



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 14, 2008

US Army Corps of Engineers
Raleigh Field Office
6508 Falls of Neuse Road, Suite 120
Raleigh, NC 27615-6814

Attn: Mr. Eric Alsmeyer
NCDOT Coordinator, Division 5

Subject: **Application for Modification to Section 404 Individual Permit and 401 Water Quality Certification** for the Widening of Davis Drive (SR 1613/SR 1999) from Morrisville-Carpenter Road in Wake County to NC 54 in Durham County, State Project No. 98051713, WBS Element 35018.1.1, TIP No. U-4026.

Reference: NCDOT Individual Permit and Water Quality Certification application dated October 24, 2007.
USACE Individual Permit dated May 18, 2006 (Action ID 200120448).
NCDWQ Water Quality Certification dated January 26, 2006 (Project No. 051972).

Dear Sir:

The purpose of this submittal is to request a modification to the Section 404 Individual Permit and Section 401 Water Quality Certification. The North Carolina Department of Transportation (NCDOT) has commenced construction of the subject project. Stability issues at five locations on the project will require permit modifications from USACE and NCDWQ. The changes are summarized in Table 1 and described below.

Permit Site No. 1 (Sheet 5 of 65) at 91+00 Rt.

Construction Issue:

Off-site development has placed rip rap in a channel upstream of the project that extends in the stream into the NCDOT right of way (ROW) for approximately 32 feet. Please note that the NCDOT has never approved this encroachment into the ROW. Stormwater runoff from the off-site development has caused the destabilization of the rip rap in the channel and the formation of a headcut in the channel located in NCDOT ROW. A previous attempt to stabilize the channel had been made at this site by installing larger-size rip rap. However, the site continues to destabilize as

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1598 MAIL SERVICE CENTER
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FAX: 919-715-5501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD.
RALEIGH NC 27604

the streambed has washed to a layer of Triassic rock and rip rap is pushed further downstream in the channel.

NCDOT proposes to excavate the footprint of the rip rap installed by the off-site developer in the ROW and construct a rip rap outlet energy dissipater in this same location. There will be no new impacts to the channel as the energy dissipater will not exceed the footprint of rip rap previously installed by the off-site development. The energy dissipater should reduce runoff velocity and stabilize the head cut.

Jurisdictional Evaluation:

The footprint of this proposed activity is located in an area depicted as both temporary fill in surface waters and fill in surface waters (with rip rap only on the banks). NCDOT only proposes to construct the energy dissipater within the footprint of rip rap previously installed by the off-site development in the NCDOT ROW, therefore there will be no additional impacts to the stream.

Permit Site No. 1 (Sheet 5 of 65) at 91+90 Rt.

Construction Issue:

An intermittent stream flows into NCDOT ROW near 91+90 Rt. A review of this stream prior to construction activity at the site revealed that the channel had headcut up to an off-site headwater wetland. Construction activities at the stream included both bed and bank excavation. NCDOT proposes to install a log vane weir in the stream channel to serve as a grade control structure to prevent additional headcutting at the site (see attached log vane details).

Jurisdictional Evaluation:

The installation of the log vane weir is located within an area depicted as fill in surface waters. No new impacts to jurisdictional resources will occur from this activity.

Permit Site No. 3 (Sheet 10 of 65) at 132+95 Lt.

Construction Issue:

NCDOT has completed the trenchless installation of a 72 inch steel pipe and associated channel improvements. Water is currently being ponded in an adjacent low area located in a sewer line easement to the west of the channel. Runoff from the ponded area during a rain event is being conveyed down the streambank into the channel. The runoff is resulting in the formation of a scour on the west streambank. A review of the previously submitted Sheet 10 of 65 indicates the installation of 10 feet of rip rap on the east streambank. NCDOT proposes to install Class I rip rap on the west streambank within the same limits as already permitted on the east streambank.

Jurisdictional Evaluation:

The installation of Class I rip rap on the west streambank is located within an area depicted as fill in surface waters. No new impacts to jurisdictional resources will occur from this activity.

Permit Site No. 4 (Sheet 16 of 65) at 179+90 Lt

Construction Issue:

Construction at this site involves the extension of an existing 54 inch concrete structure and the trenchless installation of an adjacent 66 inch steel pipe. The outlet of both structures are joined in a special concrete structure which serves to stabilize the streambank in a cut section and resolves the poor transition into the existing narrow stream which is located parallel to the roadway. NCDOT proposes to install 15 feet of rip rap on the both streambanks at the outlet of the special concrete structure which would provide long-term stability at the site. The existing streambank at the outlet

of the structure is comprised of Triassic material, which is very difficult to stabilize and establish a permanent stand of vegetation. The rip rap will provide bank stabilization and a stable transition from the special concrete outlet structure to the existing stream.

Jurisdictional Evaluation:

The Sheet depicts this area as temporary fill in surface waters. The installation of the proposed rip rap on the streambanks would change this area to fill in surface water. The stabilization of the banks will not affect stream function. This construction issue was previously discussed with Eric Alsmeyer (USACE) on December 4, 2007 and he indicated that no mitigation would be required for this additional permanent impact of 15 feet.

Permit Site No. 7 (Sheet 30 of 65) at 230+00

Construction Issue:

Construction at this site involves the extension of an existing 66 inch concrete structure and the trenchless installation of an adjacent 72 inch steel pipe. A significant amount of Class I rip rap is proposed to be installed on the streambanks at the inlet and outlet of the structures to allow the proper transition into the stream outside of the construction limits.

NCDOT proposes to revise the construction activity at this site due to the proposed design of the future Triangle Parkway (U-4763B) project which will install 2, 8 foot x 7 foot box culverts. Since there it is likely that the Triangle Parkway project will be funded and built, NCDOT suggests that it is unnecessary to expend the time or money to install the 72 inch steel pipe at the crossing. NCDOT proposes to collar and extend the existing 66 inch concrete structure (as originally proposed) and conduct adequate up and downstream channel improvements and bank stabilization to provide a stable transition into the existing stream.

Jurisdictional Evaluation:

The Sheet indicates that all activity located within the permitted footprint is depicted as permanent fill in surface water. All proposed construction activity will occur within this permitted footprint and therefore will not result in additional jurisdictional impacts.

Permit Site No. 9 (Sheet 38 of 65) at 285+90 Rt

Construction Issue:

Construction at this site involves the following activities:

- Construction of a relocated channel.
- Extension of an existing 66 inch concrete structure to convey normal water flow.
- Trenchless installation of 48 inch steel structure to convey stormwater flow.
- Construction of a floodplain bench at the inlet of the 48 inch structure.
- Installation of a rip rap-lined lateral base ditch that conveys to the floodplain bench at the inlet of the 48 inch structure.

Stormwater runoff down the lateral base ditch has created a significant scour in the floodplain bench at the inlet of the 48 inch structure. NCDOT proposes to construct a rip rap-lined rock inlet sill in the floodplain bench to transition stormwater runoff from the lateral base ditch into the 48 inch structure. The rock inlet sill will be adequately stabilized with filter fabric and stone to prevent washing into the main relocated channel.

Jurisdictional Evaluation:

The Sheet indicates that all activity is located within the main channel and floodplain bench of the relocated channel. All of proposed construction activity will occur within the permitted footprint and therefore will not result in additional jurisdictional impacts.

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:

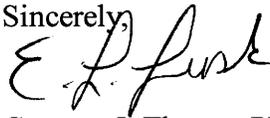
- Protected Species
- Aquatic Life passage
- FEMA compliance
- Cultural Resources.

Regulatory Approvals

Application is hereby made for the modification of the USACE Section 404 Individual Permit and NCDWQ Section 401 Water Quality Certification.

A copy of this permit 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 Sara Easterly at (919) 715-5499.

Sincerely,



for

Gregory J. Thorpe, Ph.D.

Environmental Management Director, PDEA

w/attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)
Mr. Travis Wilson, NCWRC
Ms. Kathy Matthews, USEPA
Mr. Clarence W. Coleman, P.E., FHWA
Mr. Gary Jordan, USFWS

W/o attachment (see website for attachments)

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. J. Wally Bowman, PE., Division Engineer
Mr. Chris Murray, DEO
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
Mr. Brian Yamamoto, PDEA
Ms. Beth Harmon, EEP
Mr. Todd Jones, NCDOT External Audit Branch
Mr. Drew Joyner, PE, Human Environment Unit Head

7/2/99
7/2/2005
U:\Projects\026\ko\Hydro\Drawn\Permit\026_permit.dwg
L. R. Associates, P.C.

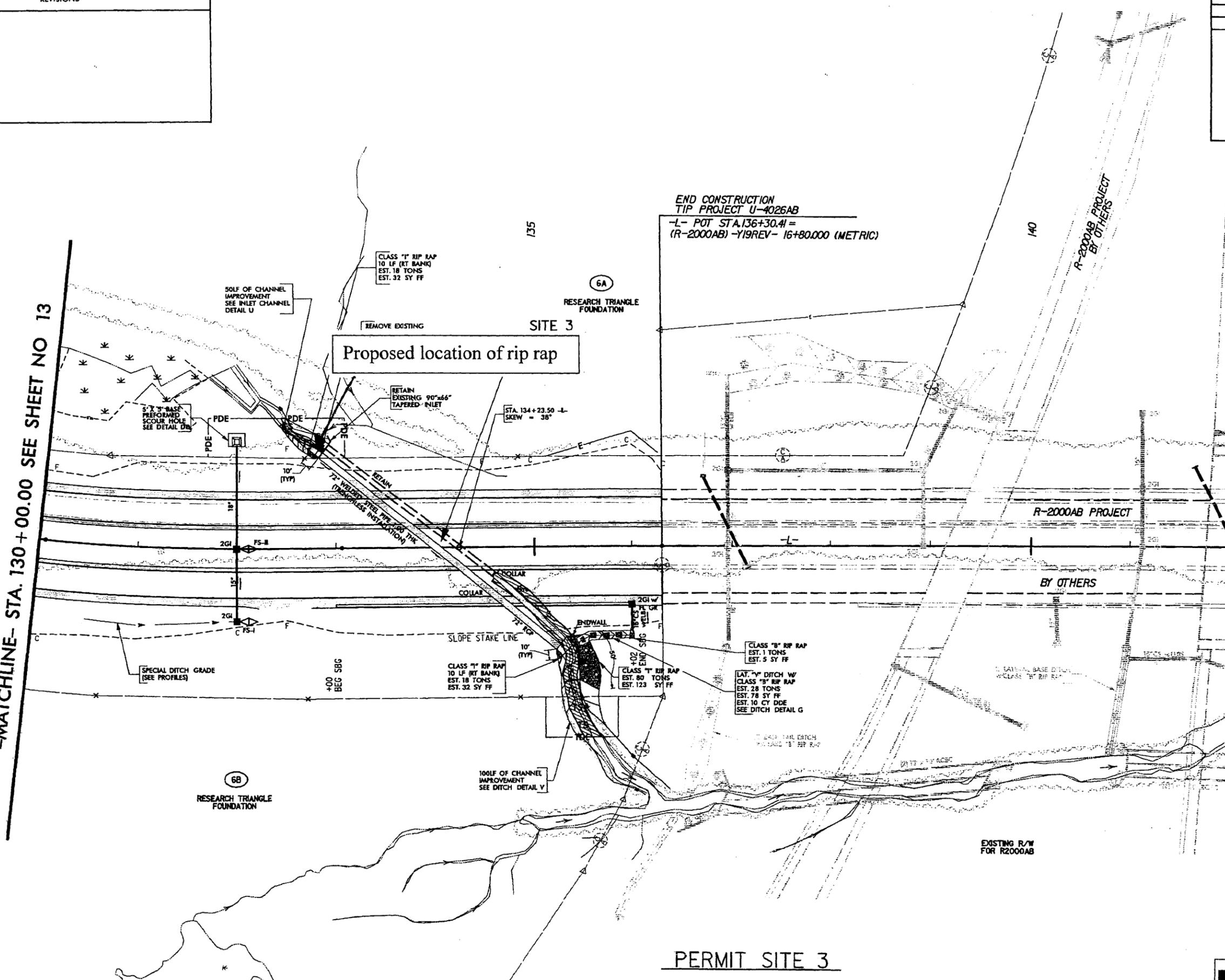
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-4026	14
U-4026B	R/W SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



-MATCHLINE- STA. 130+00.00 SEE SHEET NO 13

-MATCHLINE- STA. 142+00.00 SEE SHEET NO. 15



END CONSTRUCTION
TIP PROJECT U-4026AB
-L- POT STA. 136+30.41 =
(R-2000AB) -Y19REV- 16+80.000 (METRIC)

Proposed location of rip rap

PERMIT SITE 3
PLAN VIEW

Rev. 4/11/08

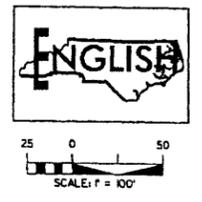
10 of 65
SCALE: 1" = 100'

LEGEND	
	DENOTES TEMPORARY SURFACE WATER LOSS
	DENOTES SURFACE WATER LOSS

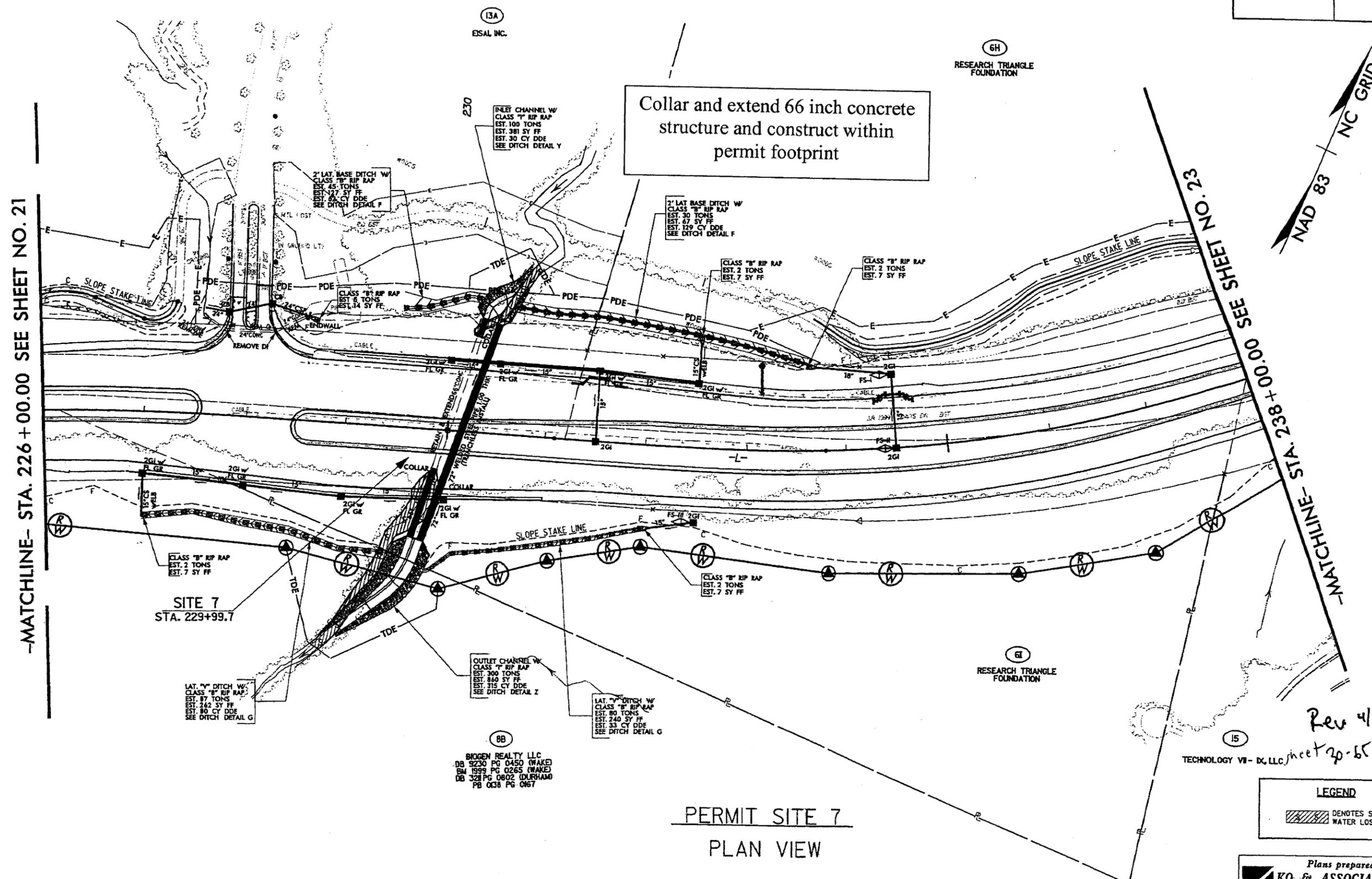
Plans prepared by:
KO & ASSOCIATES, P.C.
Consulting Engineers
1011 SCHAUB DR, SUITE #202
RALEIGH, N.C. 27606
(919)-851-6066

7/2/99

REVISIONS
2/4/04 PROPERTY NAME CHANGE PARCELS 6 & 8
2/4/04 REVISED R/W & TDE PARCELS 6 & 8
3/8/04 REVISED R/W & CE TO PDE PARCEL 14
3/16/04 REVISED PARCEL NO 6 TO PARCEL NO. 6H & 6I
3/25/04 REVISED PARCEL NO 14 TO PARCEL NO. 13A & NAME CHANGE
3/29/04 REVISED PARCEL NO 8 TO PARCEL NO. 8B
7/2/04 NAME CHANGE PARCEL NO. 15
2/23/05 REVISED TRAIL



PROJECT REFERENCE NO. U-4026	SHEET NO. 22
U-4026B RW SHEET NO. 17	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



-MATCHLINE- STA. 226+00.00 SEE SHEET NO. 21

SEE SHEET NO. 23
MATCHLINE- STA. 238+00.00

Collar and extend 66 inch concrete structure and construct within permit footprint

PERMIT SITE 7
PLAN VIEW

LEGEND
DENOTES SURFACE WATER LOSS

Plans prepared by:
KO & ASSOCIATES, P.C.
 Consulting Engineers
 1011 SCHAUH DR., SUITE #202
 RALEIGH, N.C. 27606
 (919)-851-6066

2/23/2005
C:\Users\koy\My Documents\Projects\U4026\permits\22.dgn
K.O. & Associates, P.C.

Rev 4/11/08
sheet 20-65
TECHNOLOGY VII-IX, LLC

8B
BROGEN REALTY LLC
DB 9230 PG 0450 (WAKE)
BM 1999 PG 0265 (WAKE)
DB 328 PG 0802 (DURHAM)
PB 038 PG 0167

PROJECT REFERENCE NO. _____ SHEET NO. _____

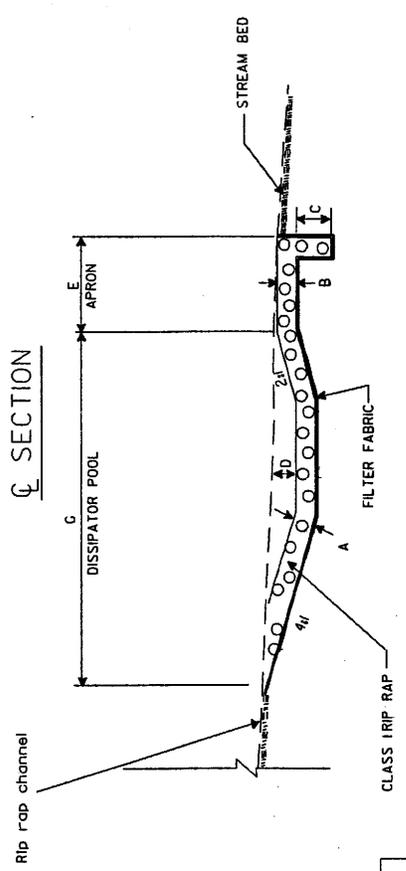
1" = 40' SHEET NO. _____
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

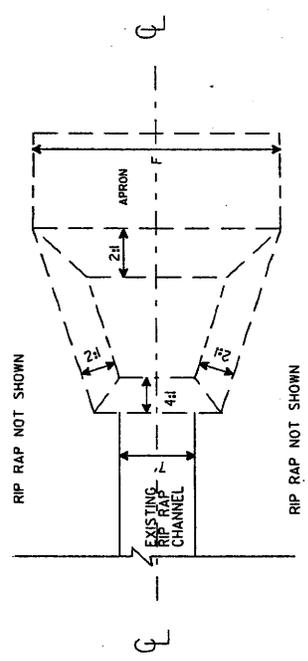
CONSTR. REV. _____

DATE _____

SECTION



HALF PLAN



DIM.	RIP RAP	BASIN #
(ft)	1	
A	2	
B	2	
C	2	
D	2	
E	4	
F	12	
G	28	

ALL DIMENSIONS APPROXIMATE
AND ORIGINATE FROM NCDOT ROW
NO CONSTRUCTION IMPACTS >32 FT FROM ROW

BASIN #	LOCATION (AT OUTLET)
1	Sta 91+00 -L- (RT)

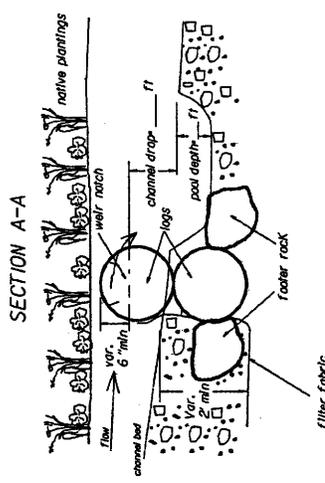
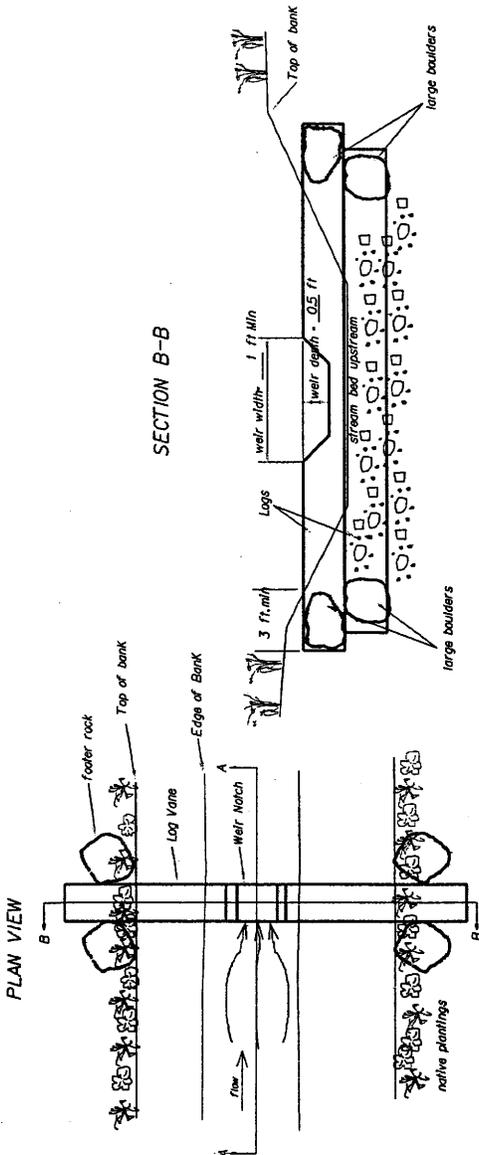
Quantities:
 90 Tons Class 1 Rip Rap
 80 Sq Yds FF
 40 Cu Yds Excav

DETAIL OF RIP-RAPPED OUTLET ENERGY DISSIPATOR BASIN

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

LOG VANE WEIR DETAIL

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
STATE PROJECT NO.	F. H. PROJ. NO.	DESCRIPTION
DATE		
DRAWN BY		
CHECKED BY		



NOTE:

- Boulders should be native or locally shot rock, angular and oblong, preferably with flat sides with approximate dimensions of 2 ft x 1.5 ft x 1.5 ft. Large boulders should have approximate dimensions of 3 ft x 2 ft x 2 ft
- Rock should fit tightly with minimal spaces/voids
- Logs should have min diameter of 10"
- Backfill behind vanes with ABC or larger stone to existing bed elevation just upstream.

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