



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

July 9, 2009

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

ATTN: Mr. Eric Alsmeyer
NCDOT Coordinator, Division 5

Subject: **Application for Modification to Section 404 Nationwide Permits 23 and 13, Section 401 Water Quality Certification, and Neuse Riparian Buffer Authorization** for the replacement of Bridge No. 143 over Beaverdam Creek on SR 2217 (Old Milburnie Road), Wake County. Federal Aid Project Number BRZ-2217(1), WBS No. 33641.1.1, State Project No. 8.2409501, Division 5, T.I.P No. B-4304.

References: Section 404 Nationwide (NW) Permit Numbers 23 and 13, issued September 17, 2008, USACE Action ID 200420510
Section 401 General Water Quality Certification and Neuse Riparian Buffer Authorization, issued February 22, 2008, NCDENR-DWQ Water Quality Certification Project No. 20081227.

\$570.00 Debit from WBS Element 33641.1.1.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 143 over Beaverdam Creek. The existing bridge is currently in poor condition (bridge sufficiency rating of 4.0 out of 100) and in need of replacement. The replacement of this inadequate structure will result in safer, more efficient traffic operations.

The purpose of this submittal is to request a modification to the Section 404 permit, Section 401 Water Quality Certification, and Neuse Riparian Buffer Authorization for B-4304. Please see the enclosed copies of the revised permit drawing sheets 6 and 7 of 9, revised Neuse Buffer impact drawing sheet 7 of 7, and revised summary tables for the above-referenced project.

The revised design does not compromise NCDOT's compliance with the existing permit conditions. The revision has been evaluated for compliance with the avoidance/minimization criteria and is in compliance with all previous issues, including the following:

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-431-2000

FAX: 919-431-2001

WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 Atlantic Ave.,
Suite 116
Raleigh, NC 27604

- Protected Species
- Aquatic Life passage
- FEMA compliance
- Cultural Resources

Summary of Changes to Jurisdictional Impacts

Changes in impacts at Sites 1 and 2 result in an increase of 10 linear feet of permanent stream impacts from the original permit. The total revised permanent stream impacts are 170 linear feet (160 linear feet in original permit). Wetland excavation impacts were increased by 0.01 acres from 0.18 acres to 0.19 acres. Wetland mechanized clearing impacts were decreased by 0.01 acres from 0.26 acres to 0.25 acres. The total permanent riparian wetland impacts (0.92 acres) still remain the same. The stream and wetland impact changes are described in detail per site below.

Site 1: Equalizer pipe located at Station 21+20 -L-

Permit drawings have been revised to depict rip rap on natural ground at inlet and outlet of the equalizer pipe. Installation of the rip rap will require excavation in wetland. Accordingly, these impacts on Stream/Wetland Permit Drawings have been revised from mechanized clearing in wetland to excavation in wetland at the rip rap. The original permit drawings (Stream/Wetland Permit Drawing Sheets 6 and 7 of 9 and Buffer Permit Drawing Sheet 7 of 7) depict no rip rap at the inlet or outlet of the pipe.

Site 2: 36 inch pipe structure at 14+36 Lt/Rt -Y1-

The original permit drawings (Stream/Wetland Permit Drawing Sheets 6 and 7 of 9 and Buffer Permit Drawing Sheet 7 of 7) depict a 36 inch pipe structure that will be collared and extended. A recent recalculation of impacts indicates that an additional 10 linear feet of permanent existing perennial stream impacts may be necessary for bank stabilization activities associated with the pipe extension. The original Stream/Wetland Permit Drawing Sheets 6 and 7 of 9 only indicate a mechanized clearing impact at this pipe structure. Extension and collaring of the pipe structure will instead require excavation in wetland. Permit drawings have been revised to depict wetland excavation (<0.01 acres) in lieu of mechanized clearing at the 36 inch pipe structure.

Summary of Changes to Neuse Buffer Impacts

Site 2: Permitted footprint of buffer impacts near Station 13+70 to 15+00 Lt/Rt -Y1-

The original Buffer Permit Drawing Sheet 7 of 7 did not accurately depict the footprint necessary to construct the project at this location. The buffer permit drawing has been revised to cover the anticipated construction activities and the outer boundary of buffer impact is now consistent with the outer boundary of wetland impact. This results in an increase in Neuse buffer impact (Road Crossing: Exempt) of 598 square feet in Zone 1 (897 square feet in original permit) and 209 square feet in Zone 2 (604 square feet in original permit) compared to the original permit (Table 1).

Table 1. Neuse River Buffer Impacts

Type of Impact	Bridge	Road Crossing	Road Crossing	Road Impacts Other Than Crossings
Mitigation requirements	Allowable	Exempt	Allowable with Mitigation	Allowable with Mitigation
Zone 1 Impacts (sq. ft)	8,066	1495	348	148
Zone 2 Impacts (sq. ft)	1,369	813	3,572	464
Total (sq. ft)	9,435	2,308	3,920	612

The wetland impact in the buffer impact area has increased by 545 square feet in Zone 1 and 210 square feet in Zone 2 compared to the original permit (Revised Wetlands in Buffer Impact Summary Table). No mitigation is required for the increase in buffer impacts because it falls under an exempt activity. No changes in overall mitigatable buffer impacts have occurred since the original permit.

Other Construction Issues

Detail C (Level Spreader with no bypass)

Permit drawings have been revised to depict a level spreader with a Class B rip rap-lined forebay. The original permit drawings (Stream/Wetland Permit Drawing Sheets 6 and 7 of 9 and Buffer Permit Drawing Sheet 7 of 7) depict a level spreader with no forebay.

Detail F (Special 2' base cut ditch) at Station 23+75 to 26+00 Lt -L-

The original permit drawings (Stream/Wetland Permit Drawing Sheets 6 and 7 of 9 and Buffer Permit Drawing Sheet 7 of 7) depict the special 2-foot base cut ditch with a liner of permanent soil matting and rock check dams. It was determined that the rock check dams are not required. The Permit drawings have been revised to delete the rock check dams in the special 2-foot base cut ditch.

Mitigation

No additional compensatory mitigation for wetland and Neuse buffer impacts is required. Also, no compensatory mitigation for the additional 10 linear feet of bank stabilization activity is being proposed (no mitigation required for pipe extension in original permit). These impacts are associated with the pipe extension and are considered minimal and do not constitute a loss of Waters of the United States.


Regulatory Approvals

Application is hereby made for the modification of the Section 404 Permit from USACE and Section 401 Water Quality Certification and Neuse Riparian Buffer Authorization from DWQ. In compliance with Section 143-215.3D(e) of the NCAC we have provided a method of debiting \$570.00, as noted in the subject line of this application, as payment for processing the Section 401 Water Quality Certification modification application. We are providing five copies of this application to DWQ, for their use.

This project is currently in construction (Original Let Date of February 17, 2009).

A copy of this permit modification application will be posted on the NCDOT Website at: <http://www.ncdot.org/doh/preconstruct/pe/>. If you have any questions or need additional information, please call Greg Price at (919) 431-1587.

Sincerely


for

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

w/attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)
Mr. J. Wally Bowman, PE., Division Engineer
Mr. Chris Murray, DEO

w/o attachment (see permits website for attachments)

Mr. Travis Wilson, NCWRC
Mr. Gary Jordan, USFWS
Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Ms. Theresa Ellerby, PDEA Project Planning Engineer
Ms. LeiLani Paugh, NEU
Ms. Anne Deaton, NCDMF

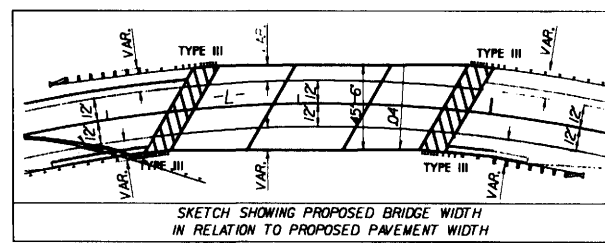
WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)	
1	18+07 TO 21+78 -L- LT/RT	BRIDGE	0.38		<.01	0.18			0.07		150		
2	22+35 TO 23+57 -L- LT/RT	Mainline Roadway	0.08		<.01	0.07			<.01		20		
3	23+77 TO 25+73 -L- RT	Mainline Roadway	0.02										
4	28+10 TO 28+95 -L- LT *	Mainline Roadway			0.18								
TOTALS:			0.48		0.19	0.25			0.07		170		

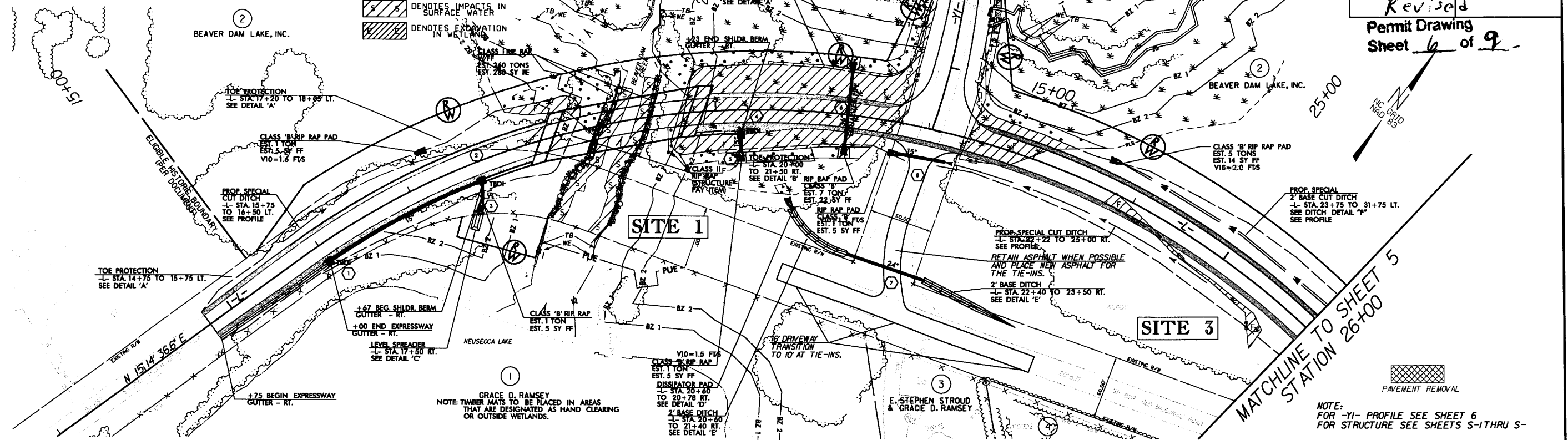
* Drawdown limit in wetland is 122.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 Wake County
 Project: B-4304 (Bridge #143)
 SHEET *4 of 9* *Rev.* 6/10/2009

STREAM & WETLAND IMPACTS



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



ROW REVISION
DATE: PARCEL 1; ADDED PERM. UTILITY EASEMENT

REVISIONS

DETAIL 'A'
TOE PROTECTION
(Not to Scale)

LINE	STA. TO STA.	PERM. SOIL REINF. MATTING (YD ²)
-L-	14+75 - 15+75 LT.	105
-L-	17+20 - 18+05 LT.	89
-L-	20+50 - 21+65 LT.	120

DETAIL 'B'
TOE PROTECTION
(Not to Scale)

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)
-L-	20+00 - 21+50 RT.	75	207

DETAIL 'C'
LEVEL SPREADER WITH NO BYPASS
(Not to Scale)

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)	D.D.E. (YD ³)
-L-	17+50 RT.	1	5	4

DETAIL 'D'
DISSIPATOR PAD
(Not to Scale)

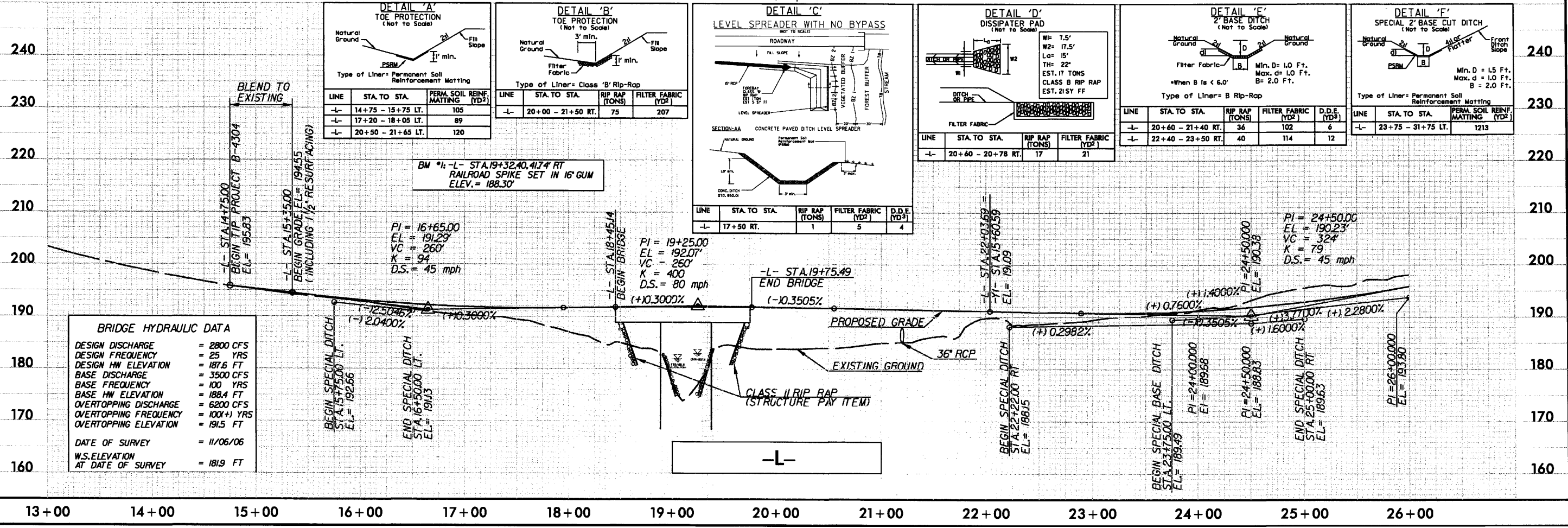
LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)
-L-	20+60 - 20+78 RT.	17	21

DETAIL 'E'
2' BASE DITCH
(Not to Scale)

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)	D.D.E. (YD ³)
-L-	20+60 - 21+40 RT.	36	102	6
-L-	22+40 - 23+50 RT.	40	114	12

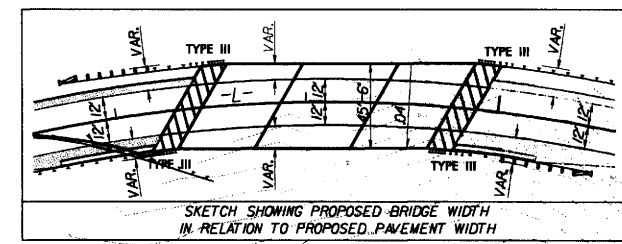
DETAIL 'E'
SPECIAL 2' BASE CUT DITCH
(Not to Scale)

LINE	STA. TO STA.	PERM. SOIL REINF. MATTING (YD ²)
-L-	23+75 - 31+75 LT.	1213

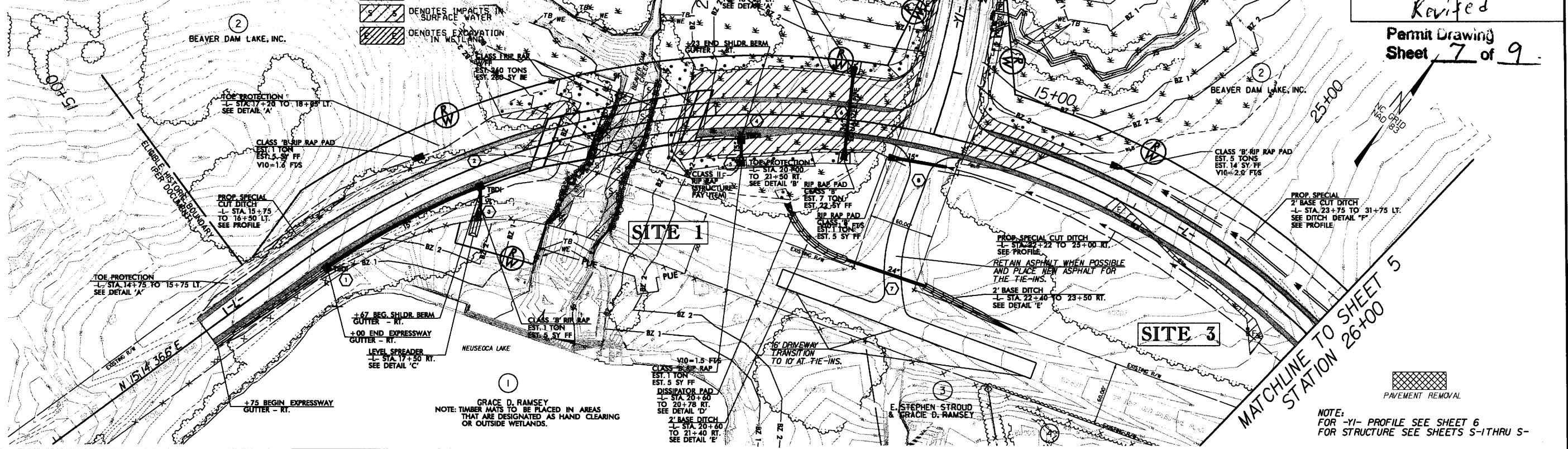


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STREAM & WETLAND IMPACTS



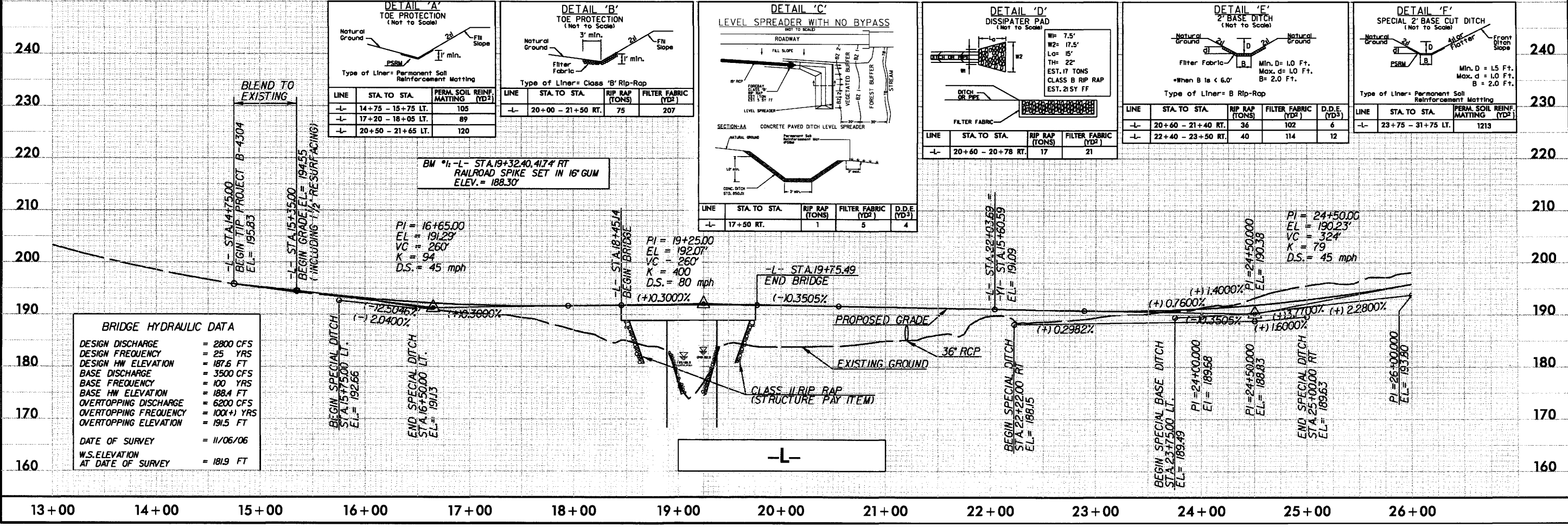
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND



ROW REVISION - PARCEL 1, ADDED PERM. UTILITY EASEMENT DATE:

REVISIONS

NOTE: FOR -YI- PROFILE SEE SHEET 6 FOR STRUCTURE SEE SHEETS S-1THRU S-



BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT							BUFFER REPLACEMENT						
			TYPE		ALLOWABLE		MITIGABLE			ZONE 1 (ft²)	ZONE 2 (ft²)					
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft²)	ZONE 2 (ft²)	TOTAL (ft²)	ZONE 1 (ft²)			ZONE 2 (ft²)				
1	ROAD **	17+41 to 18+45 -L-	X					348	1565	1913						
1	BRIDGE *	18+45 to 19+75 -L-		X		8066	1369	9435								
1	ROAD **	19+75 to 21+78 -L-	X						2007	2007						
1	ROAD	15+90 to 16+72 -L-			X			148	464	612						
2	ROAD	14+00 to 15+28 -Y1-	X			1495	813	2308								
TOTAL:											9561	2182	11743	496	4036	4532

* Linear impacts along Beaverdam Creek are 220'.

** Linear impacts along Beaverdam Creek left of -L- are 55' and right of -L- are 103'.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY
PROJECT: B-4304 (BRIDGE #143)

Rev.
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SHEET _____ OF _____

BUFFER IMPACTS SUMMARY

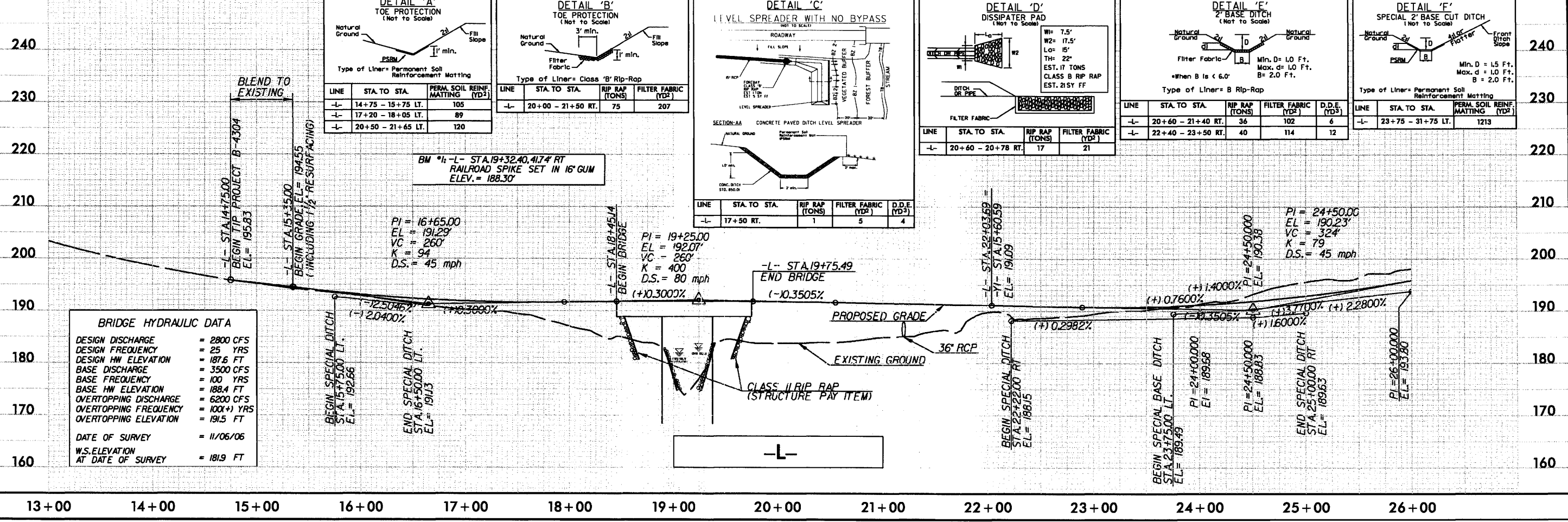
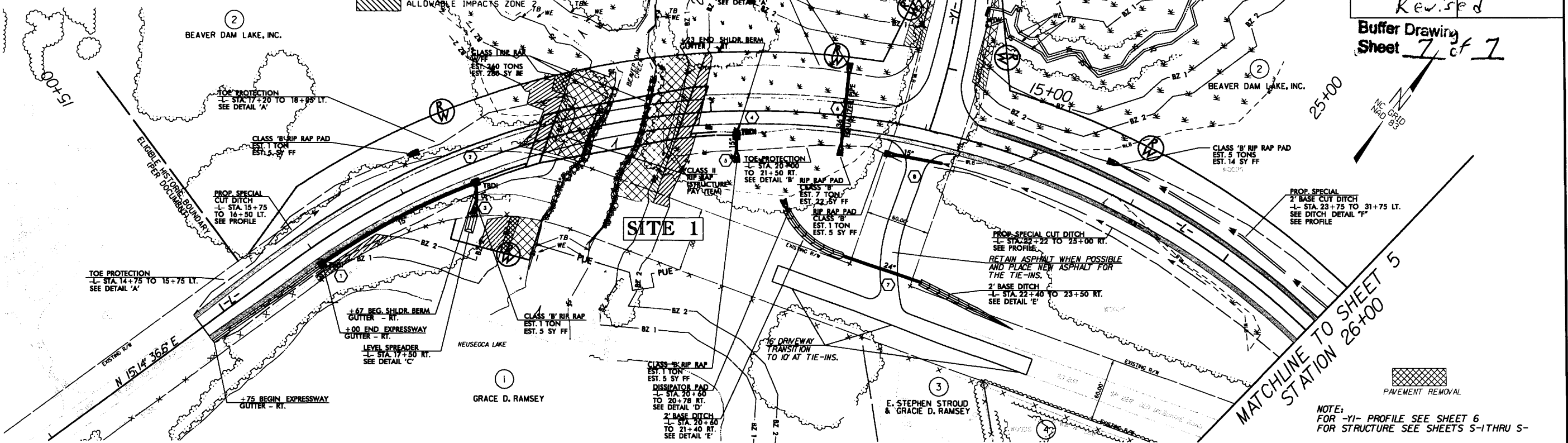
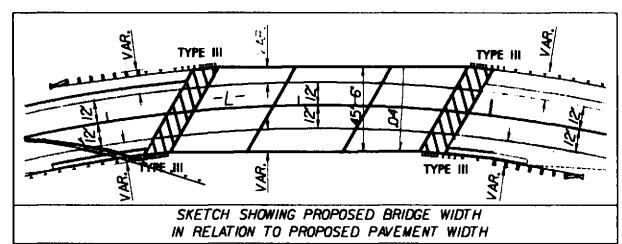
Site	Station	WETLANDS IN BUFFER	
		ZONE 1 (ft ²)	ZONE 2 (ft ²)
1 (Allowable)	18+07 TO 21+78 -L- LT/RT	3144.0	892.0
2 (Allowable)	14+00 to 15+28 -Y1- LT	1436.0	618.0
1 (Mitigable)	18+07 TO 21+78 -L- LT/RT	239.0	2115.0
2 (Mitigable)	14+00 to 15+28 -Y1- LT	0.0	0.0
		4819.0	3625.0

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 Wake County
 PROJECT: B-4304 (Bridge #143)
Rev.
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 SHEET **5** OF **7**

BUFFER IMPACTS

- MITIGABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2
- ALLOWABLE IMPACTS ZONE 1
- ALLOWABLE IMPACTS ZONE 2



DETAIL 'A'
TOE PROTECTION (Not to Scale)

Type of Liner: Permanent Soil Reinforcement Matting

LINE	STA. TO STA.	PERM. SOIL REINF. MATTING (YD ²)
-L-	14+75 - 15+75 LT.	105
-L-	17+20 - 18+05 LT.	89
-L-	20+50 - 21+65 LT.	120

DETAIL 'B'
TOE PROTECTION (Not to Scale)

Type of Liner: Class 'B' Rip-Rap

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)
-L-	20+00 - 21+50 RT.	75	207

DETAIL 'C'
LEVEL SPREADER WITH NO BYPASS (Not to Scale)

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)	D.D.E. (YD ³)
-L-	17+50 RT.	1	5	4

DETAIL 'D'
DISSIPATOR PAD (Not to Scale)

Type of Liner: B Rip-Rap

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)	D.D.E. (YD ³)
-L-	20+60 - 20+78 RT.	17	21	

DETAIL 'E'
2' BASE DITCH (Not to Scale)

Type of Liner: B Rip-Rap

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (YD ²)	D.D.E. (YD ³)
-L-	20+60 - 21+40 RT.	36	102	6
-L-	22+40 - 23+50 RT.	40	114	12

DETAIL 'F'
SPECIAL 2' BASE CUT DITCH (Not to Scale)

Type of Liner: Permanent Soil Reinforcement Matting

LINE	STA. TO STA.	PERM. SOIL REINF. MATTING (YD ²)
-L-	23+75 - 31+75 LT.	1213

BRIDGE HYDRAULIC DATA

- DESIGN DISCHARGE = 2800 CFS
- DESIGN FREQUENCY = 25 YRS
- DESIGN HW ELEVATION = 187.6 FT
- BASE DISCHARGE = 3500 CFS
- BASE FREQUENCY = 100 YRS
- BASE HW ELEVATION = 188.4 FT
- OVERTOPPING DISCHARGE = 6200 CFS
- OVERTOPPING FREQUENCY = 100+ YRS
- OVERTOPPING ELEVATION = 191.5 FT
- DATE OF SURVEY = 11/06/06
- W.S. ELEVATION AT DATE OF SURVEY = 181.9 FT

BM #1 - STA. 19+32.40, 41.74 RT RAILROAD SPIKE SET IN 16" GUM ELEV. = 188.30'

PI = 16+65.00
EL = 191.29
VC = 260'
K = 94
D.S. = 45 mph

PI = 19+25.00
EL = 192.07
VC = 260'
K = 400
D.S. = 80 mph

PI = 24+50.00
EL = 190.23
VC = 324'
K = 79
D.S. = 45 mph

PI = 24+50.00
EL = 190.38

PI = 24+50.00
EL = 189.68

PI = 24+50.00
EL = 189.83

PI = 25+00.00
EL = 189.63

PI = 26+00.00
EL = 193.80

ROW REVISION: PARCEL 1; ADDED PERM. UTILITY EASEMENT
 DATE:
 REVISIONS:
 6/10/2009