION
CLASS B RIP RAP
EST 8 TONS
EST 21 SY GFD

PROPOSED BASIN LOCATION

TOE PROTECTION
EST 45 SY RSRM
SEE DETAIL 5, SHEET 2D-1

TRANSITION PROTECTION
EST 25 SY RSRM

ACCESS POINT

GRADE TO DRAIN

86" RCP-III
(BURY 1 FT)

15"

15"

-L- SC Sta. 248+66.65

-L- TS Sta. 246+66.65

MATCHLINE -L- STA 237+00 (SEE SHEET 19)

MATCHLINE -L- STA 251+00 (SEE SHEET 21)

PATRICIA WYNNE ET AL

ANDREW S. UNDERWOOD ET AL

OSCAR BANKS JOHNSON

HW1	572312.28	1668181.32	423.49
CUL3	572312.09	1668167.82	418.56
CUL4	572311.63	1668170.49	418.55
CE2	572311.69	1668169.23	421.57
HW2	572312.04	1668169.65	423.14

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 55 FOR -Y11- PROFILE

5/14/99

REVISIONS

10/15/2018

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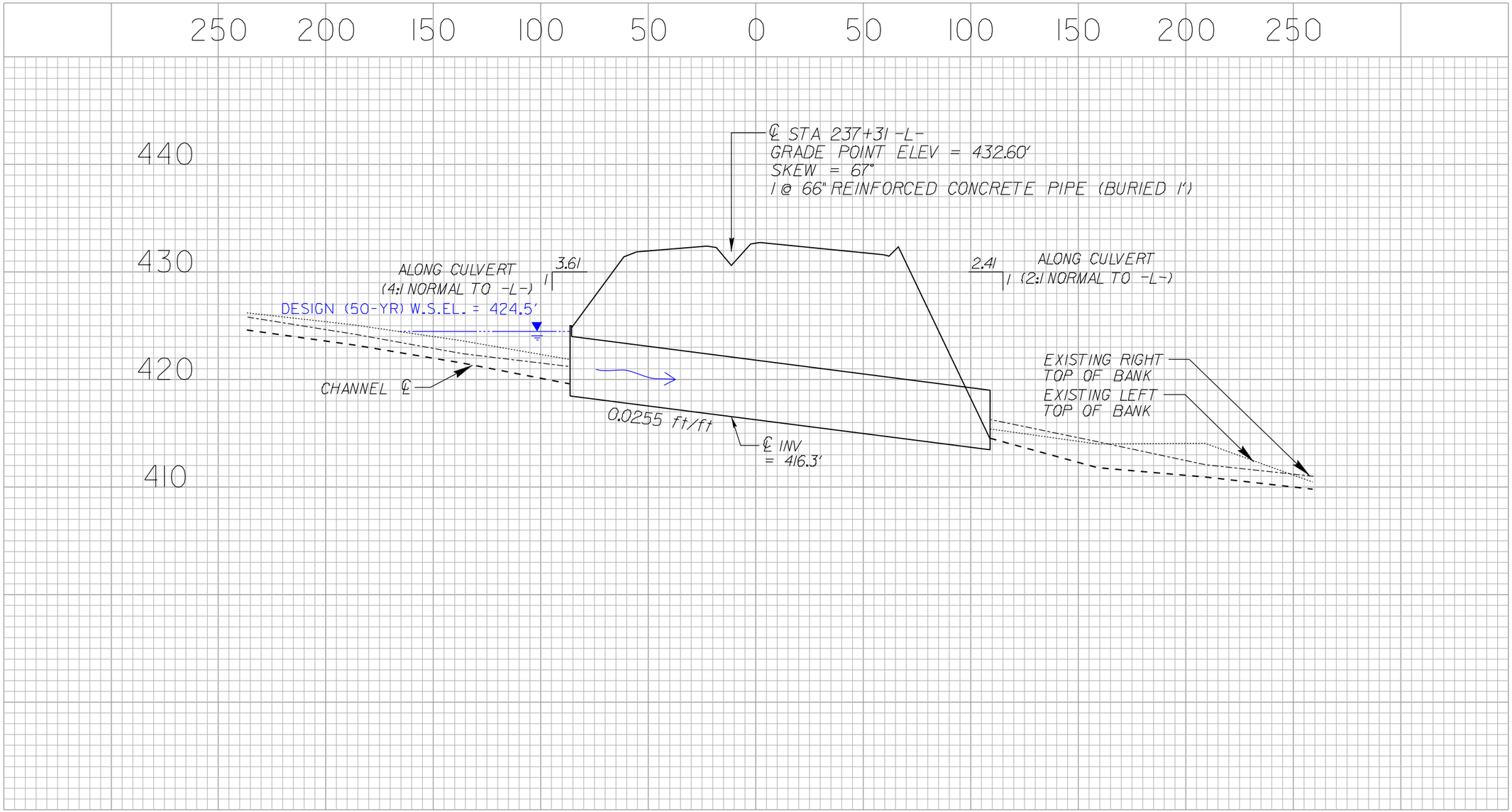
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	-------

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 42 OF 84

SITE 28 & 29



5/14/99

REVISIONS

ROW REV. - 12/21/17 - ADDED ACCESS TO PARCEL 139; REVISED DRAINAGE DESIGN AND TOE PROTECTION ON PARCELS 134, 137, 138, AND 139 DUE TO U-TURN BULBOUT SHIFT - JWM
ROW REV. - 3/9/18 - REVISED PROPERTY LINE BETWEEN PARCELS 133 AND 134 - JWM
ROW REV. - 4/3/18 - REVISED PROPERTY LINE BETWEEN PARCELS 133 AND 134, AND BETWEEN 134 AND 138. - JWM
DESIGN REV. - 9/1/18 - WIDENED DRIVEWAY AND LENGTHENED DRIVEWAY PIPE ON PARCEL 139. - JWM

10/15/2018

CULVERT #5
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	571662.17	1670303.76	404.83
CUL2	571661.04	1670306.41	404.82
CE1	571661.71	1670305.10	407.84
HW1	571661.71	1670305.10	407.84
CUL3	571603.81	1670277.48	404.40
CUL4	571602.44	1670279.91	404.39
CE2	571603.27	1670279.01	407.41
HW2	571603.34	1670278.73	408.96

PERMIT DRAWING
SHEET 43 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

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RALEIGH, NC 27601
ROADWAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/96 NC

MATCHLINE -L- STA 251+00 (SEE SHEET 20)
MATCHLINE -L- STA 265+00 (SEE SHEET 22)

-L- CS Sta. 253+03.65
-L- ST Sta. 255+00.00
-L- Sta. 260+00.00
-L- NC 24-27-73 S 65°46'43.1" E

SITE 31

BM#33
ELEV = 420.47'
N 571962 E 1669639
-L- STATION 252+27.11
2.78' LEFT
RR SPIKE IN BASE 24" SWEET GUM

R-2530B 0068-0069
R-2530B 0069-0070
R-2530B 0070-0071

(133) OSCAR BANKS HINSON
(134) DEBBIE L & V MOTSINGER THORPE
(135) DAVID W HINSON ET AL
(136) DAVID WAYNE HINSON
(137) BRENDA AUTRY
(138) GUS SCHAD
(139) DEBBIE L & V MOTSINGER THORPE
(140) DIVYA LLC
(130) FRANCES C UNDERWOOD
KENG & SONG V YANG
CARRERA LYS PEREZ

RETAIN 2'
TRANSITION PROTECTION EST 10 SY FSRM
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1
FALSE SUMP SEE DETAIL 24 SHEET 2D-2
FALSE SUMP SEE DETAIL 24, SHEET 2D-2
REMOVE 18"
35" RCP-IV
75"
OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 7 SY GFD
FALSE SUMP SEE DETAIL 4 SHEET 2D-1
PROPOSED BASIN LOCATION
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1
OUTLET PROTECTION CLASS B RIP RAP EST 15 TONS EST 30 SY GFD
TRANSITION PROTECTION EST 25 SY FSRM
STANDARD 4' BASE DITCH EST 20 CY DDE S = 10.4% SEE DETAIL 8, SHEET 2D-1
TOE PROTECTION EST 50 SY FSRM SEE DETAIL 5 SHEET 2D-1
OUTLET PROTECTION CLASS B RIP RAP EST 3 TONS EST 10 SY GFD
PROFOSED BASIN LOCATION
ACCESS POINT
CHORD
BL-36
12" DR
4' PS
2' PS
4' PS
2' PS
12" PVC
18" RCP-III
REMOVE 18"
18" RCP
15" RCP-III
2GI
TOE PROTECTION EST 20 TONS CL B RIP RAP EST 45 SY GFD SEE DETAIL 32, SHEET 2D-2
RETAIN 3'
TOE PROTECTION EST 15 TONS CL B RIP RAP EST 30 SY GFD SEE DETAIL 32, SHEET 2D-2
PROPOSED BASIN LOCATION
FALSE SUMP SEE DETAIL 4 SHEET 2D-1
SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14 SHEET 2D-1
FALSE SUMP SEE DETAIL 24 SHEET 2D-2
REMOVE EXIST 3' X 3' BOX CULVERT (STRUCTURE PAY ITEM)
48" RCP-III (DO NOT BURY)
18" RCP-III
SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 80 TONS EST 1/4 SY GFD SEE DETAIL 67 SHEET 2D-4
STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS B RIP RAP EST 15 TONS EST 22 SY GFD ON BANKS ONLY S = 1.5%, DDE = 10 CY SEE DETAIL 38, SHEET 2D-2
RETAIN 24'
RETAIN 6'
REMOVE 12"
GRADE TO DRAIN
REMOVE 15"
REMOVE 12"
15" RCP-IV
TB2GI
30' DR
36' DR
60' DR
ACCESS POINT
PDE
ISFD
2-GAS 4000 GAL 1-GAS 8000 GAL U/G GAS TANKS

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

(140) DIVYA LLC

SEE SHEET 43 FOR -L- PROFILE

PERMIT DRAWING
SHEET 44 OF 84

GRAPHIC SCALE 50' 0' 50' 100' 150'

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

Kimley»Horn ©2018
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CULVERT #5
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	571662.17	1670303.76	404.83
CUL2	571661.04	1670306.41	404.82
CE1	571661.71	1670305.10	407.84
HW1	571661.71	1670305.10	407.84
CUL3	571603.81	1670277.48	404.40
CUL4	571602.44	1670279.91	404.39
CE2	571603.27	1670279.01	407.41
HW2	571603.34	1670278.73	408.96

REVISIONS
5/14/19
ROW REV. – 12/21/17 – ADDED ACCESS TO PARCEL 139; REVISED DRAINAGE DESIGN AND TCE ON PARCELS 134, 137, 138, AND 139 DUE TO U-TURN BULBOUT SHIFT – JWM
ROW REV. – 3/9/18 – REVISED PROPERTY LINE BETWEEN PARCELS 133 AND 134. – JWM
ROW REV. – 4/3/18 – REVISED PROPERTY LINE BETWEEN PARCELS 133 AND 134, AND 138. – JWM
DESIGN REV. – 9/1/18 – WIDENED DRIVEWAY AND LENGTHENED DRIVEWAY PIPE ON PARCEL 139. – JWM
10/15/2018

SITE 31

-L- CS Sta. 253+03.65

-L- ST Sta. 255+03.65

MATCHLINE -L- STA 251+00 (SEE SHEET 20)

MATCHLINE -L- STA 265+00 (SEE SHEET 22)

NC 24-27-73
S 65° 46' 43.1" E

OSCAR BANKS HINSON (133)
GUS SCHAD (138)
DAVID W HINSON ET AL (135)
FRANCES C UNDERWOOD (130)
KENG & SONG V YANG
DEBBIE L & MOTSINGER THORPE (139)
BRENDA AUTRY (137)
CARRERA LYS PEREZ (140)
DIVYA LLC (140)

TOE PROTECTION
EST 20 TONS CL B RIP RAP
EST 45 SY GFD
SEE DETAIL 32, SHEET 2D-2

RETAIN 3'

PROPOSED BASIN LOCATION

TOE PROTECTION
EST 15 TONS CL B RIP RAP
EST 30 SY GFD
SEE DETAIL 32, SHEET 2D-2

FALSE SUMP
SEE DETAIL 1
SHEET 2D-1

SPECIAL CUT GRASS SWALE W/HINGE
SEE DETA 1/14
SHEET 2D-1

RETAIN 2'

TRANSITION PROTECTION
EST 10 SY RSRM

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
SHEET 2D-1

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

ACCESS POINT

CHORD

4' PS

2' PS

12' DR

REMOVE 18"

FALSE SUMP
SEE DETAIL 24, SHEET 2D-2

OUTLET PROTECTION
CLASS B RIP RAP
EST 20 TONS
EST 7 SY GFD

FALSE SUMP
SEE DETAIL 4
SHEET 2D-1

OUTLET PROTECTION
CLASS I RIP RAP
EST 15 TONS
EST 30 SY GFD

TRANSITION PROTECTION
EST 25 SY RSRM

STANDARD 4' BASE DITCH
EST 20 CY CODE
S = 0.4%
SEE DETAIL 8, SHEET 2D-1

TOE PROTECTION
EST 30 SY RSRM
SEE DETAIL 5
SHEET 2D-1

OUTLET PROTECTION
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GFD

PROPOSED BASIN LOCATION

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
SHEET 2D-1

PROPOSED BASIN LOCATION

REMOVE EXIST 3' X 3' BOX CULVERT (STRUCTURE PAY ITEM)

18" RCP-III
REMOVE 18"

12' DR (6" CONC)

48" RCP-III (DO NOT BURY)

18" RCP-III

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' R/R RAP
EST 80 TONS,
EST 174 SY GFD
SEE DETAIL 6/7
SHEET 2D-2

STANDARD 4' BASE DITCH W/COUNTERSLINK
CLASS I RIP RAP
EST 15 TONS
EST 22 SY GFD ON BANKTONE
S = 1.3% SDE = 10 CY
SEE DETAIL 30, SHEET 2D-2

RETAIN 2'

RETAIN 6'

REMOVE 12"

REMOVE 15"

15" RCP-IV

GRADE TO DRAIN

30' DR

36' DR

ACCESS POINT

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 43 FOR -L- PROFILE

REVISIONS

ROW REV. - 122117 - REVISED ROADWAY DESIGN FROM -L- STA 265+00 TO 268+82 DUE TO U-TURN BULBOUT SHIFT ON SHEET 21. - JWM

ROW REV. - 122117 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 144, WIDENED DRIVEWAY WIDTH TO 24' ON PARCELS 142 AND 144. - JWM

ROW REV. - 1518 - UPDATED TCE ON PARCEL 138 NEAR -L- STA. 267+00 (LT). - JWM

ROW REV. - 41318 - UPDATED PROPERTY LINES BETWEEN PARCELS 143, 146, AND 146A. - JWM

5/14/99

10/15/2018

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-DRW10- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW10- POT Sta. 10+10.00

-DRW10- POT Sta. 11+80.00 =
-L- POT Sta. 265+70.50
△ = 90°

-DRW11- POT Sta. 9+80.00
-DRW11- PC Sta. 10+07.89
BEGIN CONSTRUCTION
-DRW11- POC Sta. 10+15.00
-DRW11- PT Sta. 10+37.45

-L- SC Sta. 271+13.79

-L- POC Sta. 275+00.39 =
-Y12- POT Sta. 10+00.00
△ = 90°

-DRW12- POT Sta. 10+00.00 =
-L- POC Sta. 272+99.00
△ = 90°

-L- TS Sta. 269+13.79

-DRW11- POT Sta. 11+55.00 =
-L- POT Sta. 268+12.00
△ = 90°

END CONSTRUCTION
-DRW12- POT Sta. 11+05.00
-DRW12- POT Sta. 11+25.00

-Y12- PC Sta. 11+29.00

-Y12- PT Sta. 16+25.19

END CONSTRUCTION
-Y12- POT Sta. 16+72.00

-Y12- PC Sta. 17+39.93

-DRW12A- POT Sta. 11+00.00

END CONSTRUCTION
-DRW12A- POT Sta. 10+71.00

-DRW12A- POT Sta. 10+00.00 =
-Y12- POC Sta. 12+77.00
△ = 90°

MATCHLINE -L- STA 265+00 (SEE SHEET 21)

MATCHLINE -L- STA 278+50 (SEE SHEET 23)

NC 24-27-73
S 65°46'43.1" E

S 24°13'16.9" W

S 12°55'52.4" W

S 18°42'02.2" W

S 14°48'08.5" W

BERM 'V' DITCH W/CLASS 'B' RIP RAP EST 55 TONS EST 125 SY GFD SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19 SHEET 2D-1

BERM 'V' DITCH W/CLASS 'B' RIP RAP EST 23 TONS EST 50 SY GFD SEE DETAIL 20 SHEET 2D-1

BERM 'V' DITCH W/CLASS 'B' RIP RAP EST 45 TONS EST 100 SY GFD SEE DETAIL 20 SHEET 2D-1

2.5' BASE DITCH W/CLASS 'B' RIP RAP EST 30 TONS EST 30 SY GFD ON BANKS ONLY EST 15 CY DDE S = 10.9% SEE DETAIL 46 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2C-1

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

FALSE SUMP SEE DETAIL 44 SHEET 2D-2

PROPOSED DIVERSION LOCATION

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SITE 32

SITE 33

PROPOSED BASIN LOCATION

PROPOSED BASIN LOCATION

GRADE TO DRAIN

REMOVE 12"

REMOVE 18"

REMOVE 24"

REMOVE 15"

REMOVE JB

PROVIDE 5ST. 10 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. PLACE BAGS IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

HAZARDOUS SPILL BASIN #1
5' LATERAL BASE DITCH W/CLASS I RIP RAP EST 142 TONS EST 200 SY GFD SEE DETAIL 48 SHEET 2D-2

2GI-A AND SPLITTER BOX SEE DETAIL 21, SHEET 2D-5

OUTLET PROTECTION CLASS B RIP RAP EST 3 TONS EST 10 SY GFD

OUTLET PROTECTION CLASS B RIP RAP EST 5 TONS EST 14 SY GFD

COUNTER-SUNK OUTLET PROTECTION CLASS I RIP RAP EST 22 TONS EST 44 SY GFD

SEE NOTE 2

SEE NOTE 3

ACCESS POINT

CHORD

OTCB-4

2GI

2GI-A

T32GI

15" CSP W/ELBOWS

15" RCP-III

18" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

HW 18" RCP-III (BOC NOT BURY)

HW 18" RCP-III (BOC NOT BURY) (SLOPED 0.6 FT)

RETAIN 15"

RETAIN 18"

(BOC NOT BURY)

BM#37
ELEV = 409.73'
N 571051E 1672060
-L- STATION 278+31.36
48.56' LEFT
RR SPIKE IN BASE 36"OAK

BM#35
ELEV = 421.67'
N 571040 E 1670918
-L- STATION 267+71.09
319.63' RIGHT
RR SPIKE IN BASE OF PP

BM#34
ELEV = 443.79'
N 571383 E 1670793
-L- STATION 265+16.35
57.19' RIGHT
CHISELED SQUARE ON W END CONCRETE ISLAND

(138) GUS SCHAD
(140) DIVYA LLC
(141) EDWARD D ROBERSON
(142) KENNETH HELDERMAN
(143) BETTY ANDREWS
(144) KENNETH HELDERMAN
(145) STANLY WATER & SEWER AUTHORITY
(146) GARY W. LATON
(146A) STANLY WATER AND SEWER AUTHORITY
(209) DALE & SHARON A. HONEYCUTT

CARRERA LYS PEREZ
DONALD HINSON
ELIZABETH N HINSON
WALTER BEVERLY
DERALD B & BRENDA HONEYCUTT

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 45 OF 84

LEGEND

- F F — DENOTES FILL IN WETLAND
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)
- M M — DENOTES MECHANIZED CLEARING
- E E — DENOTES EXCAVATION IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FERC BOUNDARY — FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

NOTES:
1. FALSE SUMP SEE DETAIL 24, SHEET 2D-2
2. SPECIAL ROCK CHECK DAM PLACE EVERY 50' EST. 20 TONS CLASS 'B' RIP RAP SEE DETAIL 36, SHEET 2D-2
3. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y12- PROFILE
SEE SHEET 60 FOR -DRW10-, -DRW11-, DRW12-, AND -DRW12A- PROFILES

5/14/99

REVISIONS

ROW REV. - 122117 - REVISED ROADWAY DESIGN FROM -L- STA 265+00 TO 268+82 DUE TO U-TURN BULBOUT SHIFT ON SHEET 21 - JWM
ROW REV. - 122117 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 144, WIDENED DRIVEWAY WIDTH TO 24' ON PARCELS 142 AND 144 - JWM
ROW REV. - 11518 - UPDATED TCE ON PARCEL 138 NEAR -L- STA. 267+00 (LT) - JWM
ROW REV. - 41318 - UPDATED PROPERTY LINES BETWEEN PARCELS 143, 146, AND 146A - JWM

10/15/2018

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 32

SITE 33

-DRW10- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW10- POT Sta. 10+10.00

-DRW10- S 24°13'16.9" W

-DRW11- POT Sta. 9+80.00
-DRW11- PC Sta. 10+07.89
BEGIN CONSTRUCTION
-DRW12- POT Sta. 10+15.00
-DRW11- PT Sta. 10+37.45

-DRW11- S 12°55'52.4" W

-DRW10- POT Sta. 11+80.00 =
-L- POT Sta. 265+70.50
Δ = 90°

MATCHLINE -L- STA 265+00 (SEE SHEET 21)

-L- POC Sta. 275+00.39 =
-Y12- POT Sta. 10+00.00
Δ = 90°

-DRW12- POT Sta. 10+00.00 =
-L- POC Sta. 272+99.00
Δ = 90°

S 18°42'02.2" W

S 14°48'08.5" W

-L- SG Sta. 271+13.79

-L- TS Sta. 269+13.79

-DRW11- POT Sta. 11+55.00 =
-L- POT Sta. 268+12.00
Δ = 90°

END CONSTRUCTION
-DRW12- POT Sta. 11+05.00
-DRW12- POT Sta. 11+25.00

-Y12- PC Sta. 11+29.00

-Y12- PT Sta. 16+25.19

END CONSTRUCTION
-Y12- POT Sta. 16+72.00

-Y12- PC Sta. 17+39.93

S 63°14'03.7" W

-DRW12A- POT Sta. 11+00.00
END CONSTRUCTION
-DRW12A- POT Sta. 10+71.00

-DRW12A- POT Sta. 10+00.00 =
-Y12- POC Sta. 12+77.00
Δ = 90°

-DRW12A- S 60°45'07.4" E

MATCHLINE -L- STA 278+50 (SEE SHEET 23)

-Y12- (SR 2401) INDIAN MOUND RD

BERM "V" DITCH W/CLASS "B" RIP RAP EST 35 TONS EST 125 SY GFD SEE DETAIL 20 SHEET 2D-1

BERM "V" DITCH SEE DETAIL 19 SHEET 2D-1

BERM "V" DITCH W/CLASS "B" RIP RAP EST 45 TONS EST 180 SY GFD SEE DETAIL 20 SHEET 2D-1

2.5' BASE DITCH W/CLASS "B" RIP RAP EST 30 TONS EST 30 SY GFD ON BANKS ONLY EST 15 CY DDE S = 10.9% SEE DETAIL 46 SHEET 2D-2

PROPOSED DIVERSION LOCATION

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

SPECIAL LATERAL "V" DITCH SEE DETAIL 3, SHEET 2D-1

OTCB-1

OTCB-4

2GI

2GI-A

T32GI

18" RCP-III

24" RCP-III

30" RCP-III

GRADE TO DRAIN

REMOVE 12"

REMOVE 18"

REMOVE 24"

REMOVE JB

REMOVE 15"

FALSE SUMP SEE DETAIL 4 SHEET 2D-2

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

SEE NOTE 1

SEE NOTE 2

2GI-A AND SPLITTER BOX SEE DETAIL 71, SHEET 2D-5

PROVIDE 5 SQ. YD. STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. PLACE BAGS IN, R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

HAZARDOUS SPILL BASIN #1
5' LATERAL BASE DITCH W/CLASS "A" RIP RAP
EST 140 TONS
EST 200 SY GFD
SEE DETAIL 48 SHEET 2D-2

OUTLET PROTECTION CLASS B RIP RAP EST 3 TONS EST 10 SY GFD

OUTLET PROTECTION CLASS B RIP RAP EST 5 TONS EST 14 SY GFD

COUNTER-SUNK OUTLET PROTECTION CLASS I RIP RAP EST 32 TONS EST 14 SY GFD

PROPOSED BASIN LOCATION

SPECIAL LATERAL "V" DITCH SEE DETAIL 3 SHEET 2D-1

SPECIAL LATERAL "V" DITCH SEE DETAIL 3, SHEET 2D-1

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

FALSE SUMP SEE DETAIL 48 SHEET 2D-2

RETAIN 15"

RETAIN 18"

HW

18" RCP-III

RAISED 0.6 FT

TS

PDE

PUE

ACCESS POINT

CHORD

VC

(38) (GUS SCHAD)
(140) DIVER LLC
(141) EDWARD D ROBERSON
(142) KENNETH HELDERMAN
(143) SCOTT ANDREWS
(144) KENNETH HELDERMAN
(145) STANLY WATER & SEWER AUTHORITY
(146) GARY W. LATON
(146A) STANLY WATER AND SEWER AUTHORITY
(209) SHARON A. HONEYCUTT

L CARRERA LYS PEREZ
WALSER BEVERLY
DONALD HINSON
ELIZABETH N HINSON
BRENDA HONEYCUTT

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 46 OF 84

LEGEND

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- E E — DENOTES EXCAVATION IN WETLAND

NOTES:
1. FALSE SUMP SEE DETAIL 24, SHEET 2D-2
2. SPECIAL ROCK CHECK DAM PLACE EVERY 50' EST 20 TONS CLASS 'B' RIP RAP SEE DETAIL 36, SHEET 2D-2
3. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y12- PROFILE
SEE SHEET 60 FOR -DRW10-, -DRW11-, DRW12-, AND -DRW12A- PROFILES

5/14/99

REVISIONS

ROW REV – 11/3/17 – UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 146 – JWM
ROW REV – 12/21/17 – UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 144 ADDED ACCESS TO PARCEL 149, AND REVISED TCE AND DRAINAGE DESIGN; AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 150. – JWM

10/15/2018

(144) KENNETH HELDERMAN

LEGEND

- F / F — DENOTES FILL IN WETLAND
- S / S — DENOTES IMPACTS IN SURFACE WATER
- P / P — DENOTES IMPACTS IN SURFACE WATER (POND)
- TS / TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- E / E — DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 47 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

(146) GARY W. LATON

POND

SPECIAL 2' LATERAL BASE DITCH
W CLASS B RIP RAP
EST 150 TONS
EST 400 SY GFD
SEE DETAIL 6, SHEET 2D-1

280+00

285+00

290+00

SITE 34

STANDARD 2' BASE DITCH
W CLASS I RIP RAP
EST 50 TONS
EST 75 SY GFD ON BANKS ONLY
S = 9.2%
DDE = 50 CY
SEE DETAIL 7D, SHEET 2D-4

(146) GARY W. LATON

BEGIN CONSTRUCTION
-DRW13- POT Sta. 10+00.00
-L- CS Sta. 280+03.03

-DRW13A- POT Sta. 10+00.00
-L- POS Sta. 280+31.00
△ = 90°

-DRW13B- POT Sta. 10+00.00
-L- POS Sta. 281+67.00
△ = 90°

-L- ST Sta. 282+03.03

-L- PC Sta. 291+90.59
PROPOSED DIVERSION LOCATION

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

GRADE TO DRAIN

REMOVE JB

RETAIN 12"

RETAIN 18"

-L-
NC 24-27-73
S 86°51'46.2" E

MATCHLINE -L- STA 278+50 (SEE SHEET 22)

MATCHLINE -L- STA 292+50 (SEE SHEET 24)

S 6°57'04.0" W

-DRW13A-
S 4°34'09.7" W

-DRW13B-
S 3°12'00.3" W

-DRW13- POT Sta. 11+30.00 =
-L- POC Sta. 279+06.00
△ = 90°

END CONSTRUCTION
-DRW13A- POT Sta. 11+00.00
-DRW13A- POT Sta. 11+10.00

END CONSTRUCTION
-DRW13B- POT Sta. 10+90.00
-DRW13B- POT Sta. 11+00.00

COUNTER-SUNK OUTLET PROTECTION CLASS B RIP RAP
ST 3 TONS
ST 10 SY GFD

SPECIAL 2' LATERAL BASE DITCH
W CLASS B RIP RAP
EST 8.5 TONS
EST 700 SY GFD
SEE DETAIL 6, SHEET 2D-1

SPECIAL ROCK CHECK DAM
SEE DETAIL 36, SHEET 2D-2
EST 8.5 TONS, CLASS 'B' RIP RAP
EST 125 SY GFD
PLACE EVERY 50'

HAZARDOUS SPILL BASIN #2
SPECIAL 5' LATERAL BASE DITCH
SEE DETAIL 10, SHEET 2D-2

(147) GERALD B & BRENDA HONEYCUTT

(148) THOMAS L & JEAN LATON

(149) THOMAS L & JEAN E LATON

(150) SHANNON R. HUNEYCUTT, WIDOW

R2530B-9

SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW13- PROFILE
SEE SHEET 61 FOR -DRW13A- & -DRW13B- PROFILES

5/14/99

REVISIONS

ROW REV. - 11/3/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 145. - JWM
ROW REV. - 12/1/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 144; ADDED ACCESS TO PARCEL 149, AND REVISED TCE AND DRAINAGE DESIGN; AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 150. - JWM

(144) KENNETH HELDERMAN

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 48 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/96

(146) GARY W. LATON

POND

SPECIAL 2' LATERAL BASE DITCH W/CLASS B RIP RAP
EST. 50 TONS
EST. 400 SY GFD
SEE DETAIL 8, SHEET 2D-1

280+00

285+00

290+00

SITE 34

STANDARD 2' BASE DITCH W/ CLASS I RIP RAP
EST. 30' TONS
EST. 75 SY GFD ON BANKS ONLY
S = 9.7%
DDE = 50 CY
SEE DETAIL 7.0, SHEET 2D-4

BEGIN CONSTRUCTION
-DRW13- POT Sta. 10+00.00

-L- CS Sta. 280+03.03

-DRW13A- POT Sta. 10+00.00
-L- POS Sta. 280+31.00
△ = 90°

-DRW13B- POT Sta. 10+00.00
-L- POS Sta. 281+67.00
△ = 90°

-L- ST Sta. 282+03.03

-L- PC Sta. 291+90.59
PROPOSED DIVERSION LOCATION

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

GRADE TO DRAIN

REMOVE JB

ACCESS POINT

NC 24-27-73
S 86°51'46.2" E

RETAIN 12'

RETAIN 18'

REMOVE 15"

REMOVE 18"

REMOVE 12"

REMOVE 13'

24" RCP-III

18" RCP-III

15" RCP-III

30" RCP-III

RPA/OVF DI

2GI

2GI-A

TB2GI

ITB2GL-A

16' DR

12' DR

14' DR

36' DR

4' PS

2' PS

48"WD RAIL

35SW ELEC

6" CONC CURB

ISMTL BUS

POSSIBLE BURIED JB

MATCHLINE -L- STA 278+50 (SEE SHEET 22)

MATCHLINE -L- STA 292+50 (SEE SHEET 24)

S 6°57'04.0" W

-DRW13A-
S 4°34'08.7" W

-DRW13B-
S 3°12'00.3" W

(147) GERALD B. & BRENDA HONEYCUTT

(148) THOMAS L. & JEAN LATON

(149) THOMAS L & JEAN E LATON

(150) SHANNON HONEYCUTT WIDOW

-DRW13- POT Sta. 11+30.00 =
-L- POC Sta. 279+06.00
△ = 90°

END CONSTRUCTION
-DRW13A- POT Sta. 11+00.00
-DRW13A- POT Sta. 11+10.00

END CONSTRUCTION
-DRW13B- POT Sta. 10+90.00
-DRW13B- POT Sta. 11+00.00

COUNTER-SUNK OUTLET PROTECTION CLASS B RIP RAP
EST. 3 TONS
EST. 10 SY GFD

SPECIAL 2' LATERAL BASE DITCH W/CLASS B RIP RAP
EST 3 TONS
EST 700 SY GFD
SEE DETAIL 8, SHEET 2D-1

SPECIAL ROCK CHECK DAM
SEE DETAIL 30, SHEET 2D-2
EST. 80 TONS, CLASS B RIP RAP
EST 125 SY GFD
PLACE EVERY 30'

HAZARDOUS SPILL BASIN #2
SPECIAL 5' LATERAL BASE DITCH
SEE DETAIL 40, SHEET 2D-2

SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW13- PROFILE
SEE SHEET 61 FOR -DRW13A- & -DRW13B- PROFILES

10/15/2018

5/14/99

REVISIONS

ROW REV. - 11/3/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 146 AND 152. - JWM

ROW REV. - 5/30/18 - ADDED ACCESS BREAK TO PARCEL 153. - JWM

10/15/2018

Kimley»Horn ©2019

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

ROADWAY REV.

CONST REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y13- PC Sta. 13+44.69

-Y13- POT Sta. 10+00.00

-Y13- (SR 1778) RIVER HAVEN DR S 87° 24' 20.0" W

BEGIN CONSTRUCTION
-Y13- POC Sta. 13+72.00

-Y13- PCC Sta. 14+81.19

-Y13- PT Sta. 16+73.82

-L- PT Sta. 303+00.37

-L- POC Sta. 295+52.50 =
-Y13- POT Sta. 17+58.00
Δ = 100°

-L- PC Sta. 293+47.58

-L- PT Sta. 306+00.37

NC GRID NAD 83/93

MATCHLINE -L- STA 292+50 (SEE SHEET 23)

MATCHLINE -L- STA 306+00 (SEE SHEET 25)

SITE 34

SITE 35

SITE 36

SITE 37

CHANNEL CHANGE W/CLASS I RIP RAP EST 240 TONS EST 340 SY GFD SEE DETAIL 39 SHEET 2D-2

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19 SHEET 2D-1

BERM 'V' DITCH W/CLASS B RIP RAP EST 40 TONS EST 125 SY GFD SEE DETAIL 20 SHEET 2D-1

REMOVE DAM AND PIPES

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

FALSE SUMP SEE DETAIL 21 SHEET 2D-2

OUTLET PROTECTION CLASS 'B' RIP RAP EST 3 TONS EST 7 SY GFD

TB2GI AND SPLITTER BOX SEE DETAIL 72 SHEET 22-5

COUNTERSUNK OUTLET PROTECTION CLASS I RIP RAP EST 20 TONS EST 39 SY GFD

HAZARDOUS SPILL BASIN #2 SPECIAL LATERAL BASE DITCH WITH HINGE SEE DETAIL 17, SHEET 2D-1

HAZARDOUS SPILL BASIN #2 SPECIAL LATERAL BASE DITCH SEE DETAIL 40, SHEET 2D-2

PROVIDE EST. 10 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. PLACE BAGS AT R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL

GRADE TO DRAIN

SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST 85 TONS CLASS 'B' RIP RAP EST 125 SY GFD PLACE EVERY 50'

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 30 TONS EST 35 SY GFD SEE DETAIL 57, SHEET 2D-3

BANK STABILIZATION

10 9' X 7' RCBC

CONSTRUCT CULVERT WITH LOW FLOW CHANNEL SILLS AND BAFFLES. CULVERT SHOULD BE BACKFILLED TO SILLS/BAFFLES HEIGHT WITH CLASS 3 RIP RAP. EST 60 TONS. SEE DETAIL 63, SHEET 2D-3

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 25 TONS EST 25 SY GFD SEE DETAIL 36 SHEET 2D-3

RETAIN EXISTING 1@8'x6' RCBC

REMOVE EXIST 1@27'X7' BOTTOMLESS RCBC STRUCTURE PATTERN

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 135 TONS EST 220 SY GFD SEE DETAIL 29 SHEET 2D-2

BEGIN SBG STA. 298+00 -L- (RT)

END SBG STA. 304+30 -L- (RT)

BEGIN SRG STA. 305+00 -L- (LT)

ACCESS POINT

(146) GARY W. LATON

(150) MICHAEL P LATON JR.

(151) CUSTOM DOORS

(152) DLL FARM LLC

(153) RONALD F & SUE B GRIFFIN

(154) RONALD F & SUE B GRIFFIN

BM#3B
ELEV = 354.20'
N 570841E 1673543
-L- STATION 293+33.88
62.24' RIGHT
RR SPIKE IN BASE OF PP

R2530B-10

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (FOND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 19 OF 81

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 56 FOR -Y13- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

5/14/99

REVISIONS

ROW REV. - 11/3/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 146 AND 152. - JWM

ROW REV. - 5/30/18 - ADDED ACCESS BREAK TO PARCEL 153. - JWM

10/15/2018

Kimley»Horn ©2018

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

ROADWAY REV.

CONST REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y13- PC Sta. 13+44.69

-Y13- POT Sta. 10+00.00

-Y13- (SR 1778) RIVER HAVEN DR S 87° 24' 20.0" W

BEGIN CONSTRUCTION -Y13- POC Sta.13+72.00

-Y13- PCC Sta. 14+81.19

-Y13- PT Sta. 16+73.82

-L- PT Sta. 303+00.37

NC 24-27-73 S 54° 10' 14.9" E

MATCHLINE -L- STA 292+50 (SEE SHEET 23)

MATCHLINE -L- STA 306+00 (SEE SHEET 25)

SITE 34

SITE 35

SITE 36

SITE 37

CHANNEL CHANGE W/CLASS I RIP RAP EST 240 TONS EST 340 SY GFD SEE DETAIL 39 SHEET 2D-2

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH SEE DETAIL 23, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19 SHEET 2D-1

BERM 'V' DITCH W/CLASS II RIP RAP EST 40 TONS EST 125 SY GFD SEE DETAIL 20 SHEET 2D-1

OTCB-1

15" CSP W/ ELBOWS

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

FALSE SUMP SEE DETAIL 21 SHEET 2D-2

FALSE SUMP SEE DETAIL 23 SHEET 2D-2

REMOVE 18°

REMOVE 30"

REMOVE DAM AND PIPES

30" RCP-III

36" RCP-III

15" RCP-III

18" RCP-III

BEGIN SBG STA. 298+00 -L- (RT.)

7'-8" PS

4' PS

2' PS

TB2GI

2GI

2GI-A

2GI-B

2GI-C

2GI-D

GREU TI-3

JB W/MH

18" CSP W/ ELBOWS

OUTLET PROTECTION CLASS 'B' RIP RAP EST 3 TONS EST 7 SY GFD

TB2GI AND SPLITTER BOX SEE DETAIL 72 SHEET 2D-3

-L- POC Sta. 295+52.50 = -Y13- POT Sta. 17+58.00 Δ = 100°

HAZARDOUS SPILL BASIN #2 SPECIAL LATERAL BASE DITCH W/TH HINGE SEE DETAIL 17, SHEET 2D-1

HAZARDOUS SPILL BASIN #2 SPECIAL LATERAL BASE DITCH SEE DETAIL 30, SHEET 2D-2

GRADE TO DRAIN

PROVIDE EST. 18 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. PLACE BAGS N/ R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL

SPECIAL ROCK CHECK DAM SEE DETAIL 28, SHEET 2D-2 EST 85 TONS CLASS B RIP RAP EST 125 SY GFD PLACE EVERY 50'

COUNTERSUNK OUTLET PROTECTION CLASS I RIP RAP EST 20 TONS EST 39 SY GFD

BANK STABILIZATION

10' X 9' X 7' RCBC

CONSTRUCT CULVERT WITH LONG FLOW CHANNEL SILLS AND BAFFLES. CULVERT SHOULD BE BACKFILLED TO SILL/BAFFLES HEIGHT. W/ CLASS I RIP RAP EST 60 TONS SEE DETAIL 38, SHEET 2D-3

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 50 TONS EST 75 SY GFD SEE DETAIL 37, SHEET 2D-3

ACCESS POINT

ENG SBG STA. 303+50 -L- (RT.)

RETAIN EXISTING 10'X9' RCBC

REMOVE EXIST 10'X7' BOTTOMLESS RCBC CULVERT, PAVEMENT

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 185 TONS EST 270 SY GFD SEE DETAIL 29 SHEET 2D-2

JB W/MH

15" CSP W/ ELBOWS

PDE

PONDS

CUSTOM DOORS

(146) GARY W. LATON

(150) MICHAEL P LATON JR.

(151) DLL FARM LLC

(152) BANK STABILIZATION

(153) NC 24-27-73 S 54° 10' 14.9" E

(154) RONALD F & SUE B GRIFFIN

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (FOND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING SHEET 50 OF 84

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 56 FOR -Y13- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

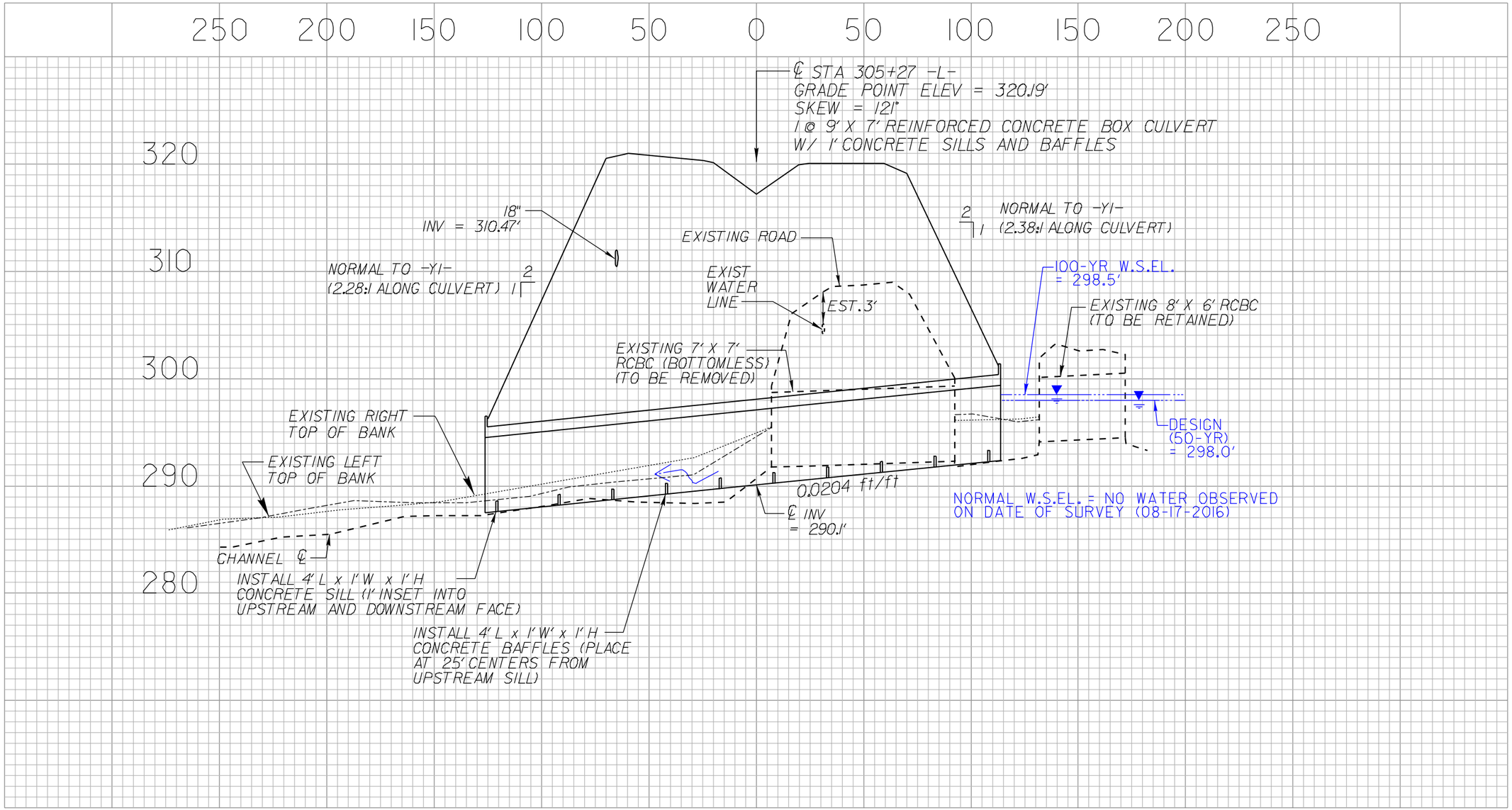
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 51 OF 84

SITE 36 & 37



REVISIONS
5/14/19

10/15/2018

5/14/99

REVISIONS

NOTES:
1. SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST. 8 TONS CLASS 'B' RIP RAP PLACE EVERY 50'

SITE 37

RONALD F & SUE B GRIFFIN

RETAIN 72"

RETAIN 15"

5' LATERAL BASE DITCH W/CLASS I RIP RAP EST 70 TONS EST 95 SY GFD SEE DETAIL 48, SHEET 2D-2

-Y18- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y18- POT Sta. 10+05.00

-Y14- POT Sta. 10+00.00

-Y14- (SR 1741) FOX RD S 58°24'55.5" W

-Y14- PC Sta. 10+81.47

-Y18- (SR 7358) STRAND DR S 12°53'01.0" E

-Y14- POC Sta. 11+80.45 =
-Y18- POT Sta. 10+85.00
Δ = 79°03'57.0"

-DRW14- POT Sta. 10+00.00 =
-L- POC Sta. 306+49.00
Δ = 90°

-L- PC Sta. 306+92.37

S 35°48'45" W

GRADE TO DRAIN

REMOVE 15"

BEGIN CONSTRUCTION
-Y14- POC Sta. 11+42.00

-Y14- PRC Sta. 11+57.37

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

-Y14- PT Sta. 13+14.26

PROPOSED BASIN LOCATION

315+00

20" CSP W/ELBOWS
PROVIDE EST. 10 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. PLACE BAGS IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

HAZARDOUS SPILL BASIN #3
5' LATERAL BASE DITCH W/CLASS I RIP RAP EST 215 TONS, EST 300 SY GFD SEE DETAIL 48, SHEET 2D-2

3' LATERAL BASE DITCH SEE DETAIL #3, SHEET 2D-2

END SBG STA. 309+00 -L- (LT)

JB W/ MH

TB2GI

18"

24" CSP W/ ELBOWS

SEE NOTE 1

RCP III

REMOVE 15" SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

BEGIN SBG STA. 311+40 -L- (LT)

END SBG STA. 314+00 -L- (LT)

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

GREU TL-3

4' PS

7'-8" PS

2' PS

12'-0"

CAT-1

2GI-A

30"

24"

REMOVE 30"

2GI

18" W/MH

18" CSP W/ ELBOWS

18"

24" RCP-III

REMOVE 18" AND HW

15" CSP W/ ELBOWS

OTCB-4

BERM 'V' DITCH W/CLASS B RIP RAP EST 80 TONS EST 170 SY GFD SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH W/CLASS B RIP RAP EST 65 TONS EST 140 SY GFD SEE DETAIL 20 SHEET 2D-1

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 55 TONS EST 220 SY GFD SEE DETAIL 29, SHEET 2D-2

SPECIAL 3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 350 TONS EST 500 SY GFD SEE DETAIL 34 SHEET 2D-2

ACCESS POINT

BM#40
ELEV = 305.85'
N 570295 E 1674640
-L- STATION 306+11.62
90.34' RIGHT
RR SPIKE IN BASE
40"SYCAMORE

END CONSTRUCTION
-DRW14- POT Sta. 11+30.00

-L- POC Sta. 310+00.94 =
-Y14- POT Sta. 15+03.00
Δ = 90°

S 26°24'00" W

310+00

MATCHLINE -L- STA 306+00 (SEE SHEET 24)

MATCHLINE -L- STA 320+00 (SEE SHEET 26)

-L- PRC Sta. 314+19.17

BM#43
ELEV = 397.61'
N 569858 E 1675843
-L- STATION 318+78.19
1.84' RIGHT
RR SPIKE IN BASE 20"HICKORY

BY19-74

BY18-72

BY18-73

GUS SCHAD (156)

GUS SCHAD (158)

GUS SCHAD (159)

STEPHEN C & DEBORAH R COOPER (211)

BARBARA J WELCH

DEWELL E MURRAY ET AL

ERIS C HINSON

ROCKY L & ANNETTE M STARNES (155)

CUSTOM DOORS (151)

CALDWELL A & PAM HOLBROOK JR. (157)

STEPHEN C & DEBORAH R COOPER

POSSIBLE CTC R/W (NO RECORDS FOUND)

BL-40

BL-41

BL-42

NC GRID NAD 83/95

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- DENOTES EXCAVATION IN WETLAND

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 52 OF 81

10/15/2018

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 56 FOR -Y14- PROFILE
SEE SHEET 57 FOR -Y18- PROFILE
SEE SHEET 61 FOR -DRW14- PROFILE

NOTES:
1. SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST. 8 TONS CLASS 'B' RIP RAP PLACE EVERY 50'

5/14/99

REVISIONS

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SITE 37

RONALD F & SUE B GRIFFIN

STEPHEN C & DEBORAH R COOPER

-Y18- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y18- POT Sta. 10+05.00

-Y14- POT Sta. 10+00.00

-Y14- POC Sta. 11+80.45 =
-Y18- POT Sta. 10+85.00
Δ = 79°03'57.0"

-DRW14- POT Sta. 10+00.00 =
-L- POC Sta. 306+49.00
Δ = 90°

-L- PC Sta. 306+92.37

-Y14- PC Sta. 10+81.47

BEGIN CONSTRUCTION
-Y14- POC Sta. 11+42.00

-Y14- PRC Sta. 11+57.37

-Y14- PT Sta. 13+14.26

-L- POC Sta. 310+00.94 =
-Y14- POT Sta. 15+03.00
Δ = 90°

-L- PRC Sta. 314+19.17

END CONSTRUCTION
-DRW14- POT Sta. 11+30.00

MATCHLINE -L- STA 306+00 (SEE SHEET 24)

MATCHLINE -L- STA 320+00 (SEE SHEET 26)

PROPOSED BASIN LOCATION

PROPOSED BASIN LOCATION

RETAIN 15"

RETAIN 15"

RETAIN 15"

REMOVE 15"

REMOVE 30"

REMOVE 18" AND HW

REMOVE 8" AND HW

CREEK TO DRAIN

20' CSP W/ELBOWS

PROVIDE 257 10 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. PLACE BAGS IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

HAZARDOUS SPILL BASIN #3
9' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 215 TONS, EST 300 SY GFD
SEE DETAIL 48, SHEET 2D-2

3' LATERAL BASE DITCH SEE DETAIL #3 SHEET 2D-2

END SBG STA. 305+00 -L- (LT)

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

BEGIN SBG STA. 319+30 -L- (LT)

END SBG STA. 319+90 -L- (LT)

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2D-3

FALSE SUMP SEE DETAIL 25 SHEET 2D-3

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 55 TONS, EST 220 SY GFD SEE DETAIL 29, SHEET 2D-2

SPECIAL 3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 350 TONS, EST 500 SY GFD SEE DETAIL 34 SHEET 2D-2

BERM 'V' DITCH W/CLASS I RIP RAP EST 60 TONS EST 120 SY GFD SEE DETAIL 20 SHEET 2C-1

BERM 'V' DITCH W/CLASS I RIP RAP EST 80 TONS EST 70 SY GFD SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH W/CLASS I RIP RAP EST 60 TONS EST 100 SY GFD SEE DETAIL 20 SHEET 2D-1

24" RCP-III

18" RCP-III

15" RCP-III

2GI

2GI-A

TB2GI

TB7GI

OTGI-1

OTGI-4

SCAT-1

TS

S

-Y14- (ISR 7341) FOX RD S 58°24'53.5" W

-Y14- (ISR 7338) STRAND DR S 53°01'07" E

-Y14- (ISR 7338) STRAND DR S 35°48'45" W

S 26°24'00" W 306+00

S 39°37'28" W 41.55'

S 43°37'28" W 41.55'

FERC BOUNDARY

BYIB-72

GREU TL-3

4' PS

7'-8" PS

2' PS

12'09

ACCESS POINT

SEE NOTE

TB2GI

8'

18" W MH

NC GRID 8.8975 MAG

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 53 OF 81

10/15/2018

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 56 FOR -Y14- PROFILE
SEE SHEET 57 FOR -Y18- PROFILE
SEE SHEET 61 FOR -DRW14- PROFILE

5/14/99

REVISIONS

ROW REV. - 91117 - REVISED PARCEL 164 TO 162 -L- STA 335+95 RT). - JWM
ROW REV. - 103017 - COMBINED PARCELS 165 AND 166 INTO 165. - JWM
ROW REV. - 112217 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 162 AND 164. - JWM
ROW REV. - 122117 - RELOCATED EXISTING ROW LINE ALONG PARCELS 167 AND 169. - JWM

10/15/2018

LEGEND

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- E E — DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 54 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn ©2018
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

MATCHLINE -L- STA 333+50 (SEE SHEET 26)

MATCHLINE -L- STA 347+50 (SEE SHEET 28)

BEGIN BRIDGE NO.51 (B-4974)
BRIDGE CONSTRUCTION (BY OTHERS)
-L- Sta. 335+23.90 (23' LT)
END SBG -L- (LT)

END BRIDGE NO.51 (B-4974)
BRIDGE CONSTRUCTION (BY OTHERS)
-L- STA. 346+97.49 (23' LT)
BEGIN SBG -L- (LT)

BEGIN BRIDGE NO.50 (B-4974)
BRIDGE REHABILITATION (BY OTHERS)
-L- Sta. 335+26.94 (23' RT)

END BRIDGE NO.50 (B-4974)
BRIDGE REHABILITATION (BY OTHERS)
-L- Sta. 347+16.21 (23' RT)
BEGIN SBG -L- (RT)

-L-
NC 24-27-73
S 70° 44' 38.4" E

335+00 340+00 345+00

SITE 38

SITE 39

SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST 35 TONS, CLASS 'B' RIP RAP PLACE EVERY 30'

HAZARDOUS SPILL BASIN #4 SPECIAL 4' LATERAL BASE DITCH W/CLASS 'B' RIP RAP EST 120 TONS EST 340 SY GFD SEE DETAIL 76, SHEET 2D-5

PROVIDE EST. 10 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. PLACE BAGS IN R/W BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

STANDARD 2' BASE DITCH W/CLASS I RIPRAP EST 23 TONS EST 80 SY GFD SEE DETAIL 68, SHEET 2D-4

RIP RAP EMBANKMENT PROTECTION W/ CLASS II RIP RAP EST 15 TONS EST 30 SY GFD SEE DETAIL 69, SHEET 2D-4

PDE

300' TAPER

24" CSP W/ELBOWS

OTCE-1

15" CSP W/ELBOWS

TEMPORARY BRIDGE SHEET PILING FOR BARGE ACCESS

BANK STABILIZATION

INSTALL CAUSEWAY AS SHOWN PER STRUCTURES GENERAL DRAWING EST 25 TONS CLASS 'A' RIP RAP EST 135 TONS CLASS 'II' RIP RAP PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY EST 160 SY GEOTEXTILE FABRIC

BANK STABILIZATION

EXIST R/W

3'-8" PS 15" RCP-III

2' PS

GRFV MEDIAN TL-3

2' PS

4' PS 15" RCP-III

2CI

REMOVE DI

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

REMOVE EX 15"

BL-44

CLASS II RIP RAP FROM NORMAL POOL ELEVATION OF 277' UP TO ELEVATION 279' (2' ABOVE NORMAL POOL) CLASS I RIP RAP ON REMAINDER OF SLOPES (BY OTHERS)

CLASS II RIP RAP FROM NORMAL POOL ELEVATION OF 277' UP TO ELEVATION 279' (2' ABOVE NORMAL POOL) CLASS I RIP RAP ON REMAINDER OF SLOPES (BY OTHERS)

REMOVE DI AND 15"

FALSE SUMP SEE DETAIL 4, SHEET 2D-1

FERC BOUNDARY

PROGRESS ENERGY CAROLINAS, INC

DR KNOX M & MARGARET C BROOM

RAYMOND G. SMITH

MEGAN & COURTNEY HILDRETH TRUST

PROGRESS ENERGY CAROLINAS, INC

162 JEAN ANN STOLLERY ESTATE	169 CHARLES R MANESS
163 PROGRESS ENERGY CAROLINAS, INC	170 VICKIE LYNN SAUNDERS

SEE SHEET 48 FOR -L- PROFILE

5/14/99

REVISIONS

ROW REV. - 9/1/17 - REVISED PARCEL 164 TO 162 -L- STA 335+95 RT). - JWM
ROW REV. - 10/30/17 - COMBINED PARCELS 165 AND 166 INTO 165. - JWM
ROW REV. - 11/22/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 162 AND 164. - JWM
ROW REV. - 12/2/17 - RELOCATED EXISTING ROW LINE ALONG PARCELS 167 AND 169. - JWM

10/15/2018

LEGEND

- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- E E — DENOTES EXCAVATION IN WETLAND

PERMIT DRAWING
SHEET 55 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

Kimley»Horn ©2018
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH AMERICAN DATUM 1983 (NAD 83)
NORTH CAROLINA GRID (NCGS)

MATCHLINE -L- STA 333+50 (SEE SHEET 26)

MATCHLINE -L- STA 347+50 (SEE SHEET 28)

BEGIN BRIDGE NO.51 (B-4974)
BRIDGE CONSTRUCTION (BY OTHERS)
-L- Sta. 335+23.90 (23' LT)
END SBG -L- (LT)

SPECIAL ROCK CHECK DAM
SEE DETAIL 36, SHEET 2D-2
EST 35 TONS CLASS B
RIP RAP
PLACE DEPTH 30"

HAZARDOUS SPILL BASIN #4
SPECIAL 4' LATERAL BASS
EXTEN W/CLASS B RIP RAP
EST 150 TONS
EST 240 SY GFD
SEE DETAIL 7B, SHEET 7D-5

PROVIDE 65, 10 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN PLACE BAGS IN N, W, BUT NOT IN BASIN BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL

FALSE SUMP
SEE DETAIL 2B
SHEET 2D-2

STANDARD 2 BASE DITCH W/CLASS I RIPRAP
EST 123 TONS
EST 36 SY GFD
SEE DETAIL 6B, SHEET 2D-4

RIP RAP EMBANKMENT PROTECTION -W-
CLASS II RIP RAP
EST 16 TONS
EST 20 SY GFD
SEE DETAIL 6B, SHEET 2D-4

PDE

300' TAPER

24" CSP W/ ELBOWS

OTCS-1

TEMPORARY BRIDGESHEET PILING FOR BARGE ACCESS

BANK STABILIZATION

3'-8" PS

15" RCP-III

2' PS

GREW MEDIAN TL-3

2" PS

4" PS

15" RCP-III

REMOVE OL

FALSE SUMP
SEE DETAIL 2B
SHEET 2D-2

REMOVE EX. 15"

CLASS II RIP RAP FROM NORMAL POOL ELEVATION OF 233' UP TO ELEVATION 279' (2' ABOVE NORMAL POOL) CLASS I RIP RAP ON REMAINDER OF SLOPES (BY OTHERS)

BEGIN BRIDGE NO.50 (B-4974)
BRIDGE REHABILITATION (BY OTHERS)
-L- Sta. 335+26.94 (23' RT)

REMOVE OL AND 15"

FALSE SUMP
SEE DETAIL 2B SHEET 2D-2

-L-
NC 24-27-73
S 70° 44' 38.4" E

SITE 38

SITE 39

INSTALL CAUSEWAY AS SHOWN PER STRUCTURES GENERAL DRAWING
EST 25 TONS CLASS 'A' RIP RAP
EST 135 TONS CLASS 'II' RIP RAP
PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY
EST 160 SY GEOTEXTILE FABRIC

BANK STABILIZATION

CLASS II RIP RAP FROM NORMAL POOL ELEVATION OF 277' UP TO ELEVATION 279' (2' ABOVE NORMAL POOL) CLASS I RIP RAP ON REMAINDER OF SLOPES (BY OTHERS)

END BRIDGE NO.51 (B-4974)
BRIDGE CONSTRUCTION (BY OTHERS)
-L- STA 346+97.49 (23' LT)
BEGIN SBG -L- (LT)

END BRIDGE NO.50 (B-4974)
BRIDGE REHABILITATION (BY OTHERS)
-L- Sta. 347+16.21 (23' RT)
BEGIN SBG -L- (RT)

PROGRESS ENERGY CAROLINAS, INC

(162) JEAN ANN STOLLERY ESTATE
(163) PROGRESS ENERGY CAROLINAS, INC
(169) CHARLES R MANESS
(170) VICKIE LYNN SAUNDERS

SEE SHEET 48 FOR -L- PROFILE

5/14/99

REVISIONS

10/15/2018

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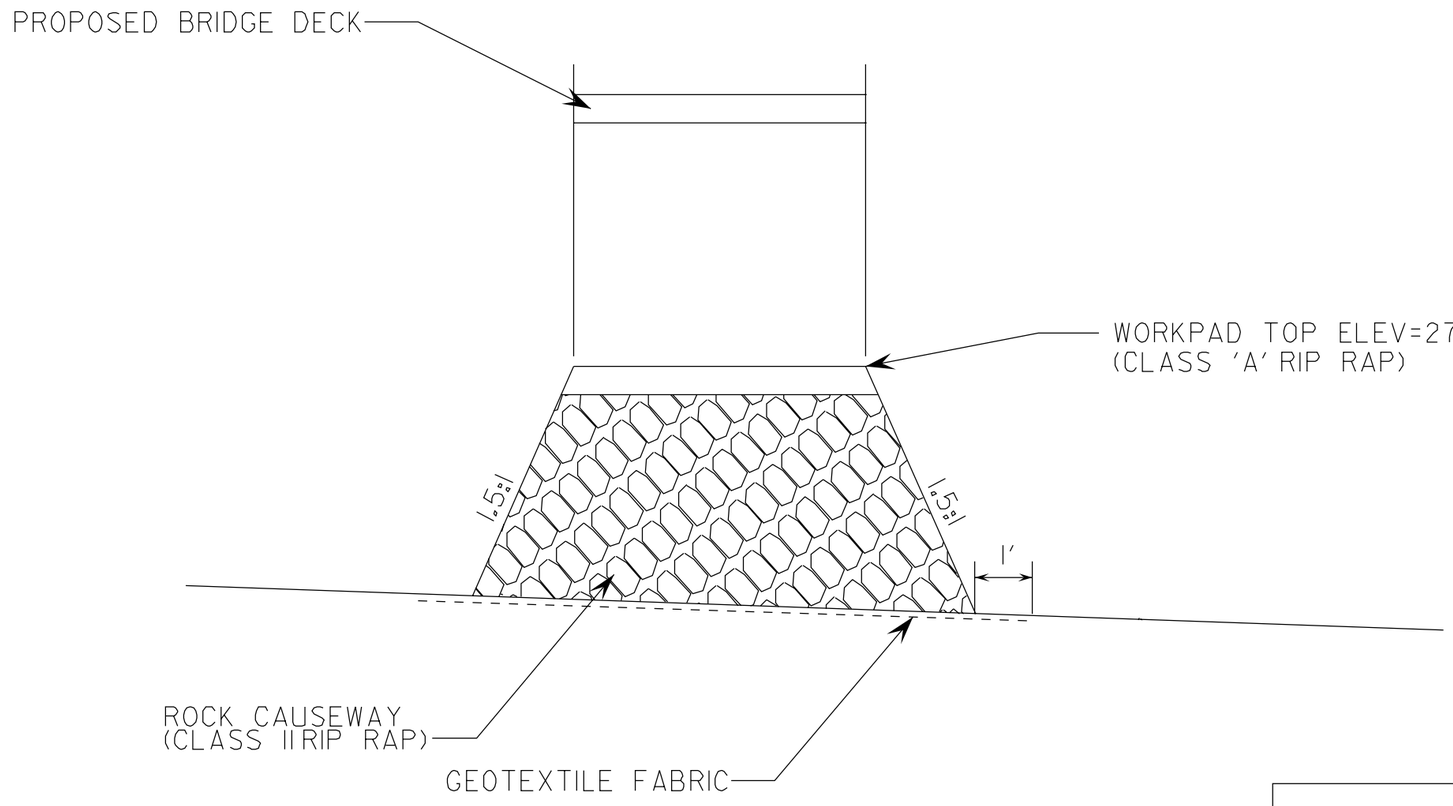
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 55A OF 84

CAUSEWAY 1 DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES: CAUSEWAY 1

VOLUME OF CLASS 'A' RIP RAP= 18 yds^3
AREA OF CLASS 'A' RIP RAP= 0.011 acres
Estimate 25 Tons Class 'A' Rip Rap
VOLUME OF CLASS II RIP RAP= 100 yds^3
AREA OF CLASS II RIP RAP= 0.030 acres
Estimate 135 Tons Class II Rip Rap
Estimate 160 SY of Geotextile Fabric

NCDOT

DIVISION OF HIGHWAYS
STANLY / MONTGOMERY COUNTY
PROJECT: R-2530B
BRIDGE ON NC 24 / 27 / 73
WESTBOUND OVER
PEE DEE RIVER

10 / 15 / 2018

NOTES:
1. END SBC STA 348+35.00 -L- (LT)
2. OUTLET PROTECTION - CLASS B RIP RAP
   EST 5 TONS,EST 14 SY GFD
3. TOE PROTECTION
   EST 20 TONS CL B RIP RAP
   EST 40 SY GFD
   SEE DETAIL 32,SHEET 2D-2
4. TEMPORARY SHORING (TYP)
   (SEE TRANSPORTATION MANAGEMENT PLANS)

(173A) DUKE ENERGY PROGRESS, LLC

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
5/14/99
ROW REV. - 12/1/17 - UPDATED EXIST ROW LINE ALONG PARCEL 169; ADDED DEED BOOK INFORMATION FOR PARCEL 215. - JWM
ROW REV. - 3/9/18 - REMOVED PDE ON PARCEL 173A. - JWM
ROW REV. - 5/30/18 - COMBINED PARCELS 170 AND 172 INTO 170. - JWM

10/15/2018

-DRW16- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW16- POT Sta. 10+38.00
-DRW16- PC Sta. 10+40.25
-DRW16- PT Sta. 10+95.58
-DRW16- S 82° 39' 41.4" W

-Y17- POT Sta. 10+00.00
-Y17- PC Sta. 10+04.38
-Y17- SR 1143 LEMONS RD S 59° 26' 39.5" W
BEGIN CONSTRUCTION
-Y17- POC Sta. 10+19.00
-Y17- PT Sta. 11+12.62
S 34° 38' 18.3" W
-L- TS Sta. 355+91.00
-L- SC Sta. 357+91.00

-L- STA 347+50 (SEE SHEET 27)
-L- STA 361+50 (SEE SHEET 29)
350+00
355+00
360+00

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 60 TONS EST 140 SY GFD SEE DETAIL 67, SHEET 2D-4
SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 50 TONS EST 100 SY GFD See DETAIL 67, SHEET 2D-4
SPECIAL LATERAL 'V' GRASS SWALE W/FRINGE SEE DETAIL 14 SHEET 2D-1
SPECIAL CUT GRASS SWALE W/FRINGE SEE DETAIL 14 SHEET 2D-1
SPECIAL LATERAL 'V' GRASS SWALE W/FRINGE SEE DETAIL 47, SHEET 2D-2

ACCESS POINT
ACCESS POINT
PUE
GRADE TO DRAIN
REMOVE DI
REMOVE 15"
REMOVE 30" AND HEADWALL
RETAIN 24" SEE NOTE 2
24" RCP-IV
DTCB
REMOVE DI
GREU TL-3
GREU MED TL-3
GREU TL-3
12" DR
12" DR
REMOVE 15"
4' PS
2' PS
2' PS
2' PS
4' PS
15" RCP-III
15" RCP-IV
15" RCP-IV
FALSE SUMP SEE DETAIL 24, SHEET 2D-2
GRADE TO DRAIN
TB2GI
TB2GI
TB2GI
2GI
2GI
2GI
15"
15"
REMOVE 15"
REMOVE 15"
REMOVE DI
36" RCP-III (DO NOT BURY)
4' PS
GREU TL-3
CHORD
REMOVE 15"
FALSE SUMP SEE DETAIL 24 SHEET 2D-2
PDE
PDE
PDE
3'R
20'R
SEE NOTE 3
SITE 40
-Y17- POT Sta. 12+20.00 =
-L- POT Sta. 356+84.00
Δ = 105° 39' 16.9"
COUNTER SUNK RIP RAP OUTLET PROTECTION CLASS I RIP RAP EST 15 TONS EST 29 SY GFD
FALSE SUMP SEE DETAIL 24 SHEET 2D-2

TRANSITION PROTECTION EST 20 SY RSRM
18" RCP-IV
FILTRATION BASIN #1 SEE SHEETS 2D-6 AND 2D-8 FOR DETAILS AND GRADING
-L- NC 24-27-73 S 70° 44' 38.4" E
-DRW16- POT Sta. 11+90.00 =
-L- POT Sta. 349+72.00
Δ = 90°
S 19° 15' 21.6" W
-L- POT Sta. 353+90.00 =
-Y16- POT Sta. 10+00.00
Δ = 90°
DI OUTLET STRUCTURE
PROVIDE EST. 10 STACKED SAND BAGS AT FILTRATION BASIN PLACE BAGS IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.
-Y16- PC Sta. 11+01.69
30" RCP-III
REMOVE 15"
-Y16- NC 73
GRADE TO DRAIN
SPECIAL 2' LATERAL BASE DITCH W/CLASS B RIPRAP EST 100 TONS EST 250 SY GFD SEE DETAIL 37/SHEET 2D-2
-Y16- PT Sta. 13+66.92
24" RCP-IV (DO NOT BURY)
REMOVE 18" AND HEADWALL
-Y19- WINDEMERE CR (SR 1215) S 32° 10' 27.3" W
15+00
END CONSTRUCTION
-Y19- POT Sta. 11+04.00
-Y19- POT Sta. 11+70.00
GRADE TO DRAIN DO NOT DISTURB SIGN
-Y16- NC 73 S 29° 08' 23.5" E
OUTLET PROTECTION CLASS B RIP RAP EST 3 TONS EST 10 SY GFD
OUTLET PROTECTION CLASS B RIP RAP EST 5 TONS EST 14 SY GFD
-Y19- POT Sta. 10+00.00 =
-Y16- POT Sta. 14+86.85
Δ = 61° 18' 50.8"
100'R
30'R
85'R
20'R
15'R
3.5'R
END CONSTRUCTION
-Y16- POT Sta. 16+05.00
-Y16- POT Sta. 16+20.00
RETAIN 24"
ISOLK BUS
SEE NOTE 3
PDE
TS
S
F
SI

VICKIE LYNN SAUNDERS (171)
JAMES ANTHONY NORMAN JR. (171)
VICKIE LYNN SAUNDERS (170)
VICKIE LYNN SAUNDERS (174)
MCRAE INDUSTRIES INC. (175)
CHARLES R MANESS (169)
PROGRESS ENERGY CAROLINAS, INC (168)
BAYTREE WATERFRONT PROPERTIES INC. (213)
LINDA GODWIN (214)
ROBERT B JORDAN III AND WIFE SARAH C JORDAN (215)
(173)

PROPOSED BASIN LOCATION
PLUG, FILL, AND ABANDON
REMOVE BLIND JB
END SBC STA. 349+09.55 -L- (RT)

PERMIT DRAWING
SHEET 56 OF 84
50' 0' 50' 100' 150'
GRAPHIC SCALE

LEGEND
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 56 FOR -Y16- PROFILE
SEE SHEET 57 FOR -Y17- & -Y19- PROFILES
SEE SHEET 61 FOR -DRW16- PROFILE

NOTES:
1. END SBC STA 348+35.00 -L- (LT)
2. OUTLET PROTECTION - CLASS B RIP RAP
   EST 5 TONS,EST 14 SY GFD
3. TOE PROTECTION
   EST 20 TONS CL B RIP RAP
   EST 40 SY GFD
   SEE DETAIL 32,SHEET 2D-2
4. TEMPORARY SHORING (TYP)
   (SEE TRANSPORTATION MANAGEMENT PLANS)

(173A) DUKE ENERGY PROGRESS, LLC

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
5/14/99
ROW REV. - 12/1/17 - UPDATED EXIST ROW LINE ALONG PARCEL 169; ADDED PARCEL 173A; COMBINED PARCELS 173 AND 176; AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 215. - JWM
ROW REV. - 3/9/18 - REMOVED PDE ON PARCEL 173A. - JWM
ROW REV. - 5/30/18 - COMBINED PARCELS 170 AND 172 INTO 170. - JWM
10/15/2018

-Y17- POT Sta. 10+00.00
-Y17- PC Sta. 10+04.38
-DRW16- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW16- POT Sta. 10+38.00
-DRW16- PC Sta. 10+40.25
-DRW16- PT Sta. 10+95.58
-DRW16- S 82° 39' 41.4" W
BEGIN CONSTRUCTION
-Y17- POC Sta. 10+19.00
-Y17- PT Sta. 11+12.62
S 34° 38' 18.3" W
-L- TS Sta. 355+91.00
-L- SC Sta. 357+91.00
-Y17- SR 1143 LEMONS RD
S 59° 26' 39.5" W
355+00
360+00
350+00
ACCESS POINT
SPECIAL LATERAL "V" DITCH W/CLASS 'B' RIP RAP EST 80 TONS EST 1400 SY GFD SEE DETAIL 67, SHEET 2D-4
SPECIAL LATERAL "V" DITCH W/CLASS B RIP RAP EST 50 TONS EST 100 SY GFD SEE DETAIL 67, SHEET 2D-4
SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14, SHEET 2D-1
SPECIAL LATERAL "V" GRASS SWALE W/HINGE SEE DETAIL 67, SHEET 2D-2
GRADE TO DRAIN
REMOVE DI
REMOVE 15" RCP-III
REMOVE 30" AND HEADWALL
36" RCP-III (DO NOT BURY)
GREU TL-3
GREU MED TL-3
4' PS
2' PS
TB2GI
2GI
FALSE SUMP SEE DETAIL 24, SHEET 2D-2
FALSE SUMP SEE DETAIL 24 SHEET 2D-2
FALSE SUMP SEE DETAIL 24 SHEET 2D-2
15" RCP-IV
18" RCP-IV
TRANSITION PROTECTION EST 20 SY PSRM
FILTRATION BASIN #1 SEE SHEETS 2D-6 AND 2D-8 FOR DETAILS AND GRADING
-L- NC 24-27-73 S 70° 44' 38.4" E
-DRW16- POT Sta. 11+90.00 = -L- POT Sta. 349+72.00 Δ = 90°
-L- POT Sta. 353+90.00 = -Y16- POT Sta. 10+00.00 Δ = 90°
-Y16- PC Sta. 11+01.89
-Y16- PT Sta. 13+66.92
-Y16- NC 73 S 19° 15' 21.6" W
S 19° 15' 21.6" W
PROVIDE EST. 10 STACKED SAND BAGS AT FILTRATION BASIN. PLACE BAGS IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.
SPECIAL 2' LATERAL BASE DITCH W/CLASS 'B' RIPRAP EST 100 TONS EST 250 SY GFD SEE DETAIL 37, SHEET 2D-2
OUTLET PROTECTION CLASS B RIP RAP EST 5 TONS EST 14 SY GFD
OUTLET PROTECTION CLASS B RIP RAP EST 3 TONS EST 10 SY GFD
-Y19- POT Sta. 10+00.00 = -Y16- POT Sta. 14+86.85 Δ = 61° 18' 50.8"
-Y17- POT Sta. 12+20.00 = -L- POT Sta. 356+84.00 Δ = 105° 39' 16.9"
END CONSTRUCTION -Y16- POT Sta. 16+05.00
-Y16- POT Sta. 16+20.00
END CONSTRUCTION -Y19- POT Sta. 11+04.00
-Y19- POT Sta. 11+70.00
-Y19- WINDEMERE CR (SR 1251) S 32° 10' 27.3" W
-Y16- NC 73 S 29° 08' 23.5" E
GRADE TO DRAIN
DO NOT DISTURB SIGN
REMOVE 18" AND HEADWALL
24" RCP-IV (DO NOT BURY)
COUNTER SUNK RIP RAP OUTLET PROTECTION CLASS I RIP RAP EST 45 TONS EST 29 SY GFD
RETAIN 24"
SITE 40
SEE NOTE 3
PDE
TS
MATCHLINE -L- STA 347+50 (SEE SHEET 27)
MATCHLINE -L- STA 361+50 (SEE SHEET 29)
-L- NC 24-27
PROPOSED BASIN LOCATION
REMOVE RCBC SB
RUC, FILL AND ABANDON
EXIT SBC STA. 349+09.55 -L- RT
PROGRESS ENERGY CAROLINAS, INC
BAYTREE WATERFRONT PROPERTIES INC.
ROBERT B JORDAN III AND WIFE SARAH C JORDAN
LINDA GODWIN
ISOLK BUS
VICKIE LYNN SAUNDERS
JAMES ANTHONY NORMAN JR
MORAE INDUSTRIES INC
CHORD
POSSIBLE BLDG SB
STONE
CONC
B SOLL
POWER AND TEL
OHW
BST
NC 24/27
24 BST
BL-45
SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 56 FOR -Y16- PROFILE
SEE SHEET 57 FOR -Y17- & -Y19- PROFILES
SEE SHEET 61 FOR -DRW16- PROFILE

PERMIT DRAWING
SHEET 57 OF 84

50' 0' 50' 100' 150'
GRAPHIC SCALE

LEGEND
- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- P P — DENOTES IMPACTS IN SURFACE WATER (POND)
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY
- E E — DENOTES EXCAVATION IN WETLAND

5/14/99

REVISIONS

ROW REV. – 1/6/18 – CHANGED PUE TO AUE ON PARCEL 184 FROM –L– STA 372+09 TO 372+57 (RT). – JWM
ROW REV. – 3/7/18 – REVISED R/W TO AVOID SEPTIC TANK ON PARCEL 178. – JWM
ROW REV. – 3/19/18 – COMBINED PARCELS 180 AND 181 INTO 180, AND UPDATED DEED BOOK INFORMATION FOR PARCEL 180. – JWM
ROW REV. – 7/26/18 – ADDED ACCESS BREAK TO PARCEL 183. – JWM

10/15/2018

GRAPHIC SCALE 50' 0' 50' 100' 150'

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING SHEET 58 OF 84

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

SITE 42

SITE 41
1 @ 6' X 8' RCBC

SITE 43

SITE 44

-DRW17- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW17- POT Sta. 10+20.00
-DRW17- POT Sta. 11+50.00 = -L- POT Sta. 367+47.00
Δ = 90°

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 50 TONS EST 100 SY GFD SEE DETAIL 67, SHEET 2D-4
BEGIN SBG STA. 362+00 -L- (LT)
2' LATERAL BASE DITCH W/CLASS B RIP RAP EST 35 TONS EST 70 SY GFD SEE DETAIL 22 SHEET 2D-1
HAZARDOUS SPILL BASIN #5 WITH 12' WIDE WEIR OUTFALL, 2:1 SIDE SLOPES AND 5' BERM WIDTH. WEIR ELEVATION = 281.5'. BERM ELEVATION = 285.0'. BOTTOM OF BASIN ELEVATION = 280.0'. 15' WIDTH AND 50' LENGTH BOTTOM OF BASIN DIMENSIONS LINE BASIN SLOPES AND BERM WITH CLASS I RIP RAP AND GEOTEXTILE UP TO ELEVATION 285.0'. WEIR TO BE CONSTRUCTED OUT OF CLASS I RIP RAP ONLY. EST 200 TONS. EST 375 SY GFD. PROVIDE EST 60 STACKED SAND BAGS AT HAZARDOUS SPILL BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.
END SBG STA 364+25 -L- (LT)
SHOP CURVED GUARDRAIL R=40'
18" CSP W/ELBOWS
FALSE SUMP SEE DETAIL 4 SHEET 2D-1
BANK STABILIZATION
-L- NC 24-27
365+00
370+00
375+00 (SEE SHEET 30)
361+50 (SEE SHEET 28)
MATCHLINE -L- STA 361+50 (SEE SHEET 28)
MATCHLINE -L- STA 375+00 (SEE SHEET 30)
TIE EXISTING DITCH TO SPECIAL LATERAL 'V' DITCH
BEGIN SBG STA 374+75 -L- (LT)
SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 60 TONS EST 120 SY GFD SEE DETAIL 67, SHEET 2D-4
STANDARD 2.5' BASE DITCH W/CLASS B RIP RAP EST 15 TONS EST 30 SY GFD ON BANKS ONLY S = 10.0% DDE = 15 CY SEE DETAIL 16, SHEET 2D-2
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
LATERAL 'V' DITCH W/CLASS B RIP RAP EST 33 TONS EST 85 SY GFD SEE DETAIL 18 SHEET 2D-1
PROPOSED BASIN LOCATION
DO NOT DISTURB
COUNTER SUNK RIP RAP OUTLET PROTECTION CLASS I RIP RAP EST 7 TONS EST 15 SY GFD
REMOVE EXIST 60" RCP
REMOVE 15"
REMOVE 18" AND 15" RCP
GRADE TO DRAIN
SEE NOTE 1

(175) MCRAE INDUSTRIES INC.
(185) THOMAS A. & AMANDA F. BRUTON
(182) TERRY GILBERT
(173A) DUKE ENERGY PROGRESS, LLC
(173) DUKE ENERGY PROGRESS, LLC SWIFT ISLAND ACCESS AREA
(178) RICHARD GRIFFIN
(180) WANDA LEMONS
(184) SAMUEL MOODY LEMONS III
(183) SAMUEL MOODY LEMONS III

BM#01 ELEVATION = 306.28' N 568164 E 1680799 BL STATION 370+88.00 69 LEFT RR SPIKE IN BASE OF 20 INCH MAPLE
BM#48 ELEV = 314.38' N 568165 E 1680868 -L- STATION 372+36.42 10.33' LEFT RR SPIKE IN BASE 18" OAK
BM#01 ELEV = 306.28' N 568164 E 1680799 -L- STATION 371+67.34 9.16' LEFT RR SPIKE IN BASE 20" MAPLE

NOTES:
1. FALSE SUMP SEE DETAIL 24, SHEET 2D-2
2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 61 FOR -DRW17- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

5/14/99

REVISIONS

ROW REV. – 1/6/18 – CHANGED PUE TO AUE ON PARCEL 184 FROM –L– STA 372+09 TO 372+57 (RT). – JWM
ROW REV. – 3/7/18 – REVISED R/W TO AVOID SEPTIC TANK ON PARCEL 178. – JWM
ROW REV. – 3/19/18 – COMBINED PARCELS 180 AND 181 INTO 180 AND UPDATED DEED BOOK INFORMATION FOR PARCEL 180. – JWM
ROW REV. – 7/26/18 – ADDED ACCESS BREAK TO PARCEL 183. – JWM

10/15/2018

50' 0' 50' 100' 150'
GRAPHIC SCALE

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING SHEET 59 OF 84

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

SITE 42

SITE 41
1 @ 6' X 8' RCBC

SITE 43

SITE 44

MCRAE INDUSTRIES INC.

BM01 ELEVATION = 306.28
N 568164 E 1680799
BL STATION 370+88.00 69 LEFT
RR SPIKE IN BASE OF 20 INCH MAPLE

THOMAS A. & AMANDA F. BRUTON

TERRY GILBREATH

DUKE ENERGY PROGRESS, LLC

WANDA LEMONS

SAMUEL MOODY LEMONS

SAMUEL MOODY LEMONS III

RICHARD GRIFFIN

-DRW17- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW17- POT Sta.10+20.00
-DRW17- POT Sta. 11+50.00 =
-L- POT Sta. 367+47.00
Δ = 90°

365+00
370+00
375+00

-L- STA 361+50 (SEE SHEET 28)
MATCHLINE -L- STA 361+50 (SEE SHEET 28)
MATCHLINE -L- STA 375+00 (SEE SHEET 30)

-L- NC 24-27

SPECIAL LATERAL V DITCH W/CLASS B RIP RAP EST 50 TONS EST 100 SY GFD SEE DETAIL 67 SHEET 2D-4
BEGIN SBC STA. 362+00 -L- (LT)
2 LATERAL BASE DITCH W/CLASS B RIP RAP EST 35 TONS EST 70 SY GFD SEE DETAIL 22 SHEET 2D-1
HAZARDOUS SPILL BASIN #3 WITH 12' WIDE WEIR OUTFALL 2:1 SIDE S-OFBS AND 3' BERM WIDTH WEIR ELEVATION = 1281.3 BERM ELEVATION = 283.0 BOTTOM OF BASIN ELEVATION = 280.0 10' WIDTH AND 540 LENGTH BOTTOM OF BASIN DIMENSIONS LINE BASIN SLOPES AND BERM WITH CLASS I RIP RAP AND GEOTEXTILE UP TO ELEVATION 283.0 WEIR TO BE CONSTRUCTED OUT OF CLASS I B.F. RIP RAP ONLY 85 TONS EST 274 SY GFD PROVIDE 25' OF STACKED SAND BAGS AT HAZARDOUS SPILL BASIN BAGS TO BE PLACED IN A W/L BUT NOT IN BASIN BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL
END SBC STA 364+25 -L- (LT)
SHOR CURVED GUARDRAIL R=40'
BANK STABILIZATION
DIKE ENERGY PROGRESS, LLC
18" CSP W/ELBOWS, FALSE SUMP SEE DETAIL 4 SHEET 2D-1
SPECIAL LATERAL V DITCH W/CLASS B RIP RAP EST 60 TONS EST 120 SY GFD SEE DETAIL 67 SHEET 2D-4
TIE EXISTING DITCH TO SPECIAL LATERAL V DITCH
BEGIN SBC STA. 374+75 -L- (LT)
SPECIAL LATERAL V DITCH W/CLASS B RIP RAP EST 60 TONS EST 120 SY GFD SEE DETAIL 67 SHEET 2D-4
TIE EXISTING DITCH TO SPECIAL LATERAL V DITCH
STANDARD 2.5' BASE DITCH W/CLASS B RIP RAP EST 15 TONS EST 30 SY GFD ON BANKS ONLY S = 10.0% DDE = 15' CY SEE DETAIL 16 SHEET 2D-2
LATERAL V DITCH W/CLASS B RIP RAP EST 35 TONS EST 180 SY GFD SEE DETAIL 18 SHEET 2D-2
SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1
SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1
SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1
SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1
COUNTER SUNK RIP RAP @ OUTLET PROTECTION GLASS I RIP RAP EST 7 TONS EST 15 SY GFD
PROPOSED BASIN LOCATION
DO NOT DISTURB

15" RCP-IV
18" RCP-III
15" RCP-II
24" RCP-III
REMOVE EXIST 24" RCP
REMOVE 15"
REMOVE 18" AND 15"
GRADE TO DRAIN
SEE NOTE 1
SEE NOTE 2
CAT 1
2GI
12" DR
16" DR
4' PS
2' PS
7'-8" PS
GREY TL-3
ACCESS POINT
PUE
AUE
PDE
TDE
RW
CA

NOTES:
1. FALSE SUMP SEE DETAIL 24 SHEET 2D-2
2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 61 FOR -DRW17- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

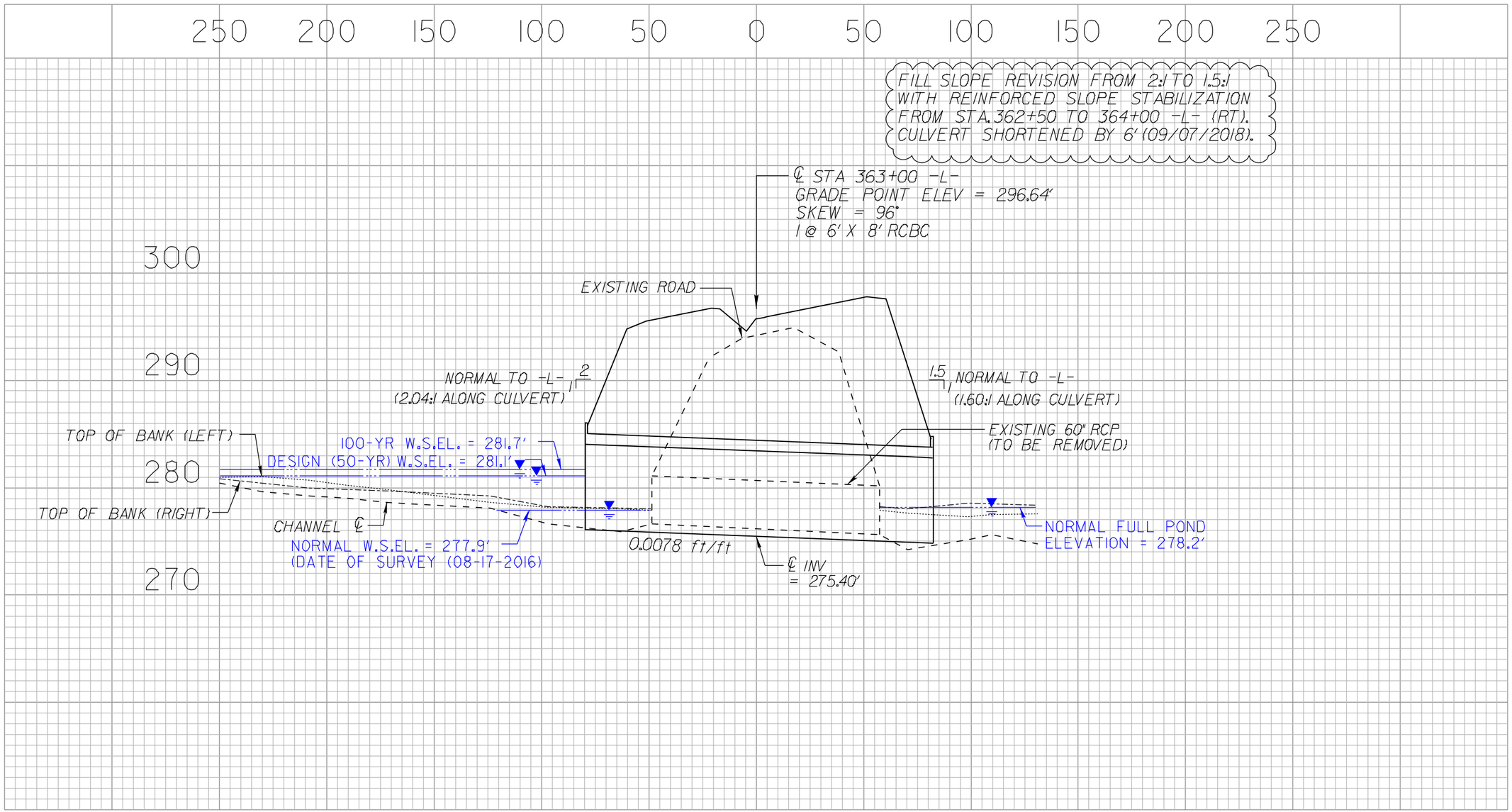
Kimley»Horn
P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 60 OF 84

SITE 41 & 42

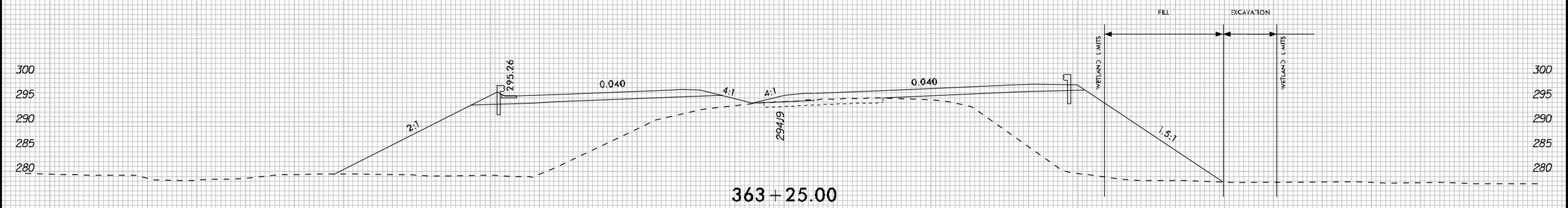


REVISIONS
5/14/19
10/15/2018

8/23/99

PERMIT DRAWING SHEET 61 OF 84	0 5 10	PROJ. REFERENCE NO. R-2530B	SHEET NO.

SITE 43



363+25.00

-L- NC 24-27-73

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

10/15/2018

5/14/99

REVISIONS

ROW REV. - 3/7/18 - REMOVED C/A AND ADDED TCE ON PARCEL 193. JWM
ROW REV. - 7/26/18 - ADJUSTED C/A AND TCE ON PARCEL 187; ADDED 60' ACCESS BREAK TO PARCEL 191. - JWM
ROW REV. - 8/10/18 - WIDENED DRIVEWAY ACCESS AND ADJUSTED DRAINAGE DESIGN ON PARCEL 186. - JWM

10/15/2018

NOTES:
1. FALSE SUMP SEE DETAIL 24, SHEET 2D-2
2. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANGEMENT PLANS)

(193) KENNETH R FURR BY WILL

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 62 OF 84

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
BOUNDARY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA 375+00 (SEE SHEET 29)

MATCHLINE -L- STA 389+00 (SEE SHEET 31)

SITE 45

SITE 46

SITE 47

SITE 47A

SITE 48

SITE 49

-WBL- PC Sta. 10+00.00 =
-L- POT Sta. 380+39.50 (35' LT)

-WBL- PRC Sta. 15+73.62

-DRW18- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-DRW18- POT Sta. 10+25.00

-L- CS Sta. 376+13.11

-L- Sta. 11+50.00 =
-L- Sta. 78+74.00

BEGIN CULVERT
-L- STA 381+50.58

END CULVERT
-L- STA 381+77.42

NC GRID
NAD 83/95

5' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 35 TONS, EST 50 SY GFD
SEE DETAIL 48, SHEET 2D-2

RIP-RAP EMBANKMENT PROTECTION WITH CLASS I RIP RAP
EST 12 TONS, EST 19 SY GFD
SEE DETAIL 10, SHEET 2D-1

RIP RAP EMBANKMENT PROTECTION WITH CLASS I RIP RAP
EST 3 TONS, EST 5 SY GFD
SEE DETAIL 10, SHEET 2D-1

BANK STABILIZATION

LATERAL 'V' DITCH W/CLASS B RIP RAP
EST 65 TONS
EST 110 SY GFD
SEE DETAIL 18, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

2' LATERAL BASE DITCH W/CLASS B RIP RAP
EST 40 TONS
EST 85 SY GFD
SEE DETAIL 22, SHEET 2D-1

FLOODPLAIN BENCH

2 @ 11' X 9' RCBC

PROPOSED BASIN LOCATION

INSTALL HEADWALL NCDOT STD. 838.39

CHANNEL IMPROVEMENTS
CLASS I RIP RAP
EST 15 TONS
EST 20 SY GFD
SEE DETAIL 55 SHEET 2D-3

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP
EST 125 TONS
EST 270 SY GFD
SEE DETAIL 67, SHEET 2D-4

FILTRATION BASIN #2, SEE SHEETS 2D-7 AND 2D-8 FOR DETAILS AND GRADING. PROVIDE EST. 10 SAND BAGS AT FILTRATION BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

RIP RAP EMBANKMENT PROTECTION WITH CLASS I RIP RAP
EST 12 TONS, EST 19 SY GFD
SEE DETAIL 10, SHEET 2D-1

DI OUTLET STRUCTURE

REMOVE EXIST 2 @ 10' X 7' RCBC STRUCTURE PAY ITEM!

3' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 70 TONS
EST 100 SY GFD
SEE DETAIL 29, SHEET 2D-2

CHANNEL IMPROVEMENTS
CLASS I RIP RAP
EST 65 TONS
EST 90 SY GFD
SEE DETAIL 61, SHEET 2D-3

HAZARDOUS SPILL BASIN #6
WITH 15' WIDE WEIR OUTFALL
2:1 SIDE SLOPES AND 5' BERM WIDTH
WEIR ELEVATION = 316.5'
BERM ELEVATION = 321.0'
BOTTOM OF BASIN ELEVATION = 315.0'
20' WIDTH AND 40' LENGTH
BOTTOM OF BASIN DIMENSIONS
LINE BASIN SLOPES AND BERM WITH CLASS I RIP RAP AND GEOTEXTILE UP TO ELEVATION 321.0
WEIR TO BE CONSTRUCTED OF CLASS I RIP RAP ONLY
EST 225 TONS; EST 425 SY GFD

PROVIDE EST. 60 SAND BAGS AT HAZARDOUS SPILL BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

2' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 30 TONS, EST 80 SY GFD
SEE DETAIL 27, SHEET 2D-2

END SBG STA. 383+47.50 -L- (RT)

REMOVE EXIST 2 @ 10' X 7' RCBC STRUCTURE PAY ITEM!

SPECIAL CUT DITCH W/CLASS B RIP RAP
EST 30 TONS, EST 70 SY GFD
SEE DETAIL 41 SHEET 2D-2

TIE EXIST DITCH TO ROADSIDE CUT DITCH
CLASS B RIP RAP
EST 10 TONS
EST 25 SY GFD

SPECIAL CUT GRASS SWALE W/HINGE
SEE DETAIL 14, SHEET 2D-1

END PAVEMENT
-L- STA 386+54.70 LT

END C/A
-L- 64.45 LT 12.5' LT
EX. P/L

FALSE SUMP
SEE DETAIL 1 SHEET 2D-1

GRADE TO DRAIN

REMOVE

REMOVE 19"

REMOVE 24"

SEE NOTE 1

BEGIN SBG STA. 377+00 -L- (RT)

END SBG STA. 377+25 -L- (LT)

BEGIN SBG STA. 380+75 -L- (LT)

END SBG STA. 384+75 -L- (LT)

CHANNEL IMPROVEMENTS
CLASS I RIP RAP
EST 15 TONS
EST 55 SY GFD

(185) (186) (187) (188) (189) (190) (191) (192) (193) (183)

DONALD P DAVIS
DIXON CORBETT
RONALD L PARTRIDGE
UNHARRIE MARINE SALES & SERVICE LLC
TOMMY A BLAKE
ASSOCIATES LLC
SAMUEL MOODY LEMONS III

SEE SHEET 50 FOR -L- PROFILE
SEE SHEET 51 FOR -WBL- PROFILE
SEE SHEET 61 FOR -DRW18- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

5/14/99

NOTES:
1. FALSE SUMP SEE DETAIL 24, SHEET 2D-2
2. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANGEMENT PLANS)

(193) KENNETH R FURR BY WILL

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

PERMIT DRAWING
SHEET 63 OF 84

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

50' 0' 50' 100' 150'
GRAPHIC SCALE

REVISIONS
ROW REV. - 3/7/18 - REMOVED C/A AND ADDED TCE ON PARCEL 193. - JWM
ROW REV. - 7/26/18 - ADJUSTED C/A AND TCE ON PARCEL 187; ADDED 60' ACCESS BREAK TO PARCEL 191. - JWM
ROW REV. - 8/10/18 - WIDENED DRIVEWAY ACCESS AND ADJUSTED DRAINAGE DESIGN ON PARCEL 186. - JWM

10/16/2018

-WBL- PC Sta. 10+00.00 =
-L- POT Sta. 380+39.50 (35' LT)

380+00 (-L-)
10+00 (-WBL-)
385+00 (-L-)
15+00 (-WBL-)

-WBL- PRC Sta. 15+73.62

-L- CS Sta. 376+31.11

-DRW18- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-DRW18- POT Sta. 10+25.00

BEGIN CULVERT
-L- STA 381+50.58
2 @ 11' X 9' RCBC
END CULVERT
-L- STA 381+77.42

MATCHLINE -L- STA 375+00 (SEE SHEET 29)

MATCHLINE -L- STA 389+00 (SEE SHEET 31)

SITE 45
SITE 46
SITE 47
SITE 47A
SITE 48
SITE 49

5' LATERAL BASE DITCH W/CLASS I RIP RAP EST 35 TONS, EST 50 SY GFD SEE DETAIL 48, SHEET 2D-2

RIP-RAP EMBANKMENT PROTECTION WITH CLASS I RIP RAP EST 12 TONS, EST 19 SY GFD SEE DETAIL 10, SHEET 2D-1

RIP RAP EMBANKMENT PROTECTION WITH CLASS I RIP RAP EST 3 TONS, EST 5 SY GFD SEE DETAIL 10, SHEET 2D-1

2' LATERAL BASE DITCH W/CLASS B RIP RAP EST 40 TONS EST 85 SY GFD SEE DETAIL 22, SHEET 2D-2

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 70 TONS EST 53 SY GFD SEE DETAIL 60, SHEET 2D-3

SPECIAL LATERAL 5' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 145 TONS EST 310 SY GFD SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 125 TONS EST 270 SY GFD SEE DETAIL 6A, SHEET 2D-4

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 15 TONS EST 25 SY GFD SEE DETAIL 55, SHEET 2D-3

3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 70 TONS EST 108 SY GFD SEE DETAIL 29, SHEET 2D-2

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 65 TONS EST 90 SY GFD SEE DETAIL 61, SHEET 2D-3

2 LATERAL BASE DITCH W/CLASS I RIP RAP EST 26 TONS EST 65 SY GFD SEE DETAIL 42, SHEET 2D-2

2 LATERAL BASE DITCH W/CLASS I RIP RAP EST 50 TONS, EST 80 SY GFD SEE DETAIL 27, SHEET 2D-2

SPECIAL CUT DITCH W/CLASS B RIP RAP EST 30 TONS, EST 70 SY GFD SEE DETAIL 41 SHEET 2D-2

TIE EXIST DITCH TO ROADSIDE CUT DITCH CLASS B RIP RAP EST 10 TONS EST 25 SY GFD

TIE EXIST DITCH TO ROADSIDE CUT DITCH CLASS B RIP RAP EST 10 TONS EST 25 SY GFD

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14, SHEET 2D-1

FILTRATION BASIN #2. SEE SHEETS 2D-7 AND 2D-8 FOR DETAILS AND GRADING. PROVIDE EST. 10 SAND BAGS AT FILTRATION BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

RIP RAP EMBANKMENT PROTECTION WITH CLASS I RIP RAP EST 12 TONS, EST 19 SY GFD SEE DETAIL 10, SHEET 2D-1

HAZARDOUS SPILL BASIN #6 WITH 16' WIDE WEIR OUTFALL, 2:1 SIDE SLOPES AND 5' BERM WIDTH WEIR ELEVATION = 316.6 BERM ELEVATION = 321.6 BOTTOM OF BASIN ELEVATION = 315.0' 20' WIDTH AND 40' LENGTH BOTTOM OF BASIN DIMENSIONS INCLUDE BASIN SLOPES AND BERM WITH CLASS I RIP-RAP AND GEOTEXTILE UP TO ELEVATION 321.0 WEIR TO BE CONSTRUCTED OF CLASS I RIP RAP ONLY EST 225 TONS; EST 425 SY GFD

PROVIDE EST. 60 SAND BAGS AT HAZARDOUS SPILL BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN. BAGS ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.

REMOVE EXIST 2 CMP 109' X 7' STRUCTURE PAY ITEM

18" RCP-III

18" RCP-IV

15" RCP-IV

24" RCP-III

18" RCP-III

END SBG STA. 377+25 -L- (LT)

BEGIN SBG STA. 377+50 -L- (RT)

END SBG STA. 384+75 -L- (LT)

END SBG STA. 383+47.50 -L- (RT)

BEGIN SBG STA. 380+75 -L- (LT)

DROP INLET STRUCTURE

INSTALL HEADWALL NCDOT STD. 838.39

INSTALL ENDWALL NCDOT STD. 838.39

REMOVE EXIST HEADWALL

REMOVE 13"

REMOVE 21"

REMOVE

END PAVEMENT -L- STA 385+54.70 LT

END CA -L- STA 384+43 123' LT EX. BA

PROPOSED BASIN LOCATION

BANK STABILIZATION

ACCESS POINT

FLOODPLAIN BENCH

CHORD

PUE

DONALD P DAVIS

SAMUEL MOODY LEMONS III

RONALD L PARTRIDGE

UNHARRIE MARINE SALES & SERVICE LLC

TOMMY A BLAKE

ASSOCIATES LLC

DUSTY ROCK DR

NC GRID NAD 83 95

SEE NOTE 1

SEE NOTE 6

NC 24-27
N 83°47'33.4"E

SEE SHEET 50 FOR -L- PROFILE
SEE SHEET 51 FOR -WBL- PROFILE
SEE SHEET 61 FOR -DRW18- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

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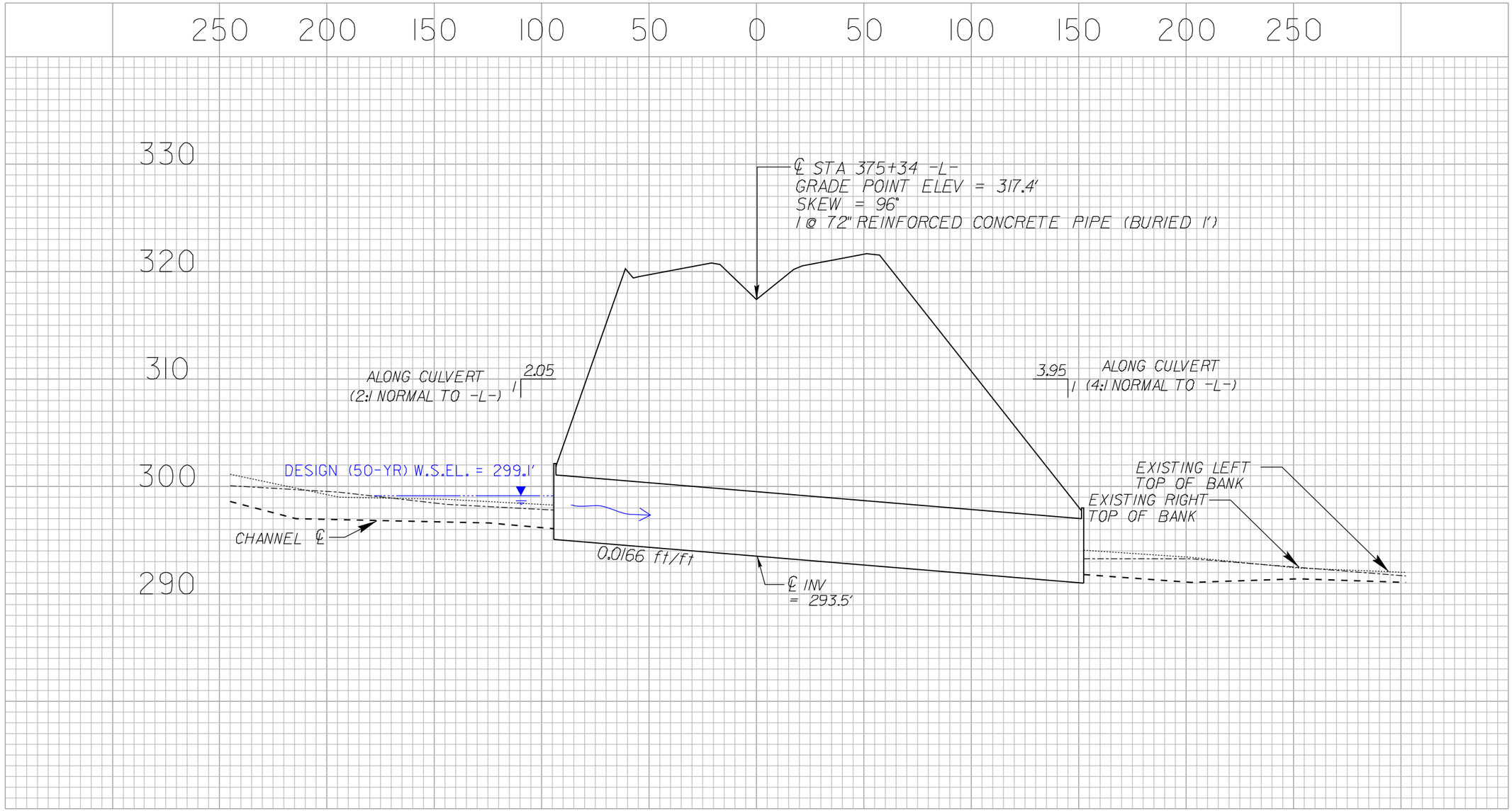
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 64 OF 84

SITE 45 & 46



REVISIONS

5/14/99

10/15/2018

5/14/99

REVISIONS

10/15/2018

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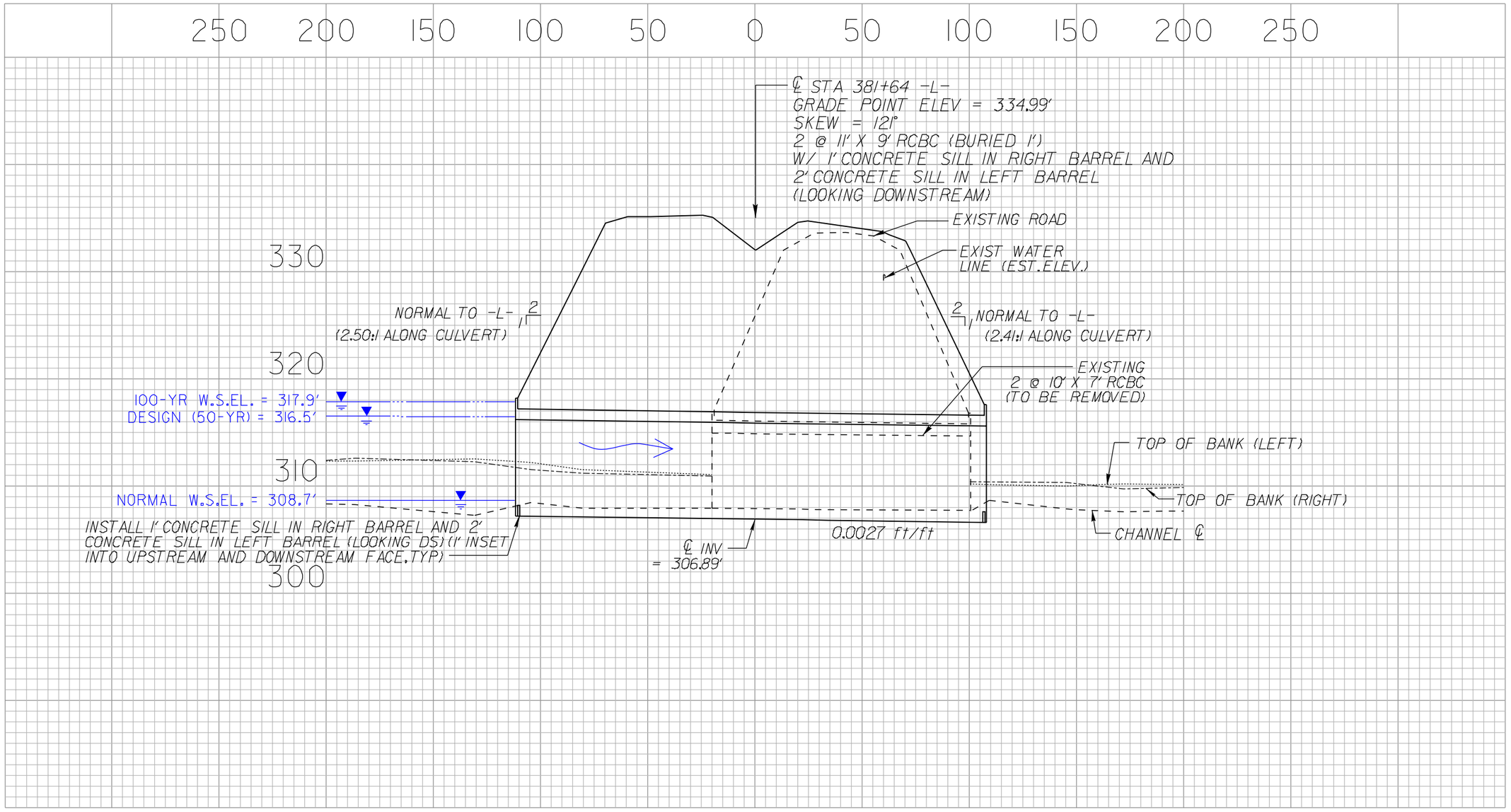
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	_____
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 65 OF 84

SITE 47 & 48

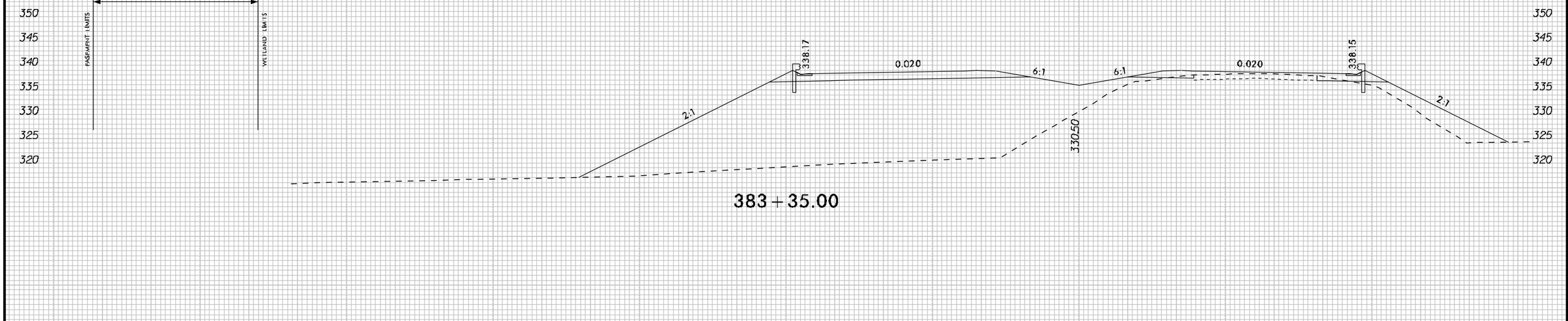


8/23/99

PERMIT DRAWING SHEET 66 OF 84	0 5 10	PROJ. REFERENCE NO. R-2530B	SHEET NO.

SITE 49

MECHANIZED CLEARING



383+35.00

-L- NC 24-27-73

10/15/2018

210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY REV.
CONST REV

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS 5/14/99

10/15/2018

SITE 51

SITE 50

BEGIN CULVERT
-Y2- STA 24+84.20
-Y2- PC Sta. 24+02.95

END CULVERT
-Y2- STA 25+05.70
-Y2- PT Sta. 26+70.79

2 @ 9' X 6' RCBC W/ HEADWALLS (BURIED 1')

-Y2-
HILCO ST
S 58° 17' 56.3" E

-Y2-
BARNARD RD
S 3° 05' 05.0" W

MATCHLINE -Y2- STA 13+50 (SEE SHEET 32)

MATCHLINE -Y2- STA 28+00 (SEE SHEET 5)

AREA UNDER CONSTRUCTION

STANLY COUNTY
COJR PROPERTIES, LLC (218)

TERRY MARSHAL DENNIS, SR, ET AL (225)

PEGGY L. (227)

CITADEL/STANLY GARDENS OF MEMORIAL (27)

VALLEN PROPERTIES LLC (223)

LANCE INC. (224)

NTI CAPITAL GROUP LLC (221)

NTI CAPITAL GROUP LLC (222)

ONATE INC. (220)

PEJA INC. (228)

RETAIN 48" CMP

REMOVE EXISTING 2 @ 48" CMP'S

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 280 TONS EST 220 SY GFD SEE DETAIL 74 SHEET 20-5

STANDARD 2' BASE DITCH S=2.0%, DDE=20 CY SEE DETAIL 31, SHEET 20-2

REMOVE 12"

FLOODPLAIN BENCH

BM#6
N 584048 E 1654104
-Y2- STATION 24+67.61
30.66' LT
PAINTED FLANGE BOLT ON FH

OUTLET PROTECTION CLASS I B RIP RAP EST 3 TONS EST 10 SY GFD

SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS SEE DETAIL 9 SHEET 20-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 20-1

LATERAL 'V' DITCH SEE DETAIL 66 SHEET 20-4

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 85 TONS EST 70 SY GFD SEE DETAIL 73 SHEET 20-5

RETAIN 2 @ 15" RCP'S

RETAIN 24" RCP

RETAIN 18" RCP

RETAIN 15" RCP

RETAIN EX. 15"

RETAIN EX. 15" RCP

RETAIN 48" CMP

RETAIN 2 @ 48" CMP'S

RETAIN 12" RCP

RETAIN 5" RCP

RETAIN 18" RCP

-50 EX. R/W

PUE

72" CHL 3 SBW

18" BLK RED WALL

6' BLK STEPS

10' BLK RAMP

I S BK BUS

I S MTL BUS

I S FR BUS

WD PLANTER

VAR.WIDTH GR

MTL CANOPY

GRAVEL

WOODS

CONC

BST

HOT BOX

Albemarle Electric Unk. S/T

Charter Communication Unk. S/T-in Conduit

PNG, 2" Plastic

GREU TL-2

PROPANE

R-2530B 0016-0015

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 67 OF 81

SEE SHEET 52 FOR -Y2- PROFILE

5/14/99

REVISIONS

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
ROADWAY PE:
CONST ENG

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AREA UNDER CONSTRUCTION

N 59°55'05" W 822.81'

15+00

S 59°55'05" E 264.65'

20+00

25+00

N 59°55'05" W

S 59°55'05" E 300.63'

N 29°55'56" E 72' CHL 3 SBW

N 30°02'07" E 0.73'

N 29°55'56" E 1.46'

72' CHL 3 SBW

AREA UNDER CONSTRUCTION

(218) STANLY COUNTY COJR PROPERTIES, LLC

(225) TERRY MARSHAL DENNIS, SR, ET AL

(227) PEGGY L.

(219) (220) (221) (222) (223) (224) (228)

MATCHLINE -Y2- STA 13+50 (SEE SHEET 32)

MATCHLINE -Y2- STA 28+00 (SEE SHEET 5)

S 30°05'05" W

BARNARD RD -Y2-

-Y2- HILCO ST S 58°17'56.3" E

BEGIN CULVERT -Y2- ST A 24+84.20

-Y2- PC Sta. 24+02.95

END CULVERT -Y2- ST A 25+05.70

-Y2- PT Sta. 26+70.79

2 @ 9'X 6' RCBC W/ HEADWALLS (BURIED 1')

SITE 50

SITE 51

RETAIN 2 (5) 15" RCP'S

RETAIN 24" RCP

RETAIN 15" RCP

RETAIN 18" RCP

RETAIN EX. 15"

RETAIN EX. 13"

RETAIN 48" CMP

REMOVE EXISTING 2 @ 18" CMP'S

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 280 TONS EST 220 SY GFD SEE DETAIL 7A SHEET 20-5

STANDARD 2' BASE DITCH S=2.0%, DDE=20. CY SEE DETAIL 31, SHEET 20-2

REMOVE 12" FLOODPLAIN BENCH

OUTLET PROTECTION CLASS I RIP RAP EST 3 TONS EST 10 SY GFD

SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONTSLOPES TO LIMIT IMPACTS SEE DETAIL 3 SHEET 20-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 20-1

LATERAL 'V' DITCH SEE DETAIL 3B SHEET 20-4

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 65 TONS EST 50 SY GFD SEE DETAIL 7A SHEET 20-5

FLOODPLAIN BENCH

CAT-1

GREU TL-2

BM=6 N 584048 E 1654104 -Y2- STATION 24+67.61 30.66' LT PAINTED FLANGE BOLT ON FH

CITADEL/STANLY GARDENS OF MEMORIAL

PUE

EX. R/W

Charter Communication Unk. S/T-in/Conduit

Albemarle Electric Unk. S/T

ONATE INC

LANDSCAPE

NTICAPITAL GROUP LLC

VALLEN PROPERTIES LLC

LANXE INC.

MTL CANOPY

I S MTL BUS

I S BK BUS

I S FR BUS

WD PLANTER

VAR.WIDTH GR

GRAVEL

WOODS

CONC

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- FEDERAL ENERGY REGULATORY COMMISSION (FERC) BOUNDARY

50' 0' 50' 100' 150'
GRAPHIC SCALE

PERMIT DRAWING
SHEET 68 OF 81

SEE SHEET 52 FOR -Y2- PROFILE

10/15/2018

5/14/99

REVISIONS

10/15/2018

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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

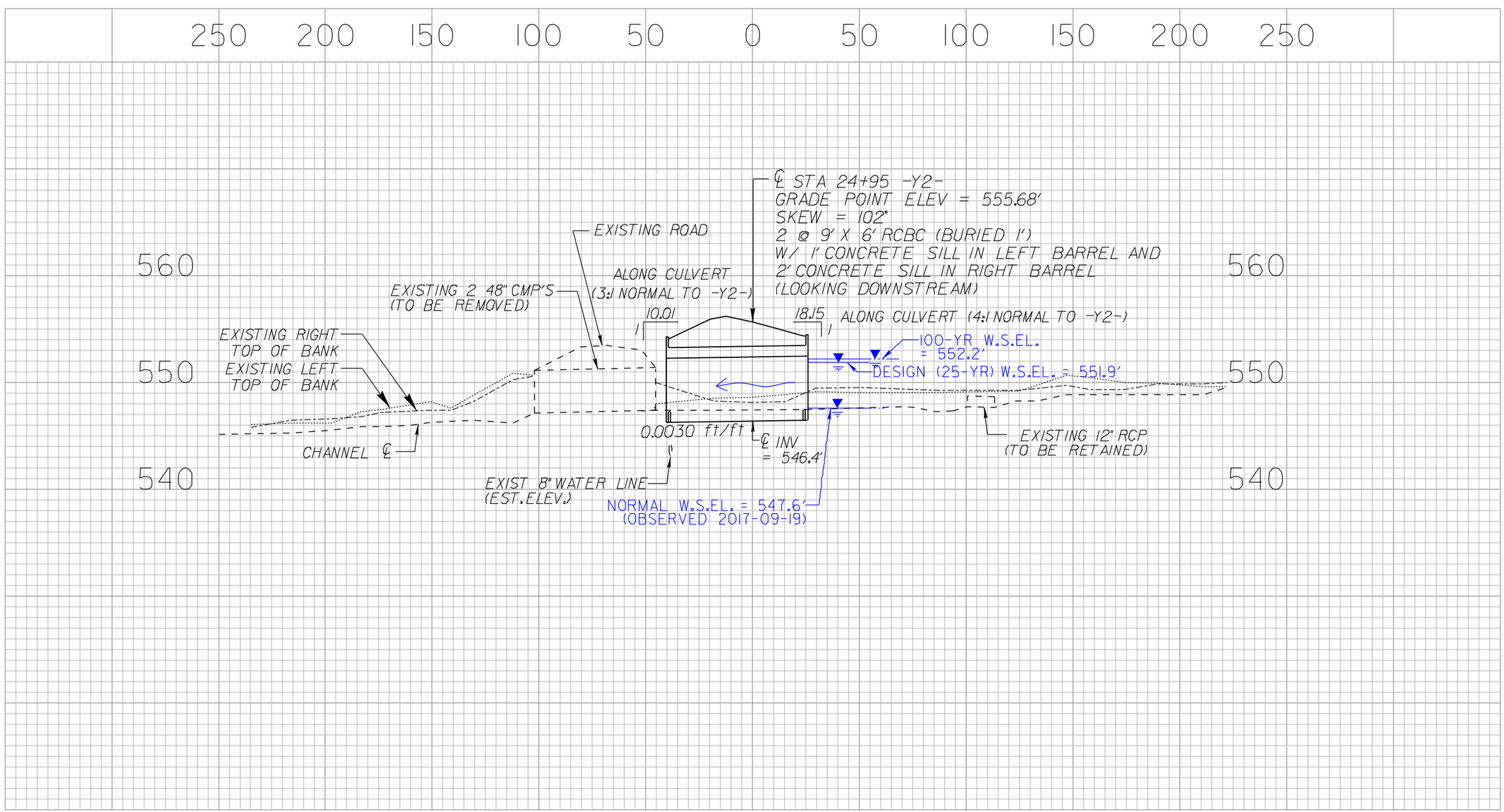
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 69 OF 84

SITE 50 & 51

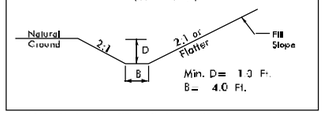


5/14/99

REVISIONS

10/15/2018

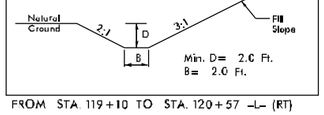
DETAIL 1
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 4.0 Ft.

FROM STA. 89+00 TO STA. 89+28 -L- (RT)

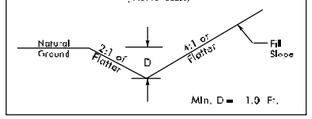
DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)



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

FROM STA. 119+10 TO STA. 120+57 -L- (RT)

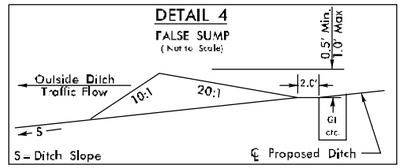
DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.

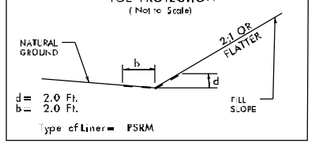
FROM STA. 21+00 TO STA. 23+50 -Y2- (RT)
FROM STA. 24+90 TO STA. 29+00 -Y2- (RT)
FROM STA. 14+00 TO STA. 14-50 -Y2A- (RT)
FROM STA. 43-79 TO STA. 47+00 -L- (LT)
FROM STA. 14+00 TO STA. 14+50 -Y4- (LT)
FROM STA. 61+56 TO STA. 61+75 -L- (LT)
FROM STA. 61+75 TO STA. 63+00 -L- (LT)
FROM STA. 72-96 TO STA. 74+00 -L- (LT)
FROM STA. 74+60 TO STA. 75+00 -L- (LT)
FROM STA. 75-00 TO STA. 76+00 -L- (LT)
FROM STA. 79+50 TO STA. 81+16 -L- (LT)
FROM STA. 81+60 TO STA. 83-00 -L- (LT)
FROM STA. 84+15 TO STA. 85+00 -L- (LT)
FROM STA. 85-50 TO STA. 86+75 -L- (LT)
FROM STA. 87-25 TO STA. 89+90 -L- (LT)
FROM STA. 89+90 TO STA. 90+47 -L- (LT)
FROM STA. 17+10 TO STA. 18+00 -Y7- (RT)
FROM STA. 16+00 TO STA. 18+00 -Y7- (LT)
FROM STA. 91+33 TO STA. 93+00 -L- (LT)
FROM STA. 96+27 TO STA. 97+50 -L- (RT)
FROM STA. 101+50 TO STA. 102-40 -L- (RT)
FROM STA. 102+40 TO STA. 104+00 -L- (RT)
FROM STA. 103+20 TO STA. 104+50 -L- (LT)
FROM STA. 131+00 TO STA. 134-00 -L- (RT)
FROM STA. 134+20 TO STA. 136+00 -L- (RT)
FROM STA. 148+00 TO STA. 149+62 -L- (RT)
FROM STA. 149+62 TO STA. 153+00 -L- (RT)
FROM STA. 18-80 TO STA. 19-50 -Y8- (RT)
FROM STA. 13-50 TO STA. 15-50 -Y8- (RT)
FROM STA. 13+50 TO STA. 14+00 -Y8- (LT)
FROM STA. 26-00 TO STA. 26+50 -Y8- (RT)
FROM STA. 153-00 TO STA. 155+50 -L- (LT)
FROM STA. 154-00 TO STA. 157-10 -L- (RT)
FROM STA. 18-20 TO STA. 18-30 -Y9- (RT)
FROM STA. 163+50 TO STA. 169+00 -L- (RT)
FROM STA. 171+00 TO STA. 173+00 -L- (LT)
FROM STA. 176+00 TO STA. 177+00 -L- (LT)
FROM STA. 178+50 TO STA. 180+50 -L- (RT)
FROM STA. 181+00 TO STA. 187+75 -L- (LT)
FROM STA. 182+15 TO STA. 184+00 -L- (RT)
FROM STA. 221+50 TO STA. 222-50 -L- (LT)
FROM STA. 227-50 TO STA. 230+00 -L- (LT)
FROM STA. 243-00 TO STA. 246+00 -L- (LT)
FROM STA. 250+70 TO STA. 251+50 -L- (LT)
FROM STA. 251+50 TO STA. 253-00 -L- (LT)
FROM STA. 251+50 TO STA. 253-00 -L- (RT)
FROM STA. 253+00 TO STA. 254+30 -L- (LT)
FROM STA. 11+00 TO STA. 12+50 -Y12- (RT)
FROM STA. 13+00 TO STA. 15+00 -Y12- (RT)
FROM STA. 14-90 TO STA. 16-00 -Y12- (LT)
FROM STA. 276+65 TO STA. 277+50 -L- (LT)
FROM STA. 15+50 TO STA. 16+72 -Y13- (RT)
FROM STA. 11-50 TO STA. 13-00 -Y14- (LT)
FROM STA. 13+50 TO STA. 14+00 -Y14- (LT)
FROM STA. 11+50 TO STA. 13+00 -Y15- (RT)
FROM STA. 15+00 TO STA. 16+95 -Y15- (RT)
FROM STA. 331+50 TO STA. 332-50 -L- (RT)
FROM STA. 364+50 TO STA. 369+50 -L- (RT)
FROM STA. 379-00 TO STA. 381-00 -L- (LT)

DETAIL 4
FALSE SUMP
(Not to Scale)



STA. 116+85 -L- (LT)
STA. 118+85 -L- (LT)
STA. 121+85 -L- (LT)
STA. 130+15 -L- (RT)
STA. 134+15 -L- (RT)
STA. 136+15 -L- (RT)
STA. 158+35 -L- (LT)
STA. 190-55 -L- (RT)
STA. 191-65 -L- (RT)
STA. 199-85 -L- (LT)
STA. 206+15 -L- (RT)
STA. 208+15 -L- (RT)
STA. 209+65 -L- (RT)
STA. 251+15 -L- (RT)
STA. 260-84 -L- (LT)
STA. 269+15 -L- (RT)
STA. 326+64 -L- (RT)
STA. 329+63 -L- (RT)
STA. 335+13 -L- (RT)
STA. 364-85 -L- (LT)
STA. 387-85 -L- (LT)
STA. 393-70 -L- (LT)

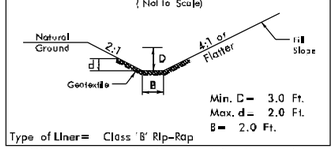
DETAIL 5
TOE PROTECTION
(Not to Scale)



Type of Liner= RSRM

FROM STA. 11+50 TO STA. 12+00 -Y2A- (LT)
FROM STA. 74-30 TO STA. 75+50 -L- (RT)
FROM STA. 136+50 TO STA. 138+00 -L- (RT)
FROM STA. 142+00 TO STA. 143-22 -L- (LT)
FROM STA. 177+40 TO STA. 179-25 -L- (LT)
FROM STA. 244-00 TO STA. 245+00 -L- (RT)
FROM STA. 255-00 TO STA. 256+00 -L- (RT)

DETAIL 6
SPECIAL LATERAL BASE DITCH
(Not to Scale)

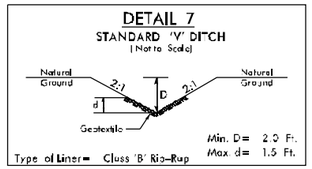


Min. D= 3.0 Ft.
Max. d= 2.0 Ft.
B= 2.0 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 157+10 TO STA. 163+50 -L- (RT)
FROM STA. 282+00 TO STA. 284+00 -L- (LT)
FROM STA. 285+50 TO STA. 290+00 -L- (RT)

DETAIL 7
STANDARD 'V' DITCH
(Not to Scale)

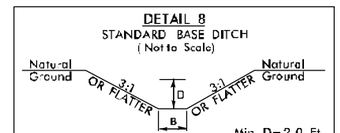


Min. D= 2.0 Ft.
Max. d= 1.5 Ft.

Type of Liner= Class 'B' Rip-Rap

STA. 63+40 -L- (LT)

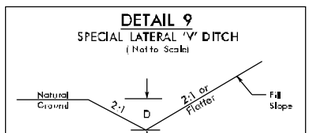
DETAIL 8
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.0 Ft.
B= 4.0 Ft.

FROM STA. 53+86 TO STA. 54-50 -L- (LT)
FROM STA. 253-00 TO STA. 253+53 -L- (RT)

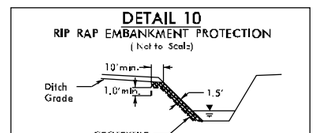
DETAIL 9
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.0 Ft.

FROM STA. 14+90 TO STA. 16+00 -Y1- (RT)
FROM STA. 27+00 TO STA. 31+00 -Y2- (LT)
FROM STA. 48-50 TO STA. 51-50 -L- (LT)
FROM STA. 65+65 TO STA. 67+00 -L- (LT)
FROM STA. 67+00 TO STA. 68+50 -L- (LT)
FROM STA. 10+85 TO STA. 12+25 -Y6- (LT)

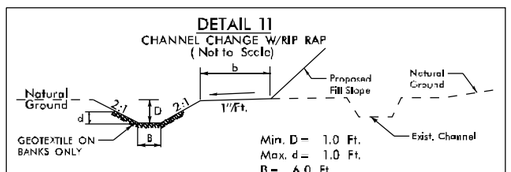
DETAIL 10
RIP RAP EMBANKMENT PROTECTION
(Not to Scale)



Type of Liner= Class I Rip-Rap

STA. 53+35 -L- (LT)
STA. 53+86 -L- (LT)
STA. 232+50 -L- (RT)
STA. 233+50 -L- (RT)
STA. 375+40 -L- (LT)
STA. 375+45 -L- (LT)
STA. 380+60 -L- (RT)

DETAIL 11
CHANNEL CHANGE W/RIP RAP
(Not to Scale)

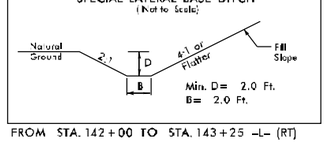


Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 6.0 Ft.
b= 5.0 Ft.

Type of Liner= Class I Rip Rap

FROM STA. 52+72 TO STA. 53+25 -L- (RT)

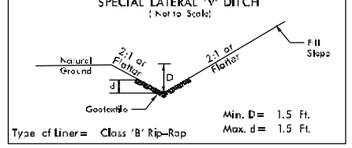
DETAIL 12
SPECIAL LATERAL BASE DITCH
(Not to Scale)



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

FROM STA. 142+00 TO STA. 143+25 -L- (RT)

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

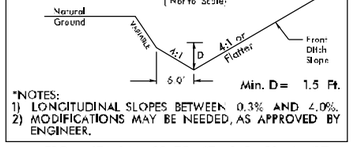


Min. D= 1.5 Ft.
Max. d= 1.5 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 51+50 TO STA. 53+10 -L- (LT)

DETAIL 14
SPECIAL CUT GRASS SWALE w/HINGE
(Not to Scale)

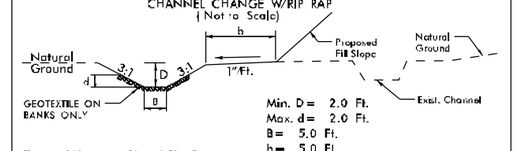


Min. D= 1.5 Ft.

*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

FROM STA. 144-00 TO STA. 145+50 -L- (RT)
FROM STA. 177+15 TO STA. 178-50 -L- (RT)
FROM STA. 196+00 TO STA. 197+25 -L- (RT)
FROM STA. 258+00 TO STA. 259+00 -L- (LT)
FROM STA. 351+50 TO STA. 353+00 -L- (LT)
FROM STA. 388+50 TO STA. 393+00 -L- (LT)

DETAIL 15
CHANNEL CHANGE W/RIP RAP
(Not to Scale)

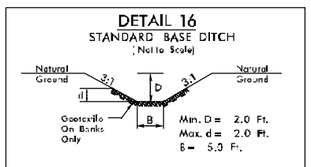


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 5.0 Ft.
b= 5.0 Ft.

Type of Liner= Class I Rip Rap

FROM STA. 38+90 TO STA. 40+35 -L- (RT)

DETAIL 16
STANDARD BASE DITCH
(Not to Scale)

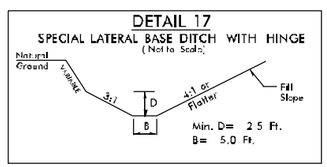


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 5.0 Ft.

Type of Liner= Class I Rip-Rap

STA. 40+35 -L- (RT)

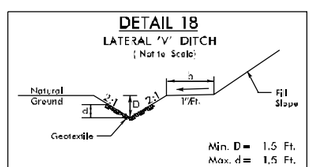
DETAIL 17
SPECIAL LATERAL BASE DITCH WITH HINGE
(Not to Scale)



Min. D= 2.5 Ft.
B= 5.0 Ft.

FROM STA. 293+00 TO STA. 297+50 -L- (RT)

DETAIL 18
LATERAL 'V' DITCH
(Not to Scale)

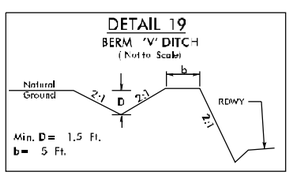


Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
b= 5 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 100+95 TO STA. 102+00 -L- (LT)
FROM STA. 126+50 TO STA. 129+00 -L- (LT)
FROM STA. 363+32 TO STA. 364+50 -L- (RT)
FROM STA. 375+45 TO STA. 377+50 -L- (LT)

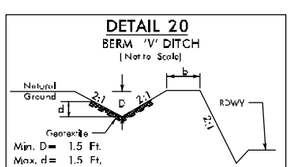
DETAIL 19
BERM 'V' DITCH
(Not to Scale)



Min. D= 1.5 Ft.
b= 5 Ft.

FROM STA. 119+00 TO STA. 121+80 -L- (LT)
FROM STA. 124+00 TO STA. 124-68 -L- (LT)
FROM STA. 127+50 TO STA. 129+00 -L- (RT)
FROM STA. 129+00 TO STA. 130+00 -L- (RT)
FROM STA. 186+50 TO STA. 188+89 -L- (RT)
FROM STA. 189-21 TO STA. 190-40 -L- (RT)
FROM STA. 190+40 TO STA. 192+35 -L- (RT)
FROM STA. 203+00 TO STA. 203+50 -L- (RT)
FROM STA. 203+50 TO STA. 205+00 -L- (RT)
FROM STA. 208+50 TO STA. 209+50 -L- (LT)
FROM STA. 208+00 TO STA. 208+50 -L- (RT)
FROM STA. 268+50 TO STA. 269-85 -L- (LT)
FROM STA. 272+00 TO STA. 273+00 -L- (LT)
FROM STA. 296+20 TO STA. 297+50 -L- (LT)
FROM STA. 297+50 TO STA. 300-00 -L- (LT)
FROM STA. 300+00 TO STA. 301-00 -L- (LT)
FROM STA. 301+00 TO STA. 302+00 -L- (LT)

DETAIL 20
BERM 'V' DITCH
(Not to Scale)

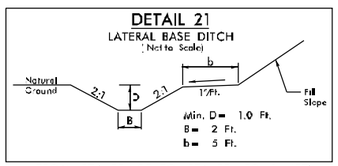


Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
b= 5 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 122+00 TO STA. 124-00 -L- (LT)
FROM STA. 136+00 TO STA. 138-00 -L- (LT)
FROM STA. 138+00 TO STA. 141+50 -L- (LT)
FROM STA. 205-00 TO STA. 206+00 -L- (RT)
FROM STA. 209+50 TO STA. 212+00 -L- (LT)
FROM STA. 270+15 TO STA. 272+00 -L- (LT)
FROM STA. 273+00 TO STA. 274-50 -L- (LT)
FROM STA. 274+50 TO STA. 275-25 -L- (LT)
FROM STA. 302+00 TO STA. 304-00 -L- (LT)
FROM STA. 311+00 TO STA. 313+80 -L- (RT)
FROM STA. 314-00 TO STA. 317+80 -L- (RT)
FROM STA. 318-00 TO STA. 320+50 -L- (RT)

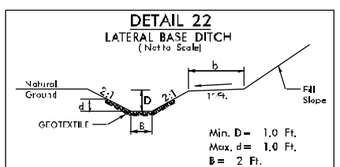
DETAIL 21
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 53+25 TO STA. 53+80 -L- (RT)
FROM STA. 150+00 TO STA. 152+00 -L- (LT)
FROM STA. 198+30 TO STA. 199-00 -L- (RT)

DETAIL 22
LATERAL BASE DITCH
(Not to Scale)

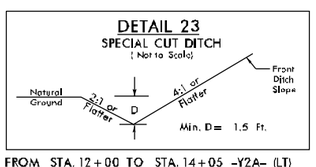


Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
B= 2 Ft.
b= 5 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 148+70 TO STA. 150+00 -L- (LT)
FROM STA. 199-00 TO STA. 200-50 -L- (RT)
FROM STA. 362+00 TO STA. 363+05 -L- (LT)
FROM STA. 381+00 TO STA. 382+20 -L- (LT)

DETAIL 23
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1.5 Ft.

FROM STA. 12+00 TO STA. 14+05 -Y2A- (LT)
FROM STA. 57+90 TO STA. 60+87.38 -L- (LT)
FROM STA. 14-00 TO STA. 14-31.28 -Y4- (RT)
FROM STA. 77+00 TO STA. 79-50 -L- (LT)
FROM STA. 19-50 TO STA. 20+00 -Y8- (RT)
FROM STA. 17+50 TO STA. 18+00 -Y9- (LT)
FROM STA. 173+50 TO STA. 174+50 -L- (RT)
FROM STA. 247-00 TO STA. 249-00 -L- (LT)
FROM STA. 277-50 TO STA. 278-50 -L- (LT)
FROM STA. 13-72 TO STA. 14-50 -Y13- (LT)

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ROADWAY REF.:
CONST. R/W:

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 70 OF 84

5/14/99

REVISIONS

10/15/2018

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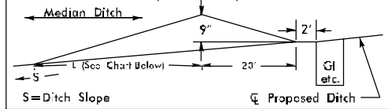
ROADWAY REF.
CONT. NO.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 71 OF 84

DETAIL 24
FALSE SUMP
(Not to Scale)

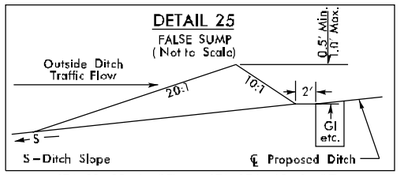


S=Ditch Slope ℄ Proposed Ditch

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'

STA. 101+59 –L–
STA. 107+36 –L–
STA. 113+17 –L–
STA. 122+85 –L–
STA. 130+15 –L–
STA. 134+15 –L–
STA. 136+15 –L–
STA. 155+85 –L–
STA. 156+85 –L–
STA. 159+85 –L–
STA. 163+35 –L–
STA. 166+85 –L–
STA. 170+85 –L–
STA. 178+65 –L–
STA. 191–65 –L–
STA. 212+15 –L–
STA. 215+65 –L–
STA. 221+14 –L–
STA. 232–14 –L–
STA. 243–18 –L–
STA. 251+20 –L–
STA. 253+20 –L–
STA. 260+30 –L–
STA. 269–15 –L–
STA. 272–15 –L–
STA. 276–15 –L–
STA. 278+70 –L–
STA. 281+40 –L–
STA. 287–14 –L–
STA. 289–13 –L–
STA. 293–14 –L–
STA. 297+65 –L–
STA. 302–14 –L–
STA. 308+86 –L–
STA. 310+36 –L–
STA. 313+86 –L–
STA. 317+86 –L–
STA. 325–13 –L–
STA. 326+64 –L–
STA. 335–13 –L–
STA. 351+65 –L–
STA. 357–15 –L–
STA. 359–13 –L–
STA. 362+65 –L–
STA. 363+85 –L–
STA. 371+50 –L–
STA. 374+85 –L–
STA. 380+85 –L–
STA. 382+85 –L–

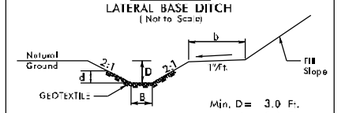
DETAIL 25
FALSE SUMP
(Not to Scale)



S=Ditch Slope ℄ Proposed Ditch

STA. 93–15 –L– (LT)
STA. 122+84 –L– (RT)
STA. 139+15 –L– (LT)
STA. 141–65 –L– (LT)
STA. 184+40 –L– (RT)
STA. 205+15 –L– (LT)
STA. 208+65 –L– (LT)
STA. 212+15 –L– (LT)
STA. 215–65 –L– (LT)
STA. 221+14 –L– (LT)
STA. 230–15 –L– (LT)
STA. 272–15 –L– (LT)
STA. 274+65 –L– (LT)
STA. 276–15 –L– (LT)
STA. 291+64 –L– (LT)
STA. 297+63 –L– (LT)
STA. 301+14 –L– (LT)
STA. 304+64 –L– (LT)
STA. 310+37 –L– (RT)
STA. 313+87 –L– (RT)
STA. 317–86 –L– (RT)
STA. 326+64 –L– (LT)
STA. 329–14 –L– (LT)
STA. 334–10 –L– (LT)
STA. 393–50 –L– (RT)

DETAIL 26
LATERAL BASE DITCH
(Not to Scale)

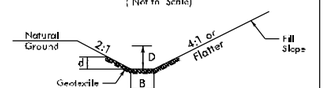


Min. D= 3.0 Ft.
Max. d= 2.0 Ft.
B= 3.0 Ft.
b= 5.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 129+00 TO STA. 131–60 –L– (LT)
FROM STA. 134–50 TO STA. 135–50 –L– (LT)
FROM STA. 210+00 TO STA. 212+00 –L– (RT)

DETAIL 27
SPECIAL LATERAL BASE DITCH
(Not to Scale)

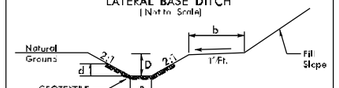


Min. D= 3.0 Ft.
Max. d= 2.0 Ft.
B= 2.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 145–50 TO STA. 147+50 –L– (RT)
FROM STA. 384–00 TO STA. 384+50 –L– (RT)

DETAIL 28
LATERAL BASE DITCH
(Not to Scale)

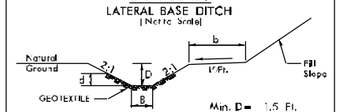


Min D= 3.0 Ft.
Max. d= 3.0 Ft.
B= 4.0 Ft.
b= 5.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 89+71 TO STA. 93+50 –L– (RT)
FROM STA. 143+75 TO STA. 144+00 –L– (LT)

DETAIL 29
LATERAL BASE DITCH
(Not to Scale)

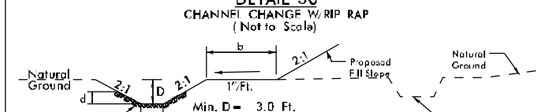


Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 3.0 Ft.
b= 5.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 115+35 TO STA 116+50 –L– (LT)
FROM STA. 304+85 TO STA. 307–00 –L– (RT)
FROM STA. 381+05 TO STA. 381+85 –L– (RT)

DETAIL 30
CHANNEL CHANGE W/RIP RAP
(Not to Scale)

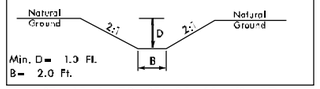


Min. D= 3.0 Ft.
Max. d= 2.5 Ft.
B= 7.0 Ft.
b=5.0 Ft.

Type of Liner= Class I Rip Rap

FROM STA. 235+27 TO STA. 239+00 –L– (RT)

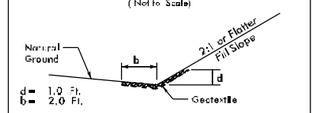
DETAIL 31
STANDARD BASE DITCH
(Not to Scale)



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

STA. 25+14 TO STA. 25+38 –Y2– (LT)
STA. 14+00 –Y2A– (RT)
STA. 66+95 –L– (RT)
STA. 233–50 –L– (RT)

DETAIL 32
TOE PROTECTION
(Not to Scale)

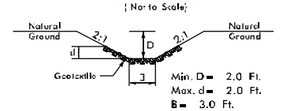


d= 1.0 Ft.
b= 2.0 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 157–50 TO STA. 158–50 –L– (LT)
FROM STA. 232+50 TO STA. 233+50 –L– (RT)
FROM STA. 259–00 TO STA. 259+55 –L– (LT)
FROM STA. 259–65 TO STA. 260+00 –L– (LT)
FROM STA. 359+00 TO STA. 359+62 –L– (RT)

DETAIL 33
STANDARD BASE DITCH
(Not to Scale)

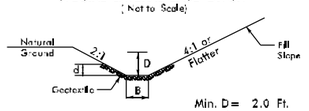


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 3.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 216+00 TO STA. 216+50 –L– (LT)
FROM STA. 232+00 TO STA. 232+50 –L– (RT)

DETAIL 34
SPECIAL LATERAL BASE DITCH
(Not to Scale)

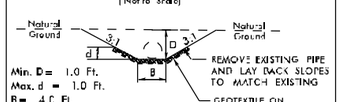


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 3.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 228+50 TO STA. 232+00 –L– (RT)
FROM STA. 307+00 TO STA. 310+00 –L– (RT)

DETAIL 35
STANDARD BASE DITCH
(Not to Scale)

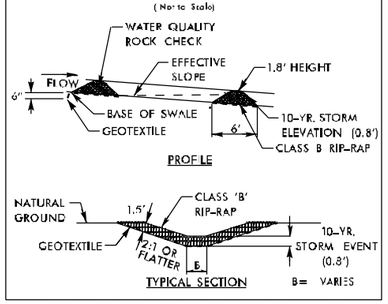


Min. D= 1.0 Ft.
Max. d = 1.0 Ft.
B= 4.0 Ft.

Type of Liner= Class I Rip-Rap

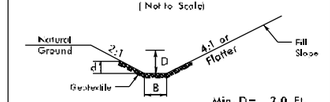
FROM STA. 147+98 TO STA. 148+21 –L– (LT)

DETAIL 36
SPECIAL ROCK CHECK DAM
(Not to Scale)



FROM STA. 276–50 TO STA. 277–75 –L– (RT)
FROM STA. 290–50 TO STA. 297–50 –L– (RT)
FROM STA. 307+00 TO STA. 308–50 –L– (LT)
FROM STA. 331+25 TO STA. 334+00 –L– (LT)

DETAIL 37
SPECIAL LATERAL BASE DITCH
(Not to Scale)

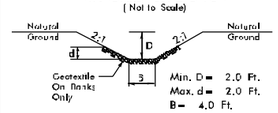


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 2.0 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 12+00 TO STA. 14+50 –Y16– (RT)

DETAIL 38
STANDARD BASE DITCH
(Not to Scale)

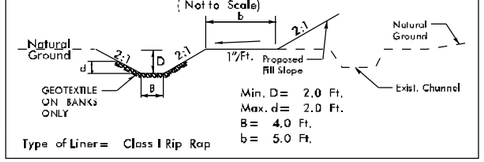


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 4.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 144+00 TO STA. 144+48 –L– (LT)
STA. 144+48 –L– (LT)
FROM STA. 148+58 TO STA. 148+70 –L– (LT)
STA. 149–62 –L– (RT)
STA. 157+37 –L– (LT)
STA. 195+80 –L– (LT)
FROM STA. 216+44 TO STA. 217+11 –L– (LT)
FROM STA. 219+00 TO STA. 219–21 –L– (RT)
STA. 259–54 –L– (RT)

DETAIL 39
CHANNEL CHANGE W/RIP RAP
(Not to Scale)

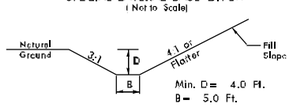


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 4.0 Ft.
b= 5.0 Ft.

Type of Liner= Class I Rip Rap

FROM STA. 292+50 TO STA. 295+27 –L– (LT)

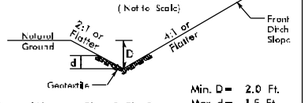
DETAIL 40
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D= 4.0 Ft.
B= 5.0 Ft.

FROM STA. 290+50 TO STA. 293+00 –L– (RT)

DETAIL 41
CUT DITCH
(Not to Scale)

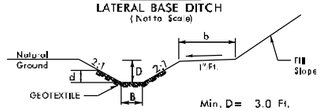


Min. D= 2.0 Ft.
Max. d= 1.5 Ft.

Type of Liner= Class B Rip-Rap

FROM STA. 385+00 TO STA. 385+50 –L– (RT)

DETAIL 42
LATERAL BASE DITCH
(Not to Scale)

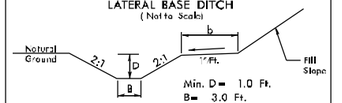


Min. D= 3.0 Ft.
Max. d= 2.0 Ft.
B= 2.0 Ft.
b= 5.0 Ft.

Type of Liner= Class I Rip-Rap

FROM STA. 382+60 TO STA. 384+00 –L– (RT)

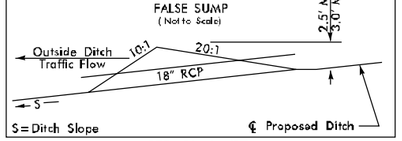
DETAIL 43
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 3.0 Ft.
b= 5.0 Ft.

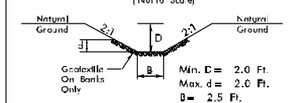
FROM STA. 308+50 TO STA. 309+50 –L– (LT)

DETAIL 44
FALSE SUMP
(Not to Scale)



277+90 –L– (RT)

DETAIL 46
STANDARD BASE DITCH
(Not to Scale)

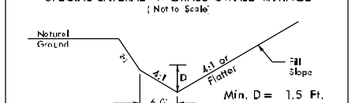


Min. D= 2.0 Ft.
Max. d= 2.0 Ft.
B= 2.5 Ft.

Type of Liner= Class 3 Rip-Rap

FROM STA. 128+81 TO STA. 129+00 –L– (LT)
FROM STA. 192+13 TO STA. 192+25 –L– (LT)
STA. 238+66 –L– (RT)
FROM STA. 276+27 TO STA. 276–60 –L– (LT)
FROM STA. 371+67 TO STA. 371+75 –L– (LT)

DETAIL 47
SPECIAL LATERAL 'V' GRASS SWALE w/HINGE
(Not to Scale)

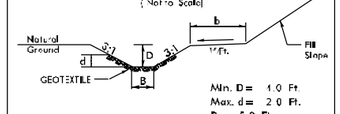


Min. D= 1.5 Ft.

*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

FROM STA. 349–50 TO 351+50 –L– (LT)

DETAIL 48
LATERAL BASE DITCH
(Not to Scale)



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

Type of Liner= Class I Rip-Rap

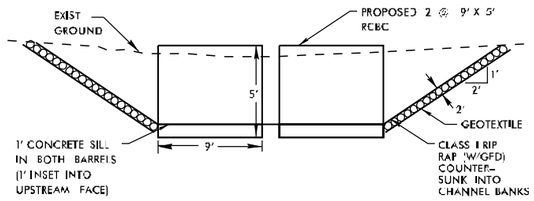
FROM STA. 276+50 TO STA. 277+75 –L– (RT)
FROM STA. 306+04 TO STA. 306+50 –L– (LT)
FROM STA. 307+00 TO STA. 308+50 –L– (LT)
FROM STA. 375+00 TO STA. 375+40 –L– (LT)

5/14/99

REVISIONS

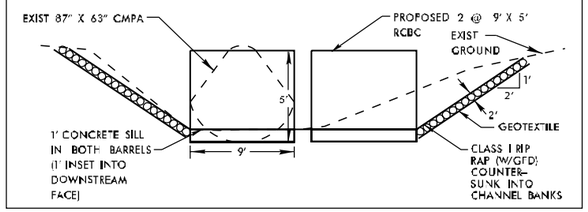
10/15/2018

DETAIL 49
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



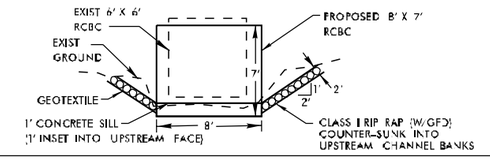
STA. 38+90 -L- (RT)

DETAIL 50
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



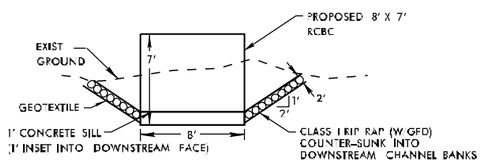
STA. 38+76 -L- (LT)

DETAIL 51
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 52+78 -L- (RT)

DETAIL 52
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 53+25 -L- (LT)

DETAIL 53
(NOT TO SCALE)
SINGLE BARREL CULVERT
SKEWED LOW FLOW
CHANNEL AND SILLS

*NOTES:

1) CLASS B RIP RAP BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. EXISTING CHANNEL CONSISTS OF ROCK THEREFORE EXCAVATED NATIVE MATERIAL IS NOT ANTICIPATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION.

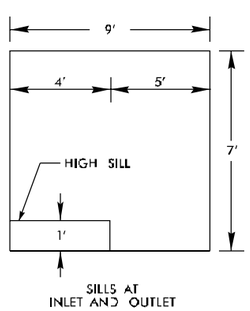
2) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) NO LOW FLOW SILLS/BAFFLES WILL BE REQUIRED AT UPSTREAM AND DOWNSTREAM CULVERT FACE AS CULVERT WILL NOT BE BURIED DUE TO PRESENCE OF ROCK IN STREAM BED.

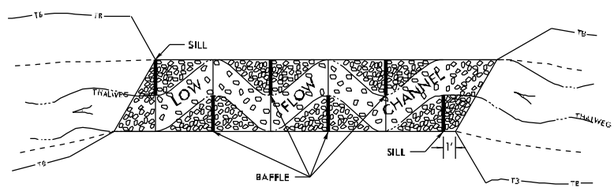
4) SILLS/BAFFLES ARE TO BE 1' HIGH.

5) NUMBER OF SILL/BAFFLES DETERMINED BY THE ENGINEER.

6) CULVERT SHOULD BE BACKFILLED WITH CLASS B RIP RAP TO SILL/BAFFLE HEIGHT.



SILLS AT INLET AND OUTLET

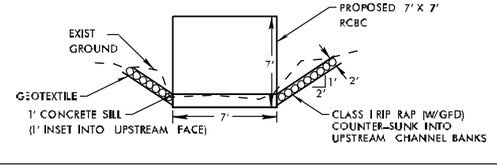


NUMBER OF BAFFLES=8
ON 25FT CENTERS FROM UPSTREAM SILL

PLAN VIEW

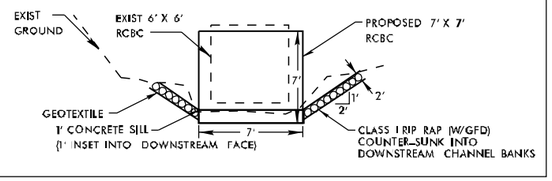
STA. 305+27 -L-

DETAIL 54
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



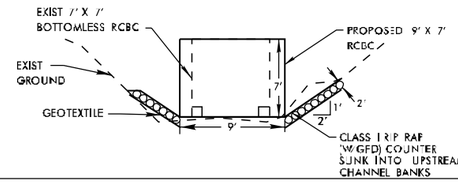
STA. 93+60 -L- (RT)

DETAIL 55
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



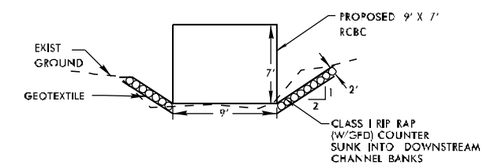
STA. 93+56 -L- (LT)

DETAIL 56
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



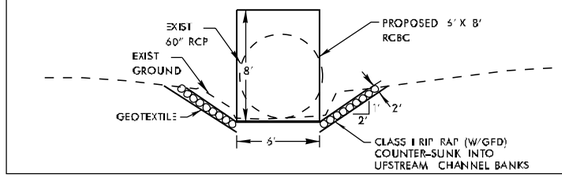
STA. 304+69 -L- (RT)

DETAIL 57
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



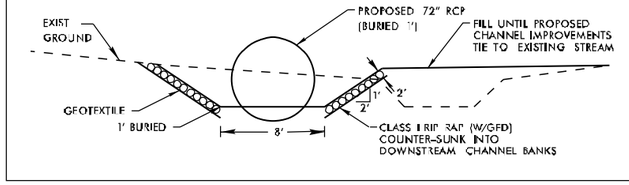
STA. 305+92 -L- (LT)

DETAIL 58
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



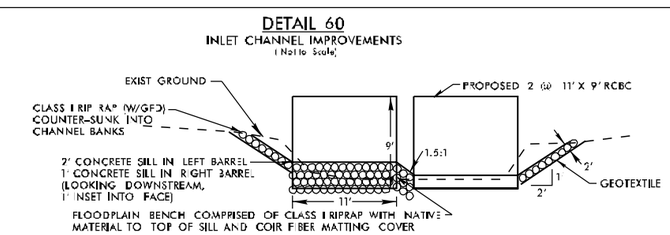
STA. 363+08 -L- (LT)

DETAIL 59
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



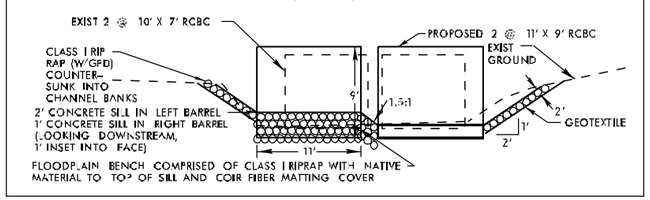
STA. 375+19 -L- (RT)

DETAIL 60
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 382+22 -L- (LT)

DETAIL 61
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 381-08 -L- (RT)

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ROADWAY REF.:
CONST. R/W

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

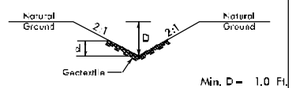
PERMIT DRAWING
SHEET 72 OF 84

5/14/99

REVISIONS

10/15/2018

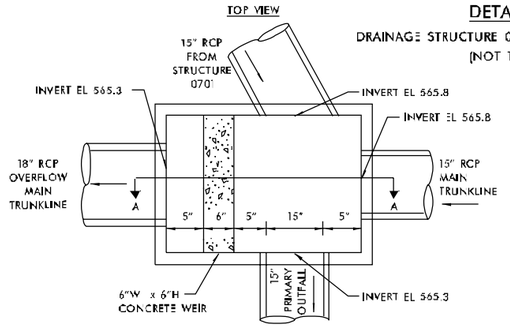
DETAIL 62
STANDARD 'V' DITCH
(Not to Scale)

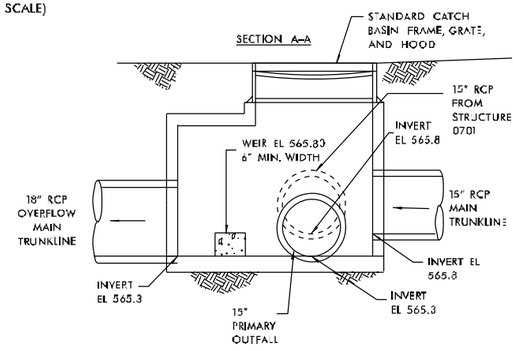


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = Class 'B' Rip-Rap

FROM STA. 103+13 TO STA. 103-31 -L- (RT)
FROM STA. 181+00 TO STA. 181-26 -L- (LT)
FROM STA. 219+30 -L- (RT)

DETAIL 63
DRAINAGE STRUCTURE 0702, CB AND SPLITTER BOX
(NOT TO SCALE)

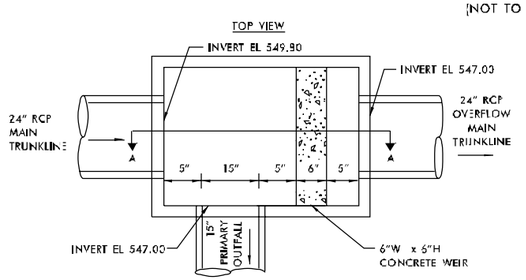


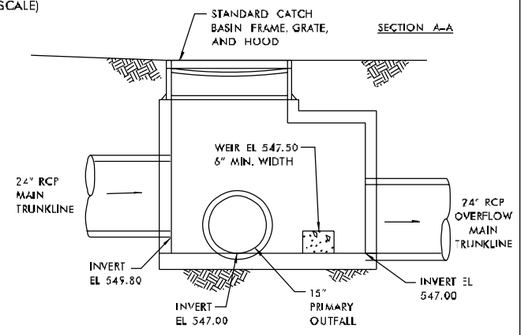


NOTES:
1. USE NCDOT STANDARD DRAWING 840.02. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A-A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

STA. 59+84 -L- (RT)

DETAIL 64
DRAINAGE STRUCTURE 0902, CB AND SPLITTER BOX
(NOT TO SCALE)

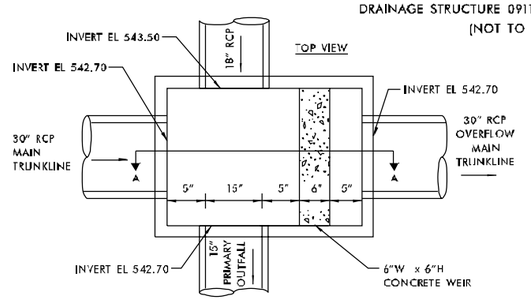


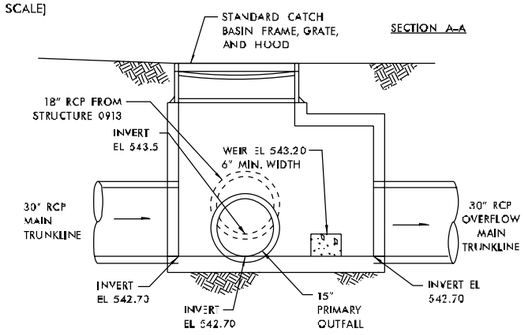


NOTES:
1. USE NCDOT STANDARD DRAWING 840.02. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A-A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

STA. 88-15 -L- (RT)

DETAIL 65
DRAINAGE STRUCTURE 0911, CB AND SPLITTER BOX
(NOT TO SCALE)

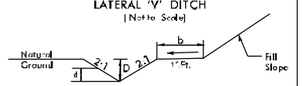




NOTES:
1. USE NCDOT STANDARD DRAWING 840.02. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A-A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

STA. 91+96 -L- (RT)

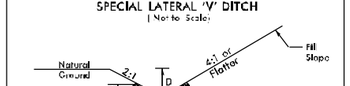
DETAIL 66
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
b = 5 Ft.

FROM STA. 23-50 TO STA. 24+70 -Y2- (RT)
FROM STA. 93-60 TO STA. 94+00 -L- (RT)

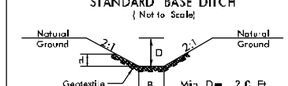
DETAIL 67
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d = 1.5 Ft.
Type of Liner = Class 'B' Rip-Rap

FROM STA. 102+00 TO STA. 102-72 -L- (LT)
FROM STA. 125+50 TO STA. 126-50 -L- (LT)
FROM STA. 23+80 TO STA. 25+00 -Y8- (RT)
FROM STA. 10-80 TO STA. 13-04 -Y10- (RT)
FROM STA. 223+17 TO STA. 225-00 -L- (LT)
FROM STA. 236+91 TO STA. 237-85 -L- (LT)
FROM STA. 16-50 TO STA. 16-75 -Y11- (RT)
FROM STA. 259-54 TO STA. 262-50 -L- (RT)
FROM STA. 355+50 TO STA. 356+75 -L- (LT)
FROM STA. 361+00 TO STA. 362-00 -L- (LT)
FROM STA. 371+75 TO STA. 373-00 -L- (LT)
FROM STA. 373+70 TO STA. 375+00 -L- (LT)
FROM STA. 375-20 TO STA. 377+90 -L- (RT)

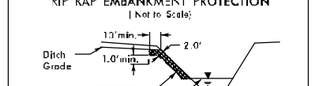
DETAIL 68
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.0 Ft.
Max. d = 2.0 Ft.
B= 2.0 Ft.
Type of Liner = Class I Rip-Rap

FROM STA. 335+30 TO STA. 335+84 -L- (LT)

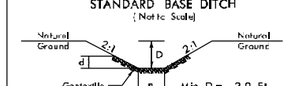
DETAIL 69
RIP RAP EMBANKMENT PROTECTION
(Not to Scale)



Type of Liner = Class II Rip-Rap

STA. 335-84 -L- (LT)

DETAIL 70
STANDARD BASE DITCH
(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B= 2.0 Ft.
Type of Liner = Class I Rip-Rap

FROM STA. 292-12 TO STA. 292-50 -L- (LT)

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ROADWAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 73 OF 84

5/14/99

REVISIONS

ROW REV. – 12/17 – ADDED DETAIL 75. – JWM

10/15/2018

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ROADWAY REV.

CONST REV.

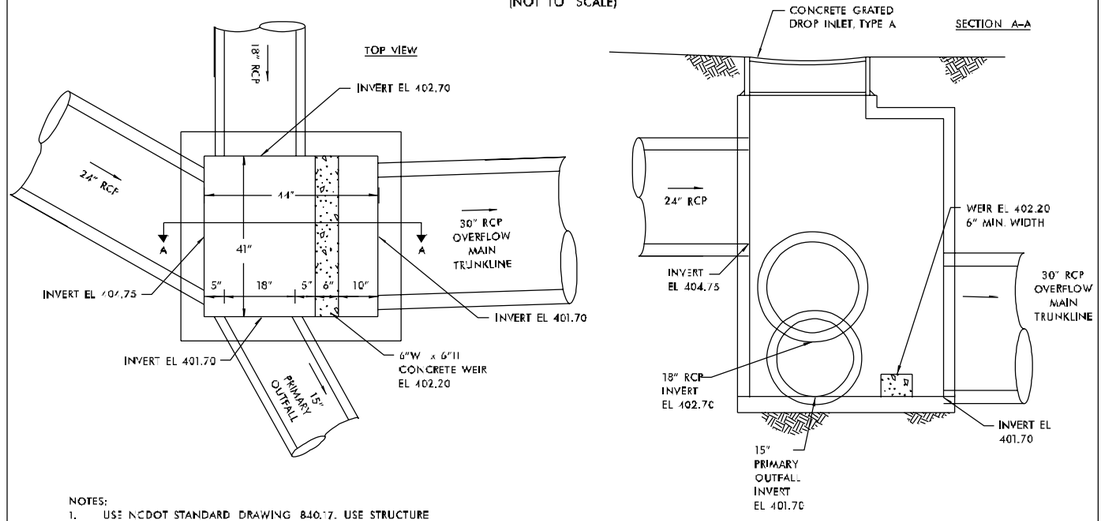
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 74 OF 84

DETAIL 71

DRAINAGE STRUCTURE 2202, 2CI-A AND SPLITTER BOX
(NOT TO SCALE)

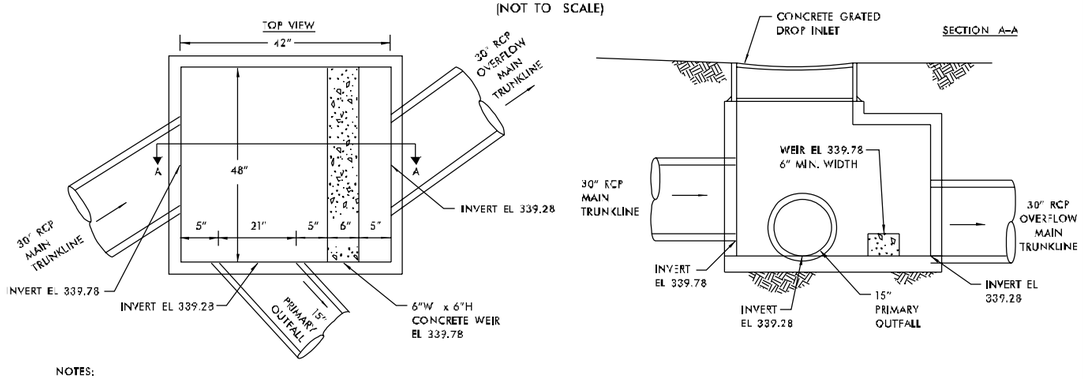


NOTES:
1. USE NCDOT STANDARD DRAWING 840.17. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A–A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE

STA. 276+00 –L– (RT)

DETAIL 72

DRAINAGE STRUCTURE 2403, OVERSIZED TB2GI AND SPLITTER BOX
(NOT TO SCALE)

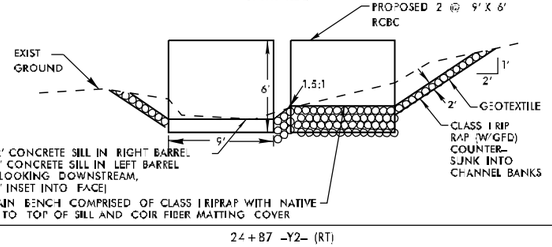


NOTES:
1. USE NCDOT STANDARD DRAWING 840.17. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A–A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE

STA. 295+95 –L–

DETAIL 73

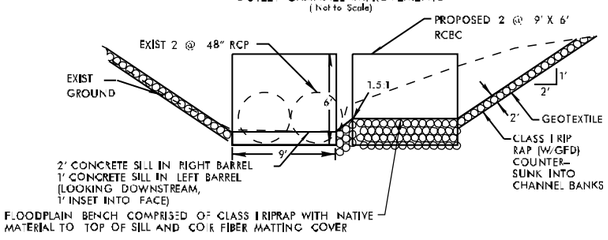
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



24+87 –Y2– (RT)

DETAIL 74

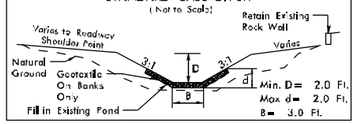
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



25+02 –Y2– (LT)

DETAIL 75

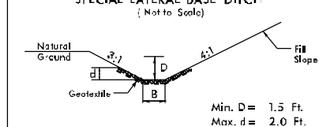
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 113+50 TO STA. 115+13 –L– (RT)

DETAIL 76

SPECIAL LATERAL BASE DITCH
(Not to Scale)

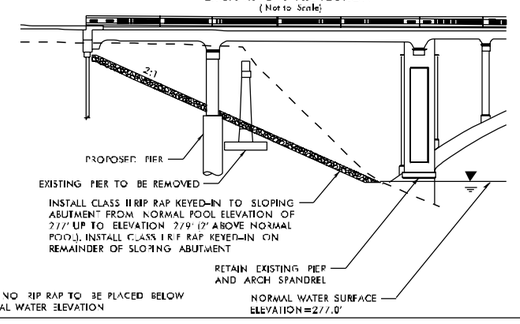


FROM STA. 331+25 TO STA. 334+00 –L– (LT)

BY OTHERS

DETAIL 77

SLOPING ABUTMENT
EMBANKMENT PROTECTION
(Not to Scale)



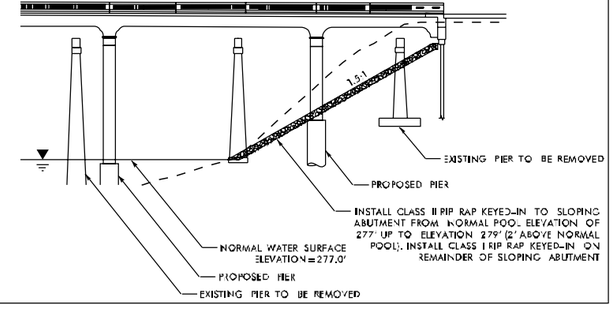
FROM STA. 335+48 TO STA. 336+42 –L–

BY OTHERS

NOTE: NO RIP RAP TO BE PLACED BELOW NORMAL WATER ELEVATION

DETAIL 78

SLOPING ABUTMENT
EMBANKMENT PROTECTION
(Not to Scale)



FROM STA. 345+86 TO STA. 346+92 –L–

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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-6
RW SHEET NO.	
HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

10/15/2018

-SCMI- POT Sta. 10+00.00
PLUG, FILL, AND ABANDON
FALSE SUMP SEE DETAIL 24, SHEET 2D-2
GRADE TO DRAIN
15" RCP-IV
-L-
-Y16-
-SCMI- PI Sta. 11+25.28
3' WIDE TRANSITION BERM EL = 310.00'
-SCMI- PI Sta. 11+51.04
PERFORATED 6" UNDERDRAIN PIPE (TYP) MIN. SLOPE = 0.5%
CO-3 INV.= 307.00'
CO-5 INV.= 306.80'
CO-7 INV.= 306.60'
18" RCP-III
15" RCP-III
TRANSITION PROTECTION EST 25 SY PSRM
REMOVE DI
REMOVE 15"
FILTRATION FOREBAY SEE NOTE 3
18" RCP-IV
EXIST R/W
MAXIMUM 50-YR W.S.E. = 312.61' FREEBOARD = 2.39'
PROVIDED FILTRATION BED SEE NOTE 1
CO-1 INV.= 307.10'
CO-2 INV.= 306.70'
-SCMI- PI Sta. 11+64.12
CO-4 INV.= 306.60'
PROPOSED FILTRATION AREA SEE DETAIL 1/SHEET 2D-7
CO-6 INV.= 306.50'
PROPOSED D SEE NOTE 2
-SCMI- PI Sta. 12+23.86
18" RCP-II INV IN = 306.40' INV OUT = 306.00'
CLASS 'B' RIP RAP EST 30 TONS EST 60 SY GFD
-SCMI- PI Sta. 12+74.71
GRADE TO DRAIN
-SCMI- POT Sta. 13+08.18
SPECIAL 2' LATERAL BASE DITCH W/CLASS 'B' RIPRAP SEE DETAIL 37/SHEET 2D-2
-DRW16- POT Sta. 11+90.00 = -L- POT Sta. 349+72.00 Δ = 90°
350+00
355+00
CHORD
-L- TS Sta. 355+91.00
-L- POT Sta. 353+90.00 = -Y16- POT Sta. 10+00.00 Δ = 90°
-Y16- PC Sta. 11+01.69
FERC BOUNDARY
EXIST R/W

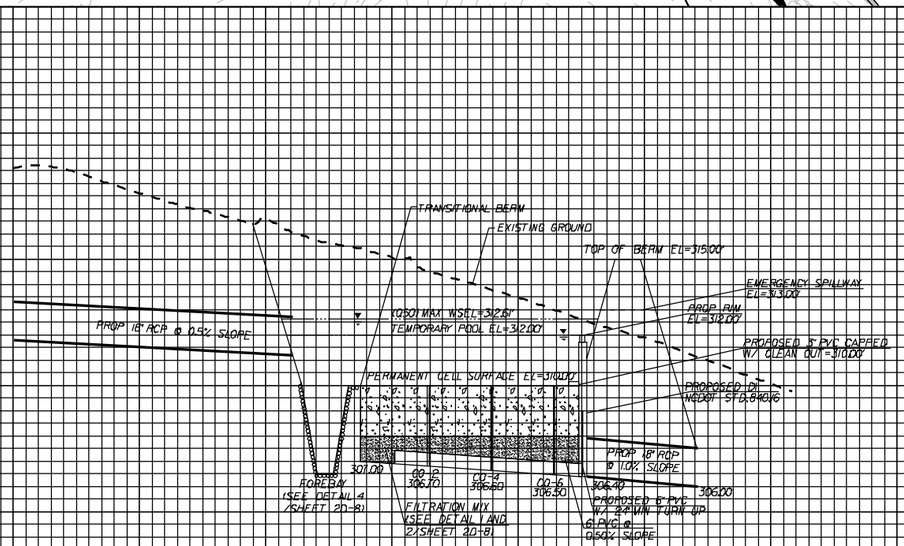
HORIZ
30 0 60

VERT
3 0 6

NOTES:
1. PROVIDED FILTRATION BED SURFACE AREA=3023 SF (EL=310.00')
TEMPORARY PONDING AREA WITH 24" DEPTH= 5383 SF (EL=312.00')
2. NCDOT STD 840.14 OUTLET STRUCTURE
W/ REMOVABLE TRASH RACK; RIM ELEVATION= 312.00'
CONSTRUCT 3" ORIFICE WITH CLEANOUT CAP INV.IN=310.00'
6" SCH 40 INV.IN=306.40'
PROP INV OUT =306.40'
(SEE DETAIL 3/SHEET 2D-8)
3. FILTRATION FOREBAY BOTTOM EL = 306.50'
CLASS 'B' RIP RAP
EST 25 TONS
EST 55 SY GFD
SEE DETAIL 4/SHEET 2D-8

PERMIT DRAWING SHEET 75 OF 84

SEE SHEET 28 FOR PLAN



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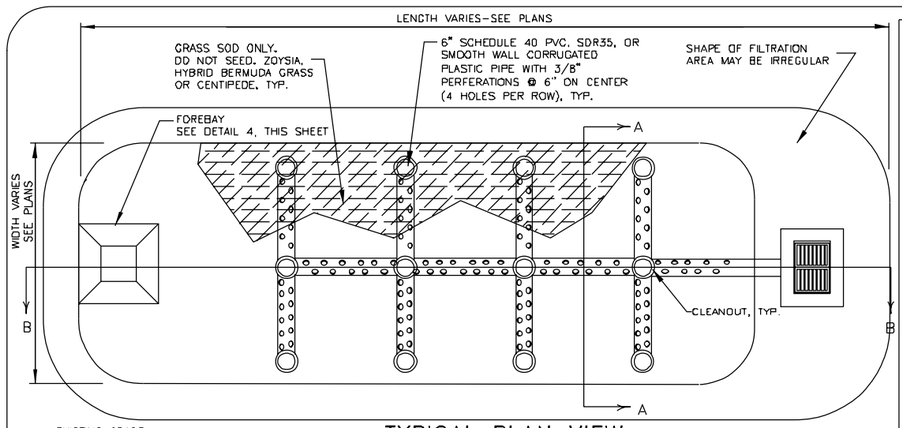
PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-7

HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 76 OF 84

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL PLAN VIEW

NOT TO SCALE

NOTES:
TEMPORARY PONDING DEPTH: 24"

UNDERDRAIN TO BE 6" SCHEDULE 40 PVC CORRUGATED PLASTIC PIPE WITH 3/8" PERF. @ 6" O.C., 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; GRAVEL NOT NECESSARY UNDER PIPES. MINIMUM SLOPE FOR UNDERDRAIN SHALL BE 0.005 FT/FT

UNDERDRAIN PIPES AND CLEANOUTS SHOULD BE LOCATED IN THE QUANTITY AND ELEVATION FOUND ON THE GRADING AND DRAINAGE PLAN (SHEET 2D-6).

CLEANOUT PIPE SHALL BE LOCATED A MINIMUM OF 1.0' FROM THE FILTRATION CELL WALL.

EXPOSED CLEANOUT CAP AND CONNECTORS TO BE CONSTRUCTED OF WHITE UV RESISTANT PVC MATERIAL.

GRASS SOD: SOD IS TO BE PLANTED WITHIN THE FILTRATION AREA AND ALONG THE ADJACENT SIDE SLOPES. SOD IS TO BE ZOYSIA WHICH HAS BEEN GROWN IN SANDY SOILS. LARGE DEPOSITS OF FINES ATTACHED TO THE ROOTS SHALL BE WASHED OFF OR REMOVED FROM THE SOD PRIOR TO INSTALLATION.

THE LOCATION OF FILTRATION AREA SHALL BE PROTECTED FROM EROSION AND SEDIMENT DURING SITE CONSTRUCTION. FILTRATION SOIL MIXTURE SHALL NOT BE PLACED UNTIL THE SURROUNDING SITE IS STABILIZED AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING FILTRATION SOIL MIXTURE IMPACTED BY SEDIMENT DEPOSITS DURING CONSTRUCTION.

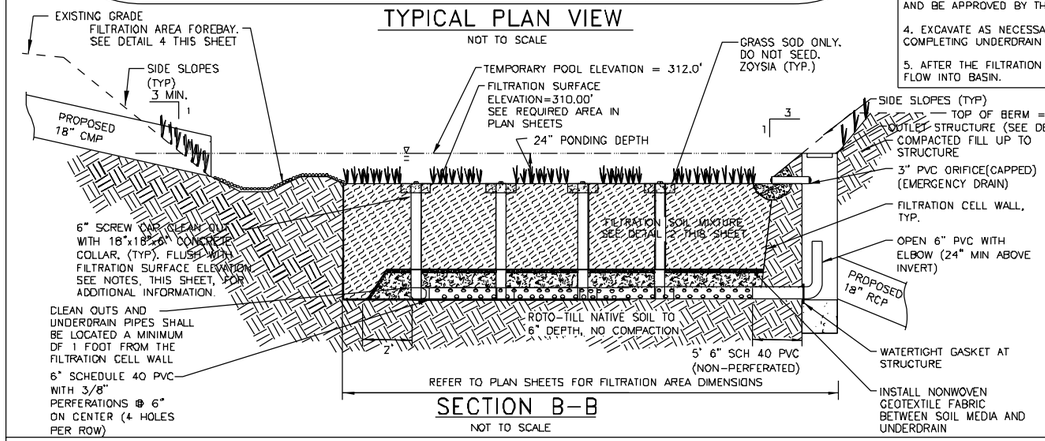
FILTRATION BASIN CONSTRUCTION SEQUENCE:
1. CONSTRUCT DRAINAGE MEASURES.

2. MAINTAIN EXISTING SYSTEM AS NECESSARY UNTIL FILTRATION MEDIA INSTALLATION IS COMPLETE. USE TEMPORARY BYPASS CONVEYANCE AS NECESSARY. (INTENTION IS TO BYPASS FLOW THROUGH EXISTING SYSTEM UNTIL THE BASIN IS STABLE)

3. ENSURE SITE IS PROPERLY STABILIZED WITH A GOOD STAND OF ESTABLISHED VEGETATION BEFORE PROCEEDING. ALL SLOPES DRAINING TO THE FILTRATION AREA SHOULD HAVE ESTABLISHED AT LEAST 90% VEGETATED COVERAGE, AND BE APPROVED BY THE ENGINEER.

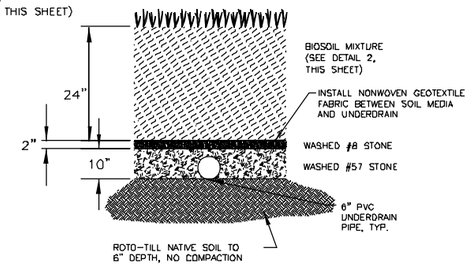
4. EXCAVATE AS NECESSARY TO INSTALL FOREBAY, RIP RAP, UNDERDRAIN SYSTEM AND BIOSOIL MIXTURE AFTER COMPLETING UNDERDRAIN SYSTEM ADD BIOSOIL MIXTURE PER THE DETAILS ON THIS SHEET.

5. AFTER THE FILTRATION AREA HAS REACHED FINAL GRADE, REMOVE PORTION OF EXISTING SYSTEM TO ALLOW FLOW INTO BASIN.



SECTION B-B

NOT TO SCALE

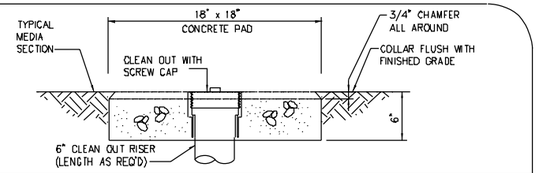


SECTION A-A

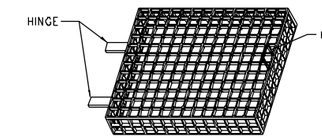
NOT TO SCALE

DETAIL 1: TYPICAL GRASS FILTRATION AREA

(NOT TO SCALE)
FROM -BMP-L- Sta. 352+25 to -BMP-Y16- Sta. 11+95



DETAIL 5: 18" x 18" x 6" CONCRETE COLLAR



REMOVABLE TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW 2012 NCDOT STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
3. TRASH RACKS SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM 153.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF THE PROPOSED TRASH RACKS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.

DETAIL 6: REMOVEABLE TRASH RACK

(NOT TO SCALE)

FILTRATION SOIL MIXTURE SHALL BE A MIX THAT MEETS THE FOLLOWING SPECIFICATION:

ITEM	PERCENT BY VOLUME	MATERIAL
SAND	80%	RECYCLED EXPANDED SLATE FINES
ORGANIC MATERIAL	20%	APPROVED COMPOST ORGANIC COMPONENT

FILTRATION SOIL MIXTURE (FSM): SHALL BE THOROUGHLY MECHANICALLY MIXED AT 1 PART COMPOST WITH 4 PARTS OF EXPANDED SLATE FINES UNTIL A UNIFORM DISTRIBUTION OF THE COMPONENTS IS ACHIEVED. SHALL BE PLACED AND GRADED USING LOW GROUND-CONTACT PRESSURE EQUIPMENT OR BY EXCAVATORS AND/OR BACKHOES OPERATING ON THE GROUND ADJACENT TO THE FILTRATION FACILITY. NO HEAVY EQUIPMENT SHALL BE USED WITHIN THE PERIMETER OF THE FILTRATION FACILITY BEFORE, DURING, OR AFTER THE PLACEMENT OF THE FSM. THE FSM SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 12 INCHES FOR THE ENTIRE AREA OF THE FILTRATION FACILITY. THE FSM SHALL BE COMPACTED BY SATURATING THE ENTIRE AREA OF THE FILTRATION FACILITY AFTER EACH LIFT OF FSM IS PLACED UNTIL WATER FLOWS FROM THE UNDERDRAIN. WATER FOR SATURATION SHALL BE APPLIED BY SPRAYING OR SPRINKLING. AN APPROPRIATE SEDIMENT CONTROL DEVICE SHALL BE USED TO TREAT ANY SEDIMENT-LADEN WATER DISCHARGED FROM THE UNDERDRAIN. IF THE FSM BECOMES CONTAMINATED DURING THE CONSTRUCTION OF THE FACILITY, THE CONTAMINATED MATERIAL SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED MATERIAL AT NO ADDITIONAL COST TO THE ADMINISTRATION. FINAL GRADING OF THE FSM SHALL BE PERFORMED AFTER A 24-HOUR SETTLING PERIOD. FINAL ELEVATIONS SHALL BE WITHIN 2 INCHES OF ELEVATIONS SHOWN ON THE CONTRACT PLANS.

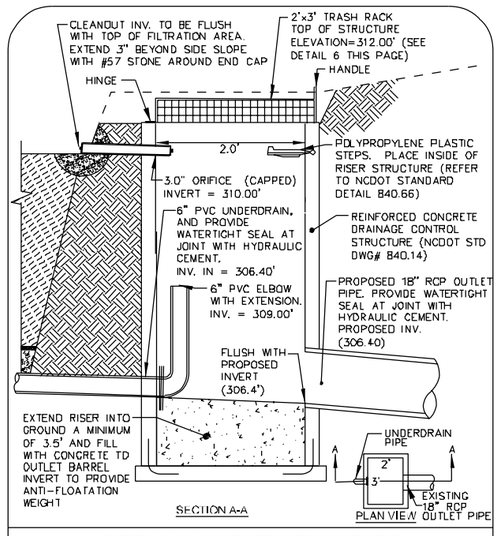
THE FILTRATION SOIL MIXTURE (FSM) SHALL HAVE A P-INDEX RANGE LESS THAN 30.

HYDRAULIC CONDUTIVITY OF FILTRATION SOIL MIX SHALL BE BETWEEN 3.0-6.0 IN/HR.

THE FILTRATION SOIL MIXTURE (FSM) SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES EXCLUDING MULCH. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE FILTRATION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS.

PRIOR TO PLACING THE UNDERDRAIN AND THE FSM, THE BOTTOM OF THE EXCAVATION SHALL BE ROTO-TILLED TO A MINIMUM DEPTH OF 6 INCHES TO ALLEVIATE ANY COMPACTION OF THE FACILITY BOTTOM. ANY SUBSTITUTE METHOD FOR ROTO-TILLING MUST BE APPROVED BY THE ENGINEER PRIORTO USE. ANY PONDED WATER SHALL BE REMOVED FROM THE BOTTOM OF THE FACILITY AND THE SOIL SHALL BE FRIABLE BEFORE ROTO-TILLING.

DETAIL 2: FILTRATION SOIL MIXTURE

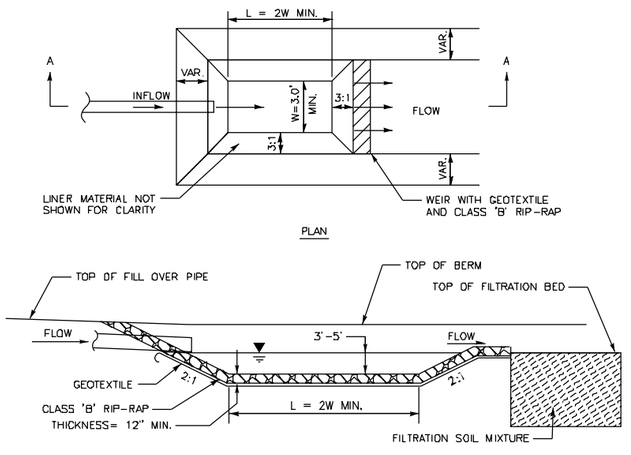


SECTION A-A

PLAN VIEW

DETAIL 3: OUTLET STRUCTURE

(NOT TO SCALE)



SECTION A-A

NOTES:
1) LINER MATERIAL TO BE SPECIFIED BY ENGINEER.
2) FOREBAY LAYOUT MAY BE IRREGULAR. SEE PLANS.
3) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

DETAIL 4: FILTRATION AREA FOREBAY

REVISIONS

10/15/2018

Kimley»Horn
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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-8
RW SHEET NO.	
HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

10/15/2018

-SCM2- POT Sta.10+00.00

-SCM2- PI Sta.11+18.19

-SCM2- PI Sta.11+35.52

-SCM2- POT Sta.12+31.96

-SCM2- PI Sta.11+76.82

380+00

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP
EST 125 TONS
EST 270 SY GFD
SEE DETAIL 57, SHEET 2D-4

FILTRATION FOREBAY
SEE NOTE 3

10' ACCESS DRIVEWAY

5' WIDE TRANSITION BERM
EL = 313.00'

CO-1
INV.=309.8'

CO-2
INV.=309.78'

PROPOSED FILTRATION AREA
SEE DETAIL 1/SHEET 2D-8

PERFORATED UNDERDRAIN PIPE (TYP) MIN. SLOPE=0.5%

CO-3
INV.=310.00'

MAXIMUM 50-YR W.S EL.=315.42'
FREEBOARD=1.58'

PROVIDED FILTRATION BED
SEE NOTE 1

CO-5
INV.=309.95'

CO-4
INV.=309.70'

CO-9
INV.=309.85'

PROPOSED DI
SEE NOTE 2

CO-8
INV.=309.50'

CO-6
INV.=309.65'

CO-7
INV.=309.80'

REMOVE EXIST 2 @ 10'X 7' RCBC

3' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 70 TONS
EST 100 SY GFD
SEE DETAIL 29, SHEET 2D-2

CHANNEL IMPROVEMENTS
CLASS I RIP RAP
EST 65 TONS
EST 90 SY GFD
SEE DETAIL 61, SHEET 2D-3

RIP RAP EMBANKMENT PROTECTION WITH CLASS I RIP RAP
EST 12 TONS
EST 19 SY GFD
SEE DETAIL 10, SHEET 2D-1

18" RCP-III
INV IN=309.50'
INV OUT=309.00'

18" RCP-III

18" RCP-V

15"

2GI

SEE NOTE 3

18"

TB2GI

3016 3017 3018 3019 3C17 3C24 3023 3024

WATERLINE

NOTES:
1. PROVIDED FILTRATION BED: SURFACE AREA=2859 SF (EL=313.00')
TEMPORARY PONDING AREA WITH 24" DEPTH= 4855 SF (EL=315.00')
2. NCDOT STD 840.14 OUTLET STRUCTURE W/ REMOVABLE TRASH RACK
RIM ELEVATION= 315.00'
CONSTRUCT 3" ORIFICE WITH
CLEANOUT CAP INV.IN=313.00'
6" SCH 40 INV.IN=309.50'
PROP INV OUT =309.50'
(SEE DETAIL 3/SHEET 2D-7)
3. FILTRATION FOREBAY BOTTOM EL = 309.50'
CLASS 'B' RIP RAP
EST 20 TONS
EST 40 SY GFD
SEE DETAIL 4/SHEET 2D-7

THOMAS H. LEMONS, DB 512 PG 874

HORIZ
30 0 60

VERT
3 0 6

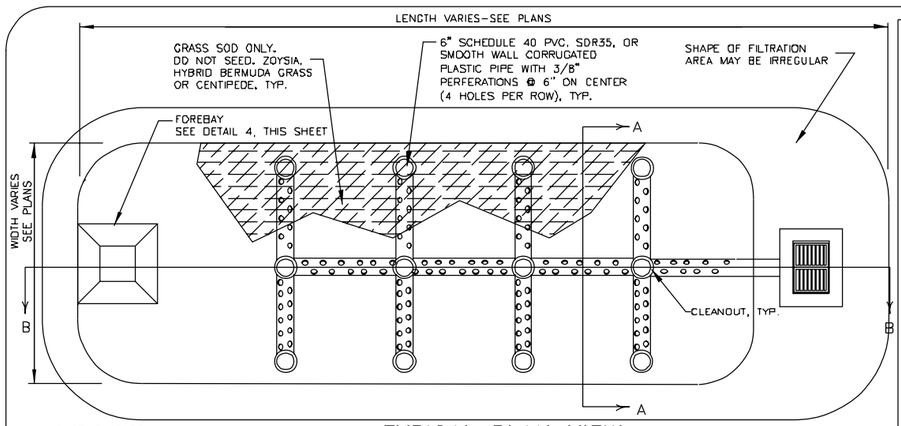
PERMIT DRAWING
SHEET 77 OF 84

SEE SHEET 30 FOR PLAN

EXISTING GROUND
TOP OF BERM EL=317.00'
EMERGENCY SPILLWAY EL=316.00'
PROP RIM EL=315.00'
MAX 100YR EL=315.58'
TEMPORARY POOL EL=313.00'
PROP 10' CMP @ 6.21% SLOPE
PERMANENT CELL SURFACE EL=311.00'
PROPOSED 3" PVC W/ CAPPED CLEAN OUT=313.00'
PROPOSED DI NCDOT ST.D.840.16
PROP 18" RCP @ 0.96% SLOPE
309.80
309.78
309.65
309.60
309.50
FOREBAY (SEE DETAIL 4 /SHEET 2D-8)
FILTRATION MIX (SEE DETAIL 1 AND 2/SHEET 2D-8)
PROPOSED 6" PVC W/ 24" MIN TURN UP
6" PVC @ MIN 0.50% SLOPE

330 325 320 315 310 305

08 09 10 11 12 13 14 15



TYPICAL PLAN VIEW

NOT TO SCALE

NOTES:
TEMPORARY PONDING DEPTH: 24"

UNDERDRAIN TO BE 6" SCHEDULE 40 PVC CORRUGATED PLASTIC PIPE WITH 3/8" PERF. @ 6" O.C., 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; GRAVEL NOT NECESSARY UNDER PIPES. MINIMUM SLOPE FOR UNDERDRAIN SHALL BE 0.005 FT/FT

UNDERDRAIN PIPES AND CLEANOUTS SHOULD BE LOCATED IN THE QUANTITY AND ELEVATION FOUND ON THE GRADING AND DRAINAGE PLAN (SHEET 4).

CLEANOUT PIPE SHALL BE LOCATED A MINIMUM OF 1.0' FROM THE FILTRATION CELL WALL.

EXPOSED CLEANOUT CAP AND CONNECTORS TO BE CONSTRUCTED OF WHITE UV RESISTANT PVC MATERIAL.

GRASS SOD: SOD IS TO BE PLANTED WITHIN THE FILTRATION AREA AND ALONG THE ADJACENT SIDE SLOPES. SOD IS TO BE ZOYSIA WHICH HAS BEEN GROWN IN SANDY SOILS. LARGE DEPOSITS OF FINES ATTACHED TO THE ROOTS SHALL BE WASHED OFF OR REMOVED FROM THE SOD PRIOR TO INSTALLATION.

THE LOCATION OF FILTRATION AREA SHALL BE PROTECTED FROM EROSION AND SEDIMENT DURING SITE CONSTRUCTION. FILTRATION SOIL MIXTURE SHALL NOT BE PLACED UNTIL THE SURROUNDING SITE IS STABILIZED AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING FILTRATION SOIL MIXTURE IMPACTED BY SEDIMENT DEPOSITS DURING CONSTRUCTION.

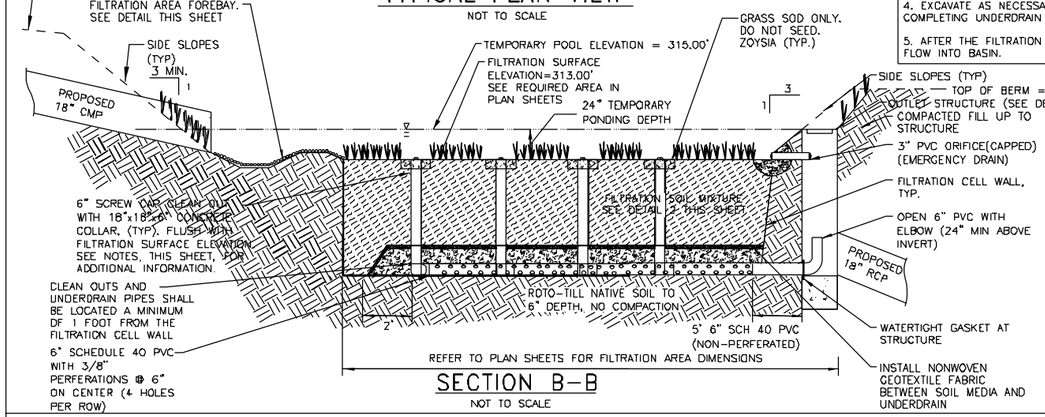
FILTRATION BASIN CONSTRUCTION SEQUENCE:
1. CONSTRUCT EROSION CONTROL MEASURES.

2. MAINTAIN EXISTING SYSTEM AS NECESSARY UNTIL FILTRATION MEDIA INSTALLATION IS COMPLETE. USE TEMPORARY BYPASS CONVEYANCE AS NECESSARY. (INTENTION IS TO BYPASS FLOW THROUGH EXISTING SYSTEM UNTIL THE BASIN IS STABLE)

3. ENSURE SITE IS PROPERLY STABILIZED WITH A GOOD STAND OF ESTABLISHED VEGETATION BEFORE PROCEEDING. ALL SLOPES DRAINING TO THE FILTRATION AREA SHOULD HAVE ESTABLISHED AT LEAST 90% VEGETATED COVERAGE, AND BE APPROVED BY THE ENGINEER.

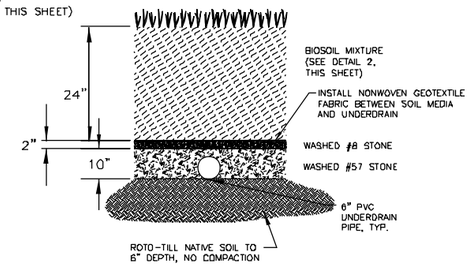
4. EXCAVATE AS NECESSARY TO INSTALL FOREBAY, RIP RAP, UNDERDRAIN SYSTEM AND BIOSOIL MIXTURE AFTER COMPLETING UNDERDRAIN SYSTEM ADD BIOSOIL MIXTURE PER THE DETAILS ON THIS SHEET.

5. AFTER THE FILTRATION AREA HAS REACHED FINAL GRADE, REMOVE PORTION OF EXISTING SYSTEM TO ALLOW FLOW INTO BASIN.



SECTION B-B

NOT TO SCALE



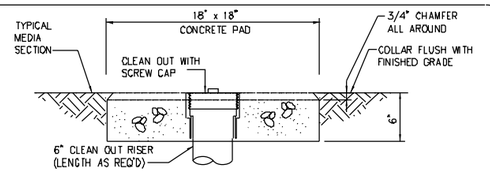
SECTION A-A

NOT TO SCALE

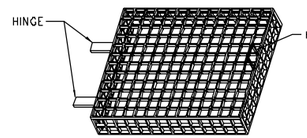
DETAIL 1: TYPICAL GRASS FILTRATION AREA

(NOT TO SCALE)

FROM -BMP-L- Sta. 379+09 to -BMP-Y16- Sta. 380+61



DETAIL 5: 18" x 18" x 6" CONCRETE COLLAR



REMOVABLE TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE CHEMICALLY ANCHORED, FOLLOW 2012 NCDOT STD. DWG. 862.04 FOR ANCHORING PROCEDURE.
3. TRASH RACKS SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM 153.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF THE PROPOSED TRASH RACKS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.

DETAIL 6: REMOVEABLE TRASH RACK

(NOT TO SCALE)

FILTRATION SOIL MIXTURE SHALL BE A MIX THAT MEETS THE FOLLOWING SPECIFICATION:

ITEM	PERCENT BY VOLUME	MATERIAL
SAND	80%	RECYCLED EXPANDED SLATE FINES
ORGANIC MATTER	20%	APPROVED COMPOST ORGANIC COMPONENT

FILTRATION SOIL MIXTURE (FSM): SHALL BE THOROUGHLY MECHANICALLY MIXED AT 1 PART COMPOST WITH 4 PARTS OF EXPANDED SLATE FINES UNTIL A UNIFORM DISTRIBUTION OF THE COMPONENTS IS ACHIEVED. SHALL BE PLACED AND GRADED USING LOW GROUND-CONTACT PRESSURE EQUIPMENT OR BY EXCAVATORS AND/OR BACKHOES OPERATING ON THE GROUND ADJACENT TO THE FILTRATION FACILITY. NO HEAVY EQUIPMENT SHALL BE USED WITHIN THE PERIMETER OF THE FILTRATION FACILITY BEFORE, DURING, OR AFTER THE PLACEMENT OF THE FSM. THE FSM SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 12 INCHES FOR THE ENTIRE AREA OF THE FILTRATION FACILITY. THE FSM SHALL BE COMPACTED BY SATURATING THE ENTIRE AREA OF THE FILTRATION FACILITY AFTER EACH LIFT OF FSM IS PLACED UNTIL WATER FLOWS FROM THE UNDERDRAIN. WATER FOR SATURATION SHALL BE APPLIED BY SPRAYING OR SPRINKLING. AN APPROPRIATE SEDIMENT CONTROL DEVICE SHALL BE USED TO TREAT ANY SEDIMENT-LADEN WATER DISCHARGED FROM THE UNDERDRAIN. IF THE FSM BECOMES CONTAMINATED DURING THE CONSTRUCTION OF THE FACILITY, THE CONTAMINATED MATERIAL SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED MATERIAL AT NO ADDITIONAL COST TO THE ADMINISTRATION. FINAL GRADING OF THE FSM SHALL BE PERFORMED AFTER A 24-HOUR SETTLING PERIOD. FINAL ELEVATIONS SHALL BE WITHIN 2 INCHES OF ELEVATIONS SHOWN ON THE CONTRACT PLANS.

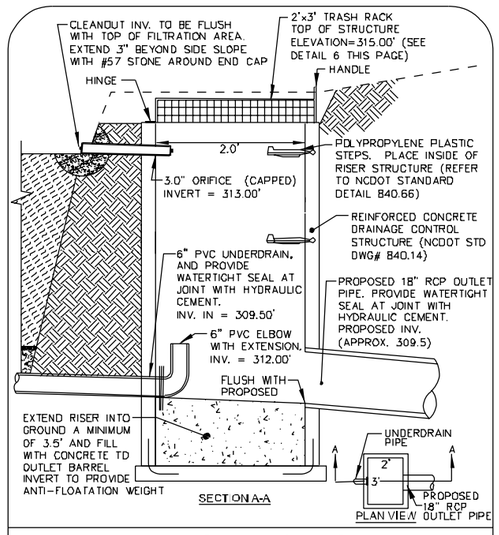
THE FILTRATION SOIL MIXTURE (FSM) SHALL HAVE A P-INDEX RANGE LESS THAN 30.

HYDRAULIC CONDUTIVITY OF FILTRATION SOIL MIX SHALL BE BETWEEN 3.0-6.0 IN/HR.

THE FILTRATION SOIL MIXTURE (FSM) SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES EXCLUDING MULCH. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE FILTRATION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS.

PRIOR TO PLACING THE UNDERDRAIN AND THE FSM, THE BOTTOM OF THE EXCAVATION SHALL BE ROTO-TILLED TO A MINIMUM DEPTH OF 6 INCHES TO ALLEVIATE ANY COMPACTION OF THE FACILITY BOTTOM. ANY SUBSTITUTE METHOD FOR ROTO-TILLING MUST BE APPROVED BY THE ENGINEER PRIORTO USE. ANY PONDED WATER SHALL BE REMOVED FROM THE BOTTOM OF THE FACILITY AND THE SOIL SHALL BE FRIABLE BEFORE ROTO-TILLING.

DETAIL 2: FILTRATION SOIL MIXTURE

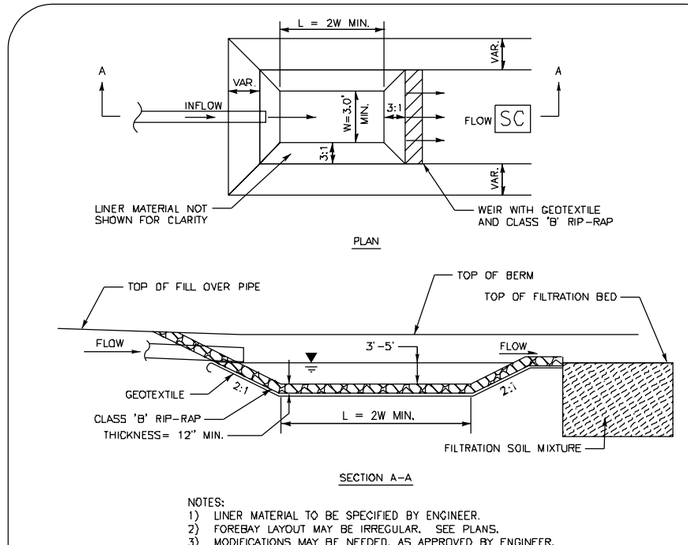


SECTION A-A

PLAN VIEW

DETAIL 3: OUTLET STRUCTURE

(NOT TO SCALE)



SECTION A-A

NOTES:
1) LINER MATERIAL TO BE SPECIFIED BY ENGINEER.
2) FOREBAY LAYOUT MAY BE IRREGULAR. SEE PLANS.
3) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

DETAIL 4: FILTRATION AREA FOREBAY

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P.O. BOX 33068 • RALEIGH, N.C. 27636-3068

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 78 OF 84

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

10/15/2018

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	38+70 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	19	9	
2	52+52/52+68 -L-(RT)	Fill						< 0.01	< 0.01	34	7	
2	52+64/52+92 -L-(RT)	1 @ 8' x 7' RCBC						0.01		72		
2	52+68/53+28 -L-(RT)	Lateral Base Ditch						< 0.01	< 0.01	65	10	
3	52+85/53+06 -L- (LT)	Fill						< 0.01		38		
3	53+06/53+45 -L- (LT)	Bank Stabilization						< 0.01		40		
3	53+45/53+67 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	11	14	
3	53+67/53+89 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	10	25	
4	66+88 -L- (RT)	Outlet Protection						< 0.01	< 0.01	5	7	
5	12+34/12+57 -Y6- (RT)	Outlet Protection						< 0.01	< 0.01	16	10	
6	87+75/93+55 -L- (RT)	Fill/Ditch Excavation	0.19		0.15	0.12						
7	93+53 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	26	10	
7	93+60 -L- (RT)	1 @ 7' x 7' RCBC						< 0.01		60		
8	93+61 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	16	10	
9	100+72/100+95 -L- (LT)	Outlet Protection						< 0.01	< 0.01	18	10	
9	100+95/101+95 -L- (LT)	36" RCP and Fill						0.01		109		
TOTALS*:			0.19		0.15	0.12		0.07	0.01	539	112	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10-15-2018
STANLY AND MONTGOMERY COUNTIES
R-2530B & B-4974
34446.1.6

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
10	103+40 -L- (RT)	Mechanized Clearing				< 0.01						
11	113+36/113+62 -L- (RT)	Fill/Ditch Excavation						< 0.01		27		
11	115+08/116+10 -L- (RT)	Fill						< 0.01		35		
12	115+24/115+39 -L- (LT)	Outlet Protection						< 0.01	< 0.01	21	10	
12	115+39/116+14 -L- (LT)	Fill / 60" RCP						0.01		126		
13	116+16 -L- (RT)	Fill / 60" RCP						< 0.01	< 0.01	23	10	
14	116+84/118+60 -L- (RT)	Fill	0.09			0.09						
15	118+96/120+93 -L- (RT)	Fill	0.05			0.02						
15	121+18/121+67 -L- (RT)	Erosion Control Basin	< 0.01		< 0.01	< 0.01						
16	126+81/131+74 -L- (LT)	Fill/Ditch Excavation						0.04	< 0.01	368	10	
17	134+35/134+87 -L- (LT)	Lateral Base Ditch						< 0.01	< 0.01	45	10	
17	134+87/144+06 -L- (LT)	Fill						0.09		947		
17	144+06/144+68 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	55	25	
18	147+91/148+73 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	21	34	
18	148+73/149+50 -L- (LT)	42" RCP and Fill						0.01		130		
TOTALS*:			0.15		< 0.01	0.12		0.17	< 0.01	1798	99	0

*Rounded totals are sum of actual impacts

NOTES:

Permit Site 11 - POND A is a total take: 0.20 ac
Permit Site 16 - POND B is a total take: 0.23 ac

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10-15-2018
STANLY AND MONTGOMERY COUNTIES
R-2530B & B-4974
34446.1.6

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
19	149+52/149+63 -L- (RT)	Fill						< 0.01		20		
19	149+59/149+69 -L- (RT)	Standard Base Ditch						< 0.01	< 0.01	24	12	
19	149+63 -L- (RT)	Mechanized Clearing				< 0.01						
20	157+10/157+46 -L- (LT)	Fill						0.01		116		
20	157+37 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	15	12	
21	180+34/180+73 -L- (RT)	Fill	0.02				< 0.01					
22	191+57/192+12 -L- (LT)	Fill						< 0.01		59		
22	192+12/192+31 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	11	10	
23	208+74/211+68 -L- (RT)	Fill						0.03		333		
23	211+68/212+09 -L- (RT)	Lateral Base Ditch						< 0.01	< 0.01	38	10	
24	216+31/217+11 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	86	12	
24	217+11/217+17 -L- (LT)	Fill						< 0.01		10		
25	217+82/218+73 -L- (RT)	Fill						0.01		136		
25	218+73/219+22 -L- (RT)	Standard Base Ditch						< 0.01	< 0.01	73	10	
26	232+30/232+68 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	20	20	
27	233+34/233+64 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	10	20	
TOTALS*:			0.02			< 0.01	< 0.01	0.09	0.01	951	106	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10-15-2018
STANLY AND MONTGOMERY COUNTIES
R-2530B & B-4974
34446.1.6

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
28	235+16/238+03 -L- (RT)	Lateral Base Ditch						< 0.01	< 0.01	52	20	
28	235+47/237+70 -L- (RT)	Fill						0.04		310		
29	236+89/237+10 -L- (LT)	Fill						< 0.01	< 0.01	16	10	
30	238+51/238+77 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	10	16	
31	259+57 -L- (LT)	Fill						0.01	< 0.01	107	10	
32	276+19/276+66 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	66	10	
32	276+66/277+16 -L- (LT)	Fill						< 0.01		98		
33	277+19/278+21 -L- (RT)	Fill						0.01		118		
33	278+21/278+37 -L- (RT)	Outlet Protection						< 0.01	< 0.01	25	13	
34	292+05/292+77 -L- (LT)	Standard Base Ditch						< 0.01	< 0.01	75	25	
34	292+77/296+87 -L- (LT)	Fill						0.02		178		
35	297+72/298+00 -L- (RT)	Fill						< 0.01		35		
35	298+00/298+26 -L- (RT)	Outlet Protection						< 0.01	< 0.01	11	10	
36	304+54/304+66 -L- (RT)	Bank Stabilization						< 0.01		17		
36	304+66/304+81 -L- (RT)	1 @ 9' x 7' RCBC						< 0.01		23		
TOTALS*:								0.12	0.01	1141	114	0

*Rounded totals are sum of actual impacts

NOTES:

Permit Site 34 - POND D is a total take: 0.22 ac

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
37	305+21/305+95 -L- (LT)	1 @ 9' x 7' RCBC						0.02		136		
37	305+95/306+06 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	27	10	
38	335+75/336+40 -L-	Sloping Abutment and Bank Stabilization and Temp. Bridge						0.05	0.02	238	18	
39	345+69/346+12 -L-	Sloping Abutment and Bank Stabilization and Causeway						0.04	0.02	171	20	
40	359+25/359+62 -L- (RT)	36" RCP and fill						0.01		89		
40	359+62/359+72 -L- (RT)	Outlet Protection						< 0.01	< 0.01	10	11	
41	362+75/363+05 -L- (RT)	1 @ 6' x 8' RCBC						0.01	< 0.01	24	12	
42	363+00/363+07 -L- (LT)	1 @ 6' x 8' RCBC						< 0.01		32		
42	363+07/363+21 -L- (LT)	Bank Stabilization						< 0.01	< 0.01	44	7	
43	363+07/363+41 -L- (RT)	Fill/Ditch Excavation	0.02		< 0.01							
44	371+48 -L- (RT)	Outlet Protection						< 0.01	< 0.01	7	10	
45	375+05/375+43 -L- (RT)	72" RCP and Fill						0.01	< 0.01	86	11	
TOTALS*:			0.02		< 0.01			0.16	0.06	864	99	0

*Rounded totals are sum of actual impacts

NOTES:
Total Temporary Pier Impacts for Bridge No. 50 = 0.045 AC (2000 Sq. Ft.)
Total Temporary Pier Impacts for Bridge No. 51 = 0.04 AC (1880 Sq. Ft.)
Total Permanent Pier Impacts for Bridge No. 51 = 0.001 AC (60 Sq. Ft.)

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10-15-2018
STANLY AND MONTGOMERY COUNTIES
R-2530B & B-4974
34446.1.6

Revised 2018 02 26

WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
46	375+49 -L- (LT)	72" RCP and Fill						< 0.01		75		
46	375+51 -L- (LT)	Bank Stabilization						< 0.01		26		
47A	380+64 -L- (RT)	Bank Stabilization						< 0.01	< 0.01	10	16	
47	380+82/381+00 -L- (RT)	2 @ 11' x 9' RCBC						< 0.01		4		
47	381+00/381+19 -L- (RT)	Floodplain Bench						< 0.01	< 0.01	25	10	
48	381+54/382+18 -L- (LT)	2 @ 11' x 9' RCBC						0.03		94		
48	382+18/382+46 -L- (LT)	Floodplain Bench						< 0.01	0.01	31	33	
49	383+00/383+47 -L- (LT)	Mechanized Clearing				0.03						
50	24+59/24+84 -Y2- (RT)	Floodplain Bench						< 0.01	< 0.01	35	10	
50	24+84/24+94 -Y2-	2 @ 9' x 6' RCBC						< 0.01		74		
51	25+09 -Y2- (LT)	Floodplain Bench						< 0.01	< 0.01	8	12	
TOTALS*:						0.03		0.06	0.02	382	81	0
PROJECT TOTALS*:			0.38		0.15	0.27		0.67	0.11	5675	611	0

*Rounded totals are sum of actual impacts

NOTES:

*

R-2530B/B-4974 - Total Pond Impacts: 0.75 ac

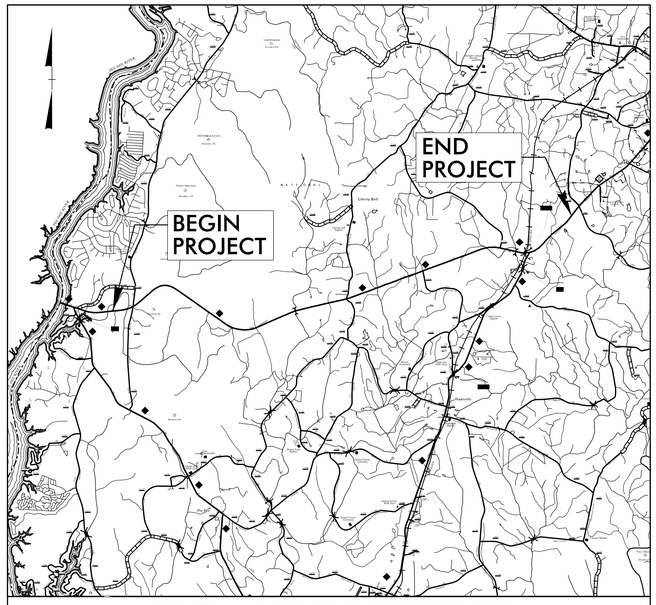
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
10-15-2018
STANLY AND MONTGOMERY COUNTIES
R-2530B & B-4974
34446.1.6

Revised 2018 02 26

09/08/99

TIP PROJECT: R-2527

CONTRACT:



VICINITY MAP FOR STATE PROJECT R-2527

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2527	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
35572.1.1	N/A	P.E.	

25% REVIEW PLANS FOR REVIEW ONLY

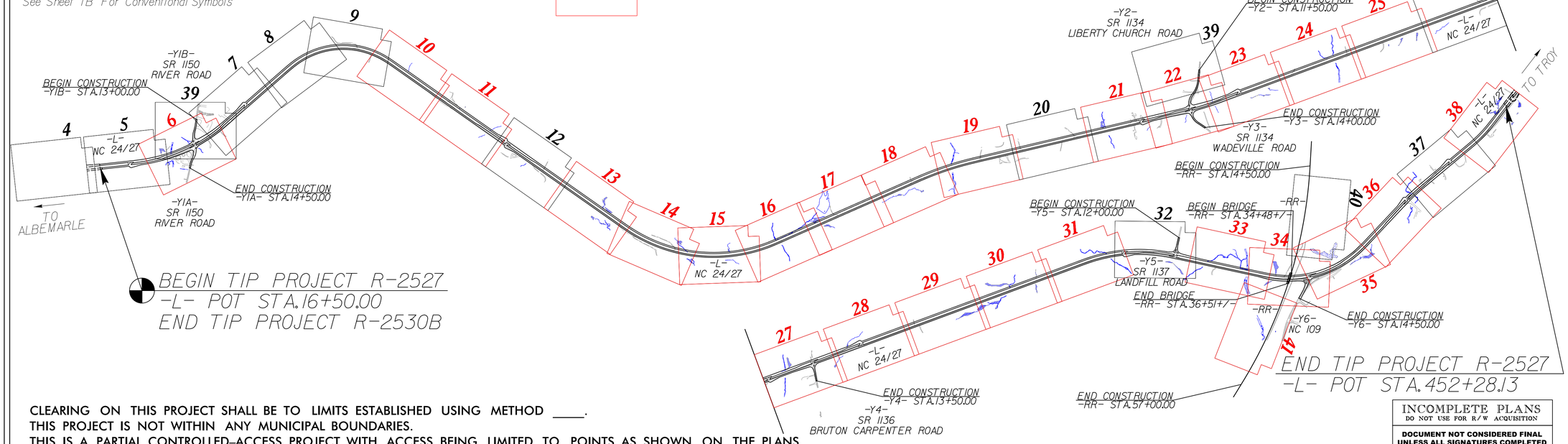
LOCATION: NC 24-27 FROM NC 73 TO THE TROY BYPASS

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURES, AND CULVERTS

PRELIMINARY WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/NA 2011

= SHEETS WITH IMPACTS



CLEARING ON THIS PROJECT SHALL BE TO LIMITS ESTABLISHED USING METHOD ____.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2021 = 11,839
ADT 2041 = 14,535
K = 9%
D = 55%
T = 14 % *
V = 60 MPH
* TTST = 8% DUAL 6%
FUNC CLASS = RURAL MINOR ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2527 = 8.253 mi.
LENGTH STRUCTURES TIP PROJECT R-2527 = 0.000 mi.
TOTAL LENGTH TIP PROJECT R-2527 = 8.253 mi.

Prepared in the Offices of:

STEWART
223 S. WEST ST, STE 1100
RALEIGH, NC 27603
T 919.380.8750
NC FIRM LICENSE No:C-1140
1151 SE Cary Parkway, Suite 101
Cary, NC 27518
(919) 557-4928
Firm License #:C-0351
www.stewartinc.com
PROJECT #:8150.03
ECOLOGICAL ENGINEERING

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 2, 2019

LETTING DATE:
FEBRUARY 16, 2021

ANDY YOUNG, PE
PROJECT ENGINEER

MICHAEL BURNS, PE
PROJECT DESIGN ENGINEER

PAMELA R. WILLIAMS
NCDOT CONTACT

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

15:28 PM
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erlicberger

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2527	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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STEWART
Firm License No. C-1051
223 S. West St.
Suite 1100
Raleigh, NC 27603
T 919.380.8799
www.stewartinc.com

NC FIRM LICENSE No P-1148
1151 SE Cary Parkway, Suite 101
Cary, NC 27518
(919) 467-0490
ECOLOGICAL ENGINEERING

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NAD 83/NA 2011

STREAM SB-1

WETLAND WF

STREAM SB-2

STREAM SB-4

WETLAND WE

STREAM SB-3

STREAM SB-1

STREAM SB-2

MATCH TO SHEET 5 -L- STA 28+00.00

MATCH TO SHEET 39 -YIB- STA 13+50.00

MATCH TO SHEET -L- STA. 38+00.00

S 13° 12' 54.4" E

S 19° 24' 24" W

3 SAMUEL HORACE MCCALL, III AND WIFE LYNN CORDES MCCALL DB 244 PG 695

4 MCRAE INDUSTRIES, INC. DB 245 PG 220

6 OHM2005, INC., A NORTH CAROLINA CORPORATION DB 542 PG 467 PB D PG 78C

2 CHARLES H. MANESS AND WIFE BETTY S. MANESS DB 285 PG 404

5 BLAKE TOMMY AND KENNETH FURR DB 223 PG 557

TONY L. BURRIS AND WIFE, CHARLENE BURRIS DB 220 PG 893

8 FREDA M. LEE HARRIS DB 754 PG 408

7 OWNER UNKNOWN DB UNKNOWN

9 JOHN FARLEY HALL, JR. AND WIFE, PHYLISS DOREEN HALL DB 196 PG 379

ROBIN P. LEMONS DB 360 PG 495 PB A PG 295

BM #22 -BYI- STA 21+13.00 269 RIGHT ELEV. 344.96' N 567950 E 1683604 BENCH TIE IN 36" OAK

FOR INTERSECTION DETAIL, SEE SHEET 2B-2

FOR -L- PROFILE, SEE SHEET 42

FOR -YIA- PROFILE, SEE SHEET 58

FOR -YIB- PROFILE, SEE SHEET 58

4:40:28 PM
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5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

NC GRID
NAD 83 NA 2011

80

85

50' 0' 100'
GRAPHIC SCALE

NAD 83NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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STEWART
Firm License No. C-1051
223 S. West St.
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STREAM SJ

17

UNITED STATES FOREST SERVICE

MATCH TO SHEET 9 -L- STA 75+00.00

MATCH TO SHEET 11 -L- STA. 88+00.00

CAT-1

GREU TL-3

4' FDPS

2' FDPS

10' FDPS

8d

24"

46"

INC=40% (TYP.)

S 54° 55' 09.7" E -L-

NC HWY 24/27 (BE BST)

ACCESS POINT

BM #5 EL= 542.20'
28' RIGHT
N 35°24'47.5" E 1688.63'
BENCH TIE IN 20" OAK

14

SCARBOROUGH PROPERTIES, LLC
DB 579 PG 853

17

UNITED STATES FOREST SERVICE

ENVIROMENTALLY SENSITIVE AREA

FOR -L- PROFILE, SEE SHEET 44

4:40:31 PM
K:\Projects\PERMITS_Environmental\Drawings\R2527_Hyd_PRM_PSH10.dgn
erlberger

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

WETLAND WH

WETLAND WJ

STREAM SL-A

NC GRID NAD 83 NA 2011

NAD 83NA 2011

50' 0' 100'

GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2527	11

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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17
UNITED STATES FOREST SERVICE

18
UNITED STATES OF AMERICA
DB 653 PG 416
PB E PG 162D

19
DAVID WAYNE JOYCE
AND WIFE, DONNA JOYCE
DB 537 PG 198
PB C PG 162C

MATCH TO SHEET 10
-L- STA. 88+00.00

MATCH TO SHEET 12
-L- STA. 102+00.00

ACCESS POINT

ACCESS POINT

4" FDPS

2" FDPS

2" FDPS

4" FDPS

24"

46'

24"

24"

S 54° 55' 09.7" E
-L-

BL 105

NC HWY 24/27 26' BST

SOIL

WOODS

+35.00

+50.03

+80.00

ST

ST

FOR INTERSECTION DETAIL, SEE SHEET 2B-3

FOR -L- PROFILE, SEE SHEETS 44 & 45

10:40:33 PM
R:\Roadway Projects\PERMITS_Environmental\Drawings\R2527_Hyd_PRM_PSH11.dgn
eric.berger

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
R-2527	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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NAD 83/NA 2011

50' 0' 100'
GRAPHIC SCALE

120

125

STREAM SM-1

WETLAND WR

WETLAND WP

18

UNITED STATES OF AMERICA
DB 653 PG 416
PB C PG 1620

14

SCARBOROUGH PROPERTIES, LLC
DB 579 PG 853
PB C PB-137C

MATCH TO SHEET 12
-L- STA. 116+00.00

MATCH TO SHEET 14
-L- STA. 130+00.00

CAT-1

GREU TL-3

4' FDPS

2' FDPS

10' FDPS

24'

46'

8:1

S 54° 55' 09.7" E
-L-

NC HWY 24/27

ACCESS POINT

INC. 40' (TYP.)

STREAM SM-2

WETLAND WM

STREAM SM-1

WETLAND WN

ENVIROMENTALLY SENSITIVE AREA

FOR -L- PROFILE, SEE SHEETS 45 & 46

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8/10/2016 1:40:36 PM

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	14

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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STREAM
SN

WETLAND
WV

135

140

14
SCARBOROUGH PROPERTIES, LLC
DB 579 PG 853
PB C PB 137C

19
UNITED STATE FOREST SERVICE
DB 92 PG 226

MATCH TO SHEET 13
-L- STA. 130+00.00

MATCH TO SHEET 15
-L- STA. 142+00.00

ACCESS POINT

INC=4% (TYP.)

4' FDPS

2' FDPS

24"

48"

-L-

GREU TL-3

8:1

10' FDPS

PM #6
ELEV. 580.72
N 3967858.1987
E 1617576.4287
BENCH TIE IN PIN

FOR -L- PROFILE, SEE SHEET 46

8:40:38 PM
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brichter

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	15

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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STREAM SN

WETLAND WU-1

STREAM SO

WETLAND WS

STREAM SN

STREAM SO-1

STREAM SO

145

150

MATCH TO SHEET 14 -L- STA 142+00.00

MATCH TO SHEET 16 -L- STA 154+00.00

19 UNITED STATE FOREST SERVICE DB 92 PG 226

20 ROBERT ANTHONY MORRIS AND WIFE, JACKIE MORRIS DB 748 PG 214

ACCESS POINT

4' FDPS

2' FDPS

10' FDPS

CAT-1

-L-

FOR -L- PROFILE, SEE SHEETS 46 & 47

10:40:40 PM
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erlicber

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
R-2527	16

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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50' 0' 100'
GRAPHIC SCALE

NAD 83/NA 2011

STREAM SC

STREAM SC-1

STREAM SC

155

160

165

20

ROBERT ANTHONY MORRIS AND WIFE, JACKIE MORRIS DB 748 PG 214

20

ROBERT ANTHONY MORRIS AND WIFE, JACKIE MORRIS DB 748 PG 214

PUMAS CREEK

MATCH TO SHEET 15 -L- STA. 154+00.00

MATCH TO SHEET 17 -L- STA. 166+00.00

N 66° 14' 17.2" E -L-

CAT-1

GREU TL-3

4' FDPS

2' FDPS

10' FDPS

24'

46'

INC.=40' (TYP.)

ACCESS POINT

FOR -L- PROFILE, SEE SHEET 47

10:40:45 PM
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erickberger

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
R-2527	17

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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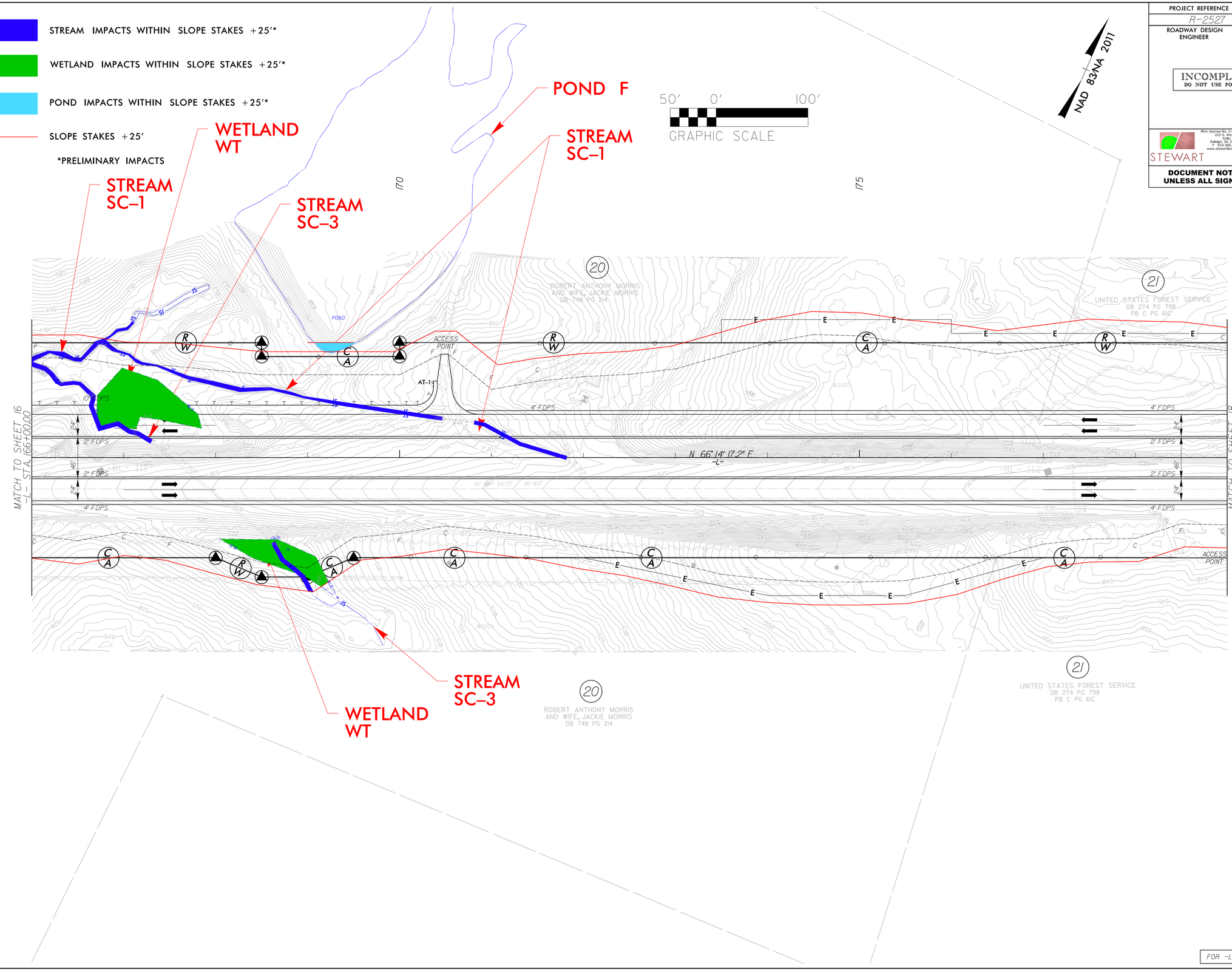
NAD 83/NA 2011

50' 0' 100'
GRAPHIC SCALE



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5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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180 185 190

21

UNITED STATES FOREST SERVICE
DB 274 PG 798
PB C PG 61C

MATCH TO SHEET 17
-L- STA. 179+00.00

MATCH TO SHEET 19
-L- STA. 192+00.00

ACCESS POINT

INC.=40' (TYP.)

N 66°14'17.2" E
-L-

NC HWY 24/27 26' BST

4' FDPS
2' FDPS
10' FDPS
GREU TL-3
CAT-1

STREAM
SW-A

WETLAND
WSS

STREAM
SW-A

WETLAND
WSS

FOR -L- PROFILE, SEE SHEETS 47 & 48

3:40:52 PM
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erlee

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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STREAM SD

STREAM SD-1

21 UNITED STATES FOREST SERVICE
DB 274 PG 798
PB C PG 6IC

22 BILLY ANDREW GOOCH
DB 332 PG 175

23 GARY A. SOWARDS AND WIFE ROMA RASNAKE SOWARDS
DB 399 PG 293
PB 223 PG 565

24 JAMES ALLEN HENRY
DB 410 PG 394
PB D PG 148D

ACCESS POINT

INC.=40' (TYP.)

CAT-1

10' FDPS

2' FDPS

4' FDPS

N 76° 43' 33.3" E
-L-

MATCH TO SHEET 18 -L- STA.192+00.00

MATCH TO SHEET 20 -L- STA.206+00.00

FOR -L- PROFILE, SEE SHEET 48

4:40:57 PM
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5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

STREAM SP

WETLAND WU-2

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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FOR INTERSECTION DETAIL, SEE SHEET 2B-4

FOR -L- PROFILE, SEE SHEET 49

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STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
R-2527	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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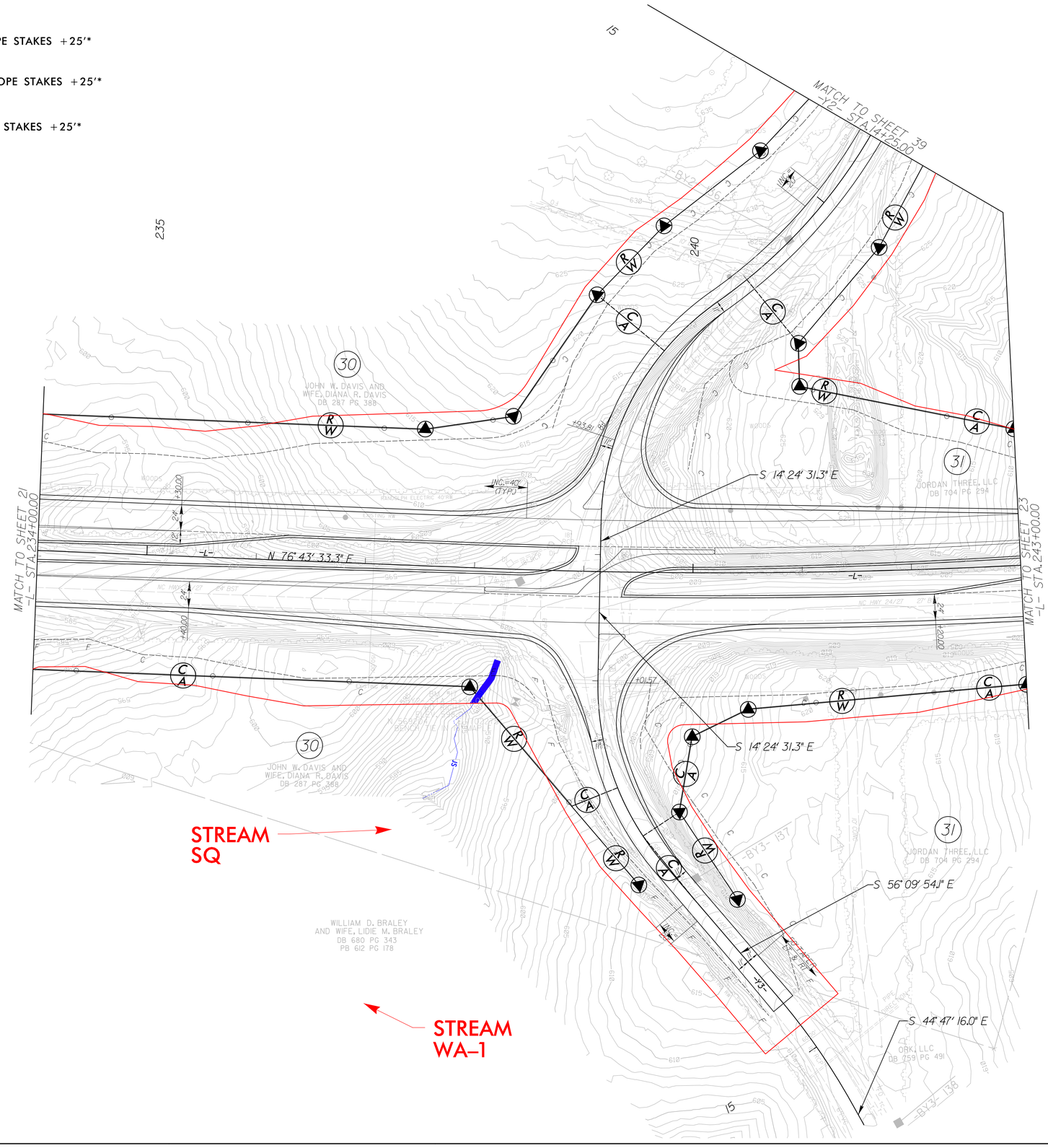
NAD 83/NA 2011

50' 0' 100'
GRAPHIC SCALE



FOR INTERSSECTION DETAIL, SEE SHEETS 2B-5

FOR -L- PROFILE, SEE SHEETS 49 & 50

FOR -Y2- PROFILE, SEE SHEET 59

FOR -Y3- PROFILE, SEE SHEET 59

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STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	23

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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WETLAND LW

WETLAND LH

STREAM SR

245

250

255

31 JORDAN THREE, LLC DB 704 PG 294

ORK, LLC DB 759 PG 491

33 FLOYD H. BILLINGS AND WIFE, JUNE M. BILLINGS DB 181PG 557

34 JORDAN TIMBERLANDS, INC. A NORTH CAROLINA CORPORATION DB 707 PG 370 PB F PG 57C

ACCESS POINT

INC.=40' (TYP.)

12476

24"

12"

N 69° 43' 18.2" E -L-

4' FDPS

2' FDPS

10' FDPS

GREU TL-3

MATCH TO SHEET 22 -L- STA.243+00.00

MATCH TO SHEET 24 -L- STA.257+00.00

STREAM SR

WETLAND WZ

WETLAND WZ

WETLAND WZ-1

STREAM SS-1

FOR INTERSECTION DETAIL,SEE SHEET 2B-X

FOR -L- PROFILE,SEE SHEET 50

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erlacher

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2527	24

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'
GRAPHIC SCALE

NAD 83/NA 2011

STREAM SE

STREAM SU

260 265 270

34
JORDAN TIMBERLANDS, INC.
A NORTH CAROLINA CORPORATION
DB 707 PG 370
PB F PG 57C

ACCESS POINT

MATCH TO SHEET 23 -L- STA. 257+00.00

MATCH TO SHEET 25 -L- STA. 271+00.00

4' FDPS
2' FDPS
10' FDPS
24'
46'
CAT-1
GREU TL-3
8SI
61PVC
N 69° 43' 18.2" E
-L-
NC HWY 24/27
26' BST
WOODS
RANDOLPH ELECTRIC MEMB
BM #6
EL= 534.69'
N 569904.1619
E 1704328
BENCH TIE IN TO BM#6
SF
SS
SU
SE
UCK FORK TRIBUTARY 1
TRIBUTARY 2

FOR -L- PROFILE, SEE SHEETS 50 & 51

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erbarger

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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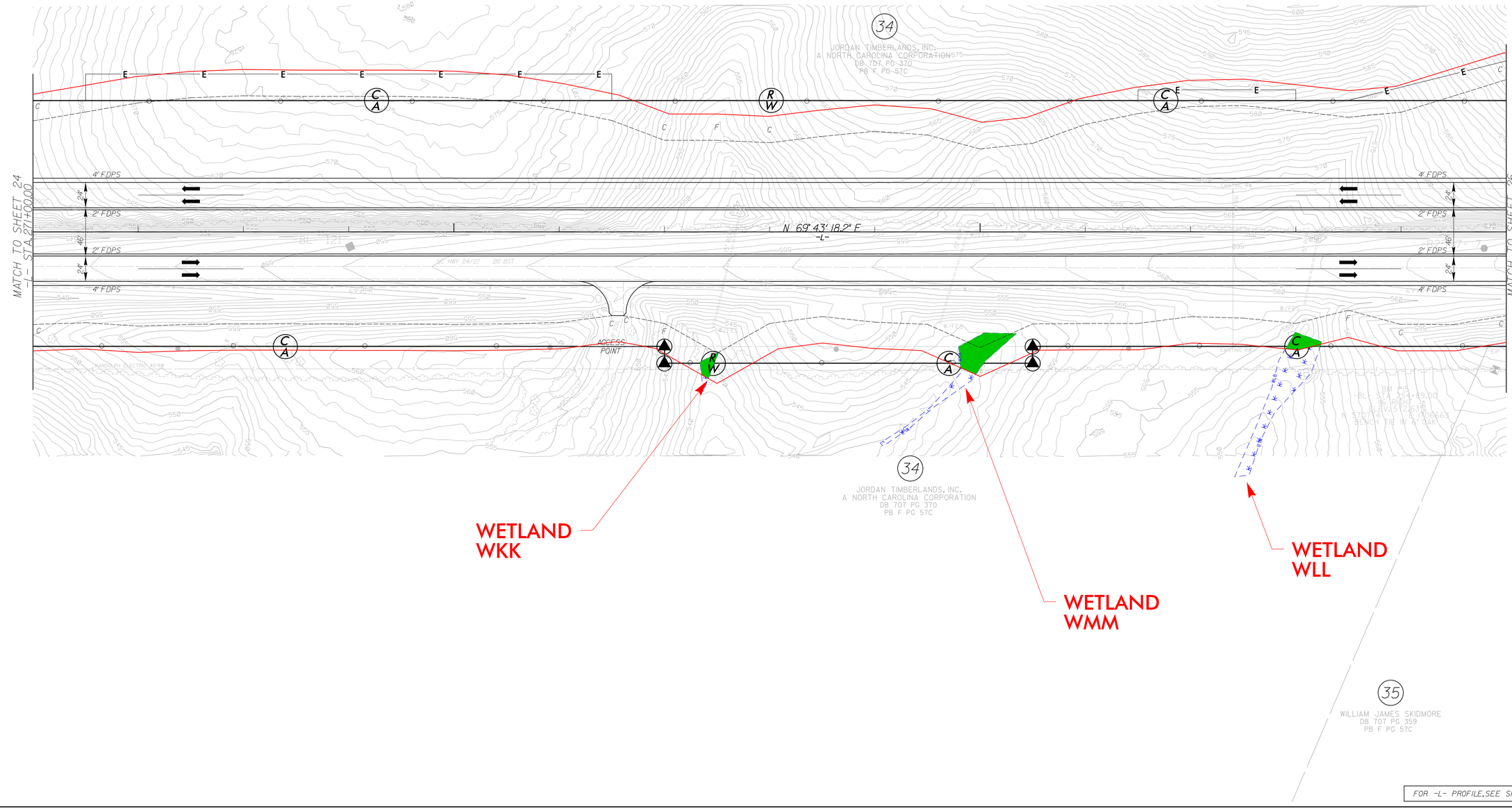
275

280



FOR -L- PROFILE, SEE SHEET 5I

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2527	27

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'
GRAPHIC SCALE

NAD 83/NA 2011

STREAM SF-A

STREAM SF-A1

WETLAND WNN

WETLAND WOO

STREAM SW-B

300 305 310

37 EDWARDS TIMBER COMPANY INC. DB 702 PG 126 DB F PG 488

38 CONNIE A. GRAHAM AND HUSBAND, WILLIAM E. GRAHAM DB 546 PG 405

39 STATE OF NORTH CAROLINA DB 181PG 687

40 UNITED STATES FOREST SERVICE DB 185 PG 665

JACK C. STARNES, UNMARRIED DB 522 PG 22

ACCESS POINT

CAT-1 10' FDPS 4' FDPS 8:1

GREU TL-3 10' FDPS 4' FDPS 8:1

-L- BL 122

-L- BL 143

N 69° 43' 18.2" E -L-

S 11° 05' 43.6" E

60' TAPER LT & RT

MATCH TO SHEET 26 -L- STA. 299+00.00

MATCH TO SHEET 28 -L- STA. 313+00.00

FOR INTERSECTION DETAIL, SEE SHEET 2B-X

FOR -L- PROFILE, SEE SHEET 52

FOR -Y4- PROFILE, SEE SHEET 60

-BY4- 139

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erlcooper

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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(919) 467-1949

ECOLOGICAL ENGINEERING

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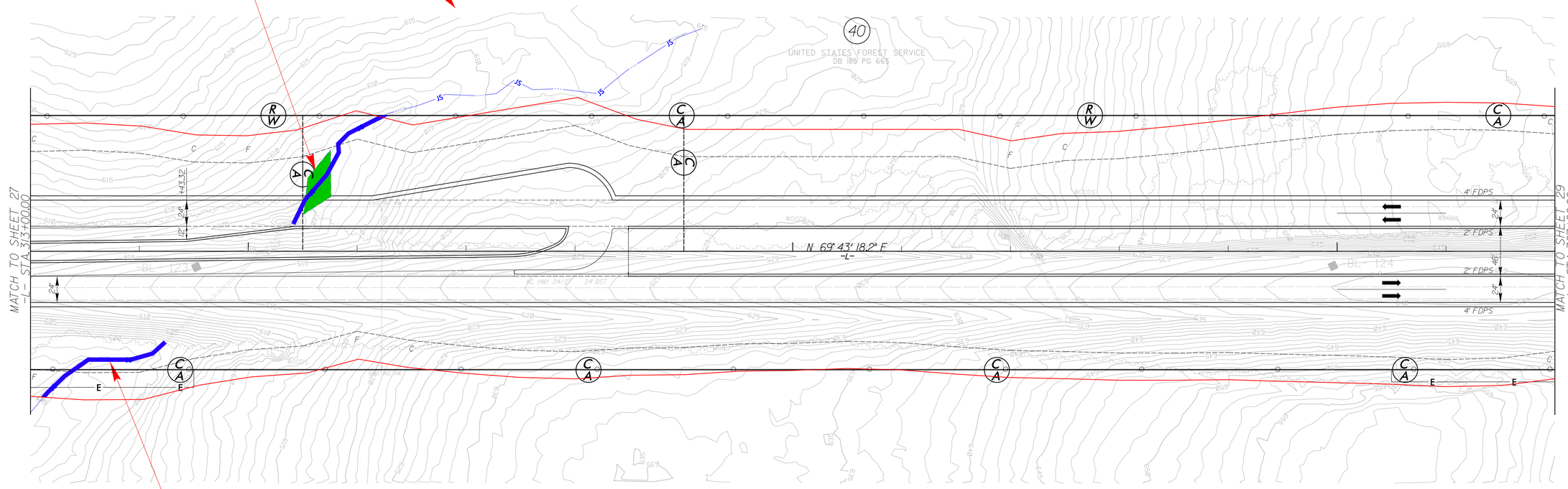
315 320 325

WETLAND
WHH

STREAM
SW-B



STREAM
SW-B

40
UNITED STATES FOREST SERVICE
DB 185 PG 665

ENVIROMENTALLY SENSITIVE AREA

FOR INTERSECTION DETAIL, SEE SHEET 2B-6

FOR -L- PROFILE, SEE SHEETS 52 & 53

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preiser

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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330 335 340

40
UNITED STATES FOREST SERVICE
DB 185 PG 665

MATCH TO SHEET 28
-L- STA. 327+00.00

MATCH TO SHEET 30
-L- STA. 341+00.00

ACCESS POINT

4' FDPS
24'
2' FDPS
46'
2' FDPS
24'
4' FDPS

N 69° 43' 18.2" E
-L-

NC HWY 24/27 E.B.S.T.

GREU TL-3

10' FDPS

-BL- PI #2
STA. 338+68.00
ELEV. 640.07
N 712018
BENCH TIE IN 19" PINE

WOODS

WETLAND
WFF

STREAM
SX

WETLAND
WFF

ENVIROMENTALLY SENSITIVE AREA

FOR -L- PROFILE, SEE SHEET 53

K:\NUP\projects\PERMITS_Environmental\Drawings\R2527_Hyd_PRM_PSH29.dgn
4:40:9 PM
kristopher.berger

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
R-2527	30

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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50' 0' 100'
GRAPHIC SCALE

WETLAND WGG

WETLAND WGG

STREAM SX

STREAM SX

WETLAND WPP

345

350

40

UNITED STATES FOREST SERVICE
DB 185 PG 665

MATCH TO SHEET 29
-L- STA. 341+00.00

MATCH TO SHEET 31
-L- STA. 355+00.00

CAT-1

GREU TL-3

N 69° 43' 18.2" E
-L-

WETLAND WFF

STREAM SX

WETLAND WPP

FOR -L- PROFILE, SEE SHEETS 53 & 54

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brianberger

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	31

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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STREAM
SY-A

360

365

40

UNITED STATES FOREST SERVICE
DB 185 PG 665

MATCH TO SHEET 30
-L- STA. 355+00.00

4' FDPS
24'
2' FDPS
46'
2' FDPS
24'
4' FDPS

N 69° 43' 18.2" E
-L-

BL 127

NC HWY 24/27
24' BST

CAT-1

GREU TL-3

10' FDPS

2' FDPS
24'
46'
2' FDPS

MATCH TO SHEET 32
-L- STA. 368+00.00

JS

STREAM
SY-A

40

UNITED STATES FOREST SERVICE
DB 185 PG 665

FOR -L- PROFILE, SEE SHEET 54

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Printer

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STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

PROJECT REFERENCE NO.	SHEET NO.
R-2527	33

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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50' 0' 100'
GRAPHIC SCALE

STREAM SY–A

STREAM SY–A

STREAM SF–B

STREAM SY–A

STREAM SF–B

385

390

395

MATCH TO SHEET 32
-L- STA. 382+00.00

MATCH TO SHEET 34
-L- STA. 396+00.00

UNITED STATES FOREST SERVICE

UNITED STATES FOREST SERVICE

S 77° 48' 26.1" E
-L-

CAT-1

GREU TL-3

4' FDPS

2' FDPS

10' FDPS

6' FDPS

NC HWY 281

NC HWY 64

24'

46'

44.59'

INC.=40' (TYP.)

FOR -L- PROFILE, SEE SHEET 55

4:29 PM
K:\Projects\PERMITS_Environmental\Drawings\R2527_Hyd_PRM_PSH33.dgn

5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

WETLAND WEE

WETLAND WEE

MATCH TO SHEET 40 -RR- STA.30+50.00

MATCH TO SHEET 33 -L- STA.396+00.00

MATCH TO SHEET 35 -L- STA.405+00.00

MATCH TO SHEET 41 -RR- STA.40+00.00

UNITED STATES FOREST SERVICE

UNITED STATES FOREST SERVICE

BM #14 -BL- STA 369+13.00 F N.573325 E.1611 BENCH TIE IN 22" PINE

GREU TL-3

4' FDPS

2' FDPS

TYPE B-77

-L-

-RR-

-Y6-

-Y7-

-Y7A-

-Y7B-

E

WOODS

MONTGOMERY COUNTY BOARD OF EDUCATION DB 234 PG 555 PB B PG 366

PROJECT REFERENCE NO.	SHEET NO.
R-2527	34

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
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FOR -L- PROFILE, SEE SHEETS 55 & 56

FOR -Y6- PROFILE, SEE SHEET 61

FOR -RR- PROFILE, SEE SHEET 62

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erlberger

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STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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WETLAND NEWI

UNITED STATES FOREST SERVICE

MATCH TO SHEET 34 -L- STA 405+00.00

MATCH TO SHEET 36 -L- STA 417+00.00

4' FDPS

2' FDPS

2' FDPS

4' FDPS

10' FDPS

24"

46"

24"

24"

90.57

90.57

-L-

GREU TL-3

WC-40 (TYP.)

JS

STREAM SZ

WETLAND WYY

WETLAND WXX

BECKY W WALLACE
UNKNOWN DB

FOR -L- PROFILE, SEE SHEET 56

4:35 PM
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5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

UNITED STATES FOREST SERVICE

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	36

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

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420

425

STREAM
SY–B

MATCH TO SHEET 35
-L- STA 417+00.00

MATCH TO SHEET 37
-L- STA 429+00.00

4' FDPS
2' FDPS
24'
46'
CAT-1
8d
N 43° 17' 14.7" E
-L-
137.08
6"PVC
INC. -40'
(TYP.)
97.00
10' FDPS
CAT-1
E
JS
ST
SWM-BASIN
CONC
20' DI
L-20'DI
L-EOM
EOM ABAND
VAR BST
NC 24/25B
BM #24
EL = 515.00
BL STATION 421+77.00
124' LEFT
N 574,000.00
E 1,483,100.00
BENCH TIE IN 78" OAK
WOODS
BECKY W WALLACE
UNKNOWN DB
TROY READY MIX, INC.
DB 207 PG 638
MCRAE INDUSTRIES, INC.
DB 205 PG 866
PB A PG 742
25' SOIL
25' ADMC
WETLAND
WCC
STREAM
SY–B

FOR -L- PROFILE, SEE SHEET 56

4:39 PM
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5/14/99

STREAM IMPACTS WITHIN SLOPE STAKES +25'*

WETLAND IMPACTS WITHIN SLOPE STAKES +25'*

POND IMPACTS WITHIN SLOPE STAKES +25'*

SLOPE STAKES +25'

*PRELIMINARY IMPACTS

50' 0' 100'

GRAPHIC SCALE

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-2527	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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WETLAND
WBB

STREAM
SW-C

STREAM
SW-C

WETLAND
WAA

WETLAND
WWW

KATIE K. DEATON
DB 249 PG 296

JAMIE L. KURTZ, DIVORCED
DB 732 PG 637
PB A PG 314

GUS SCHAD
DB 534 PG 545

JOE HURLY AND WIFE, HELEN HURLEY
DB 130 PG 565
DB 112 PG 65

MATCH TO SHEET 37
-L- STA 442+00.00

BL -L- STA 452+82.00
N 575759.1
E 1721891.1
BENCH TIE IN LOBLOLLY PINE

TIE TO EXISTING

R-0623
TO BE CONSTRUCTED BY OTHERS

N 37° 41' 59.5" E
-L-

INC.=40' (TYP.)

4' FDPS
2' FDPS
10' FDPS
8'
24'
46'

	Alignment	Station	Northing	Easting
R-2527	-L-	452+28.13	576582.8745	1721688.3353
R-0623	-L-	28+83.70	576438.5254	1721577.0958

FOR -L- PROFILE, SEE SHEET 57

k4143 PM
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er_berger

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2527	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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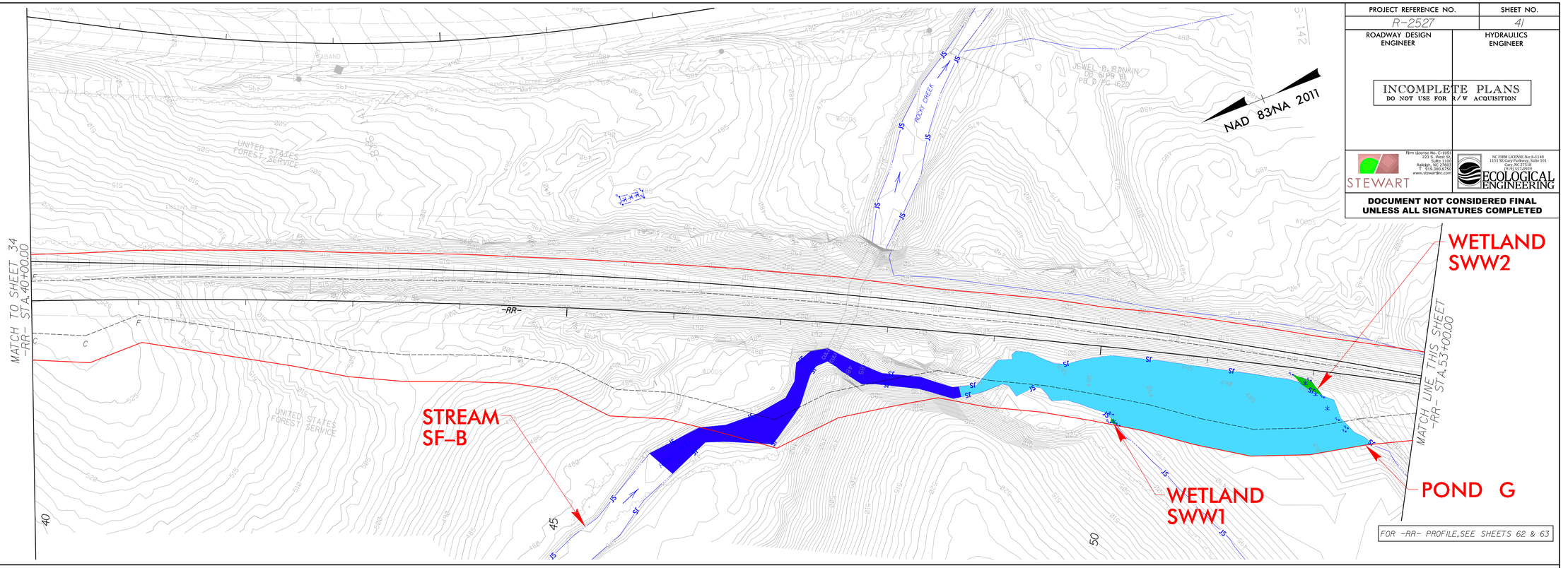

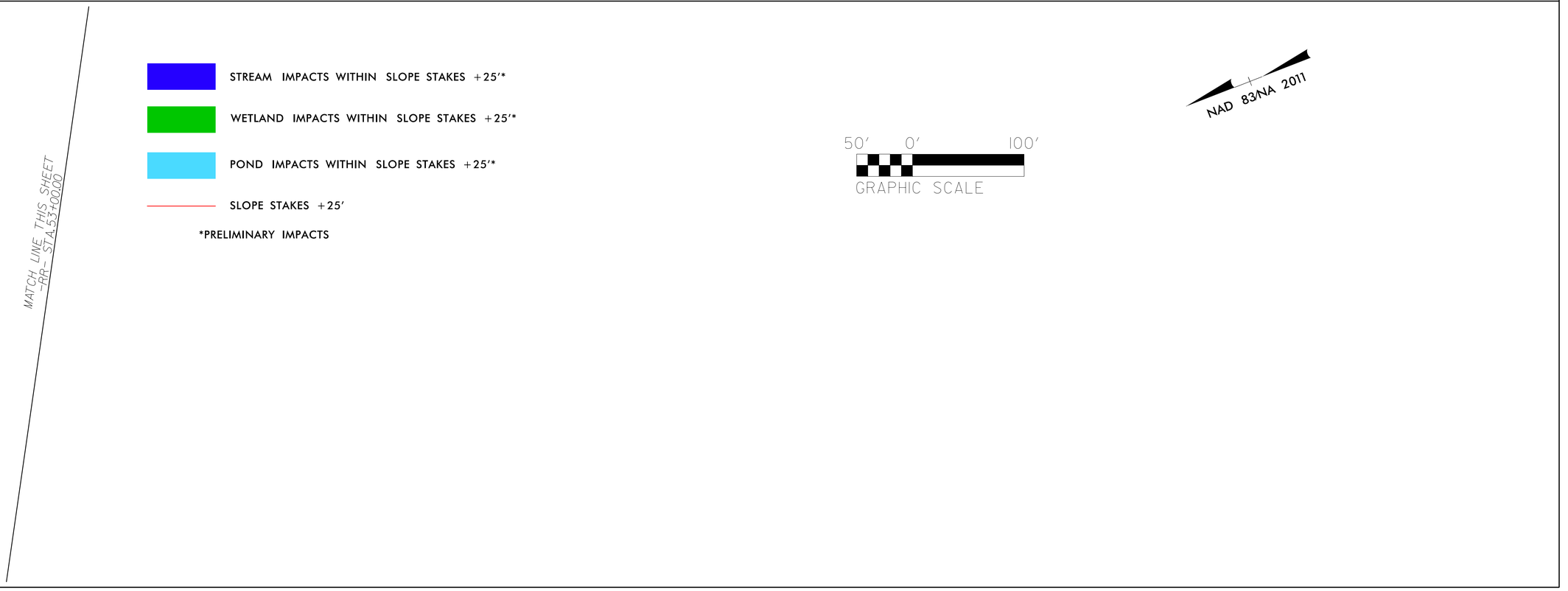

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grubaugh

R-2527 Preliminary Permit Impact Summary Table					
Plan Sheet Number	**Station (To/From)**	**Identifier**	**Wetland Impacts Within Slope Stakes +25' (Acres)**	**Stream Impacts Within Slope Stakes +25' (Linear Feet)**	**Pond Impacts Within Slope Stakes (Acres)**
6	28+03/29+61 -L- LT	WF	0.07		
6	28+66/29+67 -L- RT	WE	0.01		
6	29+69/30+35 -L-	SB-1		149	
6	33+46/35+07 -L-	SB-2		166	
6	28+56/29+60 -L- RT	SB-3		108	
6	33+62/34+22 -L- LT	SB-4		72	
10	80+41/80+79 -L- LT	SJ		135	
11	92+24/92+50 -L- LT	WH	0.01		
11	93+05/93+19 -L- LT	WJ	<0.01		
11	98+70/98+97 -L-	SL-A		183	
13	124+13/127+15 -L-	SM-1		280	
13	123+75/124+57 -L- LT	WR	0.03		
13	124+62/126+35 -L- LT	WP	0.09		
13	126+32/126+67 -L- RT	WM	<0.01		
13	127+12/127+39 -L- RT	WN	0.01		
14	140+33/140+86 -L- LT	WV	0.01		
14 to 15	140+00/143+59 -L-	SN		334	
15	142+56/143+26 -L- RT	WS	0.02		
15	149+79/150+05 -L- LT	WU	0.02		
15	149+87/150+87 -L-	SO		213	
15	149+20/150+56 -L- RT	SO-1		141	
16	159+11/159+71 -L-	SC		317	
16 to 17	159+11/171+82 -L- LT	SC-1		1346	
17	165+97/169+04 -L-	SC-3		253	
17	166+70/169+23 -L-	WT	0.15		
17	169+07/169+53 -L- LT	POND-F			0.01
18	181+31/186+17 -L- RT	SW-A		129	
18	182+84/183+16 -L- RT	WSS	<0.01		
19	193+70/194+82 -L-	SD		232	
21	222+35/223+13 -L- LT	WU	0.11		
21	223+14/223+55 -L-	SP		158	
22	238+04/238+24 -L- RT	SQ		46	
23	243+55/243+69 -L-	SR		177	
23	253+84/254+06 -L- RT	SS-1		50	
23	253+93/254+22 -L- RT	WZ-1	0.01		
24	264+95/267+10 -L- LT	SU		258	
24	267+16/267+74 -L-	SE		302	
25	277+34/277+51 -L- RT	WKK	<0.01		
25	279+80/280+34 -L- RT	WMM	0.03		
25	282+90/283+25 -L- RT	WLL	0.01		
27	302+58/303+31 -L- LT	SF-A1		73	
27	302+46/303+65 -L-	SF-A		255	
27	303+40/304+80 -L- LT	WNN	0.09		
28	313+12/316+25 -L-	SW-B		266	
28	315+51/315+76 -L- LT	WHH	0.02		
29 to 30	340+80/341+93 -L- RT	WFF	0.06		
30	344+94/348+64 -L-	SX		432	
30	345+37/347+91 -L- LT	WGG	0.07		
30	351+91/352+72 -L-	WPP	0.01		
31 to 33	363+63/392+31 -L-	SY-A		921	
33 and 41	392+08/392+48 -L- 49+95/48+72 -RR- RT	SF-B		492	
34	396+23/397+70 -L-	WEE	0.05		
35	416+42/416+63 -L- RT	SZ		36	
36	429+69/426+73 -L- RT	WCC	<0.01		
36	425+70/428+31 -L-	SY-B		503	
38	449+41/452+00 -L- LT	WBB	0.16		
38	450+24/451+27 -L-	SW-C		44	
41	48+71/52+64 -RR- RT	POND-G			0.45
41	50+16/50+22 -RR- RT	SWW1	<0.01		
41	51+81/52+11 -RR-RT	SWW2	<0.01		
TOTAL			**1.04**	**8068**	**0.45**

09/08/99

TIP PROJECT: R-2530B

CONTRACT: C203751

8/28/2018

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2530B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34446.1.6		P.E.
34446.2.5	STBG-0024(083)	R/W
34446.2.6	STBG-0024(083)	UTL
34446.3.4	STBG-0024(083)	CONST.

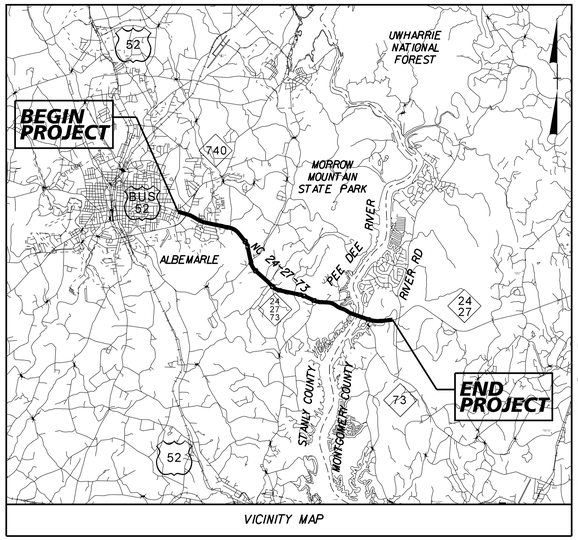
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

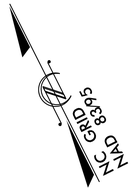
STANLY & MONTGOMERY COUNTIES

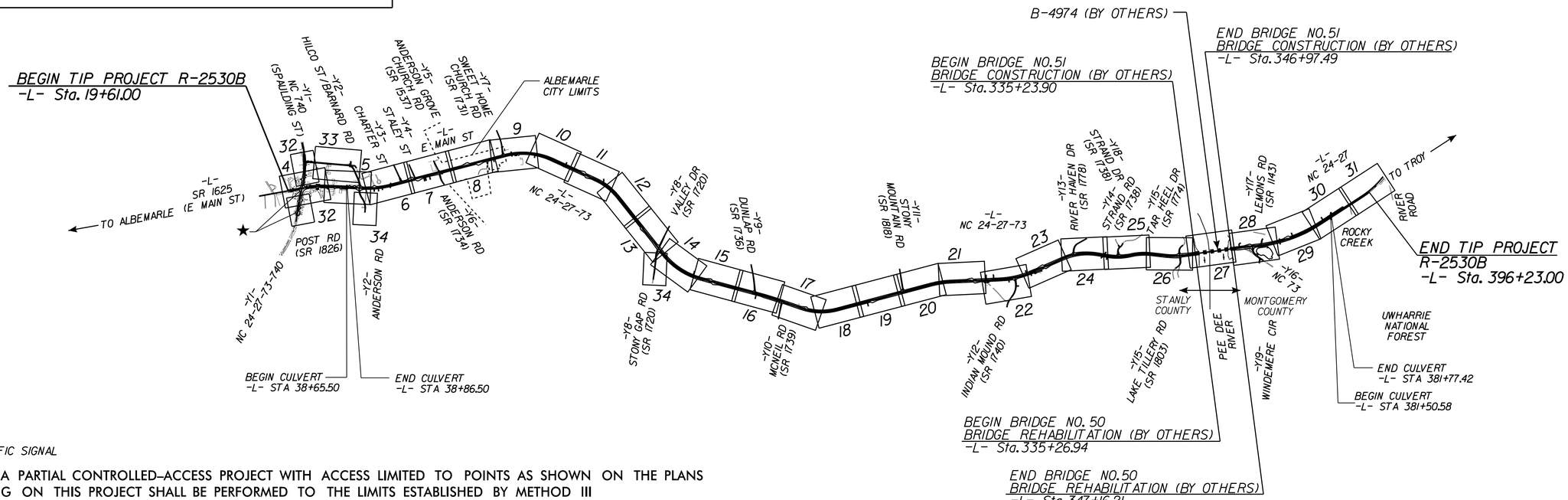
LOCATION: NC 24-27 FROM NC 740 IN ALBEMARLE TO EAST OF THE PEE DEE RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, SIGNALS, AND CULVERTS

PLFI PLANS







★ TRAFFIC SIGNAL

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF ALBEMARLE

DESIGN EXCEPTIONS REQUIRED FOR MINIMUM HORIZONTAL CURVE RADIUS, VERTICAL SAG CURVE K VALUE AND VERTICAL STOPPING SIGHT DISTANCE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

AADT 2019 = 16,400
AADT 2039 = 21,500
K = 9%
D = 55%
T = 10%*
V = 50/60 MPH
* (TTST 4% + DUAL 6%)
FUNCTIONAL CLASSIFICATION: URBAN/RURAL ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2530B = 6.908 MILES
LENGTH STRUCTURE TIP PROJECT B-4974 = 0.225 MILES
TOTAL LENGTH TIP PROJECT R-2530B = 7.133 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn ©2018

NC LICENSE #F-0102
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NORTH CAROLINA 27601
PHONE: (919) 677-2000

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 19, 2017

LETTING DATE: MARCH 19, 2019

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

RHODES S. HUNT, P.E.
PROJECT DESIGN ENGINEER

LAURA SUTTON, P.E.
TEAM LEAD
NCDOT PROJECT MANAGEMENT UNIT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

REVISIONS

8/27/2018

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed 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
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

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 & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

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
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*)
- U/G Water Line LOS C (S.U.E*)
- U/G Water Line LOS D (S.U.E*)
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (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
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

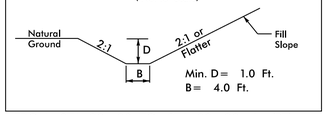
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?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 LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

5/14/99

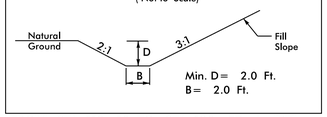
REVISIONS

DETAIL 1
SPECIAL LATERAL BASE DITCH
(Not to Scale)



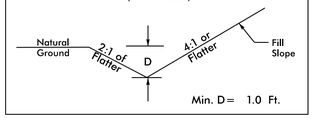
FROM STA. 89+00 TO STA. 89+28 –L– (RT)

DETAIL 2
SPECIAL LATERAL BASE DITCH
(Not to Scale)



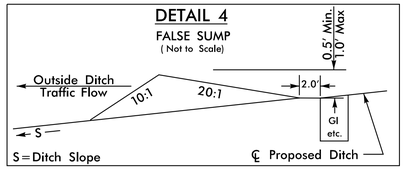
FROM STA. 119+10 TO STA. 120+57 –L– (RT)

DETAIL 3
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



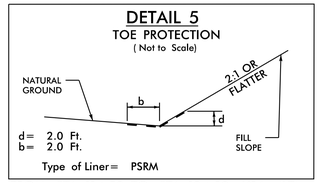
FROM STA. 21+00 TO STA. 23+50 –Y2– (RT)
FROM STA. 24+90 TO STA. 29+00 –Y2– (RT)
FROM STA. 14+00 TO STA. 14+50 –Y2A– (RT)
FROM STA. 43+79 TO STA. 47+00 –L– (LT)
FROM STA. 14+00 TO STA. 14+50 –Y4– (LT)
FROM STA. 61+56 TO STA. 61+75 –L– (LT)
FROM STA. 61+75 TO STA. 63+00 –L– (LT)
FROM STA. 72+96 TO STA. 74+00 –L– (LT)
FROM STA. 74+60 TO STA. 75+00 –L– (LT)
FROM STA. 75+00 TO STA. 76+00 –L– (LT)
FROM STA. 79+50 TO STA. 81+16 –L– (LT)
FROM STA. 81+60 TO STA. 83+00 –L– (LT)
FROM STA. 84+15 TO STA. 85+00 –L– (LT)
FROM STA. 85+50 TO STA. 86+75 –L– (LT)
FROM STA. 87+25 TO STA. 89+90 –L– (LT)
FROM STA. 89+90 TO STA. 90+47 –L– (LT)
FROM STA. 17+10 TO STA. 18+00 –Y7– (RT)
FROM STA. 16+00 TO STA. 18+00 –Y7– (LT)
FROM STA. 91+33 TO STA. 93+00 –L– (LT)
FROM STA. 96+27 TO STA. 97+50 –L– (RT)
FROM STA. 101+50 TO STA. 102+40 –L– (RT)
FROM STA. 102+40 TO STA. 104+00 –L– (RT)
FROM STA. 103+20 TO STA. 104+50 –L– (LT)
FROM STA. 131+00 TO STA. 134+00 –L– (RT)
FROM STA. 134+20 TO STA. 136+00 –L– (RT)
FROM STA. 148+00 TO STA. 149+62 –L– (RT)
FROM STA. 149+62 TO STA. 153+00 –L– (RT)
FROM STA. 18+80 TO STA. 19+50 –Y8– (RT)
FROM STA. 13+50 TO STA. 15+50 –Y8– (RT)
FROM STA. 13+50 TO STA. 14+00 –Y8– (LT)
FROM STA. 25+00 TO STA. 26+50 –Y8– (RT)
FROM STA. 153+00 TO STA. 155+50 –L– (LT)
FROM STA. 154+00 TO STA. 157+10 –L– (RT)
FROM STA. 18+20 TO STA. 18+30 –Y9– (RT)
FROM STA. 163+50 TO STA. 169+00 –L– (RT)
FROM STA. 171+00 TO STA. 173+00 –L– (LT)
FROM STA. 176+00 TO STA. 177+00 –L– (LT)
FROM STA. 178+50 TO STA. 180+50 –L– (RT)
FROM STA. 181+00 TO STA. 187+75 –L– (LT)
FROM STA. 182+15 TO STA. 184+00 –L– (RT)
FROM STA. 221+50 TO STA. 222+50 –L– (LT)
FROM STA. 227+50 TO STA. 230+00 –L– (LT)
FROM STA. 243+00 TO STA. 246+00 –L– (LT)
FROM STA. 250+70 TO STA. 251+50 –L– (LT)
FROM STA. 251+50 TO STA. 253+00 –L– (LT)
FROM STA. 251+50 TO STA. 253+00 –L– (RT)
FROM STA. 253+00 TO STA. 254+30 –L– (LT)
FROM STA. 11+00 TO STA. 12+50 –Y12– (RT)
FROM STA. 13+00 TO STA. 15+00 –Y12– (RT)
FROM STA. 14+90 TO STA. 16+00 –Y12– (LT)
FROM STA. 276+65 TO STA. 277+50 –L– (LT)
FROM STA. 15+50 TO STA. 16+72 –Y13– (RT)
FROM STA. 11+50 TO STA. 13+00 –Y14– (LT)
FROM STA. 13+50 TO STA. 14+00 –Y14– (LT)
FROM STA. 11+50 TO STA. 13+00 –Y15– (RT)
FROM STA. 15+00 TO STA. 16+95 –Y15– (RT)
FROM STA. 331+50 TO STA. 332+50 –L– (RT)
FROM STA. 364+50 TO STA. 369+50 –L– (RT)
FROM STA. 379+00 TO STA. 381+00 –L– (LT)

DETAIL 4
FALSE SUMP
(Not to Scale)



STA. 116+85 –L– (LT)
STA. 118+85 –L– (LT)
STA. 121+85 –L– (LT)
STA. 130+15 –L– (RT)
STA. 134+15 –L– (RT)
STA. 136+15 –L– (RT)
STA. 158+35 –L– (LT)
STA. 190+55 –L– (RT)
STA. 191+65 –L– (RT)
STA. 199+85 –L– (LT)
STA. 206+15 –L– (RT)
STA. 208+15 –L– (RT)
STA. 209+65 –L– (RT)
STA. 251+15 –L– (RT)
STA. 260+84 –L– (LT)
STA. 269+15 –L– (RT)
STA. 326+64 –L– (RT)
STA. 329+63 –L– (RT)
STA. 335+13 –L– (RT)
STA. 364+85 –L– (LT)
STA. 387+85 –L– (LT)
STA. 393+70 –L– (LT)

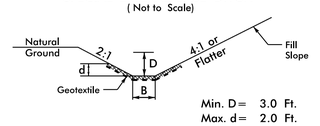
DETAIL 5
TOE PROTECTION
(Not to Scale)



Type of Liner = PSRM

FROM STA. 11+50 TO STA. 12+00 –Y2A– (LT)
FROM STA. 74+30 TO STA. 75+50 –L– (RT)
FROM STA. 136+50 TO STA. 138+00 –L– (RT)
FROM STA. 142+00 TO STA. 143+22 –L– (LT)
FROM STA. 177+40 TO STA. 179+25 –L– (LT)
FROM STA. 244+00 TO STA. 245+00 –L– (RT)
FROM STA. 255+00 TO STA. 256+00 –L– (RT)

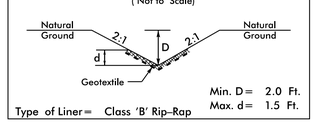
DETAIL 6
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip–Rap

FROM STA. 157+10 TO STA. 163+50 –L– (RT)
FROM STA. 282+00 TO STA. 284+00 –L– (LT)
FROM STA. 285+50 TO STA. 290+00 –L– (RT)

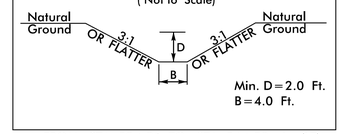
DETAIL 7
STANDARD 'V' DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip–Rap

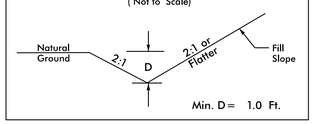
STA. 63+40 –L– (LT)

DETAIL 8
STANDARD BASE DITCH
(Not to Scale)



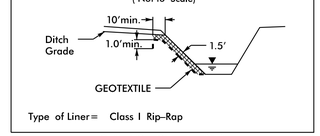
FROM STA. 53+86 TO STA. 54+50 –L– (LT)
FROM STA. 253+00 TO STA. 253+53 –L– (RT)

DETAIL 9
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 14+90 TO STA. 16+00 –Y1– (RT)
FROM STA. 27+00 TO STA. 31+00 –Y2– (LT)
FROM STA. 48+50 TO STA. 51+50 –L– (LT)
FROM STA. 65+65 TO STA. 67+00 –L– (LT)
FROM STA. 67+00 TO STA. 68+50 –L– (LT)
FROM STA. 10+85 TO STA. 12+25 –Y6– (LT)

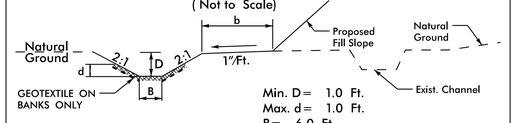
DETAIL 10
RIP RAP EMBANKMENT PROTECTION
(Not to Scale)



Type of Liner = Class I Rip–Rap

STA. 53+35 –L– (LT)
STA. 53+86 –L– (LT)
STA. 232+50 –L– (RT)
STA. 233+50 –L– (RT)
STA. 375+40 –L– (LT)
STA. 375+45 –L– (LT)
STA. 380+60 –L– (RT)

DETAIL 11
CHANNEL CHANGE W/RIP RAP
(Not to Scale)



Type of Liner = Class I Rip Rap

FROM STA. 52+72 TO STA. 53+25 –L– (RT)

DETAIL 12
SPECIAL LATERAL BASE DITCH
(Not to Scale)

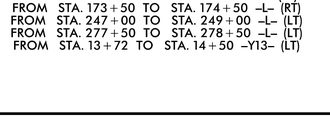
FROM STA. 142+00 TO STA. 143+25 –L– (RT)

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

Type of Liner = Class 'B' Rip–Rap

FROM STA. 51+50 TO STA. 53+10 –L– (LT)

DETAIL 14
SPECIAL CUT GRASS SWALE w/HINGE
(Not to Scale)



*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

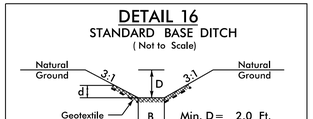
FROM STA. 144+00 TO STA. 145+50 –L– (RT)
FROM STA. 177+15 TO STA. 178+50 –L– (RT)
FROM STA. 196+00 TO STA. 197+25 –L– (RT)
FROM STA. 258+00 TO STA. 259+00 –L– (LT)
FROM STA. 351+50 TO STA. 353+00 –L– (LT)
FROM STA. 388+50 TO STA. 393+00 –L– (LT)

DETAIL 15
CHANNEL CHANGE W/RIP RAP
(Not to Scale)

Type of Liner = Class I Rip Rap

FROM STA. 38+90 TO STA. 40+35 –L– (RT)

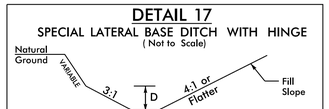
DETAIL 16
STANDARD BASE DITCH
(Not to Scale)



Type of Liner = Class I Rip–Rap

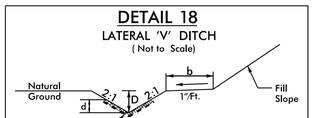
STA. 40+35 –L– (RT)

DETAIL 17
SPECIAL LATERAL BASE DITCH WITH HINGE
(Not to Scale)



FROM STA. 293+00 TO STA. 297+50 –L– (RT)

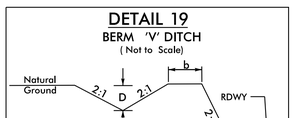
DETAIL 18
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip–Rap

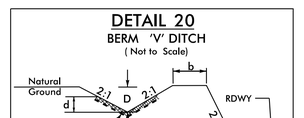
FROM STA. 100+95 TO STA. 102+00 –L– (LT)
FROM STA. 126+50 TO STA. 129+00 –L– (LT)
FROM STA. 363+32 TO STA. 364+50 –L– (RT)
FROM STA. 375+45 TO STA. 377+50 –L– (LT)

DETAIL 19
BERM 'V' DITCH
(Not to Scale)



FROM STA. 119+00 TO STA. 121+80 –L– (LT)
FROM STA. 124+00 TO STA. 124+68 –L– (LT)
FROM STA. 127+50 TO STA. 129+00 –L– (RT)
FROM STA. 129+00 TO STA. 130+00 –L– (RT)
FROM STA. 186+50 TO STA. 188+89 –L– (RT)
FROM STA. 189+21 TO STA. 190+40 –L– (RT)
FROM STA. 190+40 TO STA. 192+35 –L– (RT)
FROM STA. 203+00 TO STA. 203+50 –L– (RT)
FROM STA. 203+50 TO STA. 205+00 –L– (RT)
FROM STA. 208+50 TO STA. 209+50 –L– (LT)
FROM STA. 208+00 TO STA. 208+50 –L– (RT)
FROM STA. 268+50 TO STA. 269+85 –L– (LT)
FROM STA. 272+00 TO STA. 273+00 –L– (LT)
FROM STA. 296+20 TO STA. 297+50 –L– (LT)
FROM STA. 297+50 TO STA. 300+00 –L– (LT)
FROM STA. 300+00 TO STA. 301+00 –L– (LT)
FROM STA. 301+00 TO STA. 302+00 –L– (LT)

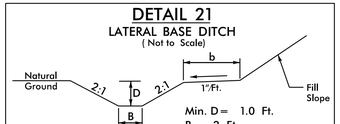
DETAIL 20
BERM 'V' DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip–Rap

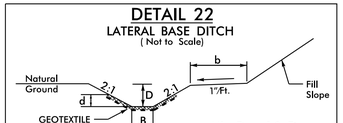
FROM STA. 122+00 TO STA. 124+00 –L– (LT)
FROM STA. 136+00 TO STA. 138+00 –L– (LT)
FROM STA. 138+00 TO STA. 141+50 –L– (LT)
FROM STA. 205+00 TO STA. 208+00 –L– (RT)
FROM STA. 209+50 TO STA. 212+00 –L– (LT)
FROM STA. 270+15 TO STA. 272+00 –L– (LT)
FROM STA. 273+00 TO STA. 274+50 –L– (LT)
FROM STA. 274+50 TO STA. 275+25 –L– (LT)
FROM STA. 302+00 TO STA. 304+00 –L– (LT)
FROM STA. 311+00 TO STA. 313+80 –L– (RT)
FROM STA. 314+00 TO STA. 317+80 –L– (RT)
FROM STA. 318+00 TO STA. 320+50 –L– (RT)

DETAIL 21
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 53+25 TO STA. 53+80 –L– (RT)
FROM STA. 150+00 TO STA. 152+00 –L– (LT)
FROM STA. 198+30 TO STA. 199+00 –L– (RT)

DETAIL 22
LATERAL BASE DITCH
(Not to Scale)



Type of Liner = Class 'B' Rip–Rap

FROM STA. 148+70 TO STA. 150+00 –L– (LT)
FROM STA. 199+00 TO STA. 200+50 –L– (RT)
FROM STA. 362+00 TO STA. 363+05 –L– (LT)
FROM STA. 381+00 TO STA. 382+20 –L– (LT)

DETAIL 23
SPECIAL CUT DITCH
(Not to Scale)

FROM STA. 12+00 TO STA. 14+05 –Y2A– (LT)
FROM STA. 57+90 TO STA. 60+87.38 –L– (LT)
FROM STA. 14+00 TO STA. 14+31.28 –Y4– (RT)
FROM STA. 77+00 TO STA. 79+50 –L– (LT)
FROM STA. 19+50 TO STA. 20+00 –Y8– (RT)
FROM STA. 17+50 TO STA. 18+00 –Y9– (LT)
FROM STA. 173+50 TO STA. 174+50 –L– (RT)
FROM STA. 247+00 TO STA. 249+00 –L– (LT)
FROM STA. 277+50 TO STA. 278+50 –L– (LT)
FROM STA. 13+72 TO STA. 14+50 –Y13– (LT)

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RIGHT–OF–WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R–2530B	2D–1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

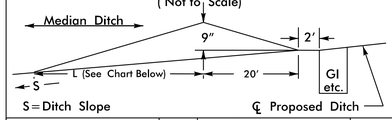
8/27/2018

5/14/99

REVISIONS

8/27/2018

DETAIL 24
FALSE SUMP
(Not to Scale)

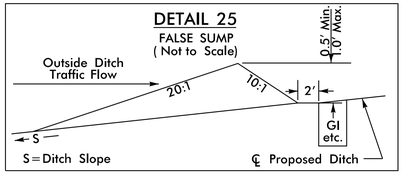


S = Ditch Slope ℄ Proposed Ditch

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'

STA. 101+59 –L– (LT)
STA. 107+36 –L– (LT)
STA. 113+17 –L– (LT)
STA. 122+85 –L– (LT)
STA. 130+15 –L– (LT)
STA. 134+15 –L– (LT)
STA. 136+15 –L– (LT)
STA. 155+85 –L– (LT)
STA. 156+85 –L– (LT)
STA. 159+85 –L– (LT)
STA. 163+35 –L– (LT)
STA. 166+85 –L– (LT)
STA. 170+85 –L– (LT)
STA. 178+65 –L– (LT)
STA. 184+40 –L– (LT)
STA. 191+65 –L– (LT)
STA. 212+15 –L– (LT)
STA. 215+65 –L– (LT)
STA. 221+14 –L– (LT)
STA. 232+14 –L– (LT)
STA. 243+18 –L– (LT)
STA. 251+20 –L– (LT)
STA. 253+20 –L– (LT)
STA. 260+30 –L– (LT)
STA. 269+15 –L– (LT)
STA. 272+15 –L– (LT)
STA. 276+15 –L– (LT)
STA. 278+70 –L– (LT)
STA. 281+40 –L– (LT)
STA. 287+14 –L– (LT)
STA. 289+13 –L– (LT)
STA. 293+14 –L– (LT)
STA. 297+65 –L– (LT)
STA. 302+14 –L– (LT)
STA. 308+86 –L– (LT)
STA. 310+36 –L– (LT)
STA. 313+86 –L– (LT)
STA. 317+86 –L– (LT)
STA. 325+13 –L– (LT)
STA. 326+64 –L– (LT)
STA. 335+13 –L– (LT)
STA. 351+65 –L– (LT)
STA. 357+15 –L– (LT)
STA. 359+13 –L– (LT)
STA. 362+65 –L– (LT)
STA. 363+85 –L– (LT)
STA. 371+50 –L– (LT)
STA. 374+85 –L– (LT)
STA. 380+85 –L– (LT)
STA. 382+85 –L– (LT)

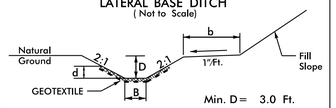
DETAIL 25
FALSE SUMP
(Not to Scale)



S = Ditch Slope ℄ Proposed Ditch

STA. 93+15 –L– (LT)
STA. 122+84 –L– (RT)
STA. 139+15 –L– (LT)
STA. 141+65 –L– (LT)
STA. 184+40 –L– (RT)
STA. 205+15 –L– (LT)
STA. 208+65 –L– (LT)
STA. 212+15 –L– (LT)
STA. 215+65 –L– (LT)
STA. 221+14 –L– (LT)
STA. 230+15 –L– (LT)
STA. 272+15 –L– (LT)
STA. 274+65 –L– (LT)
STA. 276+15 –L– (LT)
STA. 291+64 –L– (LT)
STA. 297+63 –L– (LT)
STA. 301+14 –L– (LT)
STA. 304+64 –L– (LT)
STA. 310+37 –L– (RT)
STA. 313+87 –L– (RT)
STA. 317+86 –L– (RT)
STA. 326+64 –L– (LT)
STA. 329+14 –L– (LT)
STA. 334+10 –L– (LT)
STA. 393+50 –L– (RT)

DETAIL 26
LATERAL BASE DITCH
(Not to Scale)

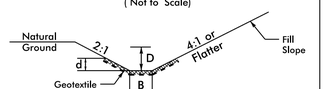


Min. D = 3.0 Ft.
Max. d = 2.0 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 129+00 TO STA. 131+60 –L– (LT)
FROM STA. 134+50 TO STA. 135+50 –L– (LT)
FROM STA. 210+00 TO STA. 212+00 –L– (RT)

DETAIL 27
SPECIAL LATERAL BASE DITCH
(Not to Scale)

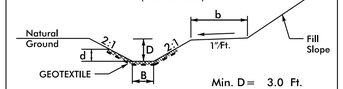


Min. D = 3.0 Ft.
Max. d = 2.0 Ft.
B = 2.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 145+50 TO STA. 147+50 –L– (RT)
FROM STA. 384+00 TO STA. 384+50 –L– (RT)

DETAIL 28
LATERAL BASE DITCH
(Not to Scale)

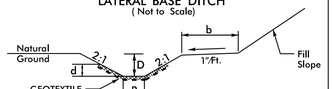


Min. D = 3.0 Ft.
Max. d = 3.0 Ft.
B = 4.0 Ft.
b = 5.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 89+71 TO STA. 93+50 –L– (RT)
FROM STA. 143+75 TO STA. 144+00 –L– (LT)

DETAIL 29
LATERAL BASE DITCH
(Not to Scale)

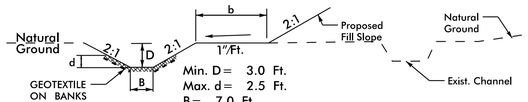


Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 115+35 TO STA. 116+50 –L– (LT)
FROM STA. 304+85 TO STA. 307+00 –L– (RT)
FROM STA. 381+05 TO STA. 381+85 –L– (RT)

DETAIL 30
CHANNEL CHANGE W/RIP RAP
(Not to Scale)

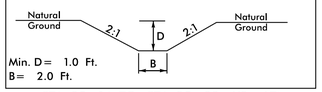


Min. D = 3.0 Ft.
Max. d = 2.5 Ft.
B = 7.0 Ft.
b = 5.0 Ft.

Type of Liner = Class I Rip Rap

FROM STA. 235+27 TO STA. 238+00 –L– (RT)

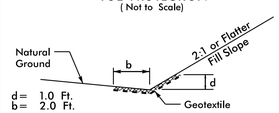
DETAIL 31
STANDARD BASE DITCH
(Not to Scale)



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

STA. 25+14 TO STA. 25+38 –Y2– (LT)
STA. 14+00 –Y2A– (RT)
STA. 66+95 –L– (RT)
STA. 233+50 –L– (RT)

DETAIL 32
TOE PROTECTION
(Not to Scale)

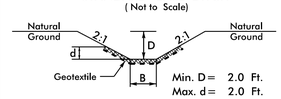


d = 1.0 Ft.
b = 2.0 Ft.

Type of Liner = Class B Rip–Rap

FROM STA. 157+50 TO STA. 158+50 –L– (LT)
FROM STA. 232+50 TO STA. 233+50 –L– (RT)
FROM STA. 259+00 TO STA. 259+55 –L– (LT)
FROM STA. 259+65 TO STA. 260+00 –L– (LT)
FROM STA. 359+00 TO STA. 359+62 –L– (RT)

DETAIL 33
STANDARD BASE DITCH
(Not to Scale)

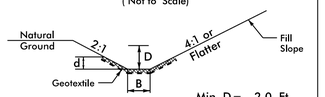


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 3.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 216+00 TO STA. 216+50 –L– (LT)
FROM STA. 232+00 TO STA. 232+50 –L– (RT)

DETAIL 34
SPECIAL LATERAL BASE DITCH
(Not to Scale)

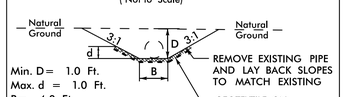


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 3.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 228+50 TO STA. 232+00 –L– (RT)
FROM STA. 307+00 TO STA. 310+00 –L– (RT)

DETAIL 35
STANDARD BASE DITCH
(Not to Scale)

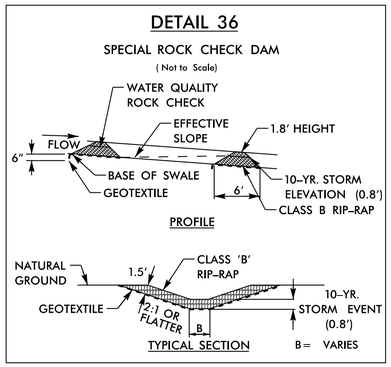


Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 4.0 Ft.

Type of Liner = Class I Rip–Rap

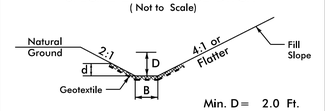
FROM STA. 147+98 TO STA. 148+21 –L– (LT)

DETAIL 36
SPECIAL ROCK CHECK DAM
(Not to Scale)



FROM STA. 276+50 TO STA. 277+75 –L– (RT)
FROM STA. 290+50 TO STA. 297+50 –L– (RT)
FROM STA. 307+00 TO STA. 308+50 –L– (LT)
FROM STA. 331+25 TO STA. 334+00 –L– (LT)

DETAIL 37
SPECIAL LATERAL BASE DITCH
(Not to Scale)

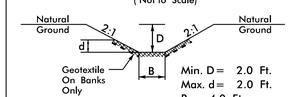


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 2.0 Ft.

Type of Liner = Class B Rip–Rap

FROM STA. 12+00 TO STA. 14+50 –Y16– (RT)

DETAIL 38
STANDARD BASE DITCH
(Not to Scale)

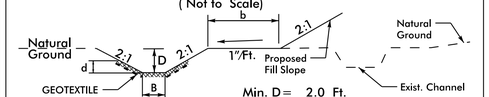


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 4.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 144+00 TO STA. 144+48 –L– (LT)
STA. 144+48 –L– (LT)
FROM STA. 148+58 TO STA. 148+70 –L– (LT)
STA. 149+62 –L– (RT)
STA. 157+37 –L– (LT)
STA. 198+80 –L– (LT)
FROM STA. 216+44 TO STA. 217+11 –L– (LT)
FROM STA. 219+00 TO STA. 219+21 –L– (RT)
STA. 259+54 –L– (RT)

DETAIL 39
CHANNEL CHANGE W/RIP RAP
(Not to Scale)

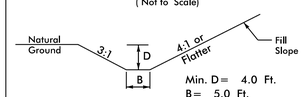


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 4.0 Ft.
b = 5.0 Ft.

Type of Liner = Class I Rip Rap

FROM STA. 292+50 TO STA. 295+27 –L– (LT)

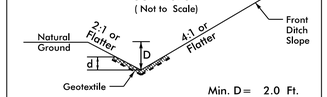
DETAIL 40
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 4.0 Ft.
B = 5.0 Ft.

FROM STA. 290+50 TO STA. 293+00 –L– (RT)

DETAIL 41
CUT DITCH
(Not to Scale)

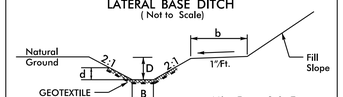


Min. D = 2.0 Ft.
Max. d = 1.5 Ft.

Type of Liner = Class B Rip–Rap

FROM STA. 385+00 TO STA. 385+50 –L– (RT)

DETAIL 42
LATERAL BASE DITCH
(Not to Scale)

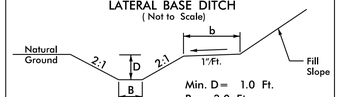


Min. D = 3.0 Ft.
Max. d = 2.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 382+60 TO STA. 384+00 –L– (RT)

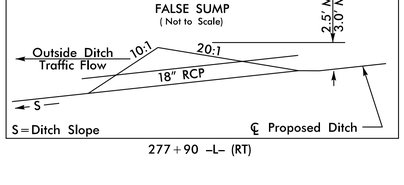
DETAIL 43
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.0 Ft.
B = 3.0 Ft.
b = 5.0 Ft.

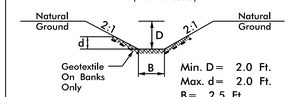
FROM STA. 308+50 TO STA. 309+50 –L– (LT)

DETAIL 44
FALSE SUMP
(Not to Scale)



277+90 –L– (RT)

DETAIL 46
STANDARD BASE DITCH
(Not to Scale)

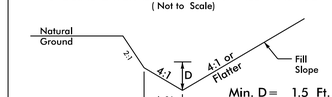


Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 2.5 Ft.

Type of Liner = Class B Rip–Rap

FROM STA. 128+81 TO STA. 129+00 –L– (LT)
FROM STA. 192+13 TO STA. 192+25 –L– (LT)
STA. 238+66 –L– (RT)
FROM STA. 276+27 TO STA. 276+60 –L– (LT)
FROM STA. 371+67 TO STA. 371+75 –L– (LT)

DETAIL 47
SPECIAL LATERAL 'V' GRASS SWALE w/HINGE
(Not to Scale)

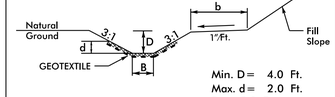


Min. D = 1.5 Ft.

*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

FROM STA. 349+50 TO 351+50 –L– (LT)

DETAIL 48
LATERAL BASE DITCH
(Not to Scale)



Min. D = 4.0 Ft.
Max. d = 2.0 Ft.
B = 5.0 Ft.
b = 5.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 276+50 TO STA. 277+75 –L– (RT)
FROM STA. 306+04 TO STA. 306+50 –L– (LT)
FROM STA. 307+00 TO STA. 308+50 –L– (LT)
FROM STA. 375+00 TO STA. 375+40 –L– (LT)

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RIGHT–OF–WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R–2530B	2D–2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

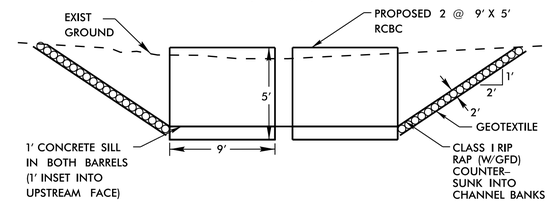
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

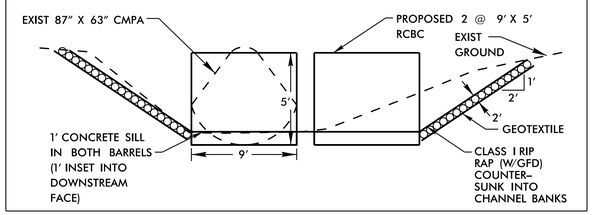
8/27/2018

DETAIL 49
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



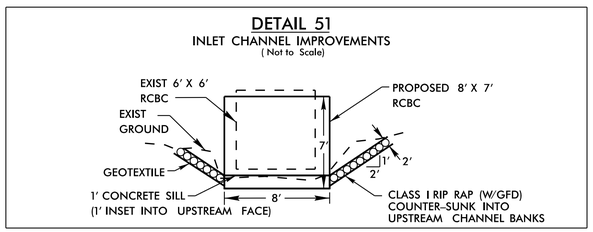
STA. 38+90 –L– (RT)

DETAIL 50
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



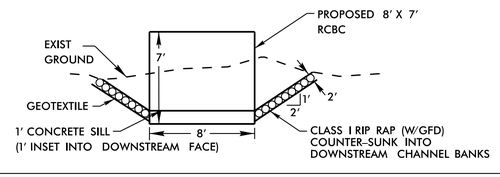
STA. 38+76 –L– (LT)

DETAIL 51
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



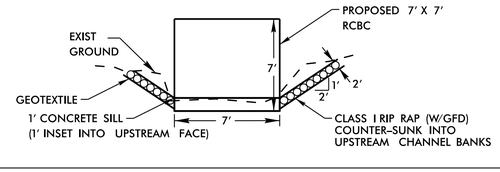
STA. 52+78 –L– (RT)

DETAIL 52
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



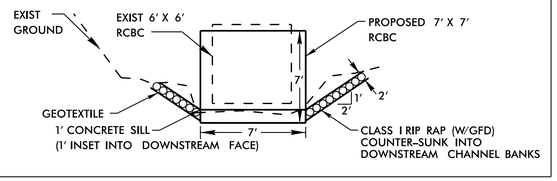
STA. 53+25 –L– (LT)

DETAIL 54
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



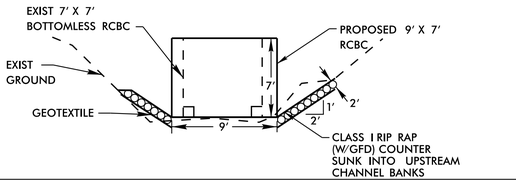
STA. 93+60 –L– (RT)

DETAIL 55
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



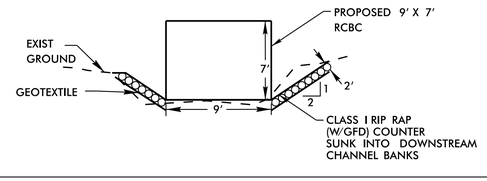
STA. 93+56 –L– (LT)

DETAIL 56
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 304+69 –L– (RT)

DETAIL 57
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 305+92 –L– (LT)

DETAIL 53
(NOT TO SCALE)
SINGLE BARREL CULVERT
SKEWED LOW FLOW
CHANNEL AND SILLS

*NOTES:

1) CLASS B RIP RAP BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. EXISTING CHANNEL CONSISTS OF ROCK THEREFORE EXCAVATED NATIVE MATERIAL IS NOT ANTICIPATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION.

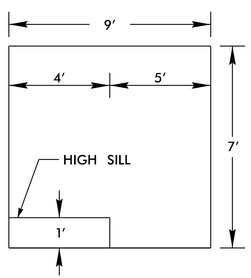
2) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) NO LOW FLOW SILLS/BAFFLES WILL BE REQUIRED AT UPSTREAM AND DOWNSTREAM CULVERT FACE AS CULVERT WILL NOT BE BURIED DUE TO PRESENCE OF ROCK IN STREAM BED.

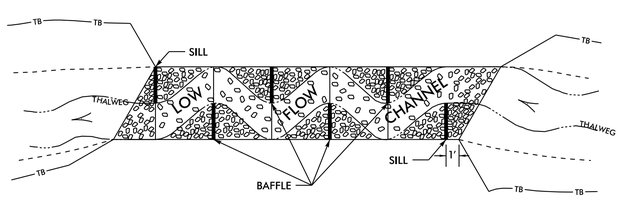
4) DO NOT SET ELEVATION OF HIGH SILL/BAFFLES ABOVE BANK FULL.

5) NUMBER OF SILL/BAFFLES DETERMINED BY THE ENGINEER.

6) CULVERT SHOULD BE BACKFILLED WITH CLASS B RIP RAP TO SILL/BAFFLE HEIGHT.



SILLS AT
INLET AND OUTLET



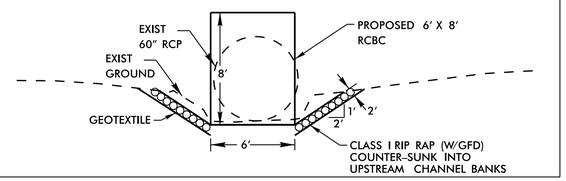
NUMBER OF BAFFLES=8
ON 25FT CENTERS FROM UPSTREAM SILL

PLAN VIEW

9/13

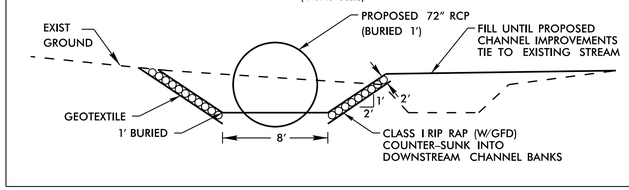
STA. 305+27 –L–

DETAIL 58
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



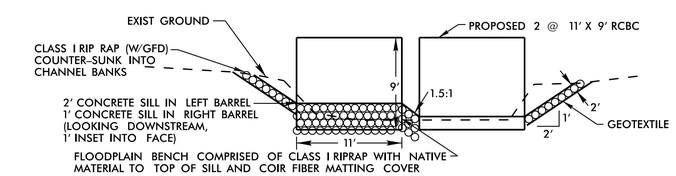
STA. 363+08 –L– (LT)

DETAIL 59
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



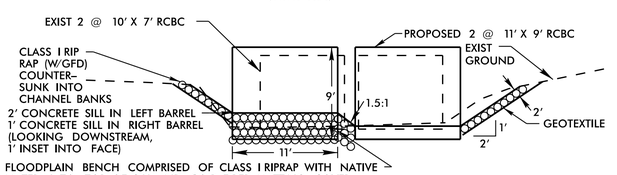
STA. 375+19 –L– (RT)

DETAIL 60
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 382+22 –L– (LT)

DETAIL 61
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



STA. 381+08 –L– (RT)

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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	2D-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

RIGHT–OF–WAY REV.

CONST. REV.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

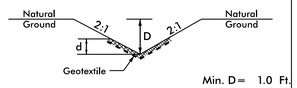
REVISIONS

8/27/2018

DETAIL 62

STANDARD 'V' DITCH

(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.

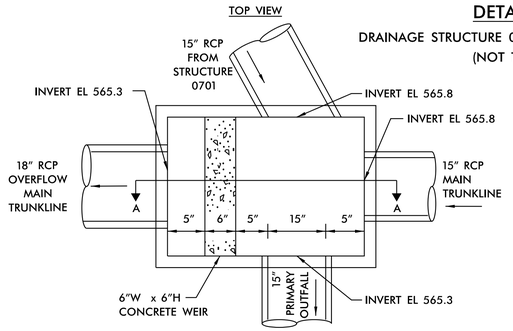
Type of Liner = Class 'B' Rip–Rap

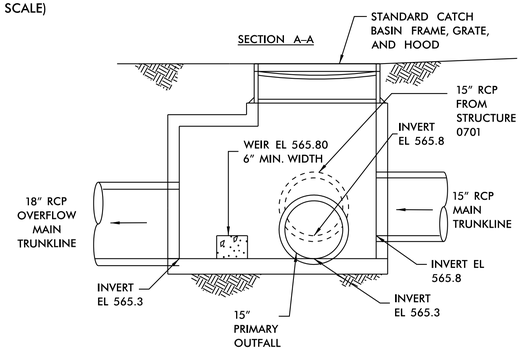
FROM STA. 103+13 TO STA. 103+31 –L– (RT)
FROM STA. 181+00 TO STA. 181+26 –L– (LT)
FROM STA. 219+30 –L– (RT)

DETAIL 63

DRAINAGE STRUCTURE 0702, CB AND SPLITTER BOX

(NOT TO SCALE)





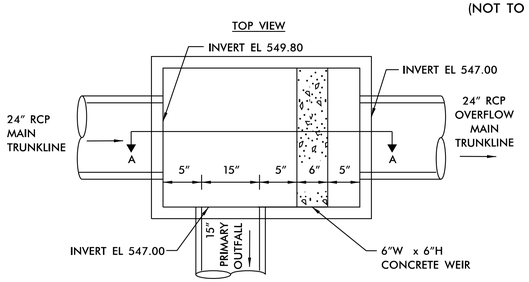
NOTES:
1. USE NCDOT STANDARD DRAWING 840.02. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A–A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

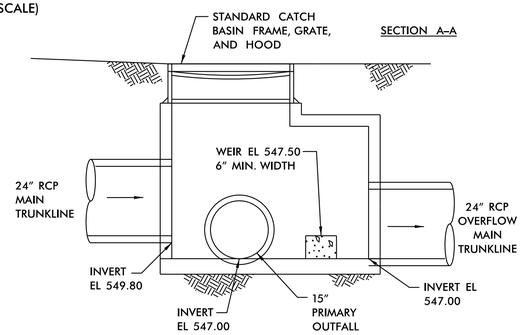
STA. 59+84 –L– (RT)

DETAIL 64

DRAINAGE STRUCTURE 0902, CB AND SPLITTER BOX

(NOT TO SCALE)





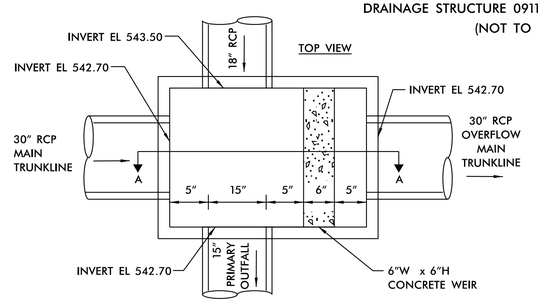
NOTES:
1. USE NCDOT STANDARD DRAWING 840.02. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A–A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

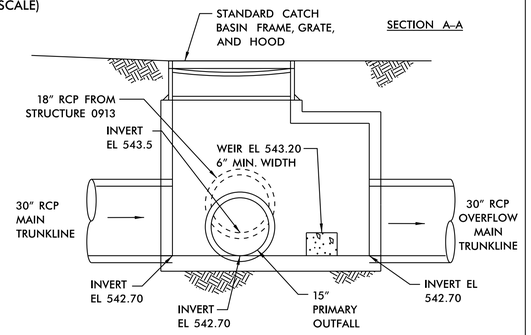
STA. 88+15 –L– (RT)

DETAIL 65

DRAINAGE STRUCTURE 0911, CB AND SPLITTER BOX

(NOT TO SCALE)





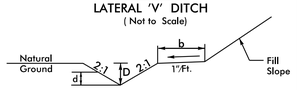
NOTES:
1. USE NCDOT STANDARD DRAWING 840.02. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A–A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

STA. 91+96 –L– (RT)

DETAIL 66

LATERAL 'V' DITCH

(Not to Scale)



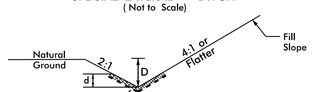
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
b = 5 Ft.

FROM STA. 23+50 TO STA. 24+70 –Y2– (RT)
FROM STA. 93+60 TO STA. 94+00 –L– (RT)

DETAIL 67

SPECIAL LATERAL 'V' DITCH

(Not to Scale)



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

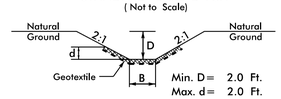
Type of Liner = Class 'B' Rip–Rap

FROM STA. 102+00 TO STA. 102+72 –L– (LT)
FROM STA. 125+50 TO STA. 126+50 –L– (LT)
FROM STA. 23+80 TO STA. 25+00 –Y8– (RT)
FROM STA. 10+80 TO STA. 13+04 –Y10– (RT)
FROM STA. 223+17 TO STA. 225+00 –L– (LT)
FROM STA. 236+91 TO STA. 237+85 –L– (LT)
FROM STA. 16+50 TO STA. 16+75 –Y11– (RT)
FROM STA. 259+54 TO STA. 262+50 –L– (RT)
FROM STA. 355+50 TO STA. 356+75 –L– (LT)
FROM STA. 361+00 TO STA. 362+00 –L– (LT)
FROM STA. 371+75 TO STA. 373+00 –L– (LT)
FROM STA. 373+70 TO STA. 375+00 –L– (LT)
FROM STA. 375+20 TO STA. 377+90 –L– (RT)

DETAIL 68

STANDARD BASE DITCH

(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 2.0 Ft.

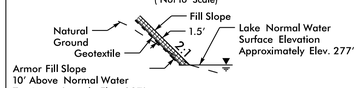
Type of Liner = Class I Rip–Rap

FROM STA. 335+30 TO STA. 335+84 –L– (LT)

DETAIL 69

RIP RAP EMBANKMENT PROTECTION

(Not to Scale)



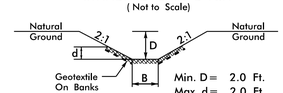
Type of Liner = Class I Rip–Rap

STA. 362+50 –L– to STA. 364+22 –L– (RT)

DETAIL 70

STANDARD BASE DITCH

(Not to Scale)



Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 2.0 Ft.

Type of Liner = Class I Rip–Rap

FROM STA. 292+12 TO STA. 292+50 –L– (LT)

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RIGHT–OF–WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R–2530B	2D–4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

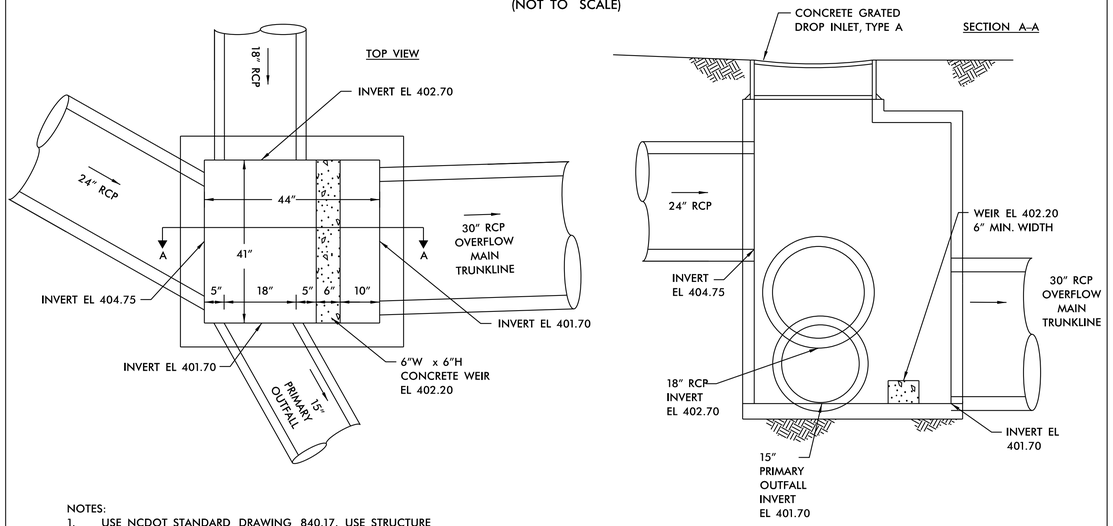
REVISIONS

ROW REV. – 12/17 – ADDED DETAIL 75. – JWM

8/27/2018

DETAIL 71

DRAINAGE STRUCTURE 2202, 2GI–A AND SPLITTER BOX
(NOT TO SCALE)

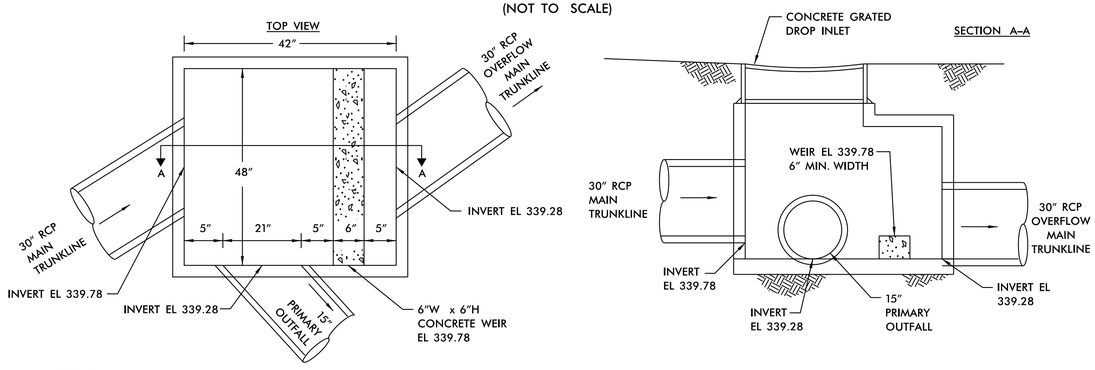


NOTES:
1. USE NCDOT STANDARD DRAWING 840.17. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A–A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

STA. 276+00 –L– (RT)

DETAIL 72

DRAINAGE STRUCTURE 2403, OVERSIZED TB2GI AND SPLITTER BOX
(NOT TO SCALE)

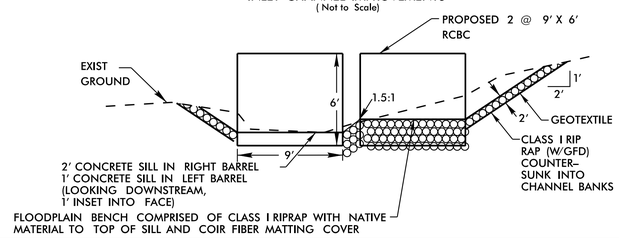


NOTES:
1. USE NCDOT STANDARD DRAWING 840.17. USE STRUCTURE THAT ALLOWS FOR MIN. DIMENSIONS SHOWN IN SECTION A–A.
2. GROUT BOTTOM OF STRUCTURE FOR POSITIVE FLOW LINE.
3. PROVIDE MINIMUM OF 5 INCHES BETWEEN INTERIOR PIPE WALL AND ANY DRAINAGE STRUCTURE WALL FACE.

STA. 295+95 –L–

DETAIL 73

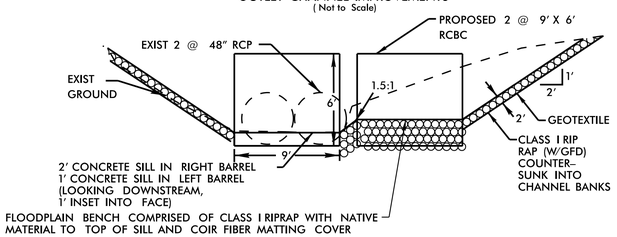
INLET CHANNEL IMPROVEMENTS
(Not to Scale)



24+87 –Y2– (RT)

DETAIL 74

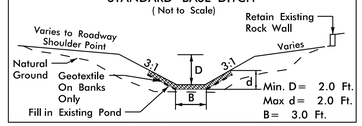
OUTLET CHANNEL IMPROVEMENTS
(Not to Scale)



25+02 –Y2– (LT)

DETAIL 75

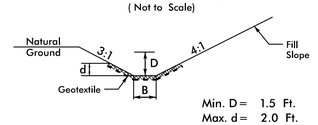
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 113+50 TO STA. 115+13 –L– (RT)

DETAIL 76

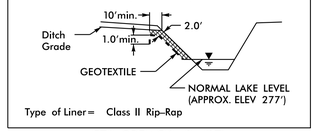
SPECIAL LATERAL BASE DITCH
(Not to Scale)



FROM STA. 331+25 TO STA. 334+00 –L– (LT)

DETAIL 77

RIP RAP EMBANKMENT PROTECTION
(Not to Scale)



STA. 335+84 –L– (LT)

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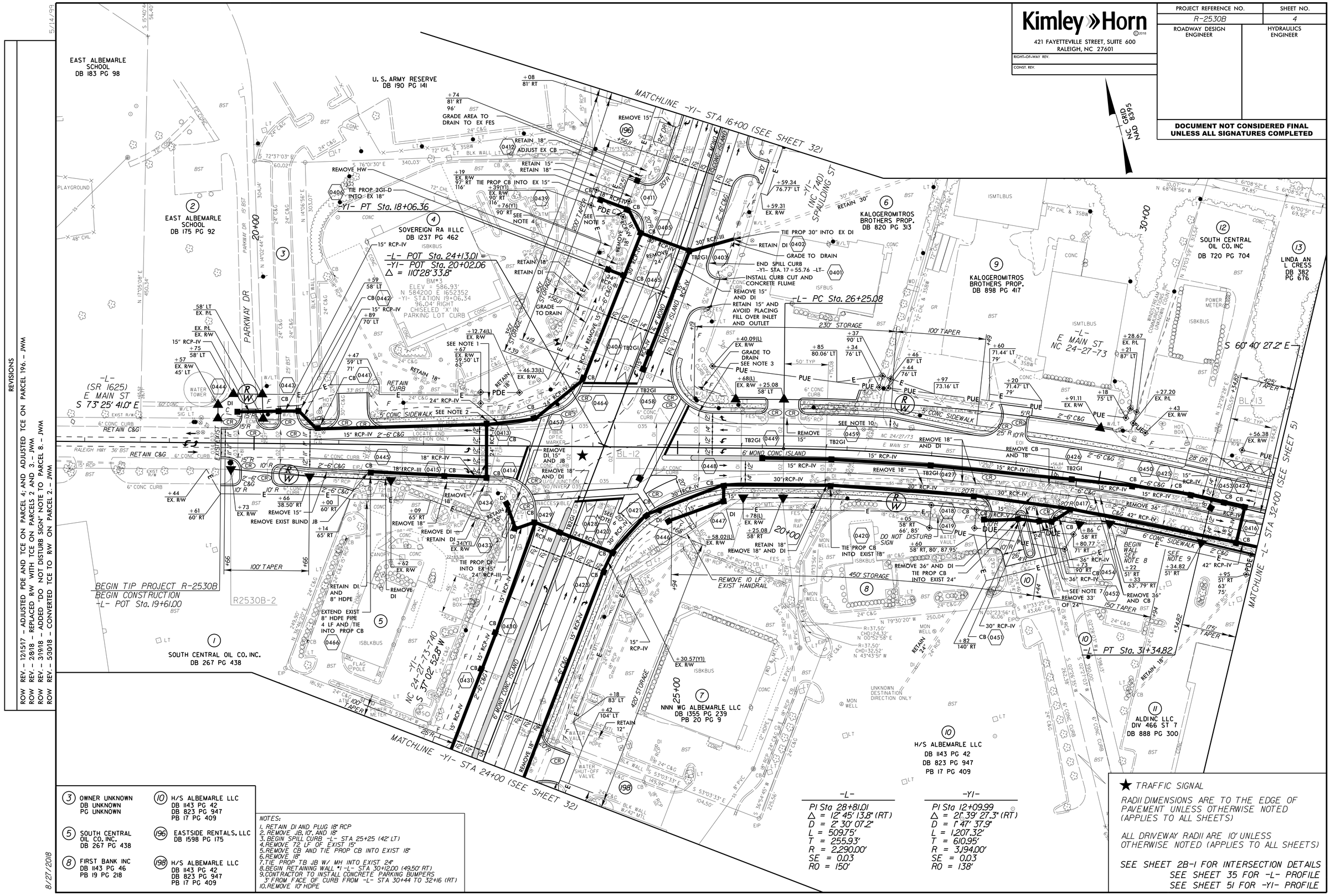
RIGHT–OF–WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R–2530B	2D–5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED


REVISIONS
5/14/99
ROW REV. - 121517 - ADJUSTED PDE AND TCE ON PARCEL 4; AND ADJUSTED TCE ON PARCEL 196. - JWM
ROW REV. - 2818 - REPLACED R/W WITH TCE ON PARCELS 2 AND 3. - JWM
ROW REV. - 319/18 - ADDED "DO NOT DISTURB SIGN" NOTE TO PARCEL 8. - JWM
ROW REV. - 53018 - CONVERTED TCE TO R/W ON PARCEL 2. - JWM
8/27/2018
Kimley»Horn
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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.
PROJECT REFERENCE NO.
R-2530B
SHEET NO.
4
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
GRID NAD 83/95
NC
MATCHLINE -Y1- STA 16+00 (SEE SHEET 32)
MATCHLINE -Y1- STA 32+00 (SEE SHEET 51)
MATCHLINE -L- STA 24+00 (SEE SHEET 32)
EAST ALBEMARLE SCHOOL DB 183 PG 98
U. S. ARMY RESERVE DB 190 PG 141
EAST ALBEMARLE SCHOOL DB 175 PG 92
SOVEREIGN RA III LLC DB 1237 PG 462
KALOGEROMITROS BROTHERS PROP. DB 820 PG 313
KALOGEROMITROS BROTHERS PROP. DB 898 PG 417
SOUTH CENTRAL OIL CO. INC DB 720 PG 704
LINDA AN L CRESS DB 382 PG 676
SOUTH CENTRAL OIL CO. INC. DB 267 PG 438
NNN WG ALBEMARLE LLC DB 1355 PG 239 PB 20 PG 9
H/S ALBEMARLE LLC DB 1143 PG 42 DB 823 PG 947 PB 17 PG 409
ALDINC LLC DIV 466 ST 7 DB 888 PG 300
-L- (SR 1625) E MAIN ST S 73° 25' 41.0" E
-L- PC Sta. 26+25.08
-L- PT Sta. 31+34.82
-Y1- PT Sta. 18+06.36
-L- POT Sta. 24+13.01 = -Y1- POT Sta. 20+02.06
Δ = 110°28'33.8"
BM=3 ELEV = 586.93' N 584200 E 1652352 -Y1- STATION 19+06.34 96.04' RIGHT CHISELED 'X' IN PARKING LOT CURB
PARKWAY DR
E MAIN ST NC 24-27-73
-Y1- NC 24-27-73-740 S 37° 02' 52.8" W
BEGIN TIP PROJECT R-2530B
BEGIN CONSTRUCTION -L- POT Sta. 19+61.00
R2530B-2
100' TAPER
230' STORAGE
450' STORAGE
420' STORAGE
150' TAPER
175' TAPER
425' TAPER
REMOVE 10 LF EXIST HANDRAIL
RETAIN C&G
RETAIN 18" CURB
5' CONC SIDEWALK SEE NOTE 2
2'-6" C&G
15" RCP-IV 2'-6" C&G
6' MONO CONC ISLAND
6" CONC CURB
6' CONC SIDEWALK
SEE NOTE 1
SEE NOTE 2
SEE NOTE 3
SEE NOTE 4
SEE NOTE 5
SEE NOTE 7
SEE NOTE 9
SEE NOTE 10
TRAFFIC SIGNAL
RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED (APPLIES TO ALL SHEETS)
ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED (APPLIES TO ALL SHEETS)
SEE SHEET 2B-1 FOR INTERSECTION DETAILS
SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 51 FOR -Y1- PROFILE
-L-
PI Sta 28+81.01
Δ = 12° 45' 13.8" (RT)
D = 2° 30' 07.2"
L = 509.75'
T = 255.93'
R = 2,290.00'
SE = 0.03
RO = 150'
-Y1-
PI Sta 12+09.99
Δ = 21° 39' 27.3" (RT)
D = 1° 47' 37.9"
L = 1,207.32'
T = 610.95'
R = 3,194.00'
SE = 0.03
RO = 138'
3 OWNER UNKNOWN DB UNKNOWN PG UNKNOWN
5 SOUTH CENTRAL OIL CO. INC. DB 267 PG 438
8 FIRST BANK INC DB 1143 PG 46 PB 19 PG 218
10 H/S ALBEMARLE LLC DB 1143 PG 42 DB 823 PG 947 PB 17 PG 409
196 EASTSIDE RENTALS, LLC DB 1598 PG 175
198 H/S ALBEMARLE LLC DB 1143 PG 42 DB 823 PG 947 PB 17 PG 409
NOTES:
1. RETAIN DI AND PLUG 18" RCP
2. REMOVE JB, 10', AND 18'
3. BEGIN SPILL CURB -L- STA 25+25 (42' LT)
4. REMOVE 72 LF OF EXIST 15"
5. REMOVE CB AND TIE PROP CB INTO EXIST 18"
6. REMOVE 18"
7. TIE PROP TB JB W/ MH INTO EXIST 24"
8. BEGIN RETAINING WALL #1 -L- STA 30+12.00 (49.50' RT)
9. CONTRACTOR TO INSTALL CONCRETE PARKING BUMPERS 3' FROM FACE OF CURB FROM -L- STA 30+44 TO 32+16 (RT)
10. REMOVE 10' HDPE

5/14/99

REVISIONS

ROW REV. - 2/2/18 - ADJUSTED ROW AND PUE ON PARCEL 25; ADJUSTED ROW, PUE AND TCE ON PARCEL 26; WIDENED DRIVEWAY NEAR -L- STA 44+50 (RT); AND ADDED DRIVEWAY AND DRIVEWAY PIPE TO PARCEL 26 NEAR -Y2A- STA 13+50 (LT). - JWM

ROW REV. - 3/29/18 - CHANGED TCE TO PUE ON PARCEL 228. - JWM

ROW REV. - 5/30/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 17 AND 23. - JWM

ROW REV. - 8/22/18 - ADJUSTED ROW ON PARCELS 25 AND 26. - JWM

8/28/2018

(13) LINDA AN L CRESS
DB 382 PG 676

(20) STANLY SQUARE INC.
DB 383 PG 886
PB 13 PG 60

(25) GUSTAVO G. VENEGAS
DB 1481 PG 34

(26) JAMES J NOLAN
DB 1058 PG 648
PB 02 PG 106

(28) CHARLES E. & NANCY T. BURRIS
DB 872 PG 643
PB 02 PG 106

(33) V F W POST 2908
DB 150 PG 66

NOTES:
1. END RETAINING WALL #1 -L- STA 32+35.00 (49.50' RT)
2. CONTRACTOR TO INSTALL CONCRETE PARKING BUMPERS 3' FROM FACE OF CURB FROM -L- STA 30+44 TO 32+16 (RT)
3. TOE PROTECTION - EST 25 SY PSRM SEE DETAIL 5, SHEET 2D-1
4. SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS. SEE DETAIL 9, SHEET 2D-1
5. REMOVE CB AND 18"
6. GRADE AREA TO DRAIN OVER CURB FROM -L- STA 39+78 TO 40+94 (LT) & STA 41+46 TO 42+65 (LT) (SEE CROSS SECTIONS)
7. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS, EST 1 SY GFD
8. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

(14) RAMA REALTY LLC
DB 1058 PG 266

(17) CITY ELECTRIC
DB 693 PG 398

(16) DERICK J & HEATHER L PEGRAM
DB 1249 PG 300

(21) DILLON W LAMBERT ET AL
DB 1047 PG 276

(19) JACKSON M & PENNY L MORTON
DB 819 PG 391

(22) ALAN HOWARD
DB 341 PG 873

(23) ALBEMARLE OIL COMPANY
DB 1574 PG 249

(228) PEJA INC.
DB 904 PG 730
FILL IN AREA BETWEEN DRIVEWAYS

(27) CITADEL/STANLY GARDENS OF MEMORIAL
DB 783 PG 134

(11) ALDINC LLC
DIV 466 ST 7
DB 888 PG 300

(15) CITY OF ALBEMARLE ABC BOARD
DB 978 PG 248
DB 562 PG 588
PB 02 PG 106

(18) SOUTH CENTRAL OIL CO. INC.
DB 1091 PG 319
PB 02 PG 106

(24) A.L. LOWDER
DB 551 PG 304
PB 2 PG 106

(206) KEITH AND NANCY CARPENTER
DB 1437 PG 249

MATCHLINE -L- STA 32+00 (SEE SHEET 4)

MATCHLINE -Y2- STA 28+00 (SEE SHEET 33)

MATCHLINE -L- STA 46+00 (SEE SHEET 6)

MATCHLINE -Y2A- STA 14+00 (SEE SHEET 34)

-DRWI- POT Sta. 10+00.00 = -L- POT Sta. 32+62.66 △ = 90°

-L- POT Sta. 42+99.00 = -Y2- POT Sta. 32+89.63 △ = 90°

-L- POT Sta. 42+79.00 = -Y2A- POT Sta. 10+00.00 △ = 90°

-Y2- PC Sta. 30+34.00

-Y2- PT Sta. 32+78.30

S 29°19' 32.8" W

-DRWI- POT Sta. 11+00.00

S 29°19' 23.4" W

-Y2A- PC Sta. 10+15.10

-Y2A- PRC Sta. 13+66.19

BEGIN CULVERT -L- STA 38+65.50

END CULVERT -L- STA 38+86.50

2 @ 9' X 5' RCBC W/ HEADWALLS (BURIED 1')

END CONSTRUCTION -DRWI- POT Sta. 10+75.00

BM#5
ELEV = 559.85'
N 583457 E 1653423
-L- STATION 36+37.12
118.20' RIGHT
CHISELED 'X' IN
PARKING LOT CURB

CHANNEL IMPROVEMENTS
CLASS 1 RIP RAP
EST 25 TONS
EST 35 SY GFD
SEE DETAIL 50, SHEET 2D-3

CHANNEL IMPROVEMENTS
CLASS 1 RIP RAP
EST 50 TONS
EST 70 SY GFD
SEE DETAIL 49, SHEET 2D-3

CHANNEL CHANGE W/CLASS 1 RIP RAP GEOTEXTILE ON BANKS ONLY
EST 190 TONS,
EST 205 SY GFD
SEE DETAIL 15, SHEET 2D-1

STANDARD 5' BASE DITCH W/CLASS 1 RIP RAP GEOTEXTILE ON BANKS ONLY
EST 140 TONS,
EST 140 SY GFD
SEE DETAIL 16, SHEET 2D-1
EST 50 CY DDE
S = 1.1%

STANDARD 2' BASE DITCH
EST 60 CY DDE
S = 0.46%
SEE DETAIL 31, SHEET 2D-2

OUTLET PROTECTION CLASS 'B' RIP RAP
EST 2 TONS
EST 5 SY GFD

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
SHEET 2D-1

PLACE CLASS "B' RIP RAP SLOPE PROTECTION FROM END OF CURB AND GUTTER TO BEGIN DITCH
EST 5 TONS
EST 10 SY GFD

SPECIAL CUT DITCH
SEE DETAIL 23
SHEET 2D-1

DO NOT DISTURB EXIST TREES AS DIRECTED BY ENGINEER (TYP)

DO NOT DISTURB UST'S

4 GAS PUMPS U/MTL CANOPY
1 GAS-10,000 GAL
1 GAS-8,000 GAL
1 DIESEL-8,000 GAL

-L-

PI Sta 48+87.11
△ = 17° 11' 17.8" (LT)
D = 1° 54' 35.5"
L = 899.98'
T = 453.39'
R = 3,000.00'
SE = 0.03
RO = 150'

-Y2-

PI Sta 31+58.23
△ = 26° 14' 27.8" (RT)
D = 10° 44' 58.8"
L = 244.11'
T = 124.23'
R = 533.00'
SE = 0.04
RO = 84'

-Y2A-

PI Sta 11+97.28	PI Sta 15+45.70
△ = 37° 44' 26.5" (LT)	△ = 37° 13' 32.7" (RT)
D = 10° 44' 58.8"	D = 10° 44' 58.8"
L = 351.09'	L = 346.30'
T = 182.18'	T = 179.51'
R = 533.00'	R = 533.00'
SE = NC	SE = 0.04
	RO = 84'

SEE SHEET 2B-5 FOR ROUNDABOUT DETAIL
SEE SHEET 35 FOR -L- PROFILE
SEE SHEET 52 FOR -Y2- PROFILE
SEE SHEET 53 FOR -Y2A- PROFILE
SEE SHEET 58 FOR -DRWI- PROFILE
SEE SHEET 62 FOR ROUNDABOUT PROFILES
SEE SHEET C-1 THRU C-X FOR CULVERT PLANS

5/14/99

REVISIONS

ROW REV. – 7/1017 – ADDED DRIVEWAY ACCESS AND TCE TO PARCELS 35, 36, 37, 39, AND 40; AND ADJUSTED DRAINAGE STRUCTURES 0618 AND 0619. – JWM
ROW REV. – 7/25/17 – ADDED DRIVEWAY ACCESS AND TCE TO PARCELS 29, 30, AND 31. – JWM
ROW REV. – 12/15/17 – ADJUSTED PUE ON PARCEL 33; ADDED DRIVEWAY ACCESS AND ADJUSTED ROW AND TCE ON PARCEL 38. – JWM

8/27/2018

CULVERT #1
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	582911.67	1654976.75	547.51
CUL2	582910.52	1654982.22	547.46
CE1	582911.01	1654979.28	553.50
HW1	582910.69	1654979.09	555.18
CUL3	582858.86	1654964.91	547.83
CUL4	582857.73	1654970.61	547.86
CE2	582858.31	1654967.75	553.83
HW2	582858.53	1654967.82	555.41

-L-
PI Sta 48+87.11
Δ = 17° 11' 17.8" (LT)
D = 1° 54' 35.5"
L = 899.98'
T = 453.39'
R = 3,000.00'
SE = 0.03
R0 = 150'

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DONALD A WALTER
DB 592 PG 257

(27) CITADEL/STANLY GARDENS OF MEMORIAL
DB 783 PG 134

(34) SOUTH CENTRAL OIL CO. INC.
DB 318 PG 422

(38) SOUTH CENTRAL OIL CO. INC.
DB 720 PG 704

NC GRID NAD 83/95

-DRWIC- POT Sta. 10+00.00 = -L- POC Sta. 50+21.00
Δ = 90°

-DRWIB- POT Sta. 10+00.00 = -L- POC Sta. 48+95.00
Δ = 90°

-DRWIA- POT Sta. 10+00.00 = -L- POC Sta. 47+60.00
Δ = 90°

-Y3- CHARTER ST S 1° 59' 41.01" W

S 88°33'26" E 418.54'

BEGIN CONSTRUCTION
-Y3- POT Sta. 14+88.00

-L- POT Sta. 56+76.42 = -Y3- POT Sta. 16+43.00
Δ = 795°26.0"

BM#10
ELEV = 572.19'
N 582805 E 1655579
-L- STATION 58+96.45
72.41' LEFT
RR SPIKE IN BASE OF WHITE OAK

BM#8
ELEV = 566.11'
N 582990 E 1654721
-L- STATION 50+11.70
55.84' LEFT
RR SPIKE IN BASE OF POWER POLE

MATCHLINE -L- STA 46+00 (SEE SHEET 5)

MATCHLINE -L- STA 59+50 (SEE SHEET 7)

1 @ 8' X 7' RCBC W/ HEADWALLS (BURIED 1')

REMOVE EXISTING 1 @ 6' X 6' RCBC (STRUCTURE PAY ITEM)

REMOVE 12' OF EXIST 15" PIPE AND TIE INTO PROPOSED DITCH

OUTLET PROTECTION CLASS 'B' RIPRAP EST 2 TONS EST 7 SY GFD

SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1 WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 50 TONS, EST 125 SY GFD SEE DETAIL 13, SHEET 2D-1

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 25 TONS, EST 25 SY GFD SEE DETAIL 10, SHEET 2D-1

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 25 TONS, EST 30 SY GFD SEE DETAIL 52, SHEET 2D-3

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP (BOTH BANKS) EST 5 TONS EST 8 SY GFD SEE DETAIL 10, SHEET 2D-1

STANDARD 4' BASE DITCH SEE DETAIL 8, SHEET 2D-1

OUTLET PROTECTION CLASS 'I' RIP RAP EST 20 TONS EST 39 SY GFD

PROPOSED BASIN LOCATION

TIE TO EXIST STREAM

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 40 TONS EST 40 SY GFD SEE DETAIL 51 SHEET 2D-3

CHANNEL CHANGE W/CLASS I RIP RAP GEOTEXTILE ON BANKS ONLY EST 50 TONS, EST 35 SY GFD SEE DETAIL 11, SHEET 2D-1

TIE EXIST CHANNEL TO PROPOSED -L- PT Sta. 53+33.69

2' LATERAL BASE DITCH SEE DETAIL 21, SHEET 2D-1

OUTLET PROTECTION CLASS 'B' RIP RAP EST 3 TONS EST 10 SY GFD

END SPILL CURB -L- STA. 52+84 (37.50' RT)

END CONSTRUCTION -DRWIA- POT Sta. 11+16.00 -DRWIA- POT Sta. 11+25.00

END CONSTRUCTION -DRWIB- POT Sta. 11+11.00 -DRWIB- POT Sta. 11+25.00

END CONSTRUCTION -DRWIC- POT Sta. 10+92.00

-DRWIC- POT Sta. 11+00.00

SEE NOTE 2

RETAIN 30"

RETAIN 15"

RETAIN

REMOVE CB AND 24"

REMOVE CB AND 18"

DO NOT DISTURB SIGN

DO NOT DISTURB BUILDING

DO NOT DISTURB BUILDINGS

450' STORAGE

100' TAPER

NC 24-27-73 E MAIN ST S 77° 51' 45.0" E

GREU TL-3

LEWIS FURR ET AL
DB 1306 PG 66
PB 02 PG 106

TOMMY ALLEN MORTON
DB 225 PG 117

BROADUS EUDY
DB 155 PG 152
PB 02 PG 106

BRIAN M & MELISSA E SANDERS
DB 1307 PG 733
PB 02 PG 106

BROADUS EUDY
DB 308 PG 111
PB 02 PG 106

BROADUS EUDY
DB 190 PG 522
PB 05 PG 08

BETTY G TROGDEN
DB 1336 PG 763

V F W POST 2908
DB 150 PG 66

(28)	CHARLES E. & NANCY T. BURRIS DB 872 PG 643 PB 02 PG 106	(30)	LEWIS FURR ET AL DB 1306 PG 66 PB 02 PG 106
(29)	CHARLES E. & NANCY T. BURRIS DB 872 PG 643 PB 02 PG 106	(32)	CHUCKY L NANCE DB 1342 PG 404 PB 02 PG 106
(36)	TOMMY A & BEATRICE E MORTON DB 875 PG 309 PB 02 PG 106	(40)	BROADUS EUDY DB 372 PG 685 PB 02 PG 106

NOTES:
1. BEGIN SPILL CURB -L- STA. 46+67 (37.5' RT)
2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-1 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 53 FOR -Y3- PROFILE
SEE SHEET 58 FOR -DRWIA- PROFILE
SEE SHEET 58 FOR -DRWIB- PROFILE
SEE SHEET 58 FOR -DRWIC- PROFILE
SEE SHEET C-1 THRU C-X FOR CULVERT PLANS

5/14/99

REVISIONS

ROW REV. - 53018 - ADDED DRIVEWAY ACCESS (-DRW2-) AND TCE TO PARCEL 46, AND ADDED DRIVEWAY ACCESS (-DRW2B-) TO PARCEL 51; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 41, 44, 45, AND 52 - JWM

ROW REV. - 81018 - WIDENED DRIVEWAY ACCESS AND ADJUSTED DRAINAGE DESIGN ON PARCEL 57 - JWM

ROW REV. - 83018 - ADJUSTED RIGHT-OF-WAY AND TCE ON PARCEL 53, AND ADJUSTED RIGHT-OF-WAY ON PARCEL 54 - JWM

8/28/2018

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

-Y4- POT Sta. 10+00.00

-Y5- POT Sta. 10+00.00

BEGIN CONSTRUCTION
-Y4- POT Sta. 13+11.00

BEGIN CONSTRUCTION
-Y5- POT Sta. 13+51.00

-DRW2- POT Sta. 10+00.00 =
-L- POT Sta. 64+10.00
Δ = 90° -DRW2A- POT Sta. 10+00.00 =
-L- POT Sta. 64+60.00
Δ = 90°

-L- POT Sta. 69+37.86 =
-Y6- POT Sta. 10+00.00
Δ = 91°26'24.1"

-DRW2B- POT Sta. 10+00.00 =
-L- POT Sta. 66+00.00
Δ = 90°

-L- POT Sta. 69+43.63 =
-Y5- POT Sta. 14+36.00
Δ = 77°50'52.0"

END CONSTRUCTION
-DRW2- POT Sta. 10+94.00
-DRW2- POT Sta. 11+50.00

END CONSTRUCTION
-DRW2A- POT Sta. 10+92.00
-DRW2A- POT Sta. 11+50.00

END CONSTRUCTION
-DRW2B- POT Sta. 10+78.00
-DRW2B- POT Sta. 11+50.00

END CONSTRUCTION
-Y6- POC Sta. 12+86.00
-Y6- PT Sta. 14+08.81

-L- POT Sta. 61+35.65 =
-Y4- POT Sta. 15+10.00
Δ = 80°39'40.0"

-Y6- PC Sta. 11+42.93

-Y6-
PI Sta 12+78.52
Δ = 27°41'50.2" (LT)
D = 10°25'02.7"
L = 265.87'
T = 135.59'
R = 550.00'
SE = 0.04
RO = 84'

-Y6- POT Sta. 14+24.00

MATCHLINE -L- STA 59+50 (SEE SHEET 6)

MATCHLINE -L- STA 73+50 (SEE SHEET 8)

BY6-56

BY6-57

BY7-58

R2530B-3

(38) SOUTH CENTRAL OIL CO, INC. DB 720 PG 704

(40) BROADUS EUDY DB 372 PG 685 PB 02 PG 106

(41) PAUL BOWERS & WIFE, TAMMY BOWERS DB 1463 PG 972

(42) CLARENCE ANDERSON DB 355 PG 930

(43) DAVID T LOWDER & M L YARBOUGH DB 1136 PG 562 PB 02 PG 106

(44) RRMM, INC. DB 1544 PG 916

(45) GEORGE INGRAM & WIFE, SHERRIE INGRAM DB 1634 PG 944

(46) WALTER T & SHARON TARLTON III DB 1323 PG 738 PB 02 PG 106

(47) GARY L & LOU L WHITLEY SR DB 1206 PG 105 DB 356 PG 05 PB 02 PG 106

(48) WOODROW W. DENNIS HEIRS DB 139 PG 235

(49) ROBERT C & ELIZABETH F SAVILLE DB 690 PG 453

(50) ANDERSON GROVE BAPTIST CHURCH INC DB 1294 PG 1014 DB 815 PG 132 DB 697 PG 964 PB 21PG 159

(51) GARY J & NANCY L DEECK DB 808 PG 170 PB 02 PG 106

(52) HOYLE DALE POPLIN, JR., ET AL DB 1615 PG 725

(53) ANNIE G. DENNIS ET AL DB 1494 PG 213

(54) Z. D. DENNIS JR. REVOC LIVING TRUST DB 1333 PG 223

(56) JUNE ALLEN DB 372 PG 664

(57) JUNE ALLEN DB 328 PG 852

JUNE ALLEN DB 338 PG 968 DB 338 PG 969

RANDY MAULDIN DB 1112 PG 514 PB 03 PG 103

SARAH JOHNSON DB 511PG 890

CARLA R TUCKER DB 1265 PG 294

NELLIE HEARNE DB 203 PG 149

REBA AUSTIN DB 352 PG 557

ALBEMARLE CITY LIMITS

ANDERSON GROVE BAPTIST CHURCH CEMETERY

-L- NC 24-27-73 E MAIN ST S 77°51' 45.0" E

-Y- ANDERSON GROVE CHURCH RD (SR 1537) S 0°00'53.0" E

-Y6- SR 1734 ANDERSON RD S 14°07'11.1" E

BM#12 ELEV 593.14' N 582488 E 1656939 -L- STATION 72+92.27 47.95' LEFT RR SPIKE IN BASE OF PP

NOTES:
1. OUTLET PROTECTION - CLASS 'B' RIP RAP EST 2 TONS, EST 7 SY GFD
2. SPECIAL LATERAL 'V' DITCH SEE DETAIL 9, SHEET 2D-1
3. REMOVE 12" AND DI
4. SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS TO CEMETERY SEE DETAIL 9, SHEET 2D-1

SEE SHEET 2B-1 & 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 53 FOR -Y4- PROFILE
SEE SHEET 53 FOR -Y5- PROFILE
SEE SHEET 53 FOR -Y6- PROFILE
SEE SHEET 58 FOR -DRW2- PROFILE
SEE SHEET 58 FOR -DRW2A- PROFILE

5/14/99

REVISIONS

ROW REV. - 10/2017 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 67. - JWM
ROW REV. - 12/1/17 - ADJUSTED TCE ON PARCEL 58; ADJUSTED ROW AND ADDED TCE ON PARCEL 59; ADJUSTED ROW AND PUE ON PARCELS 60 AND 61. - JWM
ROW REV. - 5/30/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 58, 59 AND 62; ADDED DRIVEWAY ACCESS TO PARCEL 60; AND REMOVED ACCESS AND TCE FROM PARCEL 61. - JWM

8/27/2018

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

MATCHLINE -L- STA 73+50 (SEE SHEET 7)

MATCHLINE -L- STA 87+75 (SEE SHEET 9)

(57) JUNE ALLEN
DB 328 PG 852

JUNE ALLEN
DB 338 PG 968
DB 338 PG 969

(58) HOYLE DALE POPLIN, JR., ET AL
DB 1615 PG 725

(59) HOYLE DALE POPLIN, JR., ET AL
DB 1615 PG 725

(60) JAMES A & FARRIE L NORMAN
DB 880 PG 73

(61) DOYLE T. & MARY A POPLIN TRUST
DB 1316 PG 500
DB 1272 PG 98

(62) KYLE DORSEY & WIFE, BRITTANY DORSEY
DB 1587 PG 852

(63) STEPHEN HEATH EFIRD
DB 824 PG 917

(64) STEPHEN EFIRD
DB 824 PG 913

(65) ERIC FRANKLIN EFIRD
DB 824 PG 915

(66) EDWARD RILEY WHITLEY JR.
DB 596 PG 660

JEFFREY & JONI JAMES
DB 1082 PG 44

CRAIG BLAKE
DB 358 PG 656

ANNIE GRAY DENNIS
DB 601PG 763

(67) ALEX TRENT DENNIS
DB 1486 PG 875

(68) PATRICIA HATLEY
DB 373 PG 474

(69) ANNIE GRAY DENNIS
DB 167 PG 406

(53) ANNIE G. DENNIS ET AL
DB 1494 PG 213

ALBEMARLE CITY LIMITS

-L-
NC 24-27-73
E MAIN ST
S 77° 51' 45.0" E

-DRW4- POT Sta. 10+00+00 = -L- POT Sta. 87+50.82
Δ = 90°

-DRW4- PC Sta. 10+70.48

PROPOSED BASIN LOCATION
END CONSTRUCTION
-DRW4- POC Sta. 10+95.00

-DRW4- PT Sta. 10+98.24

-DRW4- POT Sta. 11+15.00

-DRW4-
PI Sta 10+84.40
Δ = 10° 36' 16.3" (RT)
D = 38° 11' 49.9"
L = 27.76'
T = 13.92'
R = 150.00'

BM#13
ELEV = 569.36'
N 582266 E 1657979
-L- STATION 83+56.45
49.99' LEFT
PAINTED FLANGE
BOLT ON FH

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT DITCH
SEE DETAIL 23
SHEET 2D-1

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
SHEET 2D-1

350' STORAGE
100' TAPER
450' STORAGE
365' STORAGE
50' TAPER

REMOVE 12"
REMOVE 18"
REMOVE 12" AND DI
REMOVE 18" RCP'S AND DI
RETAIN 12"
RETAIN +20 75.50' LT

5' CONC SIDEWALK
18" RCP-V (DO NOT BURY)
2'-6" C&G
1'-6" C&G
MONO CONC ISLAND
TOE PROTECTION
EST 70 SY PSRM
SEE DETAIL 5
SHEET 2D-1
18" (DO NOT BURY)
OUTLET PROTECTION
CLASS 'B' RIP RAP
EST 3 TONS
EST 10 SY GFD

15" RCP-IV
18" RCP-IV
24" RCP-IV
20' DR
26' DR
24' DR
20' DR (6" CONC)
TB2GI 2'R
CB
DI
PUE
DUE
SOIL
ISBKAPTS
ISBLKD
ISFD
MTL CAN
2SFD
POOL
48" CHL
10' BST
19' BST
17' GR
WD RAMP
WD CANOPY
ALBEMARLE CITY LIMITS

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

5/14/99

REVISIONS

ROW REV. – 11/2/17 – CONVERTED PUE TO FEE SIMPLE R/W ON PARCEL 75. – JWM
ROW REV. – 12/5/17 – ADJUSTED ROW, C/A AND PUE ON PARCEL 67. – JWM
ROW REV. – 4/13/18 – REVISED PROPERTY LINES BETWEEN PARCELS 67 AND 72. – JWM
ROW REV. – 5/15/18 – ADDED DRIVEWAY ACCESS TO PARCEL 73. – JWM

8/27/2018

CULVERT #2
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	582057.02	1658954.82	535.72
CUL2	582055.66	1658960.67	535.79
CE1	582056.36	1658957.74	541.79
HW1	582056.33	1658957.70	543.41
CUL3	581993.24	1658941.13	535.98
CUL4	581992.20	1658946.90	536.06
CE2	581992.95	1658944.08	542.03
HW2	581992.96	1658944.10	543.73

HAROLD KENDALL
DB 340 PG 35

ANNIE GRAY DENNIS
DB 601PG 763

(70) HAROLD MICHAEL KENDALL
DB 335 PG 399

(71) JERRY HOLT SR. AND CAROLYN HOLT
DB 1532 PG 309

(73) CONLEY HOWELL
DB 508 PG 231
PB 15 PG 33

(75) BOBBY F & SANDRA R BEAMAN
DB 508 PG 155
PB 15 PG 33

(76) STANLY WATER & SEWER AUTHORITY
DB 1338 PG 834
PB 10 PG 52

(78) JOHN C HOLBROOK JR.
DB 391PG 418
PB 03 PG 05

(79) BOBBY F & SANDRA R BEAMAN
DB 260 PG 287
PB 260 PG 284
PB 03 PG 05

(77) AMY CURLEE
DB 614 PG 511

(74) CYBERDYNE PROPERTY DEVELOPMENT GROUP, LLC
DB 1508 PG 44

(67) ALEX TRENT DENNIS
DB 1486 PG 875

(68) PATRICIA HATLEY
DB 373 PG 474

(69) ANNIE GRAY DENNIS
DB 167 PG 406

(72) CITY OF ALBEMARLE
DB 1126 PG 113

NOTES:
1. CB AND SPLITTER BOX SEE DETAIL 65, SHEET 2D-4
2. SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
3. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

-Y7-
PI Sta 14+05.83
Δ = 15° 21' 44.1" (RT)
D = 4° 17' 30.5"
L = 357.94'
T = 180.05'
R = 1,335.00'
SE = EXIST
RO = EXIST

-L-
PI Sta 99+56.26
Δ = 39° 11' 36.6" (RT)
D = 2° 30' 07.2"
L = 1,566.49'
T = 815.29'
R = 2,290.00'
SE = 0.03
RO = 150'

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 37 FOR -L- PROFILE
SEE SHEET 53 FOR -Y7- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

ROW REV. – 10/30/17 – UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 74 AND 84. – JWM
ROW REV. – 12/1/17 – REVISED TDE AND DRAINAGE DESIGN ON PARCEL 87. – JWM
ROW REV. – 5/30/18 – SHIFTED DRIVEWAY ACCESS AND C/A BREAK, AND REVISED DRAINAGE DESIGN ON PARCEL 78. – JWM
ROW REV. – 8/10/18 – WIDENED DRIVEWAY ACCESS ON PARCEL 79, AND WIDENED –DRW6– AND ADJUSTED DRAINAGE DESIGN ON PARCEL 85. – JWM

5/14/99

8/27/2018

(87) ROBERT A & KRISTY L WILHOIT
DB 1408 PG 942

(79) BOBBY F & SANDRA R BEAMAN
DB 260 PG 287
PB 260 PG 284
PB 03 PG 05

(82) ALICE M. BEAMAN TRUST
DB 1100 PG 40
PB 03 PG 05

(85) JAMES J SCHAD
DB 1081 PG 427

(89) WESFELL LIMITED PARTNERSHIP
DB 966 PG 1000
DB 964 PG 621

MG GRID MAD 8395

N 02°27'14" E 343.29'

S 38°56'01" E 99.99'

N 38°56'01" W 200.24'

S 38°56'01" E 21.04'

N 50°26'38" E 273.41'

N 50°26'38" E 273.87'

N 50°26'38" E 273.41'

N 45°22'57" E 246.29'

S 44°31'02" E 407.52'

S 36°45'28.5" W 263.34'

-DRW5- POT Sta. 10+00.00 =
-L- POC Sta. 101+25.00
Δ = 90°

-L- PT Sta. 107+07.46

-DRW6- POT Sta. 11+20.00 =
-L- POT Sta. 111+79.00
Δ = 90°

BEGIN CONSTRUCTION
-DRW6- POT Sta. 10+00.00

-DRW6- S 51°19'51.6" W

105+00

110+00

(78) JOHN C HOLBROOK JR.
DB 391 PG 418
PB 03 PG 05

(83) JOSEPH J MCRAE JR.
DB 657 PG 185
PB 03 PG 05

(77) AMY CURLEE
DB 614 PG 511

(74) CYBERDYNE PROPERTY DEVELOPMENT GROUP, LLC
DB 1508 PG 44

(81) THADDEUS A FURR
DB 198 PG 268

(86) THADDEUS A FURR
DB 150 PG 139

(80) STANLY CO. BOARD OF EDUCATION
DB 501 PG 38

(84) TIMOTHY PARRISH
DB 1347 PG 913

(87) PHILLIP ALAN FURR
DB 338 PG 412

KENNETH R FURR ET AL
DB 830 PG 198

-L-
PI Sta 99+56.26
Δ = 39°11'36.6" (RT)
D = 2°30'07.2"
L = 1,566.49'
T = 815.29'
R = 2,290.00'
SE = 0.03
RO = 150'

-DRW5- POT Sta. 11+20.00

END CONSTRUCTION
-DRW5- POT Sta. 11+05.00

MATCHLINE -L- STA 101+00 (SEE SHEET 9)

MATCHLINE -L- STA 114+00 (SEE SHEET 11)

BM#16
ELEV = 570.41'
N 581232 E 1660047
-L- STATION 107+20.12
3.85' RIGHT
RR SPIKE IN BASE OF PP

+07.46 105' LT 120' ACCESS POINT
BEGIN C/A +19 105' LT 115'
END C/A +19 105' LT 115'
BEGIN C/A EX P/L 105' LT
+35 105' LT 126'
+55 105' LT 126'
+27 120' LT 125'
+48 120' LT 125'
END C/A +91 120' LT 136'
BEGIN C/A +97 120' LT 136'
END C/A +63 105' LT
+30 116' LT
+90 105' LT
+91 248' LT
+69 107' RT
END C/A +80 105' RT
+85 116' RT
BEGIN C/A +40 105' RT
END C/A +73 105' RT
BEGIN C/A +33 105' RT
END C/A +20 105' RT 116.19'
+41 135' RT
+60 135' RT
BEGIN C/A +03 105' RT 116.22'
END C/A +89 105' RT
BEGIN C/A +09(L) 120' LT 130'
+28 120' LT 136'
END C/A +49(L) 120' LT 130'
BEGIN C/A +60(L) 105' RT 112.13' 117'
+20.01 EX. P/L
+34.94 EX. P/L

PROPOSED BASIN LOCATION
LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 30 TONS, EST 60 SY GFD SEE DETAIL 18, SHEET 2D-1
SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP EST 30 TONS, EST 70 SY GFD SEE DETAIL 67, SHEET 2D-4
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
FALSE SUMP SEE DETAIL 24 SHEET 2D-2
690' TAPER
STANDARD 'V' DITCH W/CLASS 'B' RIP RAP EST 5 TONS EST 10 SY GFD S = 10.0%, DDE = 5 CY SEE DETAIL 62, SHEET 2D-4
OUTLET PROTECTION CLASS B RIP RAP EST 3 TONS EST 10 SY GFD
150' TAPER
530' STORAGE
TIE PROPOSED DITCH TO EXISTING SWALE
FILL IN EXISTING POND
3' STANDARD BASE DITCH W/CLASS I RIP RAP GEOTEXTILE ON BANKS ONLY EST 185 TONS, EST 250 SY GFD SEE DETAIL 75, SHEET 2D-5 S = 1.23%
DO NOT DISTURB EXIST ROCK WALL
RETAIN 15"
REMOVE 18"
REMOVE 12"
REMOVE 15" AND DI
REMOVE 18" AND DI
SEE NOTE 1
REMOVE 24"

NC 24-27-73
S 38°40'08.4" E

NC 24/27/73 27" BST

18" RCP-IV
18" RCP-III
15" RCP
12" RCP
36" RCP-III (DO NOT BURY)
48" CHL & 35BW
72" CHL & 35BW
6" CONC CURB
AT&T CORP UNKNOWN COUNT (6" CONC)
MTL CANOPY
CONC
ISMTLBUS
ISBLKBUS
2SMTLBUS
2SFBUS
2SFD (ABAND)
ISFD
BLK FOUNDATION
BLK WALL
POWER METER
SCALES
SOIL
ROCK
EIP
EXIST R/W
TYP

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW5- & -DRW6- PROFILES

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RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83'95

MATCHLINE -L- STA 114+00 (SEE SHEET 10)

MATCHLINE -L- STA 127+50 (SEE SHEET 12)

(89) WESFELL LIMITED PARTNERSHIP
DB 966 PG 1000
DB 964 PG 621

(85) JAMES J SCHAD
DB 1081 PG 427

(87) ROBERT A & KRISTY L WILHOIT
DB 1408 PG 942

(88) WESFELL LIMITED PARTNERSHIP
DB 966 PG 1000
DB 964 PG 621

-L- NC 24-27-73 S 38° 40' 08.4" E

-L- TS Sta. 121+27.90

-L- SC Sta. 124+07.90

-DRW7- POT Sta. 10+00.00

BEGIN CONSTRUCTION -DRW7- POT Sta. 10+30.00

-DRW7- PC Sta. 10+50.43

-DRW7- PT Sta. 11+02.61

-DRW7- POT Sta. 11+58.00 = -L- POC Sta. 125+15.00 Δ = 90°

S 18° 45' 05.2" W

S 58° 36' 35.8" W

BM#17
ELEV = 571.26'
N 580261E 166075I
-L- STATION 119+17.97
60.56' RIGHT
RR SPIKE IN BASE OF PP

3' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 90 TONS
EST 120 SY GFD
SEE DETAIL 29, SHEET 2D-2

PROPOSED BASIN LOCATION

COUNTER-SUNK OUTLET PROTECTION
CLASS I RIP RAP
EST 40 TONS
EST 75 SY GFD

PROPOSED BASIN LOCATION

FALSE SUMP
SEE DETAIL 4, SHEET 2D-1

530' STORAGE

BERM 'V' DITCH
W/CLASS 'B' RIP RAP
EST 60 TONS
EST 135 SY GFD
SEE DETAIL 20, SHEET 2D-1

BERM 'V' DITCH
SEE DETAIL 19, SHEET 2D-1

BERM 'V' DITCH
W/CLASS 'B' RIP RAP
EST 30 TONS
EST 75 SY GFD
SEE DETAIL 67, SHEET 2D-4

SPECIAL LATERAL 'V' DITCH
W/CLASS 'B' RIP RAP
EST 30 TONS
EST 75 SY GFD
SEE DETAIL 67, SHEET 2D-4

LATERAL 'V' DITCH
W/CLASS 'B' RIP RAP
EST 50 TONS
EST 115 SY GFD
SEE DETAIL 18, SHEET 2D-1

ENVIRONMENTALLY SENSITIVE AREA

ACCESS POINT

GRADE TO DRAIN

END C/A +07.90(L) 150' LT 170.29'

BEGIN C/A +94(L) 150' LT

60" RCP-III (BURY 1 FT)

36" RCP-III

18" CSP W/ELBOWS

15" CSP W/ELBOWS

18" RCP-IV

30" RCP-III

15" RCP-IV

REMOVE EXIST 4' x 4' BOX CULVERT (STRUCTURE PAY ITEM)

OUTLET PROTECTION CLASS B RIP RAP
EST 5 TONS
EST 14 SY GFD

SPECIAL 2' LATERAL BASE DITCH
SEE DETAIL 2, SHEET 2D-1
W/3:1 FRONT SLOPES TO LIMIT IMPACTS

3' STANDARD BASE DITCH
W/CLASS I RIP RAP
GEOTEXTILE ON BANKS ONLY
EST 185 TONS, EST 250 SY GFD
SEE DETAIL 75, SHEET 2D-5
S= 1.23%

FILL IN EXISTING POND

DO NOT DISTURB EXIST ROCK WALL

FALSE SUMP
SEE DETAIL 4
SHEET 2D-1

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

FALSE SUMP
SEE DETAIL 25
SHEET 2D-2

PROPOSED BASIN LOCATION

150' TAPER

-L-	
PIs Sta 123+14.62	PI Sta 127+28.81
Θs = 4° 07' 26.8"	Δ = 18° 44' 14.7" (RT)
Ls = 280.00'	D = 2° 56' 44.9"
LT = 186.72'	L = 636.07'
ST = 93.38'	T = 320.90'
	R = 1,945.00'
	SE = 0.07

-DRW7-	
PI Sta 10+77.62	
Δ = 39° 51' 30.6" (RT)	
D = 76° 23' 39.7"	
L = 52.17'	
T = 27.19'	
R = 75.00'	

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 38 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW7- PROFILE

8/27/2018

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99 ROW REV. - 10/30/17 - UPDATED PROPERTY OWNER NAME FOR PARCEL 92. - JWM

8/27/2018

NC GRID NAD 8395

(89) WESFELL LIMITED PARTNERSHIP
DB 966 PG 1000
DB 964 PG 621

130+00 | 135+00 | 140+00

-L- ST Sta. 133+23.98

+13.42 160' LT

STANDARD 2.5' BASE DITCH W/CLASS 'B' RIP RAP
EST 30 TONS
EST 70 SY GFD
S = 12.2%, DDE = 80 CY
SEE DETAIL 46, SHEET 2D-2

+82 188' LT
+70 150' LT 180'
+25 150' LT
+77 160' LT

LATERAL 'V' DITCH W/CLASS 'B' RIP RAP
EST 50 TONS
EST 115 SY GFD
SEE DETAIL 18
SHEET 2D-1

+43.98 150' LT

3' LATERAL BASE DITCH W/CLASS 'I' RIP RAP
EST 175 TONS
EST 375 SY GFD
SEE DETAIL 26
SHEET 2D-2

TIE PROPOSED BASE DITCH INTO EXISTING STREAM

+17 125' LT
CHORD
+23.98 125' LT

SPECIAL 3' LATERAL BASE DITCH W/CLASS I RIP RAP
EST 105 TONS
EST 165 SY GFD
SEE DETAIL 26, SHEET 2D-2

+47 125' LT

BERM 'V' DITCH W/CLASS 'B' RIP RAP
EST 40 TONS
EST 90 SY GFD
SEE DETAIL 20, SHEET 2D-1

+18 141.90' LT
+00 150' LT 155'
+36 150' LT

BERM 'V' DITCH W/CLASS 'B' RIP RAP
EST 110 TONS
EST 240 SY GFD
SEE DETAIL 20, SHEET 2D-1

+00 150' LT

N 83°27'52" E 563.91'

R2530B-5 POND

1201 18" RCP-III

1214 4" SPRING BOX PIPE

SPRING BOX 1213

-L- NC 24-27-73 S 11° 41' 00.0" E

40' TYP

1210 1209 OTCB-4 HW 42" 18" 42" 42"

1205 2GI-A FALSE SUMP SEE DETAIL 25 SHEET 2D-2

91

1211 2GI FALSE SUMP SEE DETAIL 24SHEET 2D-2

1212 2GI FALSE SUMP SEE DETAIL 24SHEET 2D-2

1207 2GI FALSE SUMP SEE DETAIL 24SHEET 2D-2

24" RCP-III

4' PS 2' PS 4' PS 2' PS 4' PS 2' DR

REMOVE 2-24" RCP

2-24" RCP

EXIST R/W

18" RCP-III

1203 2GI

1202 2GI

1208 2GI

1216 2GI

1215 OTCB-4

1204 PDE OTCB-4

15" CSP W/ELBOWS

15" CSP W/ELBOWS

+00 115' RT

+43.98 105' RT

-L- CS Sta. 130+43.98

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

+65 105' RT 147'

+77 177' RT

+85 105' RT 130' 160'

+15 105' RT 126' 160' 172'

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

BERM 'V' DITCH SEE DETAIL 19, SHEET 2D-1

ENVIRONMENTALLY SENSITIVE AREA

BM=118
ELEV = 583.60'
N 579166 E 1661398
-L- STATION 132+19.65
12.69' RIGHT
RR SPIKE IN BASE OF PP

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

+23.98 105' RT

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

TOE PROTECTION EST 135 SY PSRM SEE DETAIL 5, SHEET 2D-1

+53 115.63' RT

END C/A +69 105' RT

ACCESS POINT

BEGIN C/A EX. P/L 105' RT

EX. P/L 115' RT

RETAIN 12"

+22.23 EX. P/L

+18.69 EX. P/L

PROPOSED BASIN LOCATION

S 89°27'52" W 915.07'

ISBKD

CONC

WD CANOPY

N 88°57'09" W 806.07'

MATCHLINE -L- STA 127+50 (SEE SHEET 11)

MATCHLINE -L- STA 141+00 (SEE SHEET 13)

(88) WESFELL LIMITED PARTNERSHIP
DB 966 PG 1000
DB 964 PG 621

-L-

PIs Sta 123+14.62	PI Sta 127+28.81	PIs Sta 131+37.36
Θs = 4° 07' 26.8"	△ = 18° 44' 14.7" (RT)	Θs = 4° 07' 26.8"
Ls = 280.00'	D = 2° 56' 44.9"	Ls = 280.00'
LT = 186.72'	L = 636.07'	LT = 186.72'
ST = 93.38'	T = 320.90'	ST = 93.38'
	R = 1,945.00'	
	SE = 0.07	

(90) BERNICE B WHITLEY
DB 1204 PG 376

(92) JAMES PECK, JR. & TERRY ALMOND PECK
DB 1366 PG 218

(91) JOHN CLIFTON WHITLEY
DB 356 PG 5

SEE SHEET 39 FOR -L- PROFILE

5/14/99

NOTES:
1. 2' LATERAL BASE DITCH SEE DETAIL 21, SHEET 2D-1
2. OUTLET PROTECTION - CLASS B RIP RAP EST 2 TONS, EST 7 SY GFD
3. OUTLET PROTECTION - CLASS B RIP RAP EST 2 TONS, EST 7 SY GFD
4. SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1
5. REINFORCED SOIL SLOPES FROM -L- STA 147+15 TO 147+65 (LT) (SEE SHEET 2G-1)
6. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

(89) WESFELL LIMITED PARTNERSHIP
DB 966 PG 1000
DB 964 PG 621

(97) D & G PROPERTIES
DB 540 PG 878

(99) STONY GAP PROPERTIES LLC
DB 1370 PG 1000
DB 187 PG 245

D & G PROPERTIES
DB 520 PG 159

BM#20
ELEV = 532.87'
N 577567 E 1662371
-Y8- STATION 11+09.84
29.17' RIGHT
RR SPIKE IN BASE OF PP

JOHN J EARNHARDT JR.
DB 1365 PG 113

ROBERT D & MARY JANE JADLOCKI
DB 562 PG 1

(94) TJ VENTURES LLC
DB 1328 PG 408

(101) TJ VENTURES LLC
DB 1328 PG 405
PB 06 PG 148

(91) JOHN CLIFTON WHITLEY
DB 356 PG 5

(93) GUS SCHAD
DB 987 PG 240

(98) TJ VENTURES LLC
DB 1328 PG 405

(100) GUS SCHAD
DB 1026 PG 436

(92) JAMES PECK, JR. & TERRY ALMOND PECK
DB 1366 PG 218

(95) STONY GAP PROPERTIES LLC
DB 1370 PG 1000

(96) DR JOEL LEE MAULDIN SR. HEIRS
DB 68 PG 175

-Y8-

PI Sta 12+48.42	PI Sta 19+82.72	PI Sta 23+96.30
Δ = 1° 57' 33.9" (LT)	Δ = 21° 23' 41.2" (LT)	Δ = 4° 17' 24.9" (RT)
D = 0° 30' 00.0"	D = 9° 45' 38.8"	D = 0° 42' 10.9"
L = 391.88'	L = 219.19'	L = 610.26'
T = 195.96'	T = 110.89'	T = 305.27'
R = 11,459.16'	R = 587.00'	R = 8,150.00'
SE = NC	SE = 0.04	SE = NC
RO = NONE	RO = 96'	RO = NONE
	DS = 45 MPH	

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RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROW REV. - 10/30/17 - UPDATED PROPERTY OWNER NAME FOR PARCEL 92. - JWM
ROW REV. - 11/22/17 - RELOCATED DRIVEWAY ON PARCEL 91; AND REVISED C/A, PDE, AND TCE - JWM
ROW REV. - 8/10/18 - ADDED ACCESS BREAK, TCE, AND REDESIGNED DRIVEWAY CONNECTION ON PARCEL 95. - JWM

REVISIONS

8/27/2018

MATCHLINE -L- STA 141+00 (SEE SHEET 12)

MATCHLINE -L- STA 155+25 (SEE SHEET 14)

MATCHLINE -Y8- STA 21+00 (SEE SHEET 34)

-L- POT Sta. 153+07.95 =
-Y8- POT Sta. 18+05.16
Δ = 64°08'38.0"

-Y8- PRC Sta. 20+91.02

-Y8- PC Sta. 18+71.83

-L- TS Sta. 154+34.90

-Y8- PT Sta. 14+44.34

BEGIN CONSTRUCTION
-Y8- POT Sta. 13+68.00

NC 24-27-73
S 11° 41' 00.0" E

NC GRID NAD 83/95

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 39 FOR -L- PROFILE
SEE SHEET 54 FOR -Y8- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

ROW REV. – 7/13/17 – UPDATED DEED BOOK AND PAGE INFORMATION FOR PARCEL 105. – JWM
ROW REV. – 11/22/17 – RELOCATED DRIVEWAY TO +L- STA 166+50 RT ON PARCEL 104, AND ADDED TCE – JWM
ROW REV. – 5/30/18 – ADJUSTED TCE ON PARCEL 102, AND ADDED DRIVEWAY ACCESS, TCE, AND ADJUSTED C/A ON PARCEL 103. – JWM
ROW REV. – 7/26/18 – ADDED "DO NOT DISTURB TREE" NOTE AND ADJUSTED DRIVEWAY AND TCE ON PARCEL 102; REMOVED DRIVEWAY AND ADJUSTED TCE ON PARCEL 103. – JWM

5/14/99

8/27/2018

-DRW9-
PI Sta 10+48.93
Δ = 13° 55' 05.7" (RT)
D = 22° 55' 05.9"
L = 60.73'
T = 30.52'
R = 250.00'

-L-
PIs Sta 155+94.92
Θs = 2° 57' 48.9"
Ls = 240.00'
LT = 160.02'
ST = 80.02'

PI Sta 163+10.12
Δ = 30° 37' 29.5" (LT)
D = 2° 28' 10.7"
L = 1,240.05'
T = 635.22'
R = 2,320.00'
SE = 0.06

ROBERT D & MARY JANE JADLOCKI
DB 562 PG 1

(101) TJ VENTURES LLC
DB 1328 PG 405
PB 06 PG 148

(102) JENEECE LOWDER SMITH
DB 369 PG 628

(103) JENEECE LOWDER SMITH
DB 355 PG 13

(105) JENEECE LOWDER SMITH
DB 231 PG 8
DB 976 PG 637

(100) GUS SCHAD
DB 1026 PG 436

(99) STONY GAP PROPERTIES LLC
DB 1370 PG 1000
DB 187 PG 245

(104) BARRIER FAMILY LIMITED PARTNERSHIP
DB 1100 PG 857
PB 11PG 55

BM#22
ELEV = 547.90'
N 576868 E 1661880
-L- STATION 155+68.15
7.82' RIGHT
PAINTED FLANGE BOLT ON FH

BM#23
ELEV = 575.09'
N 575845 E 1662455
-L- STATION 167+63.34
47.21' LEFT
RR SPIKE IN
BASE OF PP

-L- SC Sta. 156+74.90

-DRW9- POT Sta. 10+00.00
-DRW9- PC Sta. 10+18.42
BEGIN CONSTRUCTION
-DRW9- POC Sta. 10+40.00
-DRW9- PT Sta. 10+79.15

-DRW9- POT Sta. 11+80.00 =
-L- POC Sta. 167+59.00
Δ = 90°

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP
EST 15 TONS
EST 30 SY GFD ON BANKS ONLY
S = 2.8%, DDE = 6 CY
SEE DETAIL 38, SHEET 2D-2

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

530' STORAGE

150' TAPER

PROPOSED BASIN LOCATION

36" (DO NOT BURY)
FALSE SUMP
SEE DETAIL 4
SHEET 2D-1

TOE PROTECTION
EST 25 TONS
CLASS 'B' RIP RAP
EST 60 SY GFD
SEE DETAIL 32
SHEET 2D-2

2' SPECIAL LATERAL BASE DITCH W/CLASS 'B' RIP RAP
EST 320 TONS
EST 725 SY GFD
SEE DETAIL 6
SHEET 2D-1

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

RETAIN
RETAIN 6"
RETAIN 15"

DO NOT DISTURB TREE

REMOVE 15"
REMOVE 24"
REMOVE 12"

15" RCP-III
36" RCP-III
12" RCP

ACCESS POINT
END C/A
BEGIN C/A

MATCHLINE -L- STA 155+25 (SEE SHEET 13)
MATCHLINE (SEE SHEET 34)
MATCHLINE -L- STA 168+50 (SEE SHEET 15)

NC NAD 83/95

SEE SHEET 40 FOR -L- PROFILE
SEE SHEET 59 FOR -DRW9- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

ROW REV. – 7/13/17 – COMBINED PARCELS 105 AND 107 INTO 105, AND UPDATED DEED BOOK AND PAGE INFORMATION FOR PARCEL 105. – JWM
ROW REV. – 11/22/17 – REMOVED DRIVEWAY AND TCE FROM PARCEL 104 NEAR –L– STA 170+00 RT. – JWM
ROW REV. – 3/19/18 – UPDATED C/A AND PUE ON PARCEL 109; COMBINED PARCELS 110 AND 111 INTO 110; COMBINED PARCELS 112 AND 114 INTO 112; UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 110 AND 112. – JWM

5/14/99

8/27/2018

NC GRID NAD 83'95

S 46°10'35" E 430.04'

(105) JENEECE LOWDER SMITH DB 231 PG 8 DB 976 PG 637

N 41°57'15" E 528.70'

-L- ST Sta. 171+54.95

170+00

OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 7 SY GFD

SPECIAL LATERAL DITCH SEE DETAIL 3, SHEET 2D-1

S 85°25'59" E 700.28'

-L- NC 24-27-7.3 S 48°14'07.2" E

175+00

(105) JENEECE LOWDER SMITH DB 231 PG 8 DB 976 PG 637

(108) JANE COX HUNEYCUTT DB 550 PG 37 PB 01PG 272

N 15°47'24" E 473.40'

POND

(108A) DANIEL SHANE HUNEYCUTT DB 1489 PG 504 PB 01PG 272

N 45°31'41" E 828.39'

180+00

TOE PROTECTION EST 85 SY PSRM SEE DETAIL 5 SHEET 2D-1

BM#24 ELEV = 590.92' N 574936 E 1663404 -L- STATION 180+82.78 16.75' LEFT CHISELED SQUARE IN CONC CURB

INSTALL CONCRETE MOUNTABLE MEDIAN FOR EMERGENCY ACCESS (2% SLOPE) -L- STA 180+85 TO 182+00

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

STANDARD 'V' DITCH W/CLASS 'B' RIP RAP EST 10 TONS EST 20 SY GFD S = 10.0% DDE= 3' CY SEE DETAIL 62, SHEET 2D-4

(113)

MATCHLINE -L- STA 168+50 (SEE SHEET 14)

MATCHLINE -L- STA 182+50 (SEE SHEET 16)

BL-27

CHORD +14.95 105' LT

+85 106.08' LT 112'

+12 105.71' LT 112'

+54.95 105' LT

PDE

+55 137' LT

+00 105' LT

BL-28

530' STORAGE

+55

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

END C/A +85 105' LT 117'

BEGIN C/A +45 105' LT 117'

ACCESS POINT

FALSE SUMP SEE DETAIL 24, SHEET 2D-2 +80 105' LT 151'

PROPOSED BASIN LOCATION

+35

150' TAPER

END C/A +23 105' LT 115'

BEGIN C/A +83 105' LT 115'

ACCESS POINT

GRADE TO DRAIN

(1501) (1502) (1506) (1509) (1508) (1512) (1513) (1514)

2.05' EIP

40' WD RAIL/WW & 2S ELEC

AT&T CORP., UNKNOWN COUNT

REMOVE 18" 15" RCP-IV

REMOVE 12" 12" RCP

REMOVE 15" 15" RCP

REMOVE 12" 12" RCP

REMOVE 18" 15" RCP

16' DR

12' DR

4' PS

2' PS

24" RCP

15" RCP-IV

6' MONO CONC ISLAND

CONC ISLAND

TB2GI

2GI

2GI-A

100' R

40' R

20' R

3' R

45' R

12' DR (6' CONC)

S 04°44'13" W 53.84'

CHORD +14.95 105' RT

40' TYP

+54.95

END C/A +54.95 105' RT 115'

ACCESS POINT

BEGIN C/A +21 105' RT 115'

+71 105' RT

+13 105' RT

+23 110.93' RT

+67 137' RT

+60

530' STORAGE

FALSE SUMP SEE DETAIL 24 SHEET 2D-2

TRANSITION PROTECTION EST 25 SY PSRM

SPECIAL CUT DITCH SEE DETAIL 23 SHEET 2D-1

S 04°44'13" W 108.43'

-L- CS Sta. 169+14.95

SPECIAL LATERAL V DITCH SEE DETAIL 3, SHEET 2D-1

S 41°55'05" W 649.95'

(104) BARRIER FAMILY LIMITED PARTNERSHIP DB 1100 PG 857 PB 11PG 55

(106) ZULA M & JOE ALMOND DB 306 PG 23 DB 381PG 789

(109) DONALD A & ROBIN B SHAVER DB 395 PG 341

(110) JOHNNY W & JUDY S BARBEE JR DB 231PG 145 DB 594 PG 73

S 48°16'45" E 149.91'

S 41°49'45" W 280.05'

S 41°58'09" W 1040.49'

ACCESS POINT

BEGIN C/A +74 105' RT

END C/A +65 105' RT

+93 116.64' RT

+53 119' RT 132'

+64 119' RT 132'

+07 107' RT

END C/A +71.19 EX. P/L

+71.18 EX. P/L

+71.14 EX. P/L

BEGIN C/A +31.19 105' RT

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14 SHEET 2D-1

SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1

OUTLET PROTECTION CLASS B RIP RAP EST 5 TONS EST 14 SY GFD

+52 109.56' RT 119'

END C/A +71.86 EX. P/L

+75.09 EX. P/L

+76.71 EX. P/L

(110) JOHNNY W & JUDY S BARBEE JR DB 231PG 145 DB 594 PG 73

BEGIN C/A +12.14 EX. P/L

TIE PROPOSED DITCH INTO EXISTING

+15.35 EX. P/L

+17.28 EX. P/L

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

PROPOSED BASIN LOCATION

+41.02 EX. P/L

S 48°12'33" E 140.09'

S 22°59'09" W 1000.00'

-L-

PI Sta 163+10.12
Δ = 30° 37' 29.5" (LT)
D = 2° 28' 10.7"
L = 1,240.05'
T = 635.22'
R = 2,320.00'
SE = 0.06

PIs Sta 169+94.97
Θs = 2° 57' 48.9"
Ls = 240.00'
LT = 160.02'
ST = 80.02'

(112) EAST SIDE VOLUNTEER FIRE DEPARTMENT DB 286 PG 116 DB 1575 PG 722

(113) TROY A & CRYSTAL F STOCKTON DB 591PG 62 PB 01PG 272

SEE SHEET 40 FOR -L- PROFILE

5/14/99

REVISIONS

ROW REV. – 3/9/18 – UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 115 AND 117; UPDATED C/A LIMITS AND ADDED R/W ON PARCEL 115; ADDED 60' ACCESS BREAK TO PARCEL 117. – JWM

ROW REV. – 3/19/18 – COMBINED PARCELS 112 AND 114 INTO 112, AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 112. – JWM

ROW REV. – 7/26/18 – ADDED 60' ACCESS BREAK TO PARCEL 118. – JWM

8/27/2018

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 8395

(113) TROY A & CRYSTAL F STOCKTON
DB 591PG 62
PB 01PG 272

(115) STONY GAP PROPERTIES, LLC
DB 1370 PG 1000
PB 01PG 272

(117) STONY GAP PROPERTIES, LLC
DB 1370 PG 1000
PB 01PG 272

SHELIA EUDY MISENHEIMER
DB 327 PG 414

(112) EAST SIDE VOLUNTEER FIRE DEPARTMENT
DB 286 PG 116
DB 1575 PG 722

(116) THOMAS C PHILLIPS
DB 197 PG 7

(118) THOMAS C & HAZEL P PHILLIPS
DB 333 PG 989

BEGIN CONSTRUCTION
-Y9- POC Sta.14+13.00

-Y9- PT Sta. 17+20.88

-L- PC Sta. 189+69.57

-L- POT Sta. 188+57.90 =
-Y9- POT Sta. 19+52.00
Δ = 70°15'30.2"

-L- POT Sta. 189+05.00 =
-DRW9A- POT Sta. 10+00.00
Δ = 90°

END CONSTRUCTION
-DRW9A- POT Sta.11+59.00

-DRW9A- POT Sta. 11+75.00

-L- STA 182+50 (SEE SHEET 15)

-L- STA 196+50 (SEE SHEET 17)

MATCHLINE

-Y9-
PI Sta 14+58.60
Δ = 6° 41' 11.9" (RT)
D = 1° 16' 23.7"
L = 525.17'
T = 262.88'
R = 4,500.00'
SE = NC
RO = NONE

-L-
PI Sta 193+63.29
Δ = 3° 55' 18.3" (RT)
D = 0° 29' 53.6"
L = 787.15'
T = 393.73'
R = 11,500.00'
SE = NC
RO = NONE

BM#26
ELEV = 580.73'
N 574088 E 1664427
-L- STATION 194+07.87
74.68' LEFT
RR SPIKE IN BASE IN 21"PIN OAK

BM#26

NC 24/27/73 26' BST

-L-
NC 24-27-73
S 48° 14' 07.2" E

-L-
NC 24-27-73

S 41° 45' 52.8" W

S 23°52'15" W 349.62'

S 39°02'30" W 385.04'

N 45°30'40" W

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 55 FOR -Y9- PROFILE
SEE SHEET 59 FOR -DRW9A- PROFILE

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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

RIGHT-OF-WAY REV.

CONST. REV.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99 ROW REV. - 3/9/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 117. - JWM

8/28/2018

MATCHLINE -L- STA 196+50 (SEE SHEET 16)

MATCHLINE -L- STA 210+00 (SEE SHEET 18)

NC GRID 8395

(117) STONY GAP PROPERTIES, LLC DB 1370 PG 1000 PB 01 PG 272

(118) THOMAS C & HAZEL P PHILLIPS DB 333 PG 989

(119) VERNON E FURR & S F WINSLOW DB 1300 PG 231 PB 01 PG 272

(120) MCNEIL ROAD ASSOCIATES INC. DB 380 PG 545

(121) WILLIAM & APRIL D HARRYMAN DB 1035 PG 296 PB 01 PG 272

(122) VERNON E FURR & S F WINSLOW DB 1300 PG 231

(123) RICHARD W MORRIS DB 614 PG 232 PB 12 PG 16

(124) TODD SCHAD DB 1117 PG 645

-L- PT Sta. 197+56.71

-L- POT Sta. 197+69.10 = -Y10- POT Sta. 10+00.00

Δ = 82°52'25.9"

END CONSTRUCTION -Y10- POT Sta. 13+04.00

-L- TS Sta. 203+20.18

-L- SC Sta. 206+00.18

-L- NC 24-27-73 S 44°18'48.9" E

-L-
PIs Sta 205+06.90
Θs = 4°07'26.8"
Ls = 280.00'
LT = 186.72'
ST = 93.38'

-L-
PI Sta 210+41.13
Δ = 25°32'49.4" (LT)
D = 2°56'44.9"
L = 867.24'
T = 440.95'
R = 1,945.00'
SE = 0.07

NOTES:
1. SPECIAL CUT DITCH WITH HINGE, SEE DETAIL 14, SHEET 2D-1
2. SPECIAL LATERAL 'V' DITCH W/ CLASS B RIP RAP EST 70 TONS, EST 150 SY GFD SEE DETAIL 67, SHEET 2D-4
3. TEMPORARY SHORING (TYP.) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 55 FOR -Y10- PROFILE

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99

8/27/2018

MATCHLINE -L- STA 210+00 (SEE SHEET 17)

MATCHLINE -L- STA 223+75 (SEE SHEET 19)

-L- CS Sta. 214+67.42

215+00

220+00

-L- ST Sta. 217+47.42

NC GRID NAD 83/95

NC 24-27-73
S 78° 06' 32" E

-L-
PI Sta 210+41.13
Δ = 25° 32' 49.4" (LT)
D = 2° 56' 44.9"
L = 867.24'
T = 440.95'
R = 1,945.00'
SE = 0.07

-L-
PIs Sta 215+60.80
Θs = 4° 07' 26.8"
Ls = 280.00'
LT = 186.72'
ST = 93.38'

(124) TODD SCHAD
DB 1117 PG 645

(120) MCNEIL ROAD ASSOCIATES INC.
DB 380 PG 545

(125) FRANCES C UNDERWOOD
DB 726 PG 526

(126) PATRICIA U WYNNE ET AL
DB 1098 PG 4
PB 19 PG 80

(128) G S DEVELOPMENT CORP.
DB 1321PG 95

ABANDONED BST & SOIL ROAD BED

BERM 'V' DITCH W/CLASS 'B' RIP RAP
EST 50 TONS
EST 115 SY GFD
SEE DETAIL 20, SHEET 2D-1

STANDARD 3' BASE DITCH W/CLASS I RIP RAP
EST 50 TONS
EST 75 SY GFD
S = 6.20%, DDE = 50 CY
SEE DETAIL 33, SHEET 2D-2

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP
EST 80 TONS
EST 80 SY GFD ON BANKS ONLY
S=4.5%, DDE=50 CY
SEE DETAIL 38, SHEET 2D-2

PROPOSED BASIN LOCATION

15" CSP W/ELBOWS

FALSE SUMP SEE DETAIL 25, SHEET 2D-2

OTCB-4

BL-31

CHORD

END C/A +47.42 125' LT 135'

ACCESS POINT

BEGIN C/A +08 125' LT 135'

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP
EST 55 TONS
EST 125 SY GFD
SEE DETAIL 67 SHEET 2D-4

END C/A +56 125' LT 142'

BEGIN C/A +26.12 EX. P/L

ACCESS POINT +28.65 EX. P/L

RETAIN 30"

30' DR 15"

REMOVE 15" 25'R

REMOVE 24" 12' DR

15" RCP-III

SEE NOTE 1

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

BL-32

BEGIN SBG STA. 217+50.00 -L- (RT)

48" RCP-III (DO NOT BURY)

15" CSP W/ELBOWS

STANDARD 'V' DITCH W/CLASS B RIP RAP
EST 8 TONS
EST 16 SY GFD
S=7.6%, DDE= 3 CY
SEE DETAIL 62, SHEET 2D-4

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP
EST 40 TONS
EST 40 SY GFD ON BANKS ONLY
S=2.8%, DDE=9 CY
SEE DETAIL 38, SHEET 2D-2

PROPOSED DIVERSION LOCATION

TIE TO EXISTING STREAM

3' LATERAL BASE DITCH W/CLASS 'I' RIP RAP
EST 200 TONS
EST 265 SY GFD
SEE DETAIL 26, SHEET 2D-2

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

REMOVE EXIST GUARDRAIL

BM=30
ELEV = 498.21'
N 572633 E 1666566
-L- STATION 220+79.65
9.93' RIGHT
RR SPIKE IN BASE 30"PIN OAK

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 42 FOR -L- PROFILE

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

(124) TODD SCHAD DB 1117 PG 645

(128) G S DEVELOPMENT CORP. DB 1321PG 95

(129) JAMES J SCHAD DB 1035 PG 293

(125) FRANCES C UNDERWOOD DB 726 PG 526

(120) MCNEIL ROAD ASSOCIATES INC. DB 380 PG 545

(126) PATRICIA U WYNNE ET AL DB 1098 PG 4 PB 19 PG 80

(127) FRANCES C UNDERWOOD DB 726 PG 526

(130) FRANCES C UNDERWOOD DB 726 PG 526

-DRW9B- POT Sta. 10+00.00 = -L- POT Sta. 226+22.00
△ = 90°

-L- NC 24-27-73 S 78°06'32.0" E

MATCHLINE -L- STA 223+75 (SEE SHEET 18)

MATCHLINE -L- STA 237+00 (SEE SHEET 20)

BEGIN C/A +01 115' LT 142'

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 55 TONS EST 125 SY GFD SEE DETAIL 67, SHEET 2D-4

END C/A +41 115' LT

ACCESS POINT

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D-1

FALSE SUMP SEE DETAIL 25, SHEET 2D-2

530' STORAGE

150' TAPER

BM#31 ELEV = 441.44' N 572471E 1667714 -L- STATION 232+36.99 68.09' LEFT RR SPIKE IN BASE 36" DOUBLE OAK

END C/A +35 115' LT

+54 135' LT

ACCESS POINT

BEGIN C/A +95 115' LT

PROPOSED BASIN LOCATION +16 183' LT

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 70 TONS, EST 60 SY GFD SEE DETAIL 67, SHEET 2D-4

+37 115' LT

TRANSITION PROTECTION EST 25 SY PSRM

REMOVE 15"

24" RCP-III

REMOVE 18"

OTCB-4 (1917)

BL-33

15"

2GI-D (1918)

16' DR

4' PS

2' PS

7'-8" PS

14' DR

REMOVE 24"

CONC ISLAND

100'R

3'R

40'R

20'R

2GI (1913)

24" RCP-III

15"

2GI (1916)

2GI (1915)

FALSE SUMP SEE DETAIL 24, SHEET 2D-2

12' DR

30" RCP-IV

TB2GI (1910)

TB2GI (1908)

TB2GI (1909)

TB2GI (1907)

TB2GI (1906)

TB2GI (1905)

TB2GI (1919)

CAT-1

GREU TL-3

SPECIAL 3' LATERAL BASE DITCH W/CLASS I RIP RAP EST 300 TONS EST 430 SY GFD SEE DETAIL 34, SHEET 2D-2

24" RCP-III (1914)

BEGIN SBG STA. 235+00.00 -L- (RT)

END SBG STA. 225+56.00 -L- (RT)

END C/A +92(L) 125' RT

ACCESS POINT

+98.61 EX. P/L

PROPOSED BASIN LOCATION

+55(L) 174' RT

END CONSTRUCTION -DRW9B- POT Sta. 11+63.00

+34(L) 174' RT

BEGIN C/A +52(L) 125' RT

+64(L) 125' RT

BEGIN SBG STA. 226+89.35 -L- (RT)

SHOP CURVED GUARDRAIL R=55'

SHOP CURVED GUARDRAIL R=20'

+98 125' RT

+50 150' RT

END SBG STA. 228+50.00 -L- (RT)

+05 125' RT 187'

PROPOSED BASIN LOCATION

END C/A +40 125' RT

ACCESS POINT

BEGIN C/A +00 125' RT

+30 254' RT

+07 125' RT 144'

+43

150' TAPER

530' STORAGE

+50 125' RT 144'

+35 153' RT

STANDARD 3' BASE DITCH W/CLASS I RIP RAP EST 35 TONS EST 50 SY GFD S = 3.3% DDE = 30 CY SEE DETAIL 33, SHEET 2D-2

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 6 TONS EST 10 SY GFD SEE DETAIL 10 SHEET 2D-1

TOE PROTECTION CLASS B RIP RAP EST 40 TONS EST 90 SY GFD SEE DETAIL 32 SHEET 2D-2

OUTLET PROTECTION CLASS B RIP RAP EST 5 TONS EST 14 SY GFD

STANDARD 2' BASE DITCH S = 0.50% DDE = 5 CY SEE DETAIL 31, SHEET 2D-2

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 3 TONS EST 5 SY GFD SEE DETAIL 10, SHEET 2D-1

CHANNEL CHANGE W/CLASS I RIP RAP EST 300 TONS EST 250 SY GFD (BANKS ONLY) SEE DETAIL 30, SHEET 2D-2

RETAIN 48"

48" RCP

AT&T CORP., UNKNOWN COUNT

SDIC

SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW9B- PROFILE

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

(129) JAMES J SCHAD
DB 1035 PG 293

(131) ANDREW S UNDERWOOD ET AL
DB 1098 PG 7
PB 19 PG 80

(132) PATRICIA WYNNE ET AL
DB 1098 PG 4
PB 19 PG 80

(133) OSCAR BANKS HINSON
DB 303 PG 477

(130) FRANCES C UNDERWOOD
DB 726 PG 526

NC GRID
NAD 83(95)

-Y11- (SR 1818) STONY MOUNTAIN RD
S 17° 32' 19.0" W

BEGIN CONSTRUCTION
-Y11- POT Sta. 12+75.00

-L- POT Sta. 238+36.90 =
-Y11- POT Sta. 17+59.00
Δ = 95°38'51.0"

-L-
NC 24-27-73
S 78° 06' 32.0" E

-L- SC Sta. 248+66.65

-L- TS Sta. 246+66.65

MATCHLINE -L- STA 237+00 (SEE SHEET 19)

MATCHLINE -L- STA 251+00 (SEE SHEET 21)

SPECIAL LATERAL 'V' DITCH
W/CLASS B RIP RAP
EST 70 TONS
EST 60 SY GFD
SEE DETAIL 67,
SHEET 2D-4

STANDARD 2.5' BASE DITCH
W/CLASS 'B' RIP RAP
EST 10 TONS
EST 20 SY GFD
S = 4.0%, DDE = 15 CY
SEE DETAIL 46, SHEET 2D-2

CHANNEL CHANGE
W/CLASS I RIP RAP
EST 300 TONS
EST 250 SY GFD (BANKS ONLY)
SEE DETAIL 30,
SHEET 2D-2

REMOVE EXIST
3' x 3' BOX CULVERT

REMOVE EXIST GUARDRAIL

15" CSP W/ELBOWS

END SBG
STA. 240+25.00
-L- (RT)

PROPOSED BASIN LOCATION

PROPOSED DIVERSION LOCATION

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

GRADE TO DRAIN

30" RCP-III
(DO NOT BURY)

FALSE SUMP
SEE DETAIL 24, SHEET 2D-2

FLATTEN SLOPES FROM
-L- STA 241+00 TO 242+00 RT
(SEE CROSS SECTIONS)

OUTLET PROTECTION
CLASS B RIP RAP
EST 8 TONS
EST 21 SY GFD

TOE PROTECTION
EST 45 SY PSRM
SEE DETAIL 5
SHEET 2D-1

TRANSITION
PROTECTION
EST 25 SY PSRM

TRANSITION PROTECTION
EST 30 SY PSRM

SPECIAL CUT DITCH
SEE DETAIL 23, SHEET 2D-1

CULVERT #4
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	572371.58	1668180.17	419.28
CUL2	572370.98	1668182.45	419.28
CE1	572371.04	1668182.10	422.18
HW1	572371.78	1668181.32	423.78
CUL3	572312.09	1668167.82	418.54
CUL4	572311.63	1668170.49	418.55
CE2	572311.69	1668169.23	421.57
HW2	572312.04	1668169.65	423.14

-L-

PIs Sta 247+99.99	PI Sta 250+85.55
Θs = 1° 56' 08.4"	Δ = 8° 27' 32.0" (RT)
Ls = 200.00'	D = 1° 56' 08.4"
LT = 133.34'	L = 437.00'
ST = 66.67'	T = 218.90'
	R = 2,960.00'
	SE = 0.05

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 55 FOR -Y11- PROFILE

8/27/2018

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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RIGHT-OF-WAY REV.

CONST. REV.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99 ROW REV. - 12/21/17 - ADDED ACCESS TO PARCEL 139; REVISED DRAINAGE DESIGN AND TCE ON PARCELS 134, 137, 138, AND 139 DUE TO U-TURN BULBOUT SHIFT. - JWM

ROW REV. - 3/9/18 - REVISED PROPERTY LINE BETWEEN PARCELS 133 AND 134. - JWM

ROW REV. - 4/13/18 - REVISED PROPERTY LINE BETWEEN PARCELS 133 AND 134, AND BETWEEN 134 AND 138. - JWM

8/27/2018

CULVERT #5
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	571662.17	1670303.76	404.83
CUL2	571661.04	1670306.41	404.82
CE1	571661.71	1670305.10	407.84
HW1	571661.71	1670305.10	407.84
CUL3	571603.81	1670277.48	404.40
CUL4	571602.44	1670279.91	404.39
CE2	571603.27	1670279.01	407.41
HW2	571603.34	1670278.73	408.96

NC GRID NAD 83'95

-L- CS Sta. 253+03.65

BM#33
ELEV = 420.47'
N 571962 E 1669639
-L- STATION 252+27.11
2.78' LEFT
RR SPIKE IN BASE 24"SWEET GUM

(133) OSCAR BANKS HINSON
DB 303 PG 477

(133) OSCAR BANKS HINSON
DB 303 PG 480

(134) DEBBIE L & V MOTSINGER THORPE
DB 1153 PG 278

(138) GUS SCHAD
DB 687 PG 931

(135) DAVID W HINSON ET AL
DB 1159 PG 747

(136) DAVID WAYNE HINSON
DB 1159 PG 750

(137) BRENDA AUTRY
DB 502 PG 943

(139) DEBBIE L & V MOTSINGER THORPE
DB 1155 PG 991

(140) DIVYA LLC
DB 1038 PG 156

(130) FRANCES C UNDERWOOD
DB 726 PG 526

KENG & SONG V YANG
DB 538 PG 824

CARRERA LYS PEREZ
DB 775 PG 561

-L- NC 24-27-73
S 65° 46' 43.1" E

-L- ST Sta. 255+03.65

MATCHLINE -L- STA 251+00 (SEE SHEET 20)

MATCHLINE -L- STA 265+00 (SEE SHEET 22)

TOE PROTECTION
EST 20 TONS CL B RIP RAP
EST 45 SY GFD
SEE DETAIL 32, SHEET 2D-2

RETAIN 8"

TOE PROTECTION
EST 15 TONS CL B RIP RAP
EST 30 SY GFD
SEE DETAIL 32, SHEET 2D-2

PROPOSED BASIN LOCATION

530' STORAGE

RETAIN 12"

TRANSITION PROTECTION
EST 10 SY PSRM

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

SPECIAL CUT GRASS SWALE W/HINGE
SEE DETAIL 14
SHEET 2D-1

FALSE SUMP
SEE DETAIL 4
SHEET 2D-1

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
SHEET 2D-1

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

FALSE SUMP
SEE DETAIL 24, SHEET 2D-2

REMOVE 18"

36" RCP-IV

18" RCP-III

REMOVE EXIST 3' X 3' BOX CULVERT
(STRUCTURE PAY ITEM)

48" RCP-III
(DO NOT BURY)

GRADE TO DRAIN

REMOVE 12"

REMOVE 15"

SPECIAL LATERAL 'V' DITCH W/CLASS 'B' RIP RAP
EST 80 TONS
EST 175 SY GFD
SEE DETAIL 67
SHEET 2D-4

STANDARD 4' BASE DITCH W/COUNTER-SUNK CLASS I RIP RAP
EST 15 TONS
EST 22 SY GFD ON BANKS ONLY
S = 1.5%, DDE = 10 CY
SEE DETAIL 38, SHEET 2D-2

RETAIN 24"

RETAIN 6"

OUTLET PROTECTION
CLASS B RIP RAP
EST 2 TONS
EST 7 SY GFD

OUTLET PROTECTION
CLASS I RIP RAP
EST 15 TONS
EST 30 SY GFD

STANDARD 4' BASE DITCH
EST 20 CY DDE
S = 0.4%
SEE DETAIL 8, SHEET 2D-1

TOE PROTECTION
EST 50 SY PSRM
SEE DETAIL 5
SHEET 2D-1

OUTLET PROTECTION
CLASS B RIP RAP
EST 3 TONS
EST 10 SY GFD

PROPOSED BASIN LOCATION

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
SHEET 2D-1

PROPOSED BASIN LOCATION

2-GAS 4000 GAL
1-GAS 8000 GAL
U/G GAS TANKS

PI Sta 250+85.55
Δ = 8° 27' 32.0" (RT)
D = 1° 56' 08.4"
L = 437.00'
T = 218.90'
R = 2,960.00'
SE = 0.05

PIs Sta 253+70.33
Θs = 1° 56' 08.4"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 43 FOR -L- PROFILE

5/14/99

REVISIONS

ROW REV. - 12/21/17 - REVISED ROADWAY DESIGN FROM -L- STA 265+00 TO 268+82 DUE TO U-TURN BULBOUT SHIFT ON SHEET 21. - JWM
ROW REV. - 12/21/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 144; WIDENED DRIVEWAY WIDTH TO 24' ON PARCELS 142 AND 144. - JWM
ROW REV. - 1/5/18 - UPDATED TCE ON PARCEL 138 NEAR -L- STA 267+00 (L1). - JWM
ROW REV. - 4/13/18 - UPDATED PROPERTY LINES BETWEEN PARCELS 143, 146, AND 146A. - JWM

8/27/2018

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PROJECT REFERENCE NO.	SHEET NO.
R-2530B	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

RIGHT-OF-WAY REV.

CONST. REV.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRID NAD 83/95

-DRW10- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW10- POT Sta. 10+10.00

-DRW10- POT Sta. 11+80.00 =
-L- POT Sta. 265+70.50
△ = 90°

-DRW11- POT Sta. 9+80.00
-DRW11- PC Sta. 10+07.89
BEGIN CONSTRUCTION
-DRW11- POC Sta. 10+15.00
-DRW11- PT Sta. 10+37.45

-DRW11- POT Sta. 11+55.00 =
-L- POT Sta. 268+12.00
△ = 90°

-L- POC Sta. 275+00.39 =
-Y12- POT Sta. 10+00.00
△ = 90°

-DRW12- POT Sta. 10+00.00 =
-L- POC Sta. 272+99.00
△ = 90°

-L- SC Sta. 271+13.79

-L- TS Sta. 269+13.79

-Y12- PC Sta. 11+29.00

-Y12- PT Sta. 16+25.19

END CONSTRUCTION
-DRW11- POT Sta. 11+05.00
-DRW12- POT Sta. 11+25.00

END CONSTRUCTION
-Y12- POT Sta. 16+72.00
-Y12- PC Sta. 17+39.93

END CONSTRUCTION
-DRW12A- POT Sta. 10+71.00

-DRW12A- POT Sta. 11+00.00

-DRW12A- POT Sta. 10+00.00 =
-Y12- POC Sta. 12+77.00
△ = 90°

BM#37
ELEV = 409.73'
N 571051.E 1672060
-L- STATION 278+31.36
48.56' LEFT
RR SPIKE IN BASE 36"OAK

BM#35
ELEV = 421.67'
N 571040 E 1670918
-L- STATION 267+71.09
319.63' RIGHT
RR SPIKE IN BASE OF PP

BM#34
ELEV = 443.79'
N 571383 E 1670793
-L- STATION 265+16.35
57.19' RIGHT
CHISELED SQUARE ON
W END CONCRETE ISLAND

-L-
PIs Sta 270+47.13
Es = 1° 56' 08.4"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 275+61.79
△ = 17° 12' 46.2" (LT)
D = 1° 56' 08.4"
L = 889.25'
T = 448.00'
R = 2,960.00'
SE = 0.05

-DRW11-
PI Sta 10+22.72
△ = 11° 17' 24.4" (RT)
D = 38° 11' 49.9"
L = 29.56'
T = 14.83'
R = 150.00'

-Y12-
PI Sta 13+93.01
△ = 48° 25' 55.1" (RT)
D = 9° 45' 38.8"
L = 496.19'
T = 264.01'
R = 587.00'
SE = 0.04
R0 = 96'
DS = 45 MPH

PI Sta 18+72.97
△ = 25° 00' 17.4" (LT)
D = 9° 32' 57.5"
L = 261.85'
T = 133.04'
R = 600.00'
SE = EXISTING
R0 = EXISTING
DS = 45 MPH

(138) GUS SCHAD
DB 687 PG 931

(143) BETTY ANDREWS
DB 328 PG 979

(141) EDWARD D ROBERSON
DB 357 PG 931
DB 360 PG 579

(140) DIVYA LLC
DB 1038 PG 156

(142) KENNETH HELDERMAN
DB 1037 PG 430

CARRERA LYS PEREZ
DB 775 PG 561

WALTER BEVERLY
DB 705 PG 388

DONALD HINSON
DB 716 PG 309

(210) HONEYCUTT TRUCKING INC.
DB 800 PG 291

ELIZABETH N HINSON
DB 194 PG 304

(209) DALE & SHARON A HONEYCUTT
DB 389 PG 885

(144) KENNETH HELDERMAN
DB 1037 PG 0430

GERALD B & BRENDA HONEYCUTT
DB 387 PG 671

(145) STANLY WATER & SEWER AUTHORITY
DB 1207 PG 442
LOCATION SCALED FROM TAX MAP
NO TIE CALL IN DEED
NO IRONS FOUND

(146) GARY W. LATON
DB 1434 PG 169

(146A) STANLY WATER AND SEWER AUTHORITY
DB 1207 PG 455

NOTES:
1. FALSE SUMP
SEE DETAIL 24, SHEET 2D-2
2. SPECIAL ROCK CHECK DAM
PLACE EVERY 50'
EST 20 TONS CLASS 'B' RIP RAP
SEE DETAIL 36, SHEET 2D-2
3. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y12- PROFILE
SEE SHEET 60 FOR -DRW10-, -DRW11-, DRW12-, AND -DRW12A- PROFILES

MATCHLINE -L- STA 265+00 (SEE SHEET 21)
MATCHLINE -L- STA 278+50 (SEE SHEET 23)

5/14/99

REVISIONS

ROW REV. - 11/3/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 146. - JWM
ROW REV. - 12/21/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 144; ADDED ACCESS TO PARCEL 149, AND REVISED TCE AND DRAINAGE DESIGN; AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 150. - JWM

8/27/2018

(144) KENNETH HELDERMAN
DB 1037 PG 0430

(146) GARY W. LATON
DB 1434 PG 169

(147) GERALD B & BRENDA HONEYCUTT
DB 367 PG 330

(148) THOMAS L & JEAN LATON
DB 387 PG 415

(149) THOMAS L & JEAN E LATON
DB 387 PG 424

(150) SHANNON R. HUNEYCUTT, WIDOW
DB 1498 PG 835

GERALD B & BRENDA HONEYCUTT
DB 387 PG 671

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

MATCHLINE -L- STA 278+50 (SEE SHEET 22)

MATCHLINE -L- STA 292+50 (SEE SHEET 24)

BEGIN CONSTRUCTION
-DRW13- POT Sta. 10+00.00

-L- CS Sta. 280+03.03

-DRW13A- POT Sta. 10+00.00
-L- POS Sta. 280+31.00
Δ = 90°

-DRW13B- POT Sta. 10+00.00
-L- POS Sta. 281+67.00
Δ = 90°

-L- ST Sta. 282+03.03

-DRW13- POT Sta. 11+30.00 =
-L- POC Sta. 279+06.00
Δ = 90°

END CONSTRUCTION
-DRW13A- POT Sta. 11+00.00
-DRW13A- POT Sta. 11+10.00

END CONSTRUCTION
-DRW13B- POT Sta. 10+90.00
-DRW13B- POT Sta. 11+00.00

-L-

PI Sta 275+61.79
Δ = 17° 12' 46.2" (LT)
D = 1° 56' 08.4"
L = 889.25'
T = 448.00'
R = 2,960.00'
SE = 0.05

PIs Sta 280+69.71
Θs = 1° 56' 08.4"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 297+61.04
Δ = 32° 41' 31.2" (RT)
D = 2° 56' 44.9"
L = 1,109.78'
T = 570.45'
R = 1,945.00'
SE = 0.07
RO = 294'

-L- NC 24-27-73 S 86° 51' 46.2" E

SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW13- PROFILE
SEE SHEET 61 FOR -DRW13A- & -DRW13B- PROFILES

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

ROW REV. – 11/3/17 – UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 146 AND 152. – JWM

ROW REV. – 5/30/18 – ADDED ACCESS BREAK TO PARCEL 153. – JWM

8/27/2018

CULVERT #6
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	570373.12	1674500.49	294.15
CUL2	570366.06	1674503.37	294.10
CE1	570369.39	1674502.14	300.15
HW1	570369.36	1674502.38	301.94
CUL3	570359.33	1674462.90	294.48
CUL4	570352.34	1674465.30	294.47
CE2	570355.68	1674464.46	300.44
HW2	570355.90	1674464.15	302.28

CULVERT #7
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	570417.50	1674615.12	291.75
CUL2	570412.33	1674621.17	291.70
CE1	570415.08	1674618.45	297.72
HW1	570415.24	1674618.42	299.30
CUL3	570386.60	1674535.56	292.24
CUL4	570381.79	1674541.77	292.40
CE2	570383.87	1674538.89	298.39
HW2	570383.42	1674538.98	300.02

-Y13- PC Sta. 13+44.69

-Y13- POT Sta. 10+00.00

(146) GARY W. LATON
DB 1434 PG 169

DLL FARM LLC
DB 1092 PG 976
PB 19 PG 161

-Y13- (SR 1778) RIVER HAVEN DR
S 87° 24' 20.0" W

BEGIN CONSTRUCTION
-Y13- POC Sta.13+72.00

-Y13- PCC Sta. 14+81.19

-Y13- PT Sta. 16+73.82

-L- POC Sta. 295+52.50 =
-Y13- POT Sta. 17+58.00
△ = 100°

R2530B-10

(152) GARY W. LATON
DB 1434 PG 169

-L- PT Sta. 303+00.37

(153) RONALD F & SUE B GRIFFIN
DB 820 PG 690
PB 15 PG 23

(150) MICHAEL P LATON JR.
DB 783 PG 895

(154) RONALD F & SUE B GRIFFIN
DB 820 PG 690
PB 15 PG 23

(151) CUSTOM DOORS
DB 783 PG 893

MATCHLINE -L- STA 292+50 (SEE SHEET 23)

MATCHLINE -L- STA 306+00 (SEE SHEET 25)

-Y13-

PI Sta 14+15.00
△ = 33° 51' 30.3" (LT)
D = 24° 48' 12.1"
L = 136.51'
T = 70.31'
R = 231.00'
SE = EXISTING
RO = EXISTING
DS = 25 MPH

PI Sta 15+79.73
△ = 29° 44' 55.4" (LT)
D = 15° 26' 37.0"
L = 192.63'
T = 98.54'
R = 371.00'
SE = 0.04
RO = 84'
DS = 35 MPH

-L-

PI Sta 297+61.04
△ = 32° 41' 31.2" (RT)
D = 2° 56' 44.9"
L = 1,109.78'
T = 570.45'
R = 1,945.00'
SE = 0.07
RO = 294'

NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 56 FOR -Y13- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

NOTES:
1. SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST 8 TONS CLASS 'B' RIP RAP PLACE EVERY 50'

5/14/99

REVISIONS

8/27/2018

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95 NC GRID

RONALD F & SUE B GRIFFIN
DB 820 PG 690
PB 15 PG 23

ROCKY L & ANNETTE M STARNES
PB 01PG 183
DB 369 PG 938

DEWELL E MURRAY ET AL
DB 894 PG 224
PB 01PG 183

ERIS C HINSON
DB 227 PG 471

BARBARA J WELCH
DB 1027 PG 509
PB 01PG 183

STEPHEN C & DEBORAH R COOPER
DB 1163 PG 79
PB 15 PG 24

GUS SCHAD
DB 712 PG 262
PB 15 PG 24

GUS SCHAD
DB 584 PG 312
PB 15 PG 25

CUSTOM DOORS
DB 783 PG 893

CALDWELL A & PAM HOLBROOK JR.
DB 885 PG 432

PROPERTY LINES SCALED FROM TAX MAP PLAT IS ILLEGIBLE

SR 1774 FOX RD

SR 1738 STRAND DR

-Y18- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y18- POT Sta. 10+05.00
-Y14- POT Sta. 10+00.00
-Y14- POC Sta. 11+80.45 = -Y18- POT Sta. 10+85.00
△ = 79° 03' 57.0"
-Y14- PC Sta. 10+81.47
BEGIN CONSTRUCTION
-Y14- POC Sta. 11+42.00
-Y14- PRC Sta. 11+57.37
-Y14- PT Sta. 13+14.26
-DRW14- POT Sta. 10+00.00 = -L- POC Sta. 306+49.00
△ = 90°
-L- PC Sta. 306+92.37
-L- POC Sta. 310+00.94 = -Y14- POT Sta. 15+03.00
△ = 90°
-L- PRC Sta. 314+19.17
END CONSTRUCTION
-DRW14- POT Sta. 11+30.00

MATCHLINE -L- STA 306+00 (SEE SHEET 24)
MATCHLINE -L- STA 320+00 (SEE SHEET 26)

BM#40
ELEV = 305.85'
N 570295 E 1674640
-L- STATION 306+11.62
90.34' RIGHT
RR SPIKE IN BASE
40"SYCAMORE

BM#43
ELEV = 397.61'
N 569858 E 1675843
-L- STATION 318+78.19
1.84' RIGHT
RR SPIKE IN BASE 20"HICKORY

-Y14-	
PI Sta 11+20.10	PI Sta 12+43.38
△ = 26° 21' 20.1" (RT)	△ = 58° 22' 15.6" (LT)
D = 34° 43' 29.0"	D = 37° 12' 18.2"
L = 75.90'	L = 156.89'
T = 38.63'	T = 86.02'
R = 165.00'	R = 154.00'
SE = EXISTING	SE = 0.04
RO = EXISTING	RO = 72'
DS = 25 MPH	DS = 25 MPH

-L-	
PI Sta 310+60.39	PI Sta 317+58.99
△ = 22° 12' 33.6" (LT)	△ = 19° 49' 14.4" (RT)
D = 3° 03' 20.8"	D = 2° 56' 44.9"
L = 726.80'	L = 672.84'
T = 368.02'	T = 339.82'
R = 1,875.00'	R = 1,945.00'
SE = 0.07	SE = 0.07
RO = 294'	RO = 294'

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 56 FOR -Y14- PROFILE
SEE SHEET 57 FOR -Y18- PROFILE
SEE SHEET 61 FOR -DRW14- PROFILE

(158)	GUS SCHAD DB 712 PG 262 PB 15 PG 24
(162)	JEAN ANN STOLLERY ESTATE DB 373 PG 257 PB 5 PG 105 DB 758 PG 825
(163)	PROGRESS ENERGY CAROLINAS, INC. PB 15 PG 25

(159) GUS SCHAD
DB 584 PG 312
PB 15 PG 25

(160) PROGRESS ENERGY
CAROLINAS, INC
PB 15 PG 25

(212) KEITH CARPENTER
DB 1313 PG 556
PB 15 PG 25

(161) DR KNOX M & MARGARET L. C BROOM
DB 589 PG 119
DB 592 PG 39
PB 15 PG 26

(157) CALDWELL A & PAM HOLBROOK JR.
DB 885 PG 432

C. R. & A JOHNSON GULLEDGE
DB 1191 PG 658
PB 05 PG 105

THOMAS R & JANE M KLECKER
DB 1100 PG 941
PB 05 PG 105

J. HOLT
DB 560 PG 636
PB 05 PG 105

MEGAN & COURTNEY HILDRETH TRUST
DB 393 PG 803
PB 05 PG 105

MEGAN & COURTNEY HILDRETH TRUST
DB 395 PG 608
PB 05 PG 105

MEGAN & COURTNEY HILDRETH TRUST
DB 389 PG 446
PB 05 PG 105

-L- PT Sta. 320+92.01

-L- PC Sta. 325+62.41

-Y15- POT Sta. 10+00.00

-Y15- PC Sta. 10+49.53

BEGIN CONSTRUCTION
-Y15- POC Sta. 11+30.00

-Y15- PT Sta. 12+65.67

-L- POC Sta. 330+19.33 =
-Y15- POT Sta. 13+89.86
Δ = 90°

-L- PT Sta. 330+26.60

-Y15- PC Sta. 15+57.72

-Y15- PT Sta. 17+66.14

END CONSTRUCTION
-Y15- POC Sta. 16+95.00

-Y15- POT Sta. 18+74.00

-L- STA 320+00 (SEE SHEET 25)

-L- STA 333+50 (SEE SHEET 27)

MATCHLINE -L- STA 320+00 (SEE SHEET 25)

MATCHLINE -L- STA 333+50 (SEE SHEET 27)

NC 24-27-73
S 56° 33' 34.1" E

-Y15- (SR 1774) TAR HEEL DR
S 80° 10' 54.2" W

-Y15- (SR 1803) LAKE TILLERY RD
S 80° 42' 59.0" W

S 70° 44' 38.4" E
GREU MEDIAN TL-3

S 19° 28' 40.9" W

S 28° 14' 06.1" E
23.36'

S 28° 15' 09.1" E
327.40'

S 28° 20' 30.1" E
370.48'

S 29° 25' 29.1" E
278.41'

N 89° 41' 26.1" E
923.44'

N 00° 32' 39.1" E
676.60'

N 19° 56' 57.1" E
114.74'

S 66° 54' 29.1" E
51.65'

N 89° 43' 31.1" W
174.15'

S 59° 43' 00.1" E

S 18° 47' 30.1" E
51.73'

N 08° 18' 19.1" E
69.89'

BM=45
ELEV = 361.05'
N 569232 E 1676812
-Y15- STATION 14+50.11
3.17' LEFT
CHISELED SQUARE ON
N END CONC MEDIAN

BY20-75

BY21-76

BL-43

SPECIAL ROCK CHECK DAM
SEE DETAIL 36, SHEET 2D-2
EST 35 TONS, CLASS 'B' RIP RAP
PLACE EVERY 50'

HAZARDOUS SPILL BASIN #4
SPECIAL 4' LATERAL BASE DITCH
W/CLASS 'B' RIP RAP
EST 150 TONS
EST 340 SY GFD
SEE DETAIL 76, SHEET 2D-5

OUTLET PROTECTION
CLASS 'B' RIP RAP
EST 8 TONS, EST 10 SY GFD

SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3, SHEET 2D-1

BERM 'V' DITCH
W/CLASS B RIP RAP
EST 65 TONS
EST 140 SY GFD
SEE DETAIL 20, SHEET 2D-1

OUTLET PROTECTION
CLASS 'B' RIP RAP
EST 3 TONS
EST 10 SY GFD

PROPOSED BASIN LOCATION

R/W TO BE DEDICATED TO WINDSTREAM

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

FALSE SUMP
SEE DETAIL 25
SHEET 2D-2

FALSE SUMP
SEE DETAIL 4
SHEET 2D-1

REMOVE 15"

REMOVE 18" AND HW

REMOVE EXIST DI AND 18"

REMOVE DI AND 18"

REMOVE DI

REMOVE 18"

PLUG, FILL AND ABANDON EX 24" RCP

GRADE TO DRAIN

-L-

PI Sta 317+58.99	PI Sta 327+95.70
Δ = 19° 49' 14.4" (RT)	Δ = 14° 11' 04.3" (LT)
D = 2° 56' 44.9"	D = 3° 03' 20.8"
L = 672.84'	L = 464.19'
T = 339.82'	T = 233.29'
R = 1,945.00'	R = 1,875.00'
SE = 0.07	SE = 0.07
R0 = 294'	R0 = 294'

-Y15-

PI Sta 11+68.99	PI Sta 16+73.13
Δ = 60° 42' 13.3" (LT)	Δ = 61° 14' 18.1" (RT)
D = 28° 05' 10.2"	D = 29° 22' 56.8"
L = 216.13'	L = 208.42'
T = 119.46'	T = 115.41'
R = 204.00'	R = 195.00'
SE = 0.04	SE = 0.04
R0 = 72'	R0 = 72'
DS = 25 MPH	DS = 25 MPH

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 56 FOR -Y15- PROFILE

REVISIONS
5/14/99
ROW REV. - 11/22/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 162 - JWM
8/27/2018

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 83/95

REVISIONS
ROW REV. - 9/1/17 - REVISED PARCEL 164 TO 162 (-L- STA 335+95 RT). - JWM
ROW REV. - 10/30/17 - COMBINED PARCELS 165 AND 166 INTO 165. - JWM
ROW REV. - 11/22/17 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 162 AND 164. - JWM
ROW REV. - 12/21/17 - RELOCATED EXISTING ROW LINE ALONG PARCELS 167 AND 169. - JWM

5/14/99

8/27/2018

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RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID
NAD 83/95

MATCHLINE -L- STA 333+50 (SEE SHEET 26)

MATCHLINE -L- STA 347+50 (SEE SHEET 28)

(161) DR KNOX M & MARGARET C BROOM
DB 589 PG 119
DB 592 PG 39
PB 15 PG 26

BEGIN BRIDGE NO.51 (B-4974)
BRIDGE CONSTRUCTION (BY OTHERS)
-L- Sta. 335+23.90 (23' LT)
END SBG -L- (LT)

335+00

SPECIAL ROCK CHECK DAM
SEE DETAIL 36, SHEET 2D-2
EST 35 TONS, CLASS 'B' RIP RAP
PLACE EVERY 50'

HAZARDOUS SPILL BASIN #4
SPECIAL 4' LATERAL BASE DITCH W/CLASS 'B' RIP RAP
EST 150 TONS
EST 340 SY GFD
SEE DETAIL 76, SHEET 2D-5

NCDOT WILL PROVIDE STACKED SAND BAGS AT HAZARDOUS SPILL BASINS

FALSE SUMP
SEE DETAIL 25
SHEET 2D-2

+74.64 / 165' LT
STANDARD 2' BASE DITCH W/CLASS I RIPRAP
EST 25 TONS
EST 60 SY GFD
SEE DETAIL 68, SHEET 2D-4

+84.20 EX. P/L

+03 / 165' LT

RIP RAP EMBANKMENT PROTECTION W/ CLASS II RIP RAP
EST 15 TONS
EST 30 SY GFD
SEE DETAIL 77, SHEET 2D-5

+00.14 EX. P/L

+11 / 125' LT

+30 / 165' LT

+00 / 150' LT

PDE

300' TAPER

JB W/MH

24" CSP W/ELBOWS

OTCB-1

15" CSP W/ELBOWS

TB2GI

3'-8" PS 15" RCP-III

2' PS

GREU MEDIAN TL-3

4' PS 15" RCP-III

REMOVE EXIST GUARDRAIL

REMOVE DI

FALSE SUMP
SEE DETAIL 24
SHEET 2D-2

REMOVE EX 15"

REMOVE DI AND 15"
+20 / 125', 145' RT

FALSE SUMP
SEE DETAIL 4, SHEET 2D-1

(162) JEAN ANN STOLLERY ESTATE
DB 373 PG 257
PB 5 PG 105
DB 758 PG 825

(163) PROGRESS ENERGY CAROLINAS, INC
PB 15 PG 25

(164) RAYMOND G. SMITH
DB 1533 PG 601
PB 05 PG 105

PROGRESS ENERGY CAROLINAS, INC
PB 15 PG 25

MEGAN & COURTNEY HILDRETH TRUST
DB 377 PG 603
PB 05 PG 105

MEGAN & COURTNEY HILDRETH TRUST
DB 566 PG 996

BEGIN BRIDGE NO.50 (B-4974)
BRIDGE REHABILITATION (BY OTHERS)
-L- Sta. 335+26.94 (23' RT)

CLASS II RIP RAP FROM NORMAL POOL ELEVATION OF 277' UP TO ELEVATION 279' (2' ABOVE NORMAL POOL) CLASS I RIP RAP ON REMAINDER OF SLOPES (BY OTHERS)

340+00

STANLY COUNTY
MONTGOMERY COUNTY

(165) PROGRESS ENERGY CAROLINAS, INC

PEE DEE RIVER

-L-
NC 24-27-73
S 70° 44' 38.4" E

345+00

END BRIDGE NO.51 (B-4974)
BRIDGE CONSTRUCTION (BY OTHERS)
-L- STA. 346+97.49 (23' LT)
BEGIN SBG -L- (LT)

(167) CAROLINA POWER & LIGHT COMPANY NO DEED FOUND

LAKE TILLERY PROPERTY LINE SCALED FROM TAX MAP

(170) VICKIE LYNN SAUNDERS
DB 210 PG 563
DB 241 PG 841

(169) CHARLES R MANESS
DB 236 PG 496

REMOVE EXIST GUARDRAIL

CLASS II RIP RAP FROM NORMAL POOL ELEVATION OF 277' UP TO ELEVATION 279' (2' ABOVE NORMAL POOL) CLASS I RIP RAP ON REMAINDER OF SLOPES (BY OTHERS)

+46.49 EX. P/L

+26 / 171' RT

END BRIDGE NO.50 (B-4974)
BRIDGE REHABILITATION (BY OTHERS)
-L- Sta. 347+16.21 (23' RT)
BEGIN SBG -L- (RT)

(168) PROGRESS ENERGY CAROLINAS, INC
DB 471 PG 222

REMOVE EXIST GUARDRAIL

SEE SHEET 48 FOR -L- PROFILE

NOTES:
1. END SBG STA. 348+35.00 -L- (LT)
2. OUTLET PROTECTION - CLASS B RIP RAP
   EST 5 TONS, EST 14 SY GFD
3. TOE PROTECTION
   EST 20 TONS CL B RIP RAP
   EST 40 SY GFD
   SEE DETAIL 32, SHEET 2D-2
4. TEMPORARY SHORING (TYP)
   (SEE TRANSPORTATION MANAGEMENT PLANS)

(173A) DUKE ENERGY PROGRESS, LLC
DB 471 PG 222

(170) VICKIE LYNN SAUNDERS
DB 210 PG 563
DB 241 PG 841

(171) JAMES ANTHONY NORMAN JR.
DB 320 PG 456

(169) CHARLES R MANESS
DB 236 PG 496

(168) PROGRESS ENERGY CAROLINAS, INC
DB 471 PG 222

(213) BAYTREE WATERFRONT PROPERTIES INC.
DB 225 PG 878
PLAT SLIDE B-339

(214) LINDA GODWIN
DB 190 PG 245

(215) ROBERT B JORDAN III AND
WIFE SARAH C JORDAN
DB 797 PG 716

(174) VICKIE LYNN SAUNDERS
DB 241 PG 841

(175) MCRAE INDUSTRIES INC.
DB 182 PG 733

(173) DUKE ENERGY PROGRESS, LLC
SWIFT ISLAND ACCESS AREA
DB 471 PG 222

-DRW16- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-DRW16- POT Sta. 10+38.00
-DRW16- PC Sta. 10+40.25
-DRW16- PT Sta. 10+95.58

-Y17- POT Sta. 10+00.00
-Y17- PC Sta. 10+04.38
355+00
BEGIN CONSTRUCTION
-Y17- POC Sta. 10+19.00
-Y17- PT Sta. 11+12.62
S 34° 38' 18.3" W
-L- TS Sta. 355+91.00

-L- SC Sta. 357+91.00

-Y17- POT Sta. 12+20.00 =
-L- POT Sta. 356+84.00
Δ = 105° 39' 16.9"

-DRW16- POT Sta. 11+90.00 =
-L- POT Sta. 349+72.00
Δ = 90°

-L- POT Sta. 353+90.00 =
-Y16- POT Sta. 10+00.00
Δ = 90°

-Y16- PC Sta. 11+01.69

-Y16- PT Sta. 13+66.92

-Y19- POT Sta. 10+00.00 =
-Y16- POT Sta. 14+86.85
Δ = 61° 18' 50.8"

END CONSTRUCTION
-Y16- POT Sta. 16+05.00
-Y16- POT Sta. 16+20.00

END CONSTRUCTION
-Y19- POT Sta. 11+04.00
-Y19- POT Sta. 11+70.00

BEGIN REINFORCED SOIL SLOPES
-L- STA 356+75.00 (RT)
(SEE SHEET 2G-1)

END REINFORCED SOIL SLOPES
-L- STA 359+00.00 (RT)

MATCHLINE -L- STA 347+50 (SEE SHEET 27)
MATCHLINE -L- STA 361+50 (SEE SHEET 29)

-L-
PIs Sta 357+24.34
θs = 1° 15' 33.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 367+14.43
Δ = 22° 56' 41.5" (LT)
D = 1° 15' 33.3"
L = 1,822.11'
T = 923.43'
R = 4,550.00'
SE = 0.04

-Y16-
PI Sta 12+42.80
Δ = 48° 23' 45.1" (LT)
D = 18° 14' 49.4"
L = 265.23'
T = 141.10'
R = 314.00'
SE = 0.04
RO = 108'
DS = 35 MPH

-Y17-
PI Sta 10+59.36
Δ = 24° 48' 21.6" (LT)
D = 22° 55' 05.9"
L = 108.24'
T = 54.98'
R = 250.00'

-DRW16-
PI Sta 10+71.13
Δ = 63° 24' 19.9" (LT)
D = 114° 35' 29.6"
L = 55.33'
T = 30.88'
R = 50.00'

BM#47
ELEV = 292.23'
N 568291.6 1679538
-L- STATION 359+03.27
55.17' RIGHT
RR SPIKE IN BASE
24" TULIP POPLAR

BM#52
ELEV = 293.97'
N 567843.6 167927.1
-Y16- STATION 16+20.00
S 45°32'16" E 129.65'
RR SPIKE IN BASE OF PP

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 49 FOR -L- PROFILE
SEE SHEET 56 FOR -Y16- PROFILE
SEE SHEET 57 FOR -Y17- & -Y19- PROFILES
SEE SHEET 61 FOR -DRW16- PROFILE

REVISIONS
ROW REV. - 12/21/17 - UPDATED EXIST ROW LINE ALONG PARCEL 169, ADDED PARCEL 173A; COMBINED PARCELS 173 AND 176, AND UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCEL 215. - JWM
ROW REV. - 3/9/18 - REMOVED PDE ON PARCEL 173A. - JWM
ROW REV. - 5/30/18 - COMBINED PARCELS 170 AND 172 INTO 170. - JWM

5/14/99
8/27/2018

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RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

REVISIONS

ROW REV. – 1/6/18 – CHANGED PUE TO AUE ON PARCEL 184 FROM –L– STA 372+09 TO 372+67 (RT). – JWM
ROW REV. – 3/7/18 – REVISED R/W TO AVOID SEPTIC TANK ON PARCEL 178. – JWM
ROW REV. – 3/19/18 – COMBINED PARCELS 180 AND 181 INTO 180, AND UPDATED DEED BOOK INFORMATION FOR PARCEL 180. – JWM
ROW REV. – 7/26/18 – ADDED ACCESS BREAK TO PARCEL 183. – JWM

8/27/2018

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RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 8395

MATCHLINE –L– STA 361+50 (SEE SHEET 28)

MATCHLINE –L– STA 375+00 (SEE SHEET 30)

(175) MCRAE INDUSTRIES INC. DB 182 PG 733 DB 290 PG 514

(185) THOMAS A. & AMANDA F. BRUTON DB 370 PG 273

(179) NEW SOUTH REALTY, INC. DB 501 PG 461

(173A) DUKE ENERGY PROGRESS, LLC DB 471 PG 222

(182) TERRY GILBERT DB 213 PG 821

(173) DUKE ENERGY PROGRESS, LLC SWIFT ISLAND ACCESS AREA DB 471 PG 222

(178) RICHARD GRIFFIN DB 580 PG 58 DB 732 PG 824 PF F PG 96B

(180) WANDA LEMONS DB 227 PG 63 DB 732 PG 826 DB 393 PG 195 DB 462 PG 149

(184) SAMUEL MOODY LEMONS III DB 227 PG 667

(183) SAMUEL MOODY LEMONS III DB 459 PG 793 PLAT D SLIDE 66-B

SPECIAL LATERAL V DITCH W/CLASS B RIP RAP EST 50 TONS EST 100 SY GFD SEE DETAIL 67/SHEET 2D–4

BEGIN SBG STA. 362+00 –L– (LT)

2' LATERAL BASE DITCH W/CLASS B RIP RAP EST 35 TONS EST 70 SY GFD SEE DETAIL 22 SHEET 2D–1

HAZARDOUS SPILL BASIN #5 WITH 12' WIDE WEIR OUTFALL, 2:1 SIDE SLOPES AND 5' BERM WIDTH
WEIR ELEVATION = 281.5'
BERM ELEVATION = 285.0'
BOTTOM OF BASIN ELEVATION = 280.0'
15' WIDTH AND 50' LENGTH BOTTOM OF BASIN DIMENSIONS
LINE BASIN SLOPES AND BERM WITH CLASS I RIP RAP AND GEOTEXTILE UP TO ELEVATION 285.0'
WEIR TO BE CONSTRUCTED OUT OF CLASS I RIP RAP ONLY
EST 200 TONS, EST 375 SY GFD
NCDOT WILL PROVIDE STACKED SAND BAGS AT HAZARDOUS SPILL BASINS

END SBG STA. 364+25 –L– (LT)

SHOP CURVED GUARDRAIL R=40'

18" CSP W/ELBOWS
FALSE SUMP SEE DETAIL 4 SHEET 2D–1

–DRW17– POT Sta. 10+00.00
BEGIN CONSTRUCTION
–DRW17– POT Sta.10+20.00

–DRW17– POT Sta. 11+50.00 =
–L– POT Sta.367+47.00
Δ = 90°

BM#48 ELEV = 314.38' N 568165 E 1680868 –L– STATION 372+36.42 10.33' LEFT RR SPIKE IN BASE 18" OAK

BM#01 ELEV = 306.28' N 568164 E 1680799 –L– STATION 371+67.34 9.16' LEFT RR SPIKE IN BASE 20"MAPLE

TIE EXISTING DITCH TO SPECIAL LATERAL 'V' DITCH

BEGIN SBG STA. 374+75 –L– (LT)

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 60 TONS EST 120 SY GFD SEE DETAIL 67, SHEET 2D–4

SPECIAL LATERAL 'V' DITCH W/CLASS B RIP RAP EST 60 TONS EST 120 SY GFD SEE DETAIL 67, SHEET 2D–4

STANDARD 2.5' BASE DITCH W/CLASS B RIP RAP EST 15 TONS EST 30 SY GFD ON BANKS ONLY S= 10.0%, DDE =15 CY SEE DETAIL 46, SHEET 2D–2

LATERAL 'V' DITCH W/CLASS B RIP RAP EST 35 TONS EST 85 SY GFD SEE DETAIL 18 SHEET 2D–1

PROPOSED BASIN LOCATION

1 @ 6' X 8' RCBC

RIP RAP EMBANKMENT PROTECTION W/CLASS I RIP RAP EST 225 TONS EST 320 SY GFD SEE DETAIL 69, SHEET 2D–4

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D–1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D–1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D–1

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3, SHEET 2D–1

COUNTER SUNK RIP RAP OUTLET PROTECTION CLASS I RIP RAP EST 7 TONS EST 15 SY GFD

REMOVE 18" AND FES

–L–
PI Sta 367+14.43
Δ = 22° 56' 41.5" (LT)
D = 1° 15' 33.3"
L = 1,822.11'
T = 923.43'
R = 4,550.00'
SE = 0.04

NOTES:
1. FALSE SUMP SEE DETAIL 24,SHEET 2D–2
2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 49 FOR –L– PROFILE
SEE SHEET 61 FOR –DRW17– PROFILE
SEE SHEET C–X THRU C–X FOR CULVERT PLANS

5/14/99

NOTES:
1. FALSE SUMP SEE DETAIL 24, SHEET 2D-2
2. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANGEMENT PLANS)

(193) KENNETH R FURR
BY WILL

CULVERT #1
TWO BARRELS

	NORTH	EAST	ELEV.
CUL1	568245.56	1681781.19	307.92
CUL2	568246.50	1681792.31	307.95
CUL3	568246.60	1681793.18	307.96
CUL4	568247.46	1681804.04	308.00
CE1	568246.19	1681786.73	315.00
HW1	568247.30	1681798.00	317.13
CUL5	568135.78	1681732.95	307.71
CUL6	568136.79	1681744.30	307.71
CUL7	568136.98	1681744.94	307.67
CUL8	568138.21	1681756.32	307.70
CE2	568136.71	1681738.98	314.70
HW2	568137.59	1681744.59	316.84

-L-
PI Sta 367+14.43
Δ = 22° 56' 41.5" (LT)
D = 1° 15' 33.3"
L = 1,822.11'
T = 923.43'
R = 4,550.00'
SE = 0.04

PIs Sta 376+79.78
Θs = 1° 15' 33.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

-WBL-
PI Sta 12+87.13
Δ = 6° 39' 10.8" (RT)
D = 1° 09' 35.4"
L = 573.62'
T = 287.13'
R = 4,940.00'
SE = RC
RO = 48'
DS = 50 MPH

PI Sta 18+90.68
Δ = 6° 39' 10.8" (LT)
D = 1° 03' 01.2"
L = 633.42'
T = 317.07'
R = 5,455.00'
SE = RC
RO = 48'
DS = 50 MPH

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

ROW REV. - 3/7/18 - REMOVED C/A AND ADDED TCE ON PARCEL 193. - JWM
ROW REV. - 7/26/18 - ADJUSTED C/A AND TCE ON PARCEL 187; ADDED 60' ACCESS BREAK TO PARCEL 191. - JWM
ROW REV. - 8/10/18 - WIDENED DRIVEWAY ACCESS AND ADJUSTED DRAINAGE DESIGN ON PARCEL 186. - JWM

8/27/2018

(185) THOMAS A. & AMANDA F. BRUTON
DB 370 PG 273

(186) DONALD P DAVIS
DB 333 PG 775

(187) THOMAS H LEMONS
DB 512 PG 874

(188) DOLON CORBETT
DB 370 PG 273

(189) BOULDER ASSOCIATES LLC
DB 685 PG 385

(190) RONALD L PARTRIDGE
DB 568 PG 515

(191) UWHARRIE MARINE SALES & SERVICE LLC
DB 539 PG 035

(192) TOMMY A BLAKE
DB 246 PG 036

(183) SAMUEL MOODY LEMONS III
DB 459 PG 793
PLAT D SLIDE 66-B

NC GRID
NAD 83/95

MATCHLINE -L- STA 375+00 (SEE SHEET 29)

MATCHLINE -L- STA 389+00 (SEE SHEET 31)

SEE SHEET 50 FOR -L- PROFILE
SEE SHEET 51 FOR -WBL- PROFILE
SEE SHEET 61 FOR -DRW18- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

REVISIONS
ROW REV. – 3/7/18 – REMOVED C/A ADDED TCE AND PUE, ADDED "DO NOT DISTURB DRAIN LINE AND BOX" NOTE, AND RELOCATED DRIVEWAY TO -L- STA 394+15 (LT) ON PARCEL 193. – JWM
ROW REV. – 7/2/18 – REMOVED PUE FROM PARCEL 195. – JWM

5/14/99

8/27/2018

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RALEIGH, NC 27601
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID NAD 8395

-L-
PI Sta 392+91.16
△ = 1° 00' 02.4" (LT)
D = 1° 03' 25.6"
L = 94.66'
T = 47.33'
R = 5,420.00'
SE = 0.03
RO = 126'

-L-
PI Sta 398+43.27
△ = 17° 28' 22.1" (LT)
D = 2° 04' 33.4"
L = 841.68'
T = 424.13'
R = 2,760.00'
SE = 0.03
RO = 210'

-WBL-
PI Sta 18+90.68
△ = 6° 39' 10.8" (LT)
D = 1° 03' 01.2"
L = 633.42'
T = 317.07'
R = 5,455.00'
SE = RC
RO = 48'
DS = 50 MPH

(195) SAMUEL HORACE MCCALL III
DB 244 PG 695

(193) KENNETH R FURR
BY WILL

(192) TOMMY A BLAKE
DB 246 PG 036

(194) CHARLES R MANESS
DB 285 PG 104

MATCHLINE -L- STA 389+00 (SEE SHEET 30)

390+00 (-L-)
20+00 (-WBL-)
395+00
400+00

N 62°56'31" E 87.64'
S 22°57'29" E 72.57'
N 74°52'29" E 156.18'
N 01°36'18" E 79.62'
N 65°03'41" W 689.89'

-L- PC Sta. 392+43.82
-L- NC 24-27
N 83° 47' 33.4" E

-L- PT Sta. 393+38.49
N 82° 47' 31.0" E

-L- PC Sta. 394+19.14

-WBL- PT Sta.22+07.04 =
-L- POC Sta. 392+43.82 (35' RT)

-L- POT Sta. 402+93.00
-L- PT Sta. 402+60.82
N 65° 19' 08.9" E

END TIP PROJECT R-2530B
END CONSTRUCTION
-L- POC Sta. 396+23.00

BM#02
ELEV = 350.59'
N 568466 E 1683342
-L- STATION 397+36.71
41.98' LEFT
RR SPIKE IN BASE OF 30"MAPLE

SPECIAL CUT GRASS SWALE W/HINGE SEE DETAIL 14 SHEET 2D-1

SANITARY SEWER DRAIN FIELD DISTRIBUTION BOX

DO NOT DISTURB DRAIN LINE AND BOX

FALSE SUMP SEE DETAIL 4 SHEET 2D-1

FALSE SUMP SEE DETAIL 25 SHEET 2D-2

RETAIN 18"

TIE 2GI INTO EXIST 18" (3102)

COLLAR AND EXTEND EXIST 18" TO PROP 2GI (3103)

REMOVE DI AND 8 LF OF 18" RCP

REMOVE DI

2GI (3105)

COLLAR AND EXTEND EXIST 18" TO PROP 2GI (3104)

2GI (3107)

15" CSP W/ELBOWS

REMOVE 15"

RETAIN OTCB (3106)

RETAIN 15"

60' TAPER

END C/A +23 EX. R/W 150' RT

+43.82(L) 150' RT
+38.49 150' RT
+19.14 150' RT
+73 150' RT

SIZE & TYPE UNKNOWN

NC 24 / 27 24' BST

BL-82

CULVERT IS OUTSIDE R2530B-CON-ESP2 SURVEY LIMITS SHOWN BY PHOTOGRAMMETRY MAPPING ONLY NOT FIELD SURVEYED

10' CONC WW
21' CONC HW
11' CONC WW

12' CONC WW
20' CONC HW
11' CONC WW

2 - 7' × 19' CONC

KENNETH R FURR
BY WILL

ISBLK BUS
ISFD BUS
1 1/2SFD BUS
CANOPY
ISFD

SR 1150 RINER RD 22' BST
10' BST
18" CONC

SEE SHEET 50 FOR -L- PROFILE
SEE SHEET 51 FOR -WBL- PROFILE

REVISIONS

ROW REV. - 12/15/17 - ADJUSTED TCE ON PARCEL 196, ADDED TCE TO PARCELS 216, 217, 218, AND 219. - JWM
ROW REV. - 2/8/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION, AND ADDED "DO NOT DISTURB EXISTING AREA LIGHTS" NOTE TO PARCEL 217. - JWM
ROW REV. - 3/29/18 - CHANGED TCE TO PUE ON PARCEL 218. - JWM
ROW REV. - 5/30/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION ON PARCELS 218 AND 219. - JWM

5/14/99

8/28/2018

-Y1-
PI Sta 12+09.99
Δ = 21° 39' 27.3" (RT)
D = 1° 47' 37.9"
L = 1,207.32'
T = 610.95'
R = 3,194.00'
SE = 0.03
RO = 1.38°

HILLCREST FOODS, INC.
DB 1245 PG 607
RETAIN EXISTING CB
TIE PROP 30" RCP-III
INTO EXISTING CB

(216) JUNE ALLEN
DB 483 PG 726

(218) STANLY COUNTY
CDJR PROPERTIES, LLC
DB 1625 PG 365

(217) EAST SIDE
RENTALS, LLC
DB 1598
PG 175

(196) EASTSIDE
RENTALS, LLC
DB 1598
PG 175

(219) CHARLES E. MOODY AND
WIFE, JUDY T. MOODY
DB 1609 PG 793

LUCKY REALTY LLC
DB 810 PG 154

(197) GUY PROPERTIES
LLC
DB 737
PG 937

(6) KALOGEROMITROS
BROTHERS PROP.
DB 820 PG 313

(9) KALOGEROMITROS
BROTHERS PROP.
DB 898 PG 417

BEGIN CONSTRUCTION
-Y1- POC Sta. 9+00.00
BEGIN MILLING & RESURFACING

END MILLING & RESURFACING
BEGIN GRADE
-Y1- POC Sta. 10+76.00

-Y1- POC Sta. 11+25.05 =
-Y2- POT Sta. 10+00.00
Δ = 96°52'29.0"

-Y1- (NC 740) SPAULDING ST

-Y2- HILCO ST
S 58° 17' 56.3" E

MATCHLINE -Y1- STA 16+00 (SEE SHEET 4)

MATCHLINE -Y2- STA 13+50 (SEE SHEET 33)

NOTE:
1. REMOVE AND RESET EXIST PARKING BUMPERS 3' FROM FACE OF CURB FROM -Y2- STA 11+37 TO 12+82 (RT)

SEE SHEET 2B-1 FOR INTERSECTION DETAILS
SEE SHEET 51 FOR -Y1- PROFILE
SEE SHEET 52 FOR -Y2- PROFILE

(1) SOUTH CENTRAL OIL CO. INC.
DB 267 PG 438

MATCHLINE -Y1- STA 24+00 (SEE SHEET 4)

(198) H/S
ALBEMARLE LLC
DB 1143 PG 42
DB 823 PG 947
PB 17 PG 409

(10) H/S ALBEMARLE LLC
DB 1143 PG 42
DB 823 PG 947
PB 17 PG 409

(199) LUBELL INC.
DB 378 PG 531

(203) CREH LLC
DB 652 PG 549

(202) LOWES HOME CENTER INC.
DB 808 PG 234
PB 17 PG 409

-Y1- NC 24-27-77-740
S 37° 02' 52.8" W

END CONSTRUCTION
-Y1- POT Sta. 28+90.00

-Y1- POT Sta. 31+00.00

★ TRAFFIC SIGNAL
SEE SHEET 51 FOR -Y1- PROFILE

NC GRID NAD 83/95

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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RIGHT-OF-WAY REV.

CONST. REV.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99 ROW REV. - 12/15/17 - ADDED TCE TO PARCELS 27, 218, 220, 221, 222, 223, 224, 225, AND 227; ADDED ROW AND TCE TO PARCEL 226. - JWM

ROW REV. - 329/18 - CHANGED TCE TO PUE ON PARCELS 218 AND 228, AND ADDED PUE AND ADJUSTED TCE ON PARCEL 226. - JWM

ROW REV. - 530/18 - UPDATED PROPERTY OWNER AND DEED BOOK INFORMATION FOR PARCELS 218 AND 219. - JWM

8/27/2018

-Y2-
PI Sta 25+51.34
Δ = 61° 23' 01.3" (RT)
D = 22° 55' 05.9"
L = 267.84'
T = 148.39'
*R = 250.00' (DS = 30 MPH)
SE = 0.04
RO = 84'

MATCHLINE -Y2- STA 13+50 (SEE SHEET 32)

MATCHLINE (SEE SHEET 4)

MATCHLINE -Y2- STA 28+00 (SEE SHEET 5)

(219) CHARLES E. MOODY AND WIFE, JUDY T. MOODY DB 1609 PG 793

(218) STANLY COUNTY CDJR PROPERTIES, LLC DB 1625 PG 365

(225) TERRY MARSHAL DENNIS, SR, ET AL DB 1186 PG 204

(227) PEGGY L. SIMPSON DB 1270 PG 388

(220) ONATE INC. DB 608 PG 60

(221) NTICAPITAL GROUP LLC DB 884 PG 810

(222) NTICAPITAL GROUP LLC DB 884 PG 810

(223) VALLEN PROPERTIES LLC DB 932 PG 233

(224) LANCE, INC. DB 332 PG 900

(226) COUNTY OF STANLY DB 1234 PG 461 PB 19 PG 296

(228) PEJA INC. DB 904 PG 730

(27) CITADEL/STANLY GARDENS OF MEMORIAL DB 783 PG 134

-Y2- HILCO ST S 58° 17' 56.3" E

BEGIN CULVERT -Y2- STA 24+84.20
-Y2- PC Sta. 24+02.95

2 @ 9' X 6' RCBC W/ HEADWALLS (BURIED 1')

END CULVERT -Y2- STA 25+05.70
-Y2- PT Sta. 26+70.79

-Y2- BARNARD RD S 3° 05' 05.0" W

BM53 ELEV=553.03

BM#6 ELEV = 554.99' N 584048 E 1654104 -Y2- STATION 24+67.61 30.66' LT PAINTED FLANGE BOLT ON FH

RETAIN 48" CMP

REMOVE EXISTING 2 @ 48" CMP'S

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 280 TONS EST 220 SY GFD SEE DETAIL 74 SHEET 2D-5

STANDARD 2' BASE DITCH S=2.0%, DDE=20 CY SEE DETAIL 31, SHEET 2D-2

REMOVE 12" CMP

OUTLET PROTECTION CLASS 'B' RIP RAP EST 3 TONS EST 10 SY GFD

RETAIN 2 @ 15" RCP'S

RETAIN DI

RETAIN 24" RCP

RETAIN 72" RCP

RETAIN 15" RCP

RETAIN 18" RCP

RETAIN EX. 15"

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

LATERAL 'V' DITCH SEE DETAIL 66 SHEET 2D-4

CHANNEL IMPROVEMENTS CLASS I RIP RAP EST 85 TONS EST. 90 SY GFD SEE DETAIL 73 SHEET 2D-5

SPECIAL LATERAL 'V' DITCH WITH 2:1 FRONT SLOPES TO LIMIT IMPACTS SEE DETAIL 9 SHEET 2D-1

DO NOT DISTURB EXIST TREES AS DIRECTED BY ENGINEER (TYP)

*DESIGN EXCEPTION REQUIRED FOR MINIMUM HORIZONTAL CURVE RADIUS
SEE SHEET 52 FOR -Y2- PROFILE
SEE SHEET C-X THRU C-X FOR CULVERT PLANS

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2530B	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

ROW REV. - 6/19/17 - ADDED PARCEL 204 TO 26 AND PARCEL 205 TO 25; AND UPDATED OWNER INFORMATION FOR PARCELS 25 AND 206. - JWM
ROW REV. - 12/15/17 - ADJUSTED ROW AND TCE ON PARCELS 26 AND 206; ADJUSTED TCE ON PARCEL 33. - JWM
ROW REV. - 2/21/18 - ADJUSTED ROW AND TCE ON PARCEL 26. - JWM
ROW REV. - 8/22/18 - ADJUSTED ROW ON PARCELS 26 AND 206. - JWM

5/14/99

8/27/2018

(26) JAMES J NOLAN
DB 1058 PG 648
PB 02 PG 106

NC GRID NAD 8395

MATCHLINE -Y2A- STA 14+00 (SEE SHEET 5)

+01.22 EX. P/L

(3403) SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 SHEET 2D-1

15+00

+78 59' RT
+00 30' RT
+27 42' RT

(3402) OUTLET PROTECTION CLASS 'B' RIP RAP EST 3 TONS EST 10 SY GFD

(206) KEITH AND NANCY CARPENTER DB 1437 PG 249

BY4-54

S 30°04'07" W 200.00'

S 59°19'15" E EXIST R/W 174.11'

+46.99 EX. P/L

+49.55 EX. R/W

POST RD (SR 1826)

23' BST

S 60°36'16" E 200.42'

EXIST R/W S 59°24'02" E 169.84'

+05 EX. R/W
+20 EX. R/W
+30 EX. R/W
+35 131' LT

18" RCP-V (DO NOT BURY)

RETAIN 15" RCP

GRADE TO DRAIN TO EX 15"

REMOVE 15" RCP

RETAIN 15" RCP

20' BST

+44 EX. R/W, 73' LT

(33) V F W POST 2908
DB 150 PG 66

REMOVE 15" RCP

-Y2A- ANDERSON RD

-Y2A- PCC Sta. 17+12.49

END CONSTRUCTION
-Y2A- POC Sta.17+20.00

-Y2A- PT Sta. 18+45.71

BST

GAS TEST STATION

SPECTRUM SYSTEMS INC.
DB 1132 PG 717

BM#7
ELEV = 564.67'
N 582406 E 1653846
-Y2A- STATION 18+45.71
S 10°02'27" E 41.43'
RR SPIKE IN BASE OF POWER POLE

N 60°35'58" W 596.92'

-Y2A-

PI Sta 17+78.95	PI Sta 21+77.93	PI Sta 24+03.74
△ = 7° 36' 16.5" (RT)	△ = 35° 25' 58.8" (RT)	△ = 7° 36' 16.5" (RT)
D = 5° 43' 46.5"	D = 10° 44' 58.8"	D = 5° 43' 46.5"
L = 132.72'	L = 329.62'	L = 132.72'
T = 66.46'	T = 170.27'	T = 66.46'
R = 1,000.00'	R = 533.00'	R = 1,000.00'
SE = 0.04	SE = 0.04	SE = 0.04
RO = 84'	RO = 84'	RO = 84'

SEE SHEET 53 FOR -Y2A- PROFILE

MATCHLINE -Y8- STA 21+00 (SEE SHEET 13)

250' TAPER

+97.01

+15.02 24' TYP

+39.02

(96) DR JOEL LEE MAULDIN SR. HEIRS
DB 68 PG 175

BY10-62

+69 32.02' RT

COLLAR AND EXTEND EXISTING 18" RCP WITH 24 L.F. OF 18" RCP-III (DO NOT BURY)

+67 56' RT

(3405) PDE

(3406)

TDE

RETAIN 18" RCP

+74 EX. R/W 56' LT

+95 66' RT

+91 57' RT

+93 28.29' RT

+14 EX. R/W

+95 EX. R/W 56' LT

+11 EX. R/W

OUTLET PROTECTION CLASS B RIP RAP EST 2 TONS EST 7 SY GFD

+50 40' LT

SPECIAL LATERAL V DITCH W/ CLASS B RIP RAP EST 55 TONS EST 120 SY GFD SEE DETAIL 67 SHEET 2D-4

+93 38' RT

25+00

+30 EX. R/W

(99) STONY GAP PROPERTIES LLC
DB 1370 PG 1000
DB 187 PG 245

S 60°15'17" E 1490.32'

+90.44 25.61' LT

+01 38' RT

SPECIAL LATERAL V DITCH SEE DETAIL 3 SHEET 2D-1

+42 EX. R/W

BM#21
ELEV = 576.56
N 576378 E 1661328
-Y8- STATION 27+12.15
40.02' LEFT
RR SPIKE IN BASE OF 16"OAK

-Y8- PT Sta. 27+01.29

RETAIN 15" RCP

30' GR

10' BST

4S ELEC

END CONSTRUCTION
-Y8- POT Sta.27+06.00

BY10-63

(208) STONY GAP PROPERTIES LLC
DB 1370 PG 1000
DB 187 PG 245

-Y8- (SR 1720) STONY GAP RD S 35° 21' 21.7" W

-Y8- POT Sta. 28+50.00

(104) BARRIER FAMILY LIMITED PARTNERSHIP
DB 1100 PG 857
PB 11PG 55

-Y8-

PI Sta 23+96.30
△ = 4° 17' 24.9" (RT)
D = 0° 42' 10.9"
L = 610.26'
T = 305.27'
R = 8,150.00'
SE = NC
RO = NONE

SEE SHEET 54 FOR -Y8- PROFILE