STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

April 7, 2017

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

ATTN: Mr. Steve Kichefski, NCDOT Regulatory Coordinator

Subject: **Request for Modification to the Section 404 Individual Permit and Section 401 Water Quality Certification** for the proposed US 221 Widening from US 421 to US 221 Business/NC 88 in Jefferson in Watauga and Ashe Counties. Federal Aid Project No. STP-0221(13), Division 11, TIP No. R-2915, WBS 34518.1.1.

Reference: USACE Individual Permit Action ID SAW-2012-00882, January 7, 2015.
USACE Individual Permit Modification Action ID SAW-2012-00882, August 31, 2016.
NCDWR Project No. 20140762, Certification No. 4001, September 8, 2014.
NCDWR Project No. 20140764_v2, Certification No. 4001, August 23, 2016.

Dear Sir:

The purpose of this letter is to request a modification to the United Stated Army Corps of Engineers (USACE) Section 404 Individual Permit and North Carolina Division of Water Resources Section 401 Certification for the above referenced project. The original 2014 permit application and subsequent 2016 modification application (referenced above) presented final impacts for R-2915A, R-2915B, R-2915C, and R-2915D. This modification presents changes to two permit sites in the B Section needed as a result of a driveway modification and new temporary wetland fill. The last section, R-2915E, is currently scheduled to let in September 2019. A permit modification for the final impacts for R-2915E will be submitted prior to let.

All changes in impacts due to the two modified sites in the B Section are in ***red italics***. Please see the enclosed revised permit drawings for Section B.

Summary of R-2915 Jurisdictional Impacts:
The preliminary projected impacts for the overall (Sections A-E) project will be approximately 3.11 acres of permanent wetland impacts, ***0.15 acre of temporary wetland impacts***, ***8,156*** linear feet of permanent stream impacts (***6,983*** linear feet of fill and 1,173 linear feet of bank stabilization), and 0.34 acre of temporary stream impacts (see Tables 1 and 2 for a breakdown of impacts by Section).

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

Table 1 – Summary of Wetland Impacts for R-2915

Section	Design Stage	Wetland Impact Type	Wetland Impact Area (ac)	Wetland Impacts Requiring Mitigation (ac)
R-2915A	Final	Perm. Wetland Fill	0.48	0.57*
		Excavation in Wetlands	0.01	
		Mechanized Clearing in Wetlands	0.08	
		Hand Clearing in Wetlands	0.05†	
R-2915B	Final	Perm. Wetland Fill	0.32	0.43*
		Excavation in Wetlands	0.04	
		Mechanized Clearing in Wetlands	0.06	
		Temporary Fill in Wetlands	***0.15***	
R-2915C	Final	Perm. Wetland Fill	0.22	0.27*
		Excavation in Wetlands	--	
		Mechanized Clearing in Wetlands	0.05	
R-2915D	Final	Perm. Wetland Fill	1.01	1.32
		Excavation in Wetlands	0.01	
		Mechanized Clearing in Wetlands	0.30	
R-2915E	Preliminary	Perm. Wetland Fill	0.43	0.52
		Excavation in Wetlands	--	
		Mechanized Clearing in Wetlands	0.09	
			Total	**3.11**

†Additionally, 0.01 acre of temporary fill in wetlands will occur in the hand clearing areas for erosion control measures
* Values are based on rounding, due to calculating totals with actual numbers to the thousandths

Table 2 – Summary of Stream Impacts for R-2915

Section	Design Stage	Stream Impact Type	Impact Length (lf)	Temporary Impacts (ac)	Stream Impacts Requiring Mitigation (lf)
R-2915A	Final	Permanent Fill	1,119	--	1,119
		Bank Stabilization	402	--	
		Temporary	--	0.05	
R-2915B	Final	Permanent Fill	***493***	--	***493****
		Bank Stabilization	411	--	
		Temporary	--	0.15	
R-2915C	Final	Permanent Fill	2,339	--	2,339
		Bank Stabilization	234	--	
		Temporary	--	0.09	
R-2915D	Final	Permanent Fill	2,627	--	2,627
		Bank Stabilization	126	--	
		Temporary	--	0.05	
R-2915E	Preliminary	Permanent Fill	405	--	405
		Temporary	--	<0.01	
		Total	***8,156***	**0.34**	***6,983***

* See Table 4

Tables 3 and 4 summarize the impacts to jurisdictional water resources for the final design of R-2915B. Site numbers correspond with the permit (hydraulic) drawings included in this application. The stream and wetland numbers correspond to the NRTR. A brief description of the impact sites that have changed since the 2014 permit application the will follow the tables.

Table 3 – R-2915B Wetland Impacts*

Site	Wetland Number	Wetland Size (ac)	Permanent Fill in Wetlands (ac)	Excavation (ac)	Mechanized Clearing (ac)	***Temporary Fill in Wetlands (ac)***	Impacts Requiring Mitigation (ac)
4	W11	0.26	<0.01	--	<0.01	***0.15***	<0.01
5	W11	0.26	<0.01	--	--	--	<0.01
6	W11	0.26	<0.01	--	--	--	<0.01
7	W11	0.26	0.05	0.03	--	--	0.08
8	W12	0.05	<0.01	--	<0.01	--	<0.01
11	W14	0.02	<0.01	--	<0.01	--	<0.01
12	W15**	0.12	0.12	--	<0.01	--	0.12
14	W16	0.04	--	0.01	<0.01	--	0.02
15	W126**	0.19	0.14	--	0.05	--	0.19
Total Impacts:			**0.32**	**0.04**	**0.06**	***0.15***	**0.43*** **

*** All wetlands impacted are riparian**
**** Total take of wetland**
***** Values are based on rounding, due to calculating totals with actual numbers to the thousandths**

Table 4 – R-2915B Stream Impacts

Site	Stream Name & Intermittent (I) or Perennial (P) [1]	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[2] (linear feet)
1A	UT to Gap Creek (P)	S32	Perm. Fill	170	--	USACE & DWR
			Bank Stabilization	44	--	DWR
			Temp Fill	--	<0.01	--
1B	Gap Creek (P)	S1	Perm. Fill	15	--	USACE & DWR
			Bank Stabilization	35	--	DWR
			Temp Fill	--	<0.01	--
2	UT to Gap Creek (P)	S35	Perm. Fill	34	--	USACE
			Bank Stabilization	--	--	--
			Temp Fill	--	--	--
3	UT to Gap Creek (P)	S35	Perm. Fill	***71***	--	USACE
			Bank Stabilization	--	--	--
			Temp Fill	--	--	--
4	N/A (wetland only)	--	--	--	--	--
5	N/A (wetland only)	--	--	--	--	--
6	N/A (wetland only)	--	--	--	--	--
7	N/A (wetland only)	--	--	--	--	--
8	N/A (wetland only)	--	--	--	--	--

Table 4 continued – R-2915B Stream Impacts

Site	Stream Name & Intermittent (I) or Perennial (P) [1]	Stream Number	Impact Type	Impact Length (linear feet)	Temporary Impacts (acres)	Mitigation Requirement[2] (linear feet)
9	UT to Gap Creek (P)	S36	Perm. Fill	124	--	USACE
			Bank Stabilization	23	--	--
			Temp. Fill	--	--	--
10	Gap Creek (P)	S1	Perm. Fill	--	--	--
			Bank Stabilization	154	--	DWR
			Temp. Fill	--	0.02	--
11	N/A (wetland only)	--	--	--	--	--
12	N/A (wetland only)	--	--	--	--	--
13	UT to Gap Creek (P)	S40	Perm. Fill	52	--	USACE
			Bank Stabilization	--	--	--
			Temp. Fill	--	<0.01	--
14	N/A (wetland only)	--	--	--	--	--
15	N/A (wetland only)	--	--	--	--	--
16	UT to Gap Creek (P)	S42	Perm. Fill	27	--	USACE
			Bank Stabilization	9	--	--
			Temp. Fill	--	--	--
17	Gap Creek (P)	S1	Perm. Fill	--	--	--
			Bank Stabilization	54	--	DWR
			Temp. Fill	--	--	--
18	Gap Creek (P)	S1	Perm. Fill	--	--	--
			Bank Stabilization	53	--	DWR
			Temp. Fill	--	--	--
19	South Fork New River (P)	S43	Perm. Fill	--	--	--
			Bank Stabilization	---	--	--
			Temp. Fill	--	0.12	--
20	South Fork New River (P)	S43	Perm. Fill	--	--	--
			Bank Stabilization	19	--	--
			Temp. Fill	--	--	--
21	South Fork New River (P)	S43	Perm. Fill	--	--	--
			Bank Stabilization	20	--	--
			Temp. Fill	--	--	--
Total Temporary Impacts:				**--**	**0.15**[3]	**--**
Total Permanent Impacts (Perm. Fill + Bank Stabilization):				***904***	**--**	**--**
Permanent Impacts Requiring DWR Mitigation:				**525**	**--**	**--**
Permanent Impacts Requiring USACE Mitigation:				***493***	**--**	**--**
Total Impacts Requiring Mitigation:				***493***	**--**	**†**

1 – All streams are Class C; Tr+ waters except S43 (South Fork New River), which is WS-V; HQW
2 – Mitigation for bank stabilization impacts required by DWR – not required by USACE
3 – Values are based on rounding, due to some of the individual impacts being <0.01 acre
† – Final mitigation requirement will be up to the USACE and DWR

Permit Site 3: ***Due to landowner and constructability issues, the driveway at Site 3 has been modified such that it crosses S35 in a location further downstream than previously permitted. A new 24" pipe will be installed in this location, resulting in 71 linear feet (lf) of permanent impacts to S35. This is 40 lf less impact than previously permitted.***

Permit Site 4: The existing 30" RCP which drains to W11 is being replaced with a new 12" RCP. There will be <0.01 acre of permanent wetland fill and <0.01 acre of mechanized clearing in W11 at the outlet of the new pipe. ***While performing cut work on the opposite side of the road, a storm washed sediment into the wetland. Due to the lack of other options at the time, the decision was made (with the agreement of NCDWR) to install baffles and use W11 as a temporary sediment basin to protect Gap Creek. After construction, the baffles will be removed as well as the sediment. Wetland dimensions will be reestablished, seeded with a native seed mix, and coir fiber matting will be placed on the bank. This will result in 0.15 acre of temporary wetland fill to W11.***

MITIGATION

At this time, DMS is providing compensatory mitigation for Sections A, B, C, and D impacts. Table 5 summarizes the total mitigation needs as 2.59 acres of wetlands impacts and ***6,578*** linear feet of stream impacts. Compensatory mitigation for Section E will be provided accordingly during the subsequent permit modification. This modification will occur when final design on the remaining Section has been completed.

Table 5 – Summary of Mitigation Requested from DMS

Section	Design Stage	Wetland Impacts Requiring Mitigation (ac)	Stream Impacts Requiring Mitigation (lf)
R-2915A	Final	0.57	1,119
R-2915B	Final	0.43	***493***
R-2915C	Final	0.27	2,339
R-2915D	Final	1.32	2,627
	Total	**2.59**	***6,578***

****At this time, 6,618 lf of stream mitigation is requested from DMS. However, this modification results in a 40 lf reduction in mitigable stream impacts. Upon project completion the request to DMS will be modified to reflect this change.***

REGULATORY APPROVALS

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

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

A copy of this application and distribution list will also be posted on the NCDOT website at: http://connect.ncdot.gov/resources/Environmental. If you have any questions or need additional information, please contact Erin Cheely at ekcheely@ncdot.gov or (919) 707-6108.

Sincerely,

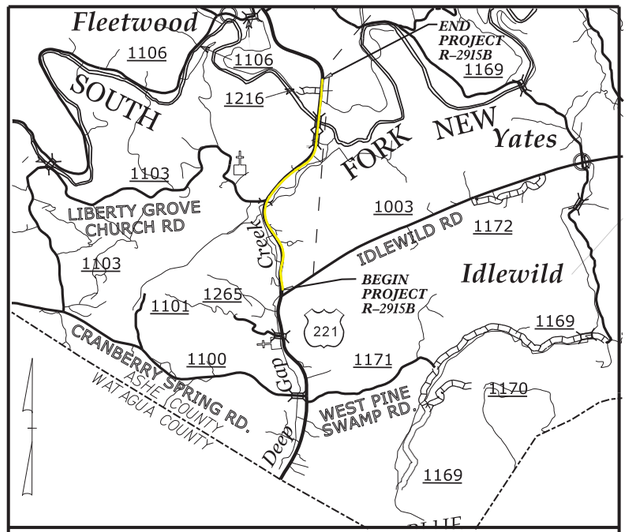
for Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head

09/08/99

TIP PROJECT: R-2915B

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

RW PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2915B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34518.1.3	STP-0221(40)	P.E.
34518.2.FR2	STP-0221(40)	R /W
34518.2.UFR2	STP-0221(40)	UTILITIES

PERMIT DRAWING
SHEET 1 OF 31

Revised 4/6/17

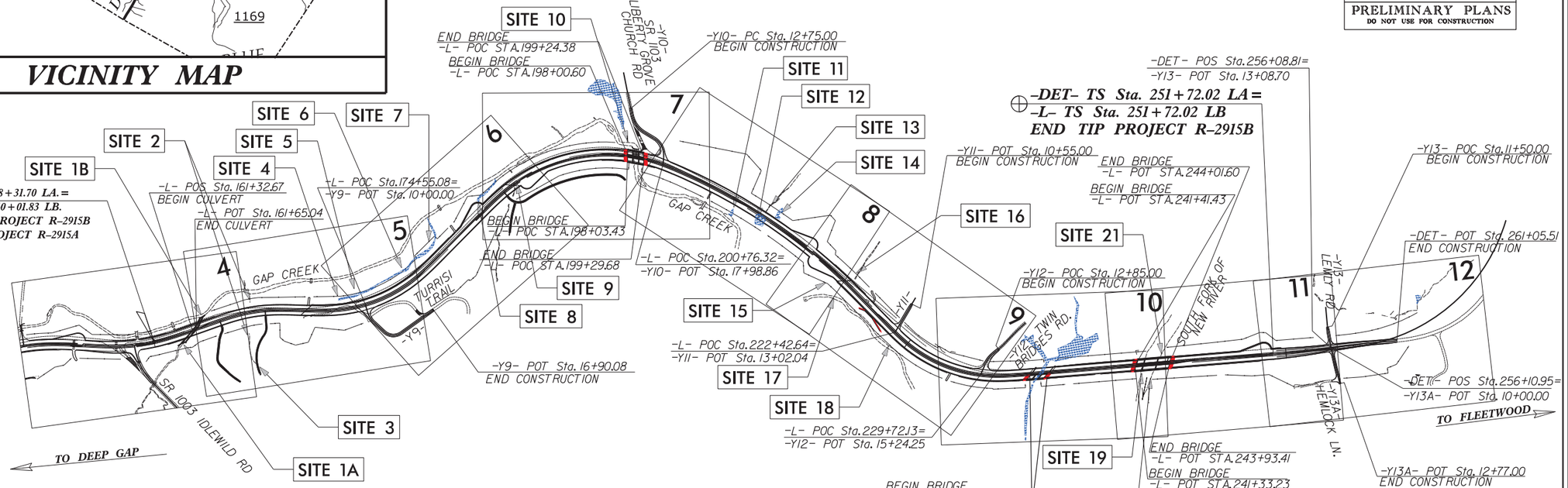
LOCATION: US 221 FROM SR 1003 (IDLEWILD ROAD) TO NORTH OF SOUTH FORK NEW RIVER

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES

NAD 83/CORS

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



WETLAND AND SURFACE WATER IMPACTS PERMIT

NOTE : THIS IS A PARTIAL CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO ONE DRIVEWAY PER PARCEL.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

NCDOT CONTACT: BRENDA L. MOORE, P.E.

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 2015 = 12,089
ADT 2035 = 20,204
DHV = 10 %
D = 65 %
T = 9 % *
V = 50 MPH
* TTST 2% DUAL 7%
FUNC CLASS = ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2915B = 1.675 MILES

LENGTH STRUCTURE TIP PROJECT R-2915B = 0.094 MILES

TOTAL LENGTH TIP PROJECT R-2915B = 1.769 MILES

Prepared in the Office of:
CDM Smith
5400 Glenwood Avenue, Suite 300, Raleigh, NC 27612

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2013

LETTING DATE:
JUNE 16, 2015

DOUGLAS B. SAUNDERS, P.E.
PROJECT ENGINEER

RICKY E. STATON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

6/6/2014
R2915B_Hyd_prm_wet_psh_01.dgn
bklam

5/14/99

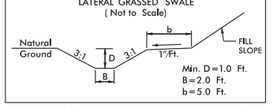
PROJECT REFERENCE NO.	SHEET NO.
R-2915B	2D-1
RW SHEET NO.	

HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 2 OF 31

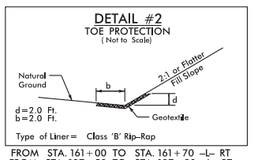
Revised 4/6/17

DETAIL #1
LATERAL GRASSED SWALE
(Not to Scale)



FROM STA. 160+20 TO STA. 161+00 –L– RT
FROM STA. 234+35 TO STA. 238+00 –L– RT

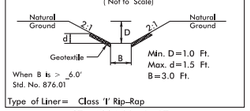
DETAIL #2
TOE PROTECTION
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 161+00 TO STA. 161+70 –L– RT
FROM STA. 197+50 TO STA. 197+80 –L– RT
FROM STA. 250+00 TO STA. 251+50 –L– RT
FROM STA. 251+00 TO STA. 252+50 –L– LT
FROM STA. 15+05 TO STA. 15+50 –DR1REV– RT
FROM STA. 15+00 TO STA. 15+50 –DR1REV– LT

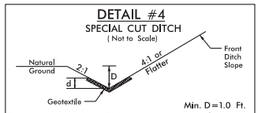
DETAIL #3
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class 'I' Rip-Rap

STA. 166+00 –L– LT

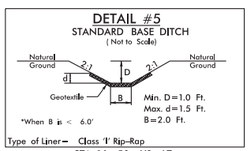
DETAIL #4
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 16+20 TO STA. 16+90 –Y9– RT

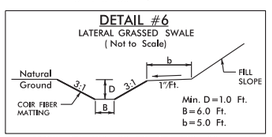
DETAIL #5
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class 'I' Rip-Rap

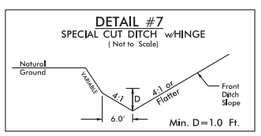
STA. 16+50 –Y9– LT

DETAIL #6
LATERAL GRASSED SWALE
(Not to Scale)



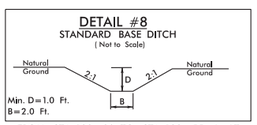
FROM STA. 180+00 TO STA. 182+00 –L– LT

DETAIL #7
SPECIAL CUT DITCH wHINGE
(Not to Scale)



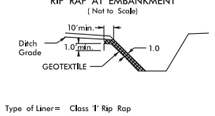
FROM STA. 196+50 TO STA. 197+00 –L– RT

DETAIL #8
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 198+80 TO STA. 199+55 –L– LT

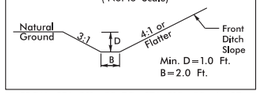
DETAIL #9
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= Class 'I' Rip Rap

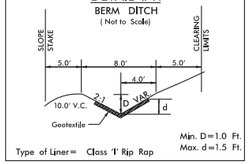
FROM STA. 198+70 TO STA. 198+90 –L– LT
FROM STA. 217+27 TO STA. 217+40 –L– LT
FROM STA. 242+50 TO STA. 242+70 –L– RT
FROM STA. 243+40 TO STA. 243+60 –L– LT

DETAIL #10
SPECIAL CUT GRASSED SWALE
(Not to Scale)



FROM STA. 211+80 TO STA. 215+55 –L– RT

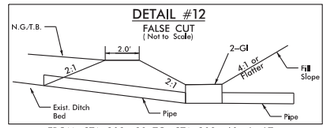
DETAIL #11
BERM DITCH
(Not to Scale)



Type of Liner= Class 'I' Rip Rap

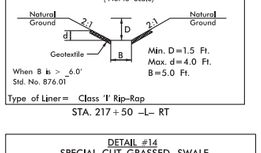
FROM STA. 171+50 TO STA. 172+75 –L– RT

DETAIL #12
FALSE CUT
(Not to Scale)



FROM STA. 208+80 TO STA. 209+60 –L– LT

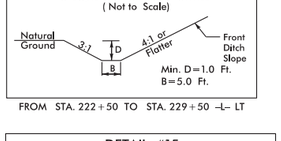
DETAIL #13
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class 'I' Rip-Rap

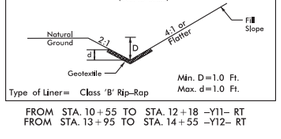
STA. 217+50 –L– RT

DETAIL #14
SPECIAL CUT GRASSED SWALE
(Not to Scale)



FROM STA. 222+50 TO STA. 229+50 –L– LT

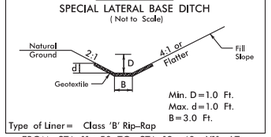
DETAIL #15
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 10+55 TO STA. 12+18 –Y11– RT
FROM STA. 13+95 TO STA. 14+55 –Y12– RT

DETAIL #16
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

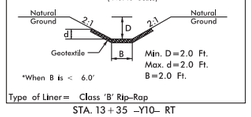
FROM STA. 11+50 TO STA. 12+40 –Y11– LT

DETAIL #17
ROADWAY DITCH
(Not to Scale)

Type of Liner= Class 'B' Rip-Rap

FROM STA. 252+00 TO STA. 255+50 –DET– RT
FROM STA. 253+21 TO STA. 255+50 –DET– LT
FROM STA. 256+42 TO STA. 261+05 –DET– RT
FROM STA. 256+50 TO STA. 260+50 –DET– LT

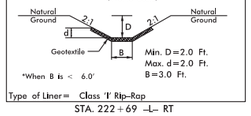
DETAIL #18
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

STA. 13+35 –Y10– RT

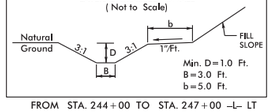
DETAIL #19
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class 'I' Rip-Rap

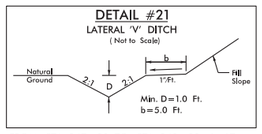
STA. 222+69 –L– RT

DETAIL #20
LATERAL GRASSED SWALE
(Not to Scale)



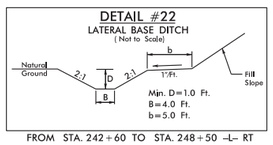
FROM STA. 244+00 TO STA. 247+00 –L– LT

DETAIL #21
LATERAL 'V' DITCH
(Not to Scale)



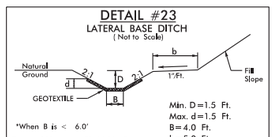
FROM STA. 247+00 TO STA. 249+00 –L– LT

DETAIL #22
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 242+60 TO STA. 248+50 –L– RT

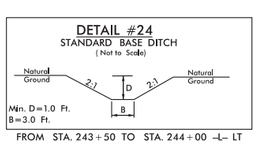
DETAIL #23
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CL 'I' Rip-Rap

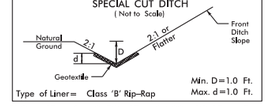
FROM STA. 248+50 TO STA. 250+00 –L– RT

DETAIL #24
STANDARD BASE DITCH
(Not to Scale)



FROM STA. 243+50 TO STA. 244+00 –L– LT

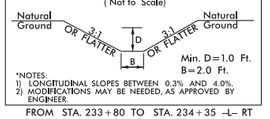
DETAIL #25
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 16+40 TO STA. 19+00 –DR1REV– LT
FROM STA. 15+50 TO STA. 16+05 –DR1REV– LT
FROM STA. 10+20 TO STA. 10+50 –DR2REV– RT
FROM STA. 10+15 TO STA. 10+50 –DR2REV– LT

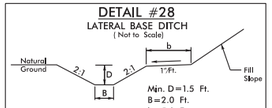
DETAIL #27
STANDARD BASE GRASSED SWALE
(Not to Scale)



*NOTES:
1) LONGITUDINAL SLOPES BETWEEN 0.3% AND 4.0%.
2) MODIFICATIONS MAY BE NEEDED, AS APPROVED BY ENGINEER.

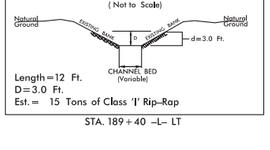
FROM STA. 233+80 TO STA. 234+35 –L– RT

DETAIL #28
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 215+00 TO STA. 217+40 –L– LT

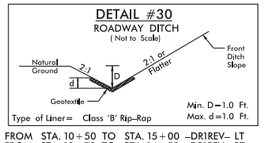
DETAIL #29
PIPE OUTLET CHANNEL
(Not to Scale)



Length=12 Ft.
D=3.0 Ft.
Est.= 15 Tons of Class 'I' Rip-Rap

STA. 189+40 –L– LT

DETAIL #30
ROADWAY DITCH
(Not to Scale)



Type of Liner= Class 'B' Rip-Rap

FROM STA. 10+50 TO STA. 15+00 –DR1REV– LT
FROM STA. 10+70 TO STA. 14+50 –DR1REV– RT
FROM STA. 15+50 TO STA. 16+50 –DR1REV– RT
FROM STA. 10+50 TO STA. 12+80 –DR2REV– RT
FROM STA. 10+50 TO STA. 12+00 –DR2REV– LT
FROM STA. 10+50 TO STA. 16+00 –Y9– LT & RT
FROM STA. 10+84 TO STA. 15+00 –DR3– LT
FROM STA. 11+30 TO STA. 15+00 –DR3– RT
FROM STA. 17+00 TO STA. 19+72 –DR3– RT
FROM STA. 17+00 TO STA. 19+30 –DR3– LT
FROM STA. 10+25 TO STA. 11+55 –DR5– LT
FROM STA. 10+25 TO STA. 11+00 –DR5– RT
FROM STA. 10+50 TO STA. 12+10 –Y13A– RT
FROM STA. 10+50 TO STA. 12+50 –Y13A– LT

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5/14/99

PERMIT DRAWING
SHEET 3 OF 31

Revised 4/6/17

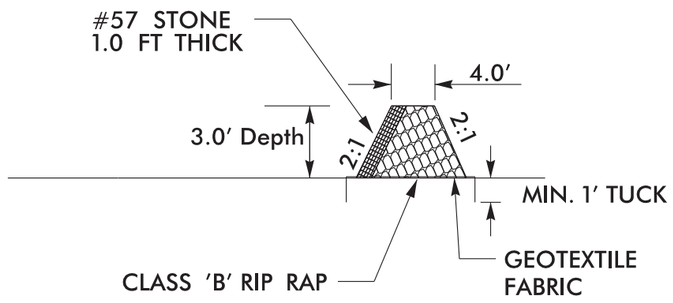
PROJECT REFERENCE NO.	SHEET NO.
R-2915B	2D-2
RW SHEET NO.	

HYDRAULICS ENGINEER

DETAIL #31

FILTER BERM SECTION VIEW

(Not to Scale)



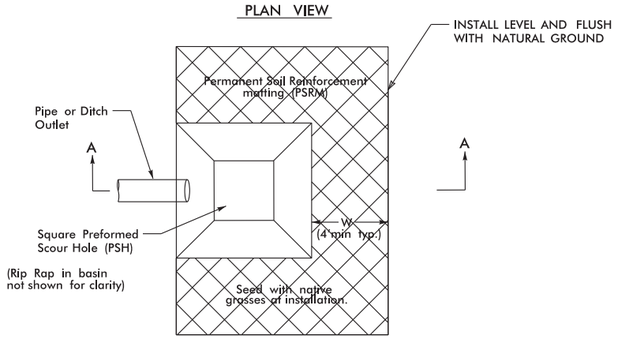
EST 10 TONS #57 STONE
EST 40 TONS CL B RIP RAP
EST 70 SY GEOTEXTILE

STA. 198 + 00 –L– RT

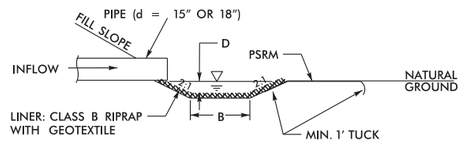
PREFORMED SCOUR HOLE

*NOT TO SCALE

PLAN VIEW



SECTION A–A



STATION	B FT.	D FT.
FOR 15" PIPE	4.0	1.0
165+00 -L- LT	4.0	1.0
171+50 -L- LT	4.0	1.0
200+00 -L- RT	4.0	1.0
204+00 -L- RT	4.0	1.0
206+50 -L- RT	4.0	1.0
211+27 -L- RT	4.0	1.0
216+75 -L- RT	4.0	1.0
221+95 -L- RT	4.0	1.0
231+50 -L- RT	4.0	1.0
232+80 -L- RT	4.0	1.0
238+00 -L- LT	4.0	1.0
FOR 18" PIPE	6.0	1.0
182+30 -L- LT	6.0	1.0

DETAIL #36

(NOT TO SCALE)

SKEWED MULTI–BARREL CULVERT LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN

*NOTES:

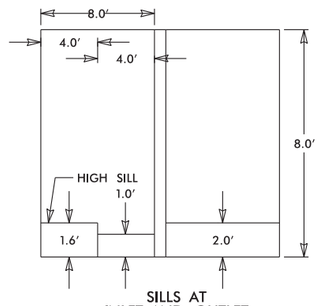
1) NATIVE MATERIAL BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP–RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP–RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

2) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.

3) TOP OF LOW FLOW SILLS/BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)

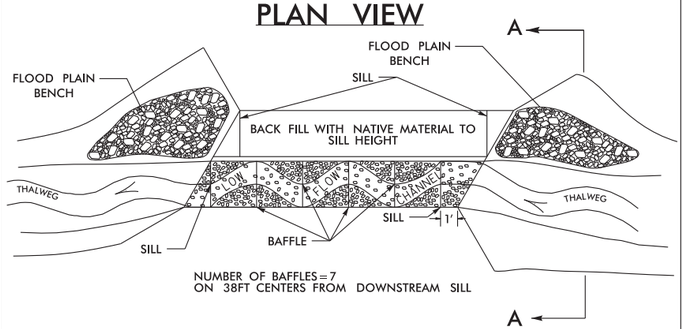
4) DO NOT SET ELEVATION OF HIGH SILL/BAFFLES ABOVE BANK FULL.

5) NUMBER OF SILL/BAFFLES DETERMINED BY THE ENGINEER.



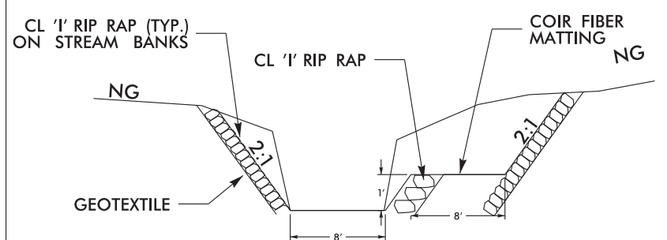
SILLS AT INLET AND OUTLET

PLAN VIEW



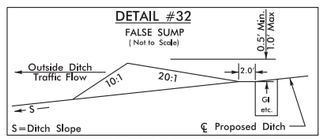
SECTION A–A

INLET AND OUTLET CHANNEL



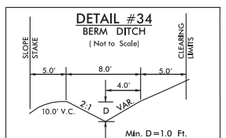
STA. 160 + 40.08 –L– RT
STA. 162 + 28.52 –L– LT

DETAIL #32
FALSE SUMP
(Not to Scale)



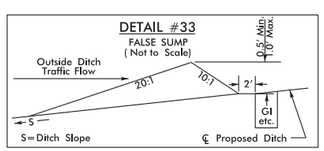
STA. 178 + 63 –L– RT
STA. 182 + 84 –L– RT
STA. 188 + 90 –L– RT
STA. 192 + 15 –L– RT
STA. 195 + 60 –L– RT
STA. 197 + 14 –L– RT
STA. 256 + 75 –DET– LT
STA. 14 + 86 –Y10– LT
STA. 15 + 72 –Y10– LT

DETAIL #34
BERM DITCH
(Not to Scale)



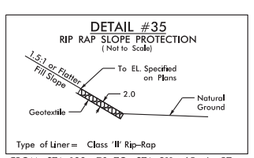
FROM STA. 165 + 45 TO STA. 166 + 05 –L– RT
FROM STA. 170 + 65 TO STA. 171 + 50 –L– RT

DETAIL #33
FALSE SUMP
(Not to Scale)



STA. 167 + 37 –L– RT
STA. 171 + 37 –L– RT
STA. 173 + 87 –L– RT
STA. 201 + 62 –L– LT
STA. 204 + 14 –L– LT
STA. 206 + 64 –L– LT
STA. 252 + 10 –DET– RT
STA. 12 + 90 –Y9– RT
STA. 16 + 10 –Y9– RT
STA. 14 + 32 –DR3– RT

DETAIL #35
RIP RAP SLOPE PROTECTION
(Not to Scale)



FROM STA. 199 + 70 TO STA. 211 + 65 –L– RT
FROM STA. 215 + 50 TO STA. 219 + 20 –L– RT
FROM STA. 221 + 63 TO STA. 223 + 80 –L– RT

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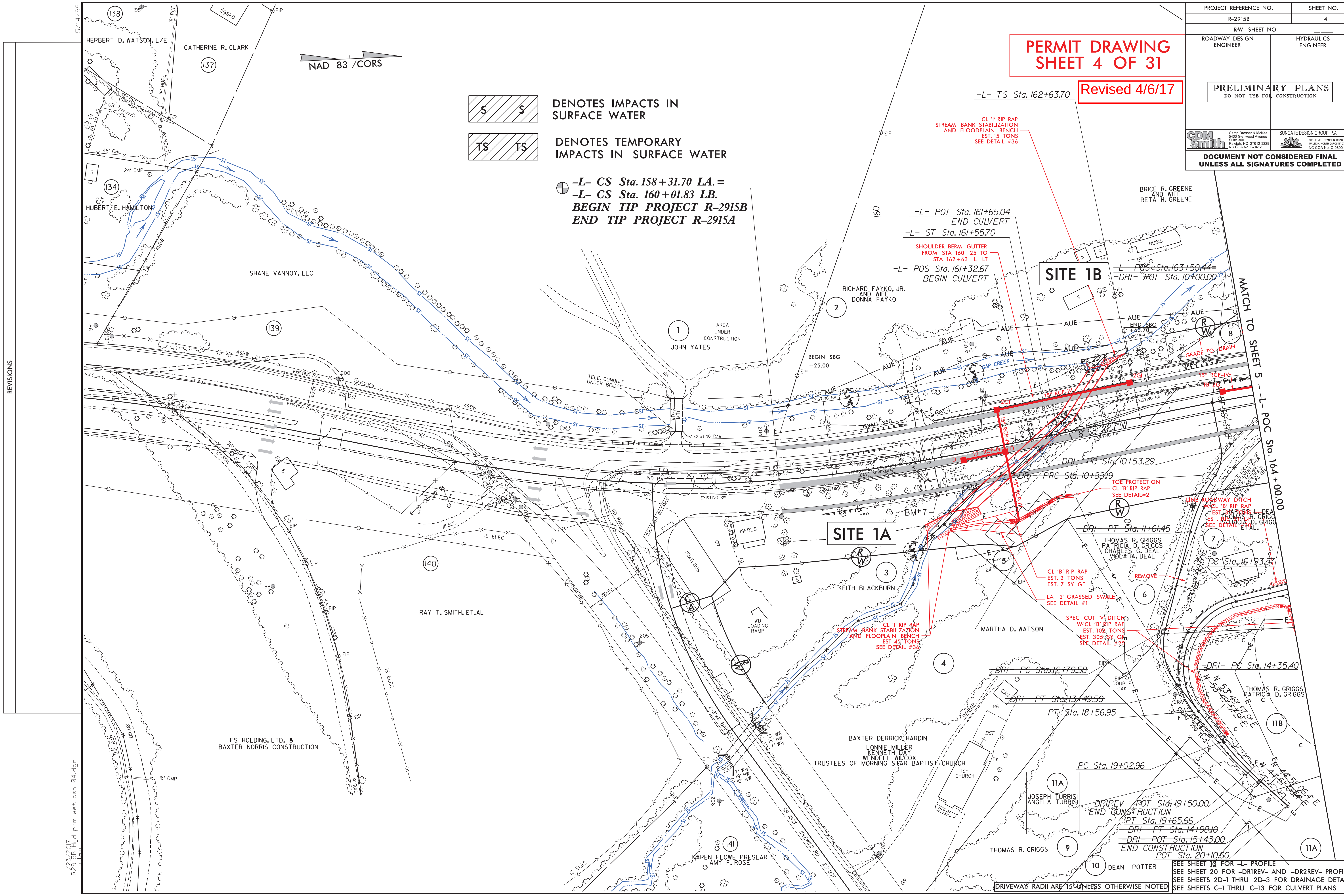
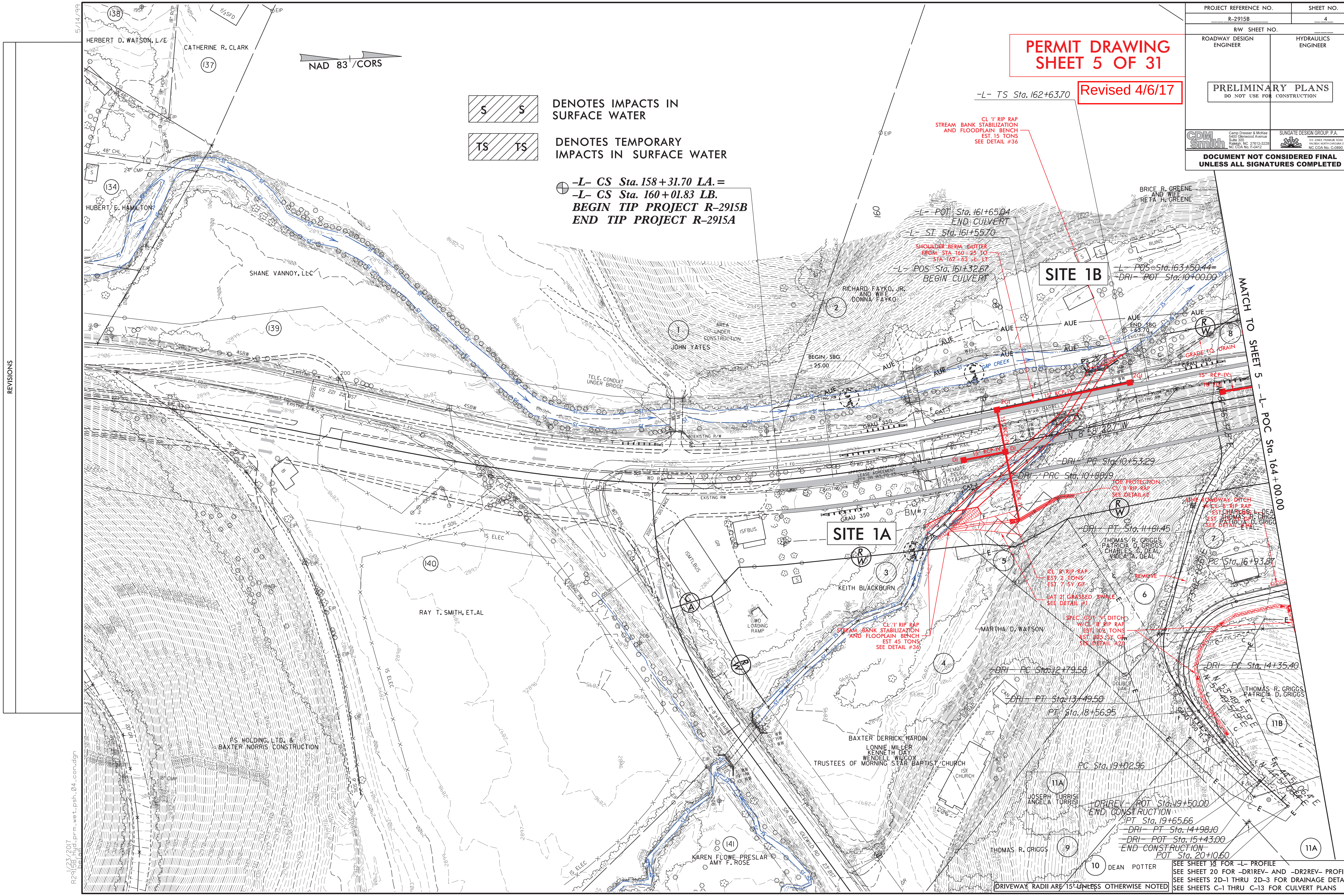


PROJECT REFERENCE NO.
R-2915B
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 4 OF 31
Revised 4/6/17
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-L- CS Sta. 158+31.70 LA.=
-L- CS Sta. 160+01.83 LB.
BEGIN TIP PROJECT R-2915B
END TIP PROJECT R-2915A
NAD 83 /CORS
SITE 1A
SITE 1B
-L- TS Sta. 162+63.70
CL 'I' RIP RAP STREAM BANK STABILIZATION AND FLOODPLAIN BENCH EST. 15 TONS SEE DETAIL #36
-L- POT Sta. 161+65.04
END CULVERT
-L- ST Sta. 161+55.70
SHOULDER BERM GUTTER FROM STA 160+25 TO STA 162+63 -L- LT
-L- POS Sta. 161+32.67
BEGIN CULVERT
-L- POS Sta. 163+50.44=
-DRI- POT Sta. 10+00.00
MATCH TO SHEET 5 -L- POC Sta. 164+00.00
GAP CREEK
2 @ 8'x8' BARRELS
N 8°58'22.7" W
-DRI- PC Sta. 10+53.29
-DRI- PRC Sta. 10+88.19
TOE PROTECTION CL 'B' RIP RAP SEE DETAIL #2
-DRI- PT Sta. 11+61.45
CL 'B' RIP RAP EST. 2 TONS EST. 7 SY GF
LAT 2' GRASSED SWALE SEE DETAIL #1
SPEC CUT 'V' DITCH W/CL 'B' RIP RAP EST. 105 TONS EST. 305 SY GF SEE DETAIL #23
CL 'I' RIP RAP STREAM BANK STABILIZATION AND FLOODPLAIN BENCH EST 45 TONS SEE DETAIL #36
-DRI- PC Sta. 12+79.58
-DRI- PT Sta. 13+49.50
PT Sta. 18+56.95
PC Sta. 19+02.96
-DRI- PC Sta. 14+35.40
-DRIREV- POT Sta. 19+50.00
END CONSTRUCTION
PT Sta. 19+65.66
-DRI- PT Sta. 14+98.10
-DRI- POT Sta. 15+43.00
END CONSTRUCTION
POT Sta. 20+10.60
HERBERT D. WATSON, L/E
CATHERINE R. CLARK
HUBERT E. HAMILTON
SHANE VANNOY, LLC
JOHN YATES
RICHARD FAYKO, JR. AND WIFE DONNA FAYKO
BRICE R. GREENE AND WIFE RETA H. GREENE
KEITH BLACKBURN
MARTHA D. WATSON
THOMAS R. GRIGGS PATRICIA D. GRIGGS CHARLES G. DEAL VIOLA A. DEAL
RAY T. SMITH, ET.AL
FS HOLDING, LTD. & BAXTER NORRIS CONSTRUCTION
BAXTER DERRICK HARDIN LONNIE MILLER KENNETH DAY WENDELL WILCOX TRUSTEES OF MORNING STAR BAPTIST CHURCH
JOSEPH TURRISI ANGELA TURRISI
THOMAS R. GRIGGS
DEAN POTTER
KAREN FLOWE PRESLAR AMY F. ROSE
THOMAS R. GRIGGS PATRICIA D. GRIGGS
DRIVEWAY RADII ARE 15' UNLESS OTHERWISE NOTED
SEE SHEET 13 FOR -L- PROFILE
SEE SHEET 20 FOR -DR1REV- AND -DR2REV- PROFILE
SEE SHEETS 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS
SEE SHEETS C-1 THRU C-13 FOR CULVERT PLANS
REVISIONS


PROJECT REFERENCE NO.
R-2915B
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CDM Smith
Camp Dresser & McKee
5400 Glenwood Avenue
Suite 300
Raleigh, NC 27612-3228
NC COA No. F-0412
SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
NC COA No. C-0890
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 5 OF 31
Revised 4/6/17
REVISIONS
5/14/99
NAD 83 /CORS
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-L- CS Sta. 158+31.70 LA. =
-L- CS Sta. 160+01.83 LB.
BEGIN TIP PROJECT R-2915B
END TIP PROJECT R-2915A
-L- TS Sta. 162+63.70
CL 'I' RIP RAP
STREAM BANK STABILIZATION
AND FLOODPLAIN BENCH
EST. 15 TONS
SEE DETAIL #36
-L- POT Sta. 161+65.04
END CULVERT
-L- ST Sta. 161+55.70
SHOULDER BERM GUTTER
FROM STA 160+25 TO
STA 162+63 -L- LT
-L- POS Sta. 161+32.67
BEGIN CULVERT
SITE 1B
-L- POS Sta. 163+50.44=
-DRI- POT Sta. 10+00.00
MATCH TO SHEET 5 -L- POC Sta. 164+00.00
BRICE R. GREENE
AND WIFE
RETA H. GREENE
RUINS
RICHARD FAYKO, JR.
AND WIFE
DONNA FAYKO
JOHN YATES
AREA UNDER CONSTRUCTION
BEGIN SBG
+25.00
END SBG
+63.70
GAP CREEK
GRADE TO DRAIN
15" RCP-IV
2GI
2-8'x8' BARRELS
N 8° 58' 22.7" W
DI
-DRI- PC Sta. 10+53.29
-DRI- PRC Sta. 10+88.19
TOE PROTECTION
CL 'B' RIP RAP
SEE DETAIL #2
LINE ROADWAY DITCH
W/CL 'B' RIP RAP
EST. 15 TONS
EST. 105 SY GF
SEE DETAIL #30
-DRI- PT Sta. 11+61.45
THOMAS R. GRIGGS
PATRICIA D. GRIGGS
CHARLES G. DEAL
VIOLA A. DEAL
CHARLES L. DEAL
ETAL.
-DRI- PC Sta. 16+93.87
REMOVE
SITE 1A
CL 'B' RIP RAP
EST. 2 TONS
EST. 7 SY GF
LAT 2' GRASSED SWALE
SEE DETAIL #1
SPEC CUT 'V' DITCH
W/CL 'B' RIP RAP
EST. 102 TONS
EST. 305 SY GF
SEE DETAIL #23
CL 'I' RIP RAP
STREAM BANK STABILIZATION
AND FLOOPLAIN BENCH
EST 45 TONS
SEE DETAIL #36
KEITH BLACKBURN
MARTHA D. WATSON
-DRI- PC Sta. 12+79.58
-DRI- PT Sta. 13+49.50
PT Sta. 18+56.95
-DRI- PC Sta. 14+35.40
N 53° 49' 57.9" E
THOMAS R. GRIGGS
PATRICIA D. GRIGGS
BAXTER DERRICK HARDIN
LONNIE MILLER
KENNETH DAY
WENDELL WILCOX
TRUSTEES OF MORNING STAR BAPTIST CHURCH
PC Sta. 19+02.96
JOSEPH TURRISI
ANGELA TURRISI
-DRIREV- POT Sta. 19+50.00
END CONSTRUCTION
PT Sta. 19+65.66
-DRI- PT Sta. 14+98.10
-DRI- POT Sta. 15+43.00
END CONSTRUCTION
POT Sta. 20+10.60
N 44° 51' 06.4" E
THOMAS R. GRIGGS
DEAN POTTER
HERBERT D. WATSON, L/E
CATHERINE R. CLARK
HUBERT E. HAMILTON
SHANE VANNOY, LLC
US 221 22' BST
TELE. CONDUIT UNDER BRIDGE
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KAREN FLOWE PRESLAR
AMY F. ROSE
SR 1003 IDLEWILD RD 23' BST
WD LOADING RAMP
SEE SHEET 13 FOR -L- PROFILE
SEE SHEET 20 FOR -DR1REV- AND -DR2REV- PROFILE
SEE SHEETS 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS
SEE SHEETS C-1 THRU C-13 FOR CULVERT PLANS
DRIVEWAY RADII ARE 15' UNLESS OTHERWISE NOTED
1/23/2017
R2915B_Hyd_prm_wet_psh_04_con.dgn
belam

PROJECT REFERENCE NO.	SHEET NO.
R-2915B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CDM Smith — Cairo Dresser & McKee, 5400 Glenwood Avenue, Suite 300, Raleigh, NC 27612-3228, NC COA No. F-0412

SUNGATE DESIGN GROUP, P.A. — 915 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606, NC COA No. C-0990

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 7 OF 31

Revised 4/6/17

5/14/99

REVISIONS

NAD 83 /CORS

T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

MATCH TO SHEET 4 -L- POC Sta. 164+00.00

MATCH TO SHEET 6 -L- POC Sta. 177+00.00

MATCH TO SHEET 6 -Y9- POC Sta. 15+00.00

-L- SC Sta. 165+69.70

-L- CS Sta. 166+59.74

-L- POS Sta. 167+00.00

-DR2- POT Sta. 10+00.00

-L- SRS Sta. 169+65.74

-L- POS Sta. 170+11.24=

-DRIREV- POT Sta. 10+00.00

-L- SC Sta. 172+71.74

-L- POC Sta. 174+55.08=

-Y9- POT Sta. 10+00.00

RICHARD FAYKO, JR. AND WIFE DONNA FAYKO

3' TAIL DITCH W/CL 'I' RIP RAP
EST. DDE=20 CY
EST. 11 TONS
EST. 22 SY GF
SEE DETAIL #3

BRICE R. GREENE AND WIFE RETA H. GREENE

CATHERINE GREEN

GAP CREEK

SHOULDER BERM GUTTER
STA. 170+50 TO STA 182+75 -L- LT

CL 'I' RIP RAP
EST 11 TONS
EST. 22 SY GF

SITE 2

SITE 4

SITE 5

SITE 3

PDE PSH SEE DETAIL SHEET 2D-2

GRADE TO DRAIN

REMOVE US 221 2I' BST

INSTALL 15" RCP W/ 2 ELBOWS

ACCESS PT.

BEGIN SBG +45.25

15" W/ 2 ELBOWS

SPECIAL DITCH GRADE
STA. 164+30 TO 166+00 -L- RT
SEE PROFILE

LINE ROADWAY DITCH
W/CL 'B' RIP RAP
SEE DETAIL #30

CHARLES L. DEAL
THOMAS R. GRIGGS
PATRICIA D. GRIGGS ET AL

TOE PROTECTION
CL 'B' RIP RAP
SEE DETAIL #2

CHARLES COOK AND WIFE ANITA COOK

PC Sta. 10+21.06

PT Sta. 11+15.69

-DR2- PC Sta. 11+21.48

LINE ROADWAY DITCH
W/CL 'B' RIP RAP
EST. 290 TONS
EST. 870 SY GF
SEE DETAIL #30

-Y9- PC Sta. 10+55.24

FS
SEE DETAIL #33

BERM DITCH
W/CL 'I' RIP RAP
EST. 46 TONS
EST. 165 SY GF
SEE DETAIL #11

DEBORAH BROWN

-Y9- PT Sta. 11+49.53

BERM DITCH
SEE DETAIL #34

-Y9- PC Sta. 12+55.49

LINE ROADWAY DITCH
W/CL 'B' RIP RAP
EST. 540 TONS
EST. 1600 SY GF
SEE DETAIL #30

EDWIN C. INGLE

-Y9- PT Sta. 13+92.44

DUSTIN N. STACY AND WIFE, SHARON B. STACY

DANNY L. WEST

BLACK DOG ASSOCIATES, LLC

THOMAS R. GRIGGS

PC Sta. 12+31.89

SPEC CUT 'V' DITCH
W/CL 'B' RIP RAP
EST. 33 TONS
EST. 98 SY GF
SEE DETAIL #25

BAXTER DERRICK HARDIN

-DR2- PRC Sta. 11+93.20

LINE ROADWAY DITCH
W/CL 'B' RIP RAP
EST. 192 TONS
EST. 398 SY GF
SEE DETAIL #30

PRC Sta. 12+14.73

RETAIN

RICHARD TERRY GREENE, ET AL

DRIREV POT Sta. 16+25.00

DR2REV POT Sta. 10+00.00

-DR2- PT Sta. 14+59.21

-DR2- POT Sta. 14+90.00

END CONSTRUCTION

-DR2REV- POC Sta. 12+80.51

END CONSTRUCTION

-DR2- POT Sta. 15+06.93

JOSEPH TURRISI
ANGELA TURRISI

N 81° 52' 07.2" E

PT Sta. 12+82.62

(1) N 79° 11' 21.2" E

THORNBROOK TREES, LLC

N 53° 23' 06.7" E

N 65° 04' 39.6" W

SEE SHEET 13 FOR -L- PROFILE
SEE SHEET 17 FOR -Y9- PROFILE
SEE SHEET 20 FOR -DR1REV- AND -DR2REV- PROFILE
SEE SHEETS 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS

DRIVEWAY RADII ARE 15' UNLESS NOTED OTHERWISE

4/4/2017
R2915B_Hyd_prm_wet_psh_05.dgn
bellard

PROJECT REFERENCE NO.	SHEET NO.
R-2915B	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 200, Raleigh, NC 27612-3238, NC COA No. F-0412
SUNGATE DESIGN GROUP, P.A., 915 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606, NC COA No. C-0890

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 8 OF 31

Revised 4/6/17

REVISIONS 5/14/99

NAD 83 /CORS

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

SITE 2
SITE 3
SITE 4
SITE 5

-L- POC Sta. 164+00.00
MATCH TO SHEET 4 -L- POC Sta. 164+00.00
-L- POC Sta. 177+00.00
MATCH TO SHEET 9 -L- POC Sta. 177+00.00
-Y9- POT Sta. 15+00.00
MATCH TO SHEET 9 -Y9- POT Sta. 15+00.00

-L- SC Sta. 165+69.70
-L- CS Sta. 166+59.74
-L- POS Sta. 167+00.00
DR2 POT Sta. 10+00.00
-L- SRS Sta. 169+65.74
-L- POS Sta. 170+11.24=
DR1REV- POT Sta. 10+00.00
-L- SC Sta. 172+71.74
-L- POC Sta. 174+55.08=
-Y9- POT Sta. 10+00.00
PC Sta. 10+21.08
PT Sta. 11+15.69
DR2 PC Sta. 11+21.48
DR2 PRC Sta. 11+93.20
PRC Sta. 12+14.73
DR1REV POT Sta. 16+25.00
DR2REV POT Sta. 10+00.00
DR2 PT Sta. 14+59.21
DR2 POT Sta. 14+90.00
END CONSTRUCTION
-DR2REV- POC Sta. 12+80.51
END CONSTRUCTION
DR2 POT Sta. 15+06.93
PT Sta. 12+82.62
-Y9- PC Sta. 10+55.24
-Y9- PT Sta. 11+49.53
-Y9- PC Sta. 12+55.49
-Y9- PT Sta. 13+92.44

RICHARD FAYKO, JR. AND WIFE DONNA FAYKO
CATHERINE GREEN
BRICE R. GREENE AND WIFE RETA H. GREENE
CHARLES L. DEAL, THOMAS R. GRIGGS, PATRICIA D. GRIGGS ETAL
CHARLES COOK AND WIFE ANITA COOK
THOMAS R. GRIGGS AND PATRICIA D. GRIGGS
BAXTER DERRICK HARDIN
RICHARD TERRY GREENE, ET AL
JOSEPH TUF AND ANGELA TUF
DEBORAH BROWN
BLACK DOG ASSOCIATES, LLC
EDWIN C. INGLE
DANNY L. WEST
DUSTIN N. STACY AND WIFE SHARON B. STACY
THORNBROOK TREES, LLC

3' TAIL DITCH W/CL 'I' RIP RAP EST. D1250 20 CY EST. 11 TONS EST. 22 SY GF SEE DETAIL #3
SHOULDER BERM GUTTER STA. 170+50 TO STA 182+75 -L- LT
CL 'I' RIP RAP EST 11 TONS EST. 22 SY GF
PDE PSH1 SEE DETAIL SHEET 2D-2
PSH SEE DETAIL SHEET 2D-2
GRADE TO DRAIN
REMOVE US 221 2F BST
REMOVE
SPECIAL DITCH GRADE STA. 164+90 TO 166+90 -L- RT SEE PROFILE
LINE ROADWAY DITCH W/CL 'B' RIP RAP SEE DETAIL #30
LINE ROADWAY DITCH W/CL 'B' RIP RAP EST. 290 TONS EST. 870 SY GF SEE DETAIL #30
TOE PROTECTION CL 'B' RIP RAP SEE DETAIL #2
CUT DITCH W/CL 'B' RIP RAP EST. 330 TONS EST. 28 SY GF SEE DETAIL #25
BERM DITCH W/CL 'I' RIP RAP EST. 46 TONS EST. 165 SY GF SEE DETAIL #31
BERM DITCH SEE DETAIL #34
SIDE ROADWAY DITCH W/CL 'B' RIP RAP EST. 640 TONS EST. 1810 SY GF SEE DETAIL #30
FS SEE DETAIL #33
FS SEE DETAIL #39
BDO
SPRING BOX
ACCESS EASEMENT, OVER TYPED ROUTE WIDTH UNDEFINED SEE DETAIL #35
24" W/ELBOW
15" W/ 2 ELBOWS
RETAIN
ACCESS PT.
BEGIN SBG SHEET 2D-2 45.25
Possible Spring
ROCK RW
BROKEN STONE
ISFD
ISFBUS
SOIL
GAP CREEK

DRIVEWAY RADII ARE 15' UNLESS NOTED OTHERWISE

SEE SHEET 13 FOR -L- PROFILE
SEE SHEET 17 FOR -Y9- PROFILE
SEE SHEET 20 FOR -DR1REV- AND -DR2REV- PROFILE
SEE SHEETS 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS

4/4/2017
R2915B_Hyd_prm_wet_psh_05_con.dgn
bellamy

PROJECT REFERENCE NO.	SHEET NO.
R-2915B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 9 OF 31

Revised 4/6/17

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 30, Raleigh, NC 27612-3238, NC COA No. F-0412

SUNGATE DESIGN GROUP, P.A., 101 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606, NC COA No. C-0850

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

NAD 83 / CORS

MILLER PROPERTIES OF ASHE, LLC, CHARLES F. PRITCHARD (21)

-L- CS Sta. 178+39.62

SITE 6

CATHERINE GREEN (17)

CL 'I' RIP RAP EST. 7 TONS EST. 15 SY GF

-L- ST Sta. 181+45.62

SHOULDER BERM GUTTER FROM STA 170+50 TO STA 182+75 -L- LT

LAT 6' GRASSED SWALE W/COIR FIBER MATTING EST. 340 SY SEE DETAIL #6

SITE 7

PSH SEE DETAIL SHEET 2D-2

PDE

ACCESS PT

END SBG +77.75

-L- TS Sta. 185+41.14

-L- SC Sta. 188+47.14

-L- POS Sta. 188+09.10=
-DR3- POT Sta. 10+00.00

SITE 8

CL 'B' RIP RAP EST. 1 TON EST. 5 SY GF

15" CSP W/ELBOW

REMOVE

CL 'I' RIP RAP (BANKS ONLY) SEE DETAIL #29

SITE 9

36" RCP-III

SPECIAL EXTRA DEPTH 36" JUNCTION BOX SEE SHEET 2C-6

GAP CREEK

MATCH TO SHEET 5 -L- POC Sta. 177+00.00

MATCH TO SHEET 7 -L- POC Sta. 190+00.00

US 221 22' BST

N 34° 48' 05.0" W

-DR3- PC Sta. 10+54.16

JAMES D. ALEXANDER, DONNA J. ALEXANDER (22)

JONATHAN ROY COLLINS, LYNN IRISH (19)

FS SEE DETAIL #32

BLACK DOG ASSOCIATES, LLC

LINE ROADWAY DITCH W/CL 'B' RIP RAP EST. 540 TONS EST. 1600 SY GF SEE DETAIL #30

2' BASE DITCH W/CL 'I' RIP RAP EST. DDE=110 CY EST. 70 TONS EST. 120 SY GF SEE DETAIL #5

(16)

MATCH TO SHEET 5 -Y9- POT Sta. 15+00.00

N 25° 04' 38.6" W

TURRISI TRAIL 18' BST

72" ROCK WALL

-Y9- POT Sta. 16+90.08
END CONSTRUCTION

LINE EXTG DITCH W/CL 'B' RIP RAP EST. 40 TONS EST. 80 SY GF

SPECIAL CUT DITCH W/CL 'B' RIP RAP SEE DETAIL #4

DUSTIN N. STACY AND WIFE, SHARON B. STACY (16B)

RODNEY C. OLIVER, MILLICENT J. OLIVER (18)

EDWARD PHILLIPS (20)

GLENN MISINCO (16C)

CARTER D. RANDALL, JEANNIE C. RANDALL (15B)

-DR3- PRC Sta. 12+02.77
-DR3- POC Sta. 11+16.30=
-DR3B- POT Sta. 10+00.00
-DR3B- PC Sta. 10+81.99
-DR3B- PT Sta. 11+31.74

-DR3B- POT Sta. 12+57.84

-DR3B- POT Sta. 12+35.00
END CONSTRUCTION

RICHARD E. WATSON, LISA H. WATSON (23)

LINE ROADWAY DITCH W/CL 'B' RIP RAP EST. 275 TONS EST. 800 SY GF SEE DETAIL #30

GARY F. TAYLOR, VICKIE TAYLOR (24)

S 64° 49' 06.1" E

SEE SHEET 14 FOR -L- PROFILE
SEE SHEET 17 FOR -Y9- PROFILE
SEE SHEET 21 FOR -DR3- PROFILE
SEE SHEET 21 FOR -DR3B- PROFILE
SEE SHEET 2B-1 FOR U-TURN BULB DETAILS
SEE SHEET 2C-G FOR EXTRA DEPTH BOX DETAIL
SEE SHEETS 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS
DRIVEWAY RADII ARE 15' UNLESS NOTED OTHERWISE

REVISIONS

01/31/14 – R/W REVISIONS: UPDATED PROPERTY OWNER NAMES AND DEED REFERENCES ON PARCELS 16, 20 AND 21; SUBDIVIDED PARCEL 16 CREATING PARCELS 16, 16B AND 16C. – PJS
09/08/14 – R/W REVISIONS: UPDATING THE PROPERTY LINES ON PARCEL 16C; CREATED PARCELS 15A; UPDATED PROPERTY OWNER NAME AND DEED REFERENCE ON PARCEL 21. – DJC
04/10/15 – R/W REVISIONS: REVISED THE PROPOSED R/W AND TCE ON PARCEL 23. – CJT
05/2015 – R/W REVISIONS: UPDATED PROPERTY OWNER NAMES AND DEED REFERENCE ON PARCEL 16B. – DJC

5/14/99

4/4/2017
R-2915B_Hyd_prm_wet_psh_06.dgn
tsyam

PERMIT DRAWING
SHEET 10 OF 31

Revised 4/6/17

PROJECT REFERENCE NO.	SHEET NO.
R-2915B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CDM Smith — Camp Dresser & McKee, 5400 Glenwood Avenue, Suite 300, Raleigh, NC 27612-3228, NC COA No. F-0412

SUNGATE DESIGN GROUP, P.A., 915 JONES FRANKLIN ROAD, RALEIGH, NORTH CAROLINA 27606, NC COA No. C-0890

S S DENOTES IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

NAD 83 / CORS

SITE 6

SITE 7

SITE 8

SITE 9

-L- CS Sta. 178+39.62

-L- ST Sta. 181+45.62

-L- TS Sta. 185+41.14

-L- SC Sta. 188+47.14

-L- POS Sta. 188+09.10=
-DR3- POT Sta. 10+00.00

-DR3- PC Sta. 10+54.16

-DR3- PRC Sta. 12+02.77

-DR3- POC Sta. 11+16.30=
-DR3B- POT Sta. 10+00.00

-DR3B- PC Sta. 10+81.99

-DR3B- PT Sta. 11+31.74

-DR3B- POT Sta. 12+57.84

-DR3B- POT Sta. 12+35.00
END CONSTRUCTION

-Y9- POT Sta. 16+90.08
END CONSTRUCTION

MATCH TO SHEET 5 -L- POC Sta. 177+00.00

MATCH TO SHEET 5 -Y9- POT Sta. 15+00.00

MATCH TO SHEET 7 -L- POC Sta. 190+00.00

CATHERINE GREEN 17

MILLER PROPERTIES OF ASHE, LLC
CHARLES F. PRITCHARD 21

JAMES O. ALEXANDER
DONNA J. ALEXANDER 22

JONATHAN ROY COLLINS
TERRY LYNN IRISH 19

BLACK DOG ASSOCIATES, LLC 16

GARY L. TAYLOR
MICHELE TAYLOR 24

RICHARD E. WATSON
LISA H. WATSON 23

DUSTIN N. STACY
AND WIFE
SHARON B. STACY 16B

RODNEY C. OLIVER
MILLICENT J. OLIVER 18

EDWARD PHILLIPS 20

GLENN MISINCO 16C

CARTER D. RANDALL
JEANNIE C. RANDALL 15B

CL 'I' RIP RAP
EST. 7 TONS
EST. 15 SY GF

SHOULDER BERM GUTTER
FROM STA 170+50 TO
STA 182+75 -L- LT

LT 6' GRASSED SWALE
W/COIR FIBER MATTING
EST. 340 SY
SEE DETAIL #6

PSH
SEE DETAIL
SHEET 2D-2

PDE

ACCESS PT 1

CL 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GF

36" RCP III
SPECIAL EXTRA
DEPTH 34"
JUNCTION BOX
SEE SHEET 2C-6

CL 1 RIP RAP
(BANKS ONLY)
SEE DETAIL #29

ONE ROADWAY DITCH
W/CL 'B' RIP RAP
EST. 240 TONS
EST. 1020 SY GF
SEE DETAIL #30

2' BASE DITCH
W/CL 'I' RIP RAP
EST. DDE 110 CY
EST. 70 TONS
EST. 120 SY GF
SEE DETAIL #5

TURRISTRIAL 18' BST

72" ROCK WALL

12' BST

TINE EXTG. DITCH
W/CL 'B' RIP RAP
EST. 40 TONS
EST. 80 SY GF

SPECIAL CUT DITCH
W/CL 'B' RIP RAP
SEE DETAIL #4

ONE ROADWAY DITCH
W/CL 'B' RIP RAP
EST. 375 TONS
EST. 800 SY GF
SEE DETAIL #30

N 34° 48' 05.0" W

N 25° 04' 38.5" W

REMOVE

SEE DETAIL #32

SEE DETAIL #33

SEE DETAIL #30

SEE DETAIL #29

SEE DETAIL #34

SEE SHEET 14 FOR -L- PROFILE
SEE SHEET 17 FOR -Y9- PROFILE
SEE SHEET 21 FOR -DR3- PROFILE
SEE SHEET 21 FOR -DR3B- PROFILE
SEE SHEET 2B-1 FOR U-TURN BULB DETAILS
SEE SHEET 2C-G FOR EXTRA DEPTH BOX DETAIL
SEE SHEETS 2D-1 THRU 2D-3 FOR DRAINAGE DETAILS
DRIVEWAY RADII ARE 15' UNLESS NOTED OTHERWISE

REVISIONS

01/3/14 - R/W REVISIONS: UPDATED PROPERTY OWNER NAMES AND DEED REFERENCES ON PARCELS 16, 20 AND 21; SUBDIVIDED PARCEL 16 CREATING PARCELS 16, 16B AND 16C. - PJS

09/08/14 - R/W REVISIONS: UPDATING THE PROPERTY LINES ON PARCEL 16C, CREATED PARCELS 15A; UPDATED PROPERTY OWNER NAME AND DEED REFERENCE ON PARCEL 21. - DJC

04/10/15 - R/W REVISIONS: REVISED THE PROPOSED R/W AND TCE ON PARCEL 23 - CJT

05/2015 - R/W REVISIONS: UPDATED PROPERTY OWNER NAMES AND DEED REFERENCE ON PARCEL 16B - DJC

5/14/99

4/4/2017
R2915B_Hyd_prm_wet_psh_06_con.dgn
default

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1A	159+80 / 160+40 -L- RT	BANK STABILIZATION (TRIB.)						0.01	< 0.01	44	21	
	160+40 / 161+80 -L-	CULVERT (TRIB.)						0.05		170		
1B	162+15 / 162+30 -L- LT	CULVERT (GAP CREEK)						< 0.01	< 0.01	15	6	
	162+15 / 162+65 -L- LT	BANK STABILIZATION (GAP CREEK)						< 0.01		35		
2	165+73 -L-	BDO / 30" RCP						< 0.01		5		
	166+00 -L- LT	TAIL DITCH						< 0.01		29		
3	15+32 / 15+00 -DR1REV-	24" PIPE						< 0.01		71		
4	172+58 / 172+85 -L- LT	12" RCP	< 0.01	0.15		< 0.01						
5	174+00 -L- LT	30" CSP	< 0.01									
6	178+50 -L- LT	24" CSP	< 0.01									
7	180+00 / 182+00 -L- LT	ROAD FILL	0.05		0.03							
8	186+21 / 186+43 -L- LT	ROAD FILL	< 0.01			< 0.01						
9	187+63 / 189+15 -L-	36" RCP						0.01		124		
	189+35 / 189+45 -L- LT	BANK STABILIZATION						< 0.01		23		
10	197+20 / 198+90 -L-	BANK STABILIZATION						0.02		154		
	198+80 / 198+90 -L-	WORKPAD / CULVERT REMOVAL							0.02		57	
11	207+00 / 207+05 -L- RT	ROAD FILL	< 0.01			< 0.01						
12	208+72 / 209+51 -L- RT	ROAD FILL	0.12			< 0.01						
13	209+23 -L- LT	24" Pipe						< 0.01	< 0.01	52	8	
14	210+01 / 210+36 -L- LT	ROAD FILL			0.01	< 0.01						
15	215+54 / 217+43 -L- RT	ROAD FILL	0.14			0.05						
16	217+48 -L- LT	60" RCP						< 0.01		27		
	217+45 -L- LT	BANK STABILIZATION						< 0.01		9		
SUBTOTALS*:			0.32	0.15	0.04	0.06		0.12	0.03	758	92	

*Rounded totals are sum of actual impacts

NOTES:
Site 10: Total Permanent Pier Impacts = 25.1 SF = 0.0006 AC
Site 15: Fill Imapcts = 0.14 ac, Mechanized Clearing Impacts=0.013, Total Take Impacts=0.036

Revised 4/6/17

ATN Revised 3/12/13

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
4-4-2017
R-2915B ASHE COUNTY
ON US 221 FROM SR 1003 (IDLEWILD RD)
TO NORTH OF SOUTH FORK NEW RIVER

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
17	217+22 / 217+75 -L- RT	BANK STABILIZATION						< 0.01		54		
18	222+55 / 222+83 -L- RT	BANK STABILIZATION						< 0.01		53		
19	241+75 / 243+25 -L-	WORK PAD							0.12		115	
20	242+41 / 242+54 -L- RT	BANK STABILIZATION						< 0.01		19		
21	243+31 / 243+46 -L- LT	BANK STABILIZATION						< 0.01		20		
SUBTOTALS*:								0.02	0.12	146	115	
SUBTOTALS FROM PAGE 1*:			0.32	0.15	0.04	0.06		0.12	0.03	758	92	
TOTALS*:			0.32	0.15	0.04	0.06		0.14	0.15	904	207	

*Rounded totals are sum of actual impacts

NOTES:
Site 19: Total Permanent Pier Impacts = 150.8 SF = 0.003 AC

Revised 4/6/17

ATN Revised 3/12/13

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
4-4-2017
R-2915B ASHE COUNTY
ON US 221 FROM SR 1003 (IDLEWILD RD)
TO NORTH OF SOUTH FORK NEW RIVER