



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

September 6, 2006

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

Dear Sir:

Subject: **Application for Modification to Section 404 and Section 401 permits and Neuse Buffer Certificate** for the Northern Wake Expressway (I-540) from US 1 to US 64 in Wake County, Division 5. State Project No. 8.2401701, Federal Aid Project No. F-123-1(1), TIP No. R-2000 F&G; \$475.00 Debit Work Order 8.2401701, WBS Element No. 34365.1.1.

Reference: NCDENR-DWQ Water Quality Certification Project No. 030114 and USACE Action ID 199920387.

The North Carolina Department of Transportation (NCDOT) is currently constructing a new controlled-access six-lane, divided highway to be known as the Northern Wake Expressway (I-540) from US 1 to US 64 in Wake County. NCDOT submitted an individual Section 404 (of the Clean Water Act) Permit Application to the U.S. Army Corps of Engineers (USACE) for the subject project on March 29, 1996. On October 10, 1996, the Section 404 Permit was issued by the USACE and on September 27, 1996, a Section 401 Water Quality Certification was issued the N.C. Division of Water Quality (NCDWQ). The USACE has issued Section 404 Permit Modifications on June 2, 2003, May 4, 2004, December 1, 2004 and May 25, 2005. The NCDWQ has issued Section 401 Water Quality Certificate Modifications on May 5, 2003, August 29, 2003, April 19, 2004, November 10, 2004, May 17, 2005 and May 20, 2005.

The purpose of this submittal is to request a modification to the Section 404 permit, Section 401 Water Quality Certification and Neuse Buffer Certificate, specifically for Sections F&G.

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

TELEPHONE: 919-715-1334
FAX: 919-715-5501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD.
SUITE 240
RALEIGH NC 27604

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 are in compliance with all previous issues, including the following:

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

Section F

Permit Drawing 63 and 87 of 90/Site 12

The revised permit drawing depicts elimination of the level spreader at 11+70 Rt -Y1RDEV-. The level spreader, if constructed as previously designed, would back water up to three feet deep for approximately 165 feet in the proposed roadway cut ditch. The water that would stand in the ditch would saturate the subgrade of the roadway embankment and would be detrimental to the pavement adjacent to this area. Additionally, the natural ground below the level spreader ranges between 11 and 13% grade. The proposed roadway cut ditch meets grass swale criteria prior to the proposed 2 GI at 11+80 Lt -Y1REV-. No additional jurisdictional or buffer impacts will occur from this revision.

Section G

Permit Drawing 18 of 50/Site 6

The revised permit drawing depicts the placement of a natural rock energy dissipator at the outlet of the 1650 mm structure near 442+40 Rt -L- and a rock cross vane in the constructed channel near 442+60 Rt -L-. These structures will prevent the formation of a head cut in the constructed channel in the bottom of the drained pond. No additional jurisdictional or buffer impacts will occur from this revision.

Permit Drawing 31 and 31a of 50/Site 10

NCDOT has installed a grade control sill in the relocated channel near 1+40 Rt -RPC-. The purpose of the sill, depicted as Section B-B on permit drawing 31a of 50, is to prevent movement of a headcut through the relocated channel. No additional jurisdictional or buffer impacts will occur from this revision.

Permit Drawing 39a of 50/Site 13

Construction activities at the site resulted in the incidental placement of temporary rip rap in wetland beyond the permitted footprint near 1+90 Lt -RPD-. This occurred during the installation of a temporary drainage pipe associated with a temporary riser in the drained pond. The rip rap placed in the wetland was immediately removed upon its detection. This activity resulted in 0.02 acre temporary fill in wetland.

NCDOT proposes to revise the permit drawing to depict the placement of a natural rock energy dissipator and a cross vane at the outlet of the 750 mm structure in the drained pond near 2+60 Lt -RPD-. The Department also proposes to install rip rap in the lateral ditch downstream of the energy dissipator and construct a cross vane at the terminal portion of the lateral ditch. The energy dissipator and rip rap are necessary to prevent a headcut from forming in the drained pond bottom. It is also necessary to connect the hydrology of the drained pond to the upper limits of an unnamed tributary to Mango Creek. The revised permit drawing accurately depicts the location of the tributary to Mango Creek. This proposed activity will result in the following additional impacts:

Impact Type	Impacts Requiring Mitigation
Zone 1	786 square feet (sq ft)
Zone 2	495 sq ft
Wetland, excavation (non-riverine)	0.02 acre
Wetland, mechanized clearing (non-riverine)	0.02 acre

Utility Permit Drawing 1, 2 and 3 of 3/Site 9

Construction at this site involves installation of a box culvert and a sewer line crossing near 457+20 -L-. Note that the sewer line crossing was not depicted on either the original permit drawing (permit drawing 28 of 50) or construction plan sheet 14 which led to unintended riparian buffer and wetland impacts during construction that exceeded the permitted footprint. This became evident during coordination with Wakefield Associates at the planning stages of construction of the Beechwood Interceptor earlier this year.

Utility permit drawing 1 of 3 depicts the limits of actual disturbance along the sewer line by the contractor for the project associated with this action. The additional impacts for this action are depicted below and also depicted on utility permit drawing 2 of 3:

Impact Type	Impact Quantity
Zone 1	1,934 sq ft
Zone 2	1,624 sq ft
Wetland (non-riverine)	0.19 acre

Wetland impacts are limited to Zone 1 of the buffer. This amount was subtracted from the total buffer impact. NCDOT does not mitigate for buffer impacts located inside wetlands (wetlands are mitigated separately). Therefore, NCDOT would be liable to mitigate for the following impacts (see utility permit drawing 3 of 3):

Impact Type	Revised Impacts
Zone 1	1,075 sq ft
Zone 2	1,624 sq ft
Wetland (non-riverine)	0.19 acre

payment for processing the Section 401 Water Quality Certification modification application. We are providing five copies of this application to NCDENR-DWQ, for their use.

If you have any questions or need additional information, please call Rachelle Beauregard at (919) 715-1383.

Sincerely,



for

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

cc: w/attachment

- Mr. John Hennessy, NCDWQ (5 Copies)
- Mr. Travis Wilson , NCWRC
- Ms. Kathy Matthews, USEPA
- Mr. Ronald Mikulak, USEPA – Atlanta, GA
- Mr. Clarence W. Coleman, P.E., FHWA
- Mr. Gary Jordan, USFWS
- Dr. David Chang, P.E., Hydraulics
- Mr. Mark Staley, Roadside Environmental
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Jon Nance, P.E., Division Engineer
- Mr. Chris Murray, DEO

w/o attachment

- 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. Beth Harmon, EEP
- Mr. Todd Jones, NCDOT External Audit Branch



August 28, 2006



Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-2000G, I-540 (Northern Wake Expressway) from US 1 to US
64, Wake County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory non-riparian wetland mitigation and buffer mitigation for the subject project. Based on the information supplied by you in a letter dated August 15, 2006, the impacts are located in CU 03020201 of the Neuse River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Non-Riparian:	0.23 acre
Zone 1 Buffer:	434 square feet
Zone 2 Buffer:	1,624 square feet

The NCDOT estimated buffer impacts in the 7-year Impact Projection Database submitted to EEP in February 2006. The buffer mitigation required for the NCDOT's impact projections was incorporated into EEP's biennial budget that was submitted to the NCDOT for approval in April 2006. All buffer mitigation requests and approvals are administrated through the Riparian Buffer Restoration Fund.

The NCDOT will be responsible to ensure that the appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Certification, the NCDOT will provide the EEP a copy of the Certification along with a letter verifying the buffer impact/mitigation amounts and

Restoring... Enhancing... Protecting Our State



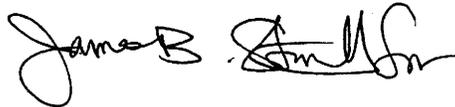
North Carolina Ecosystem Enhancement Program, 1652 Mail Service Center, Raleigh, NC 27699-1652 / 919-715-0476 / www.nceep.net

requesting a fund transfer to provide the required compensation. The EEP will transfer funds from the MOA Account (Fund 2984) into the Riparian Buffer Restoration Fund (Fund 2982) and commit to provide the appropriate buffer mitigation to offset the impacts associated with this project. At that time, the EEP will be responsible for the buffer mitigation required for this project.

Mitigation for this project will be provided in accordance with the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers. EEP will commit to implementing sufficient compensatory non-riparian wetland mitigation to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impacts amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

A handwritten signature in black ink, appearing to read "James B. Gilmore", written over a horizontal line.

William D. Gilmore, P.E.
EEP Director

cc: Mr. Eric Alsmeyer, USACE-Raleigh
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: R-2000G



August 28, 2006

Mr. Eric Alsmeyer
U. S. Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

Dear Mr. Alsmeyer:

Subject: EEP Mitigation Acceptance Letter:

R-2000G, I-540 (Northern Wake Expressway) from US 1 to US 64
Wake County; Neuse River Basin (Cataloging Unit 03020201);
Central Piedmont (CP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory non-riparian wetland mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request letter dated August 15, 2006, compensatory wetland mitigation from EEP is required for approximately 0.23 acres of non-riparian wetland impact.

Also, this project will impact buffers located in CU 03020201 of the Neuse River Basin. The total buffer impacts are 434 square feet in Zone 1 and 1,624 square feet in Zone 2. If the buffer impacts or the amount of mitigation required from EEP increases or decreases for this project, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required.

The NCDOT estimated buffer impacts in the 7-year Impact Projection Database submitted to EEP in February 2006. The buffer mitigation required for the NCDOT's impact projections was incorporated into EEP's biennial budget that was submitted to the NCDOT for approval in April 2006. All buffer mitigation requests and approvals are administrated through the Riparian Buffer Restoration Fund.

The NCDOT will be responsible to ensure that the appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Certification, the NCDOT will provide the EEP a copy of the Certification along with a letter verifying the buffer impact/mitigation amounts and requesting a fund transfer to provide the required compensation. The EEP will transfer funds from the MOA Account (Fund 2984) into the Riparian Buffer Restoration Fund

Restoring... Enhancing... Protecting Our State



(Fund 2982). At that time, the EEP will be responsible for the buffer mitigation required for this project.

Mitigation for this project will be provided in accordance with Section X of the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers signed on July 22, 2003. EEP commits to implement sufficient compensatory non-riparian wetland mitigation up to 0.46 riparian wetland credits offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the impacts change from the above listed amount, then this mitigation strategy letter will no longer be valid and a new mitigation strategy letter will be required from EEP.

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

Sincerely,

A handwritten signature in black ink, appearing to read "James B. Gilmore", written in a cursive style.

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: R-2000G

PLAN VIEW
SITE 12

II

LAMONT M. & DELORIS W. INGE
DB 6285 PG 426

SPECIAL
DITCH
GRADE

LEVEL SPREADER
CANNOT BE UTILIZED
LENGTH = 33m

NON EROSION
VELOCITIES EXIST
FOR THE 2 & 10-YR
EVENT
SEE SHEET 87

PRE-FORMED
SCOUR HOLE
B = 1.40m = 4.59ft
D = 0.30m = 0.98ft
W = 1.20m = 4.72ft
d = 0.15 = 0.5ft

LEVEL SPREADER
CANNOT BE UTILIZED
LENGTH = 150m

RIP RAP AS PER
NCDOT STD. NO. 868.02

0.6 m LAT
BASE DITCH

CLASS I RIP RAP
W/FILTER FABRIC
(CHANNEL BANK ONLY)

JB W/MH COVER

False Sump

DA=1.2 AC
Q10=3.1 CFS
SEE SHEET 87 FOR
GRASS SWALE INFO.

PAUL K. HESTER
PB 1947 PG 4
PSD 009-95-R/W

9

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

WAKE COUNTY
8.U401727 (R-2000F)
NORTH RALEIGH OUTER LOOP

Revised 5/1/06
SCALE AS SHOWN

SHEET 63 OF 90

- LEGEND**
- WLB — WETLAND
 - [F] DENOTES FILL IN WETLAND
 - [.] DENOTES MECHANIZED CLEARING
 - NBZ1 — NEUSE BUFFER - ZONE 1
 - NBZ2 — NEUSE BUFFER - ZONE 2

LEVEL SPREADER
5m(L)
16.40ft(L)
DA= 0.21ha
DA= 0.52ac
Q10=0.038cms
Q10=1.34cfs



9FILES

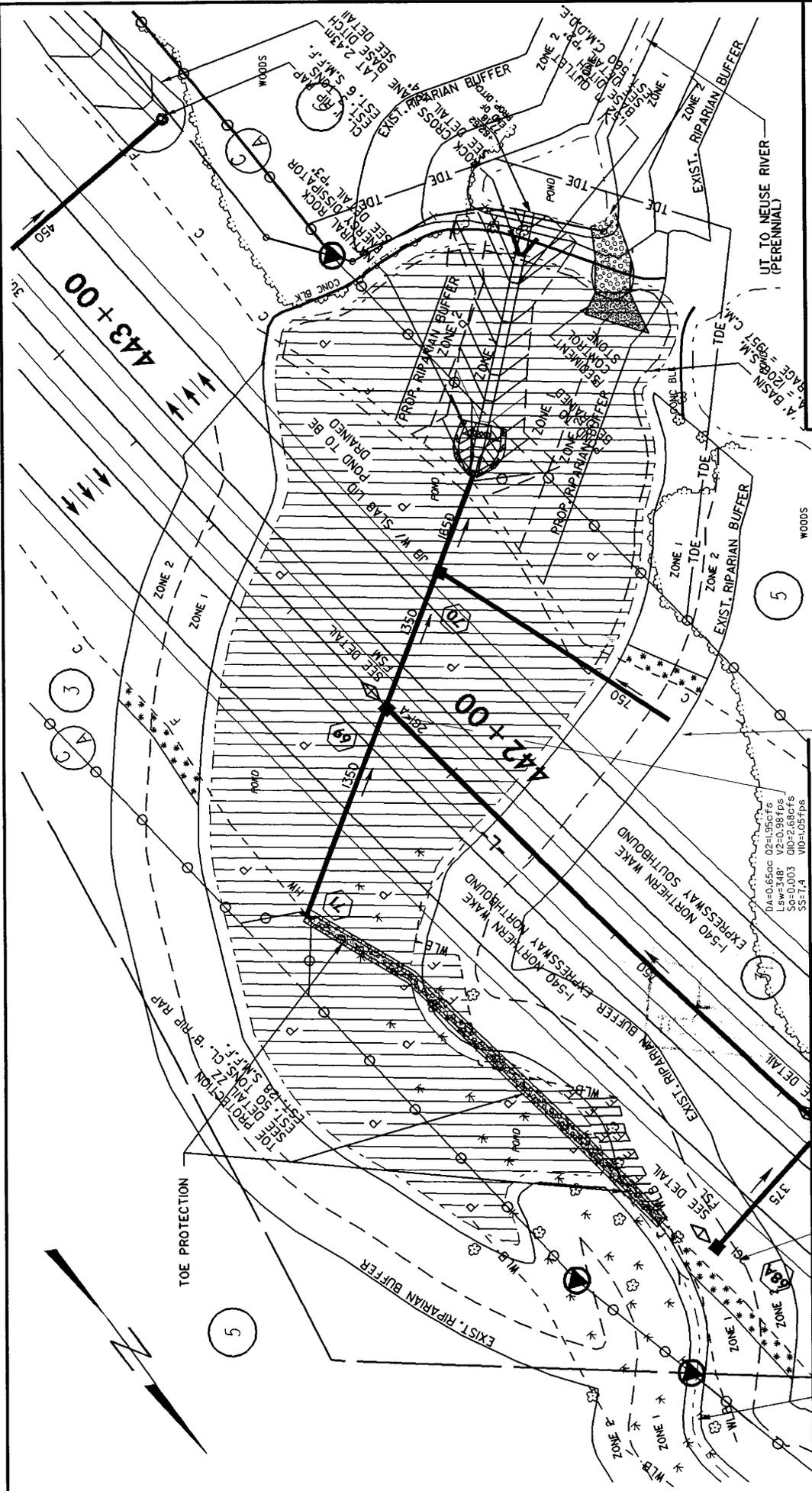
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8U401712 (R-2000G)

I-540 NORTHERN WAKE EXPRESSWAY
10/29/02

Rev. 5/27/04
Rev. 6/6/06
SHEET 18 OF 50



DA=5.0960 02=12.9cfs
LSw=5009 V2=1.44fPs
SS=0.003 00=7.80fPs
SS=6.3 V0=1.54fPs

5

5

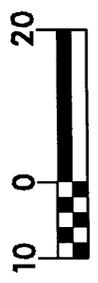
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LSw=348 V2=0.38fPs
SS=0.003 00=2.680fPs
SS=7.4 V0=1.05fPs

DA=2.1600 02=3.57cfs
LSw=148 V2=0.38fPs
SS=0.003 00=4.9cfs
SS=6.6 V0=1.05fPs

PLAN VIEW
SITE 6

MATCHLINE -L- STA. 441+13

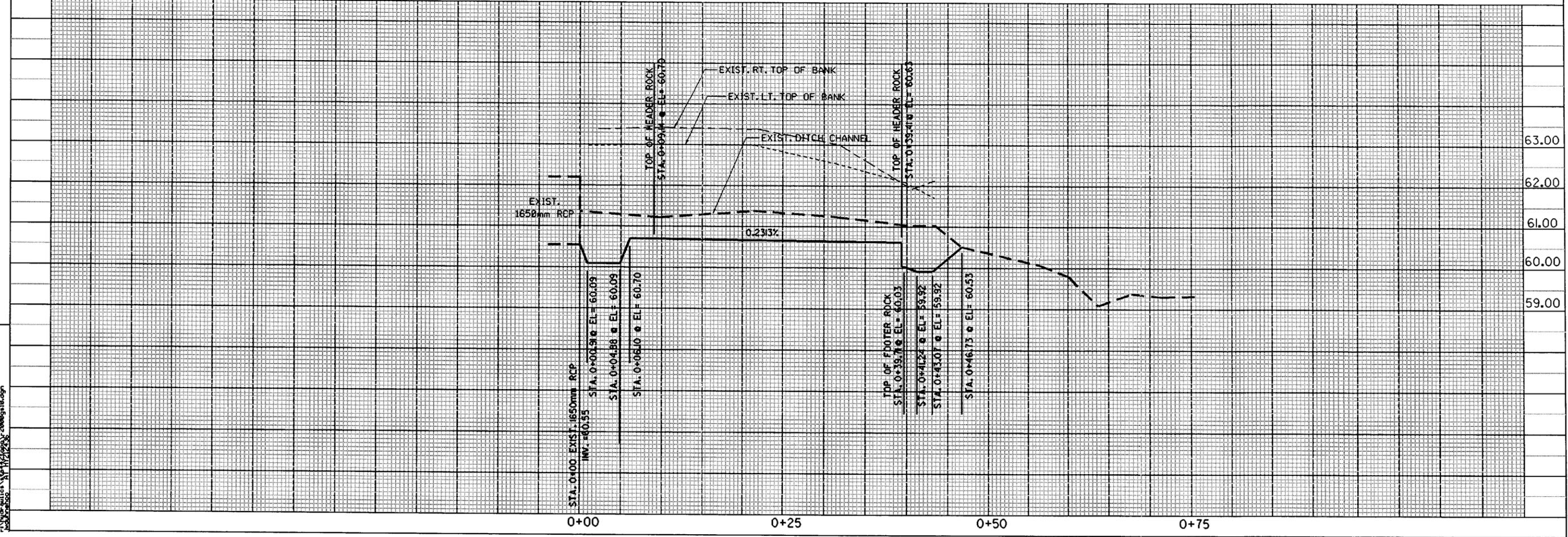
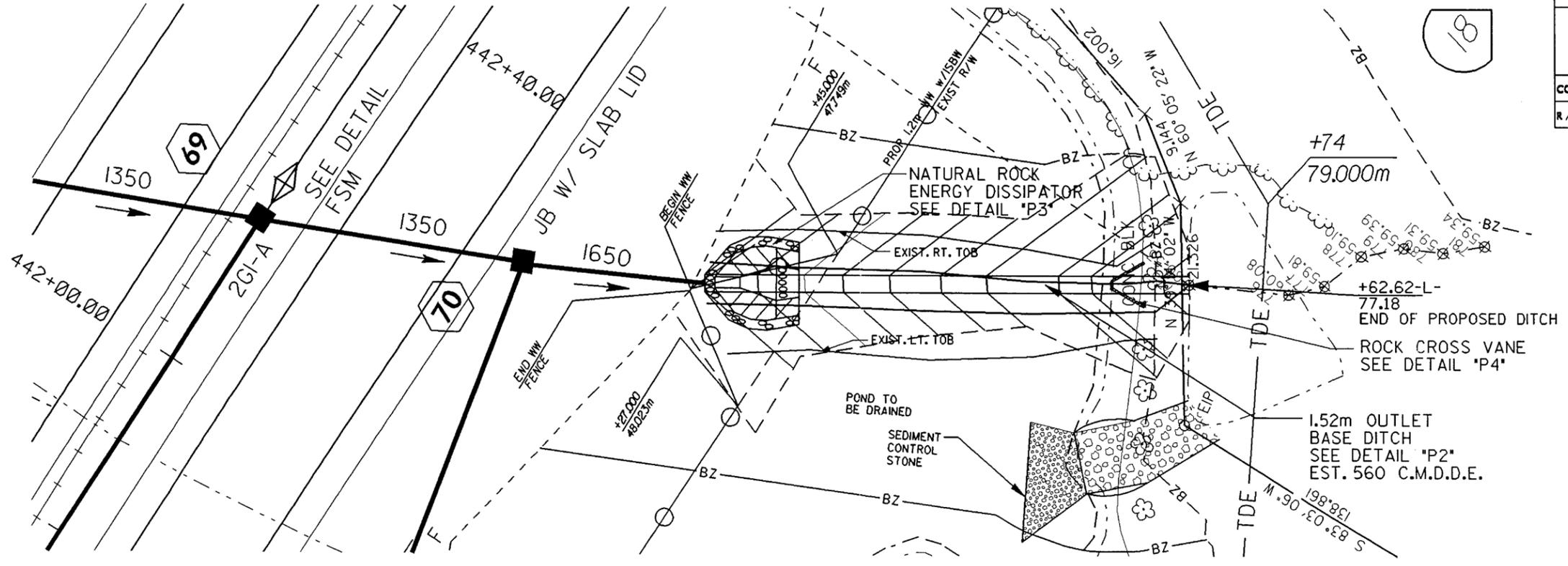
- *****
DENOTES MECHANIZED CLEARING
- F F
DENOTES FILL IN WETLANDS
- P P
DENOTES FILL IN SURFACE WATERS (POND)





CONST. REV.
R/W REV.

PROJECT REFERENCE NO. R-2000G	SHEET NO.
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

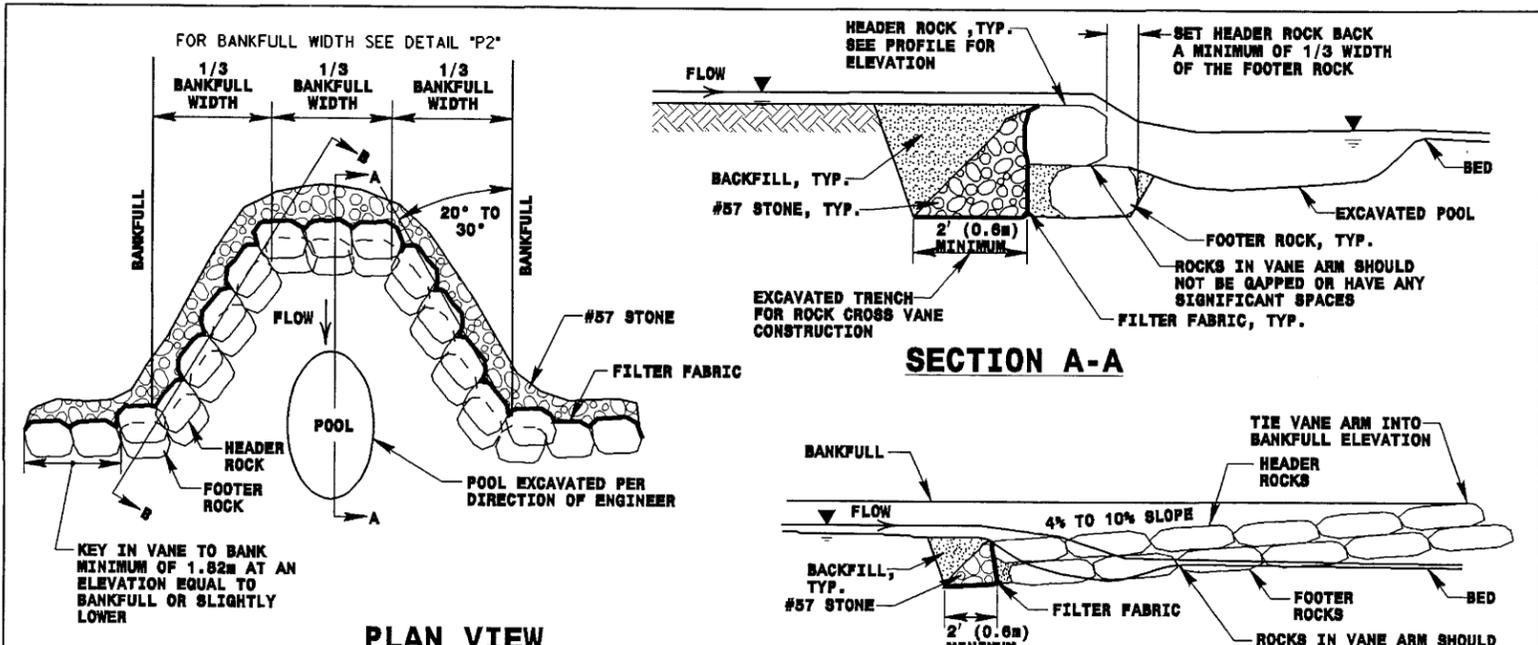


REVISIONS

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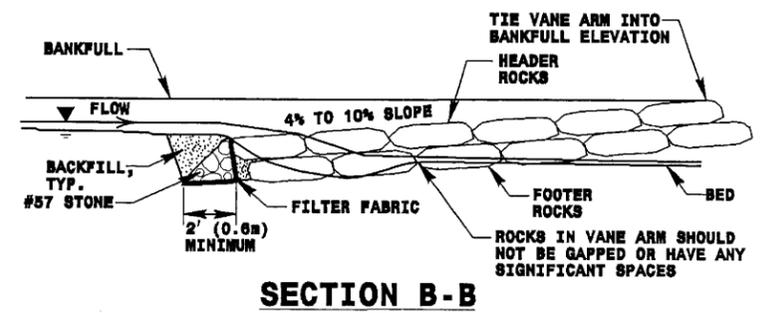
PROJECT REFERENCE NO. R-2000G	SHEET NO.
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



BOULDER DIMENSIONS (FT) (M)			
STATION	HEIGHT	LENGTH	WIDTH
STATION	0.6m	1.2m	0.9m

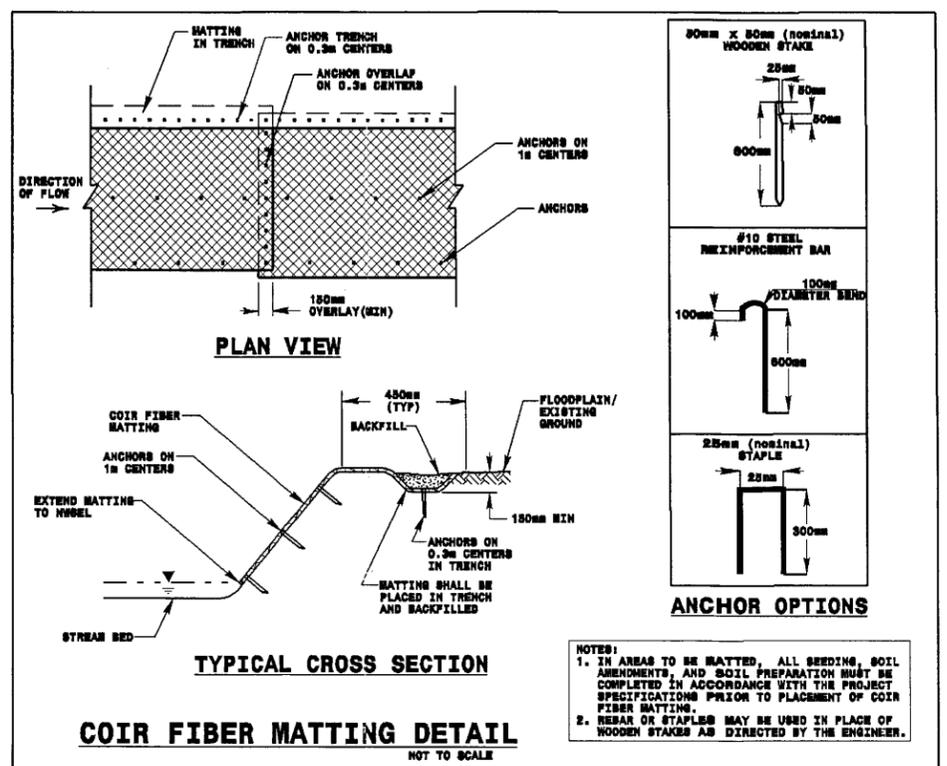
PLAN VIEW

ROCK CROSS VANE DETAIL
DETAIL "P4" NOT TO SCALE

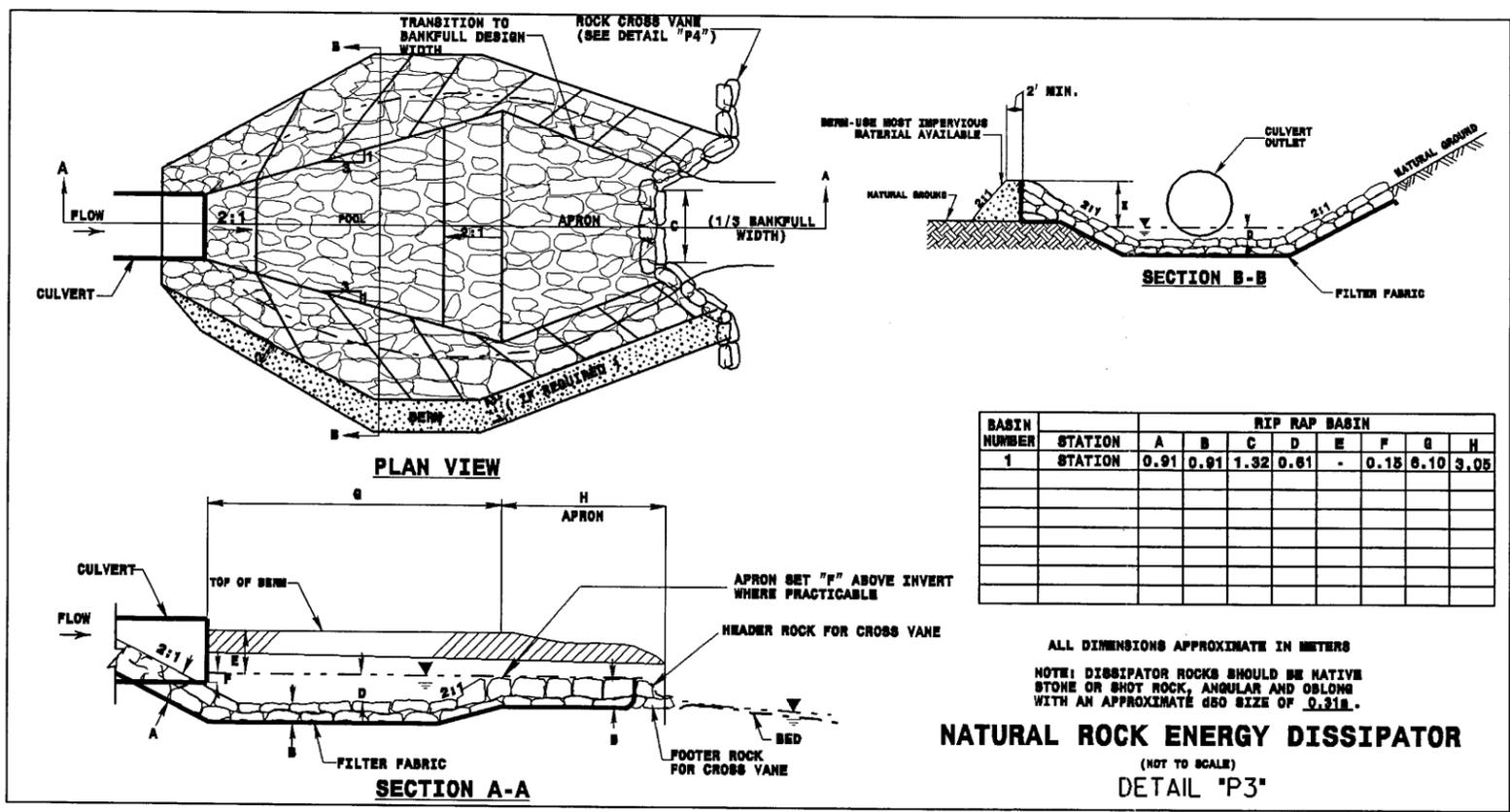


SECTION B-B

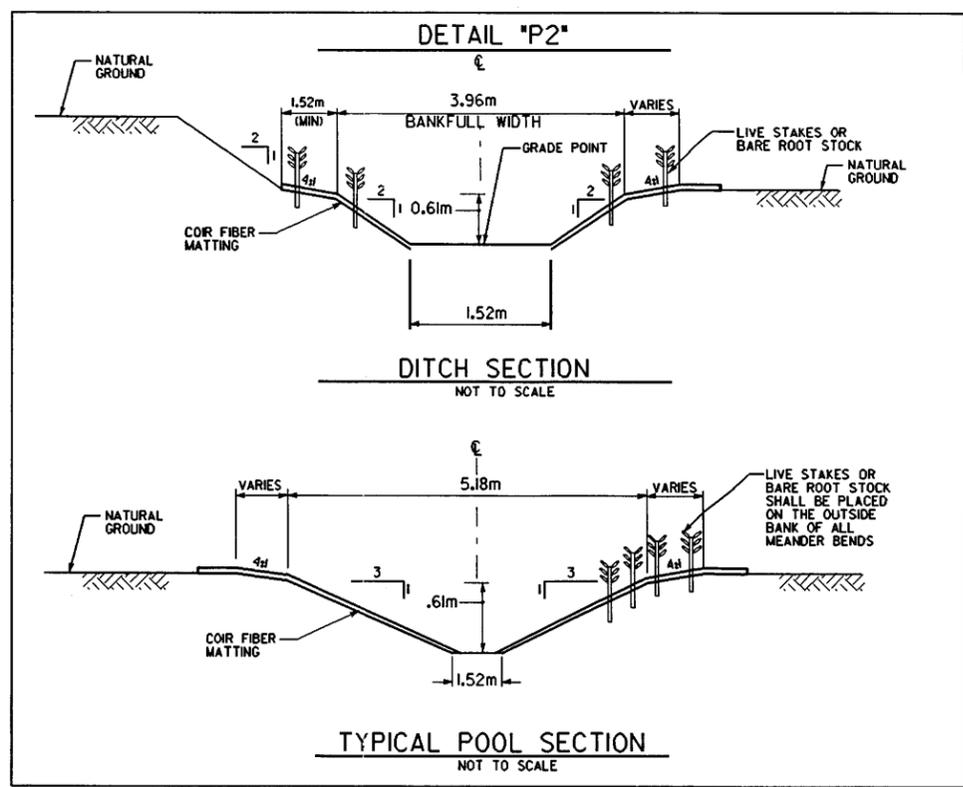
- NOTES:**
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
 2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
 3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
 4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.



COIR FIBER MATTING DETAIL
NOT TO SCALE

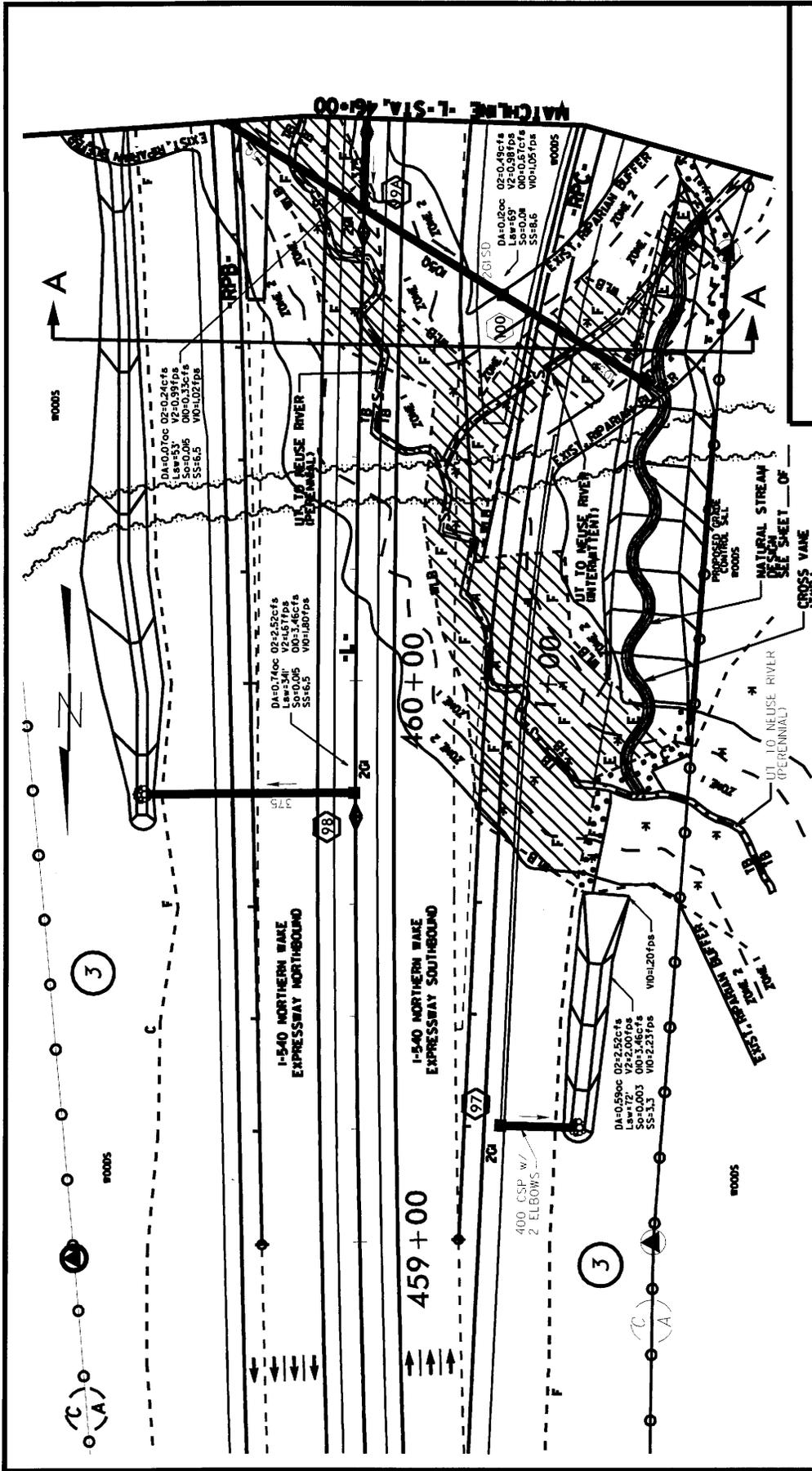


NATURAL ROCK ENERGY DISSIPATOR
(NOT TO SCALE)
DETAIL "P3"



TYPICAL POOL SECTION
NOT TO SCALE

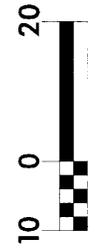
6/2/99
05-JUN-2006 10:48
C:\high\culvert\2000g\detail\442.dgn

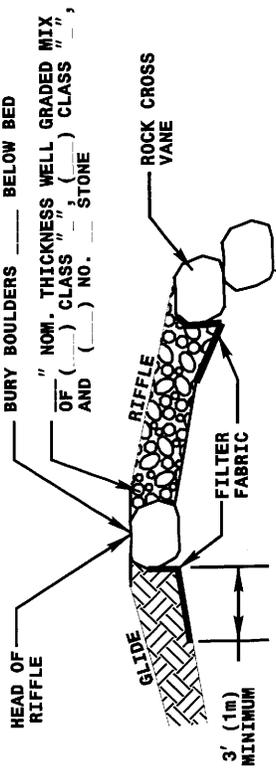


N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY
 PROJECT: 8U401713 (R-3000G)
 I-540 NORTHERN WAKE EXPRESSWAY
 SHEET 31 OF 50
 6/27/06

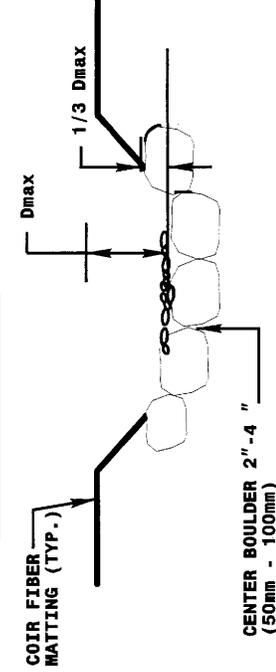
PLAN VIEW SITE 10

-  DENOTES MECHANIZED CLEARING
-  DENOTES FILL IN WETLANDS
-  DENOTES EXCAVATION IN WETLANDS
-  DENOTES FILL IN SURFACE WATERS

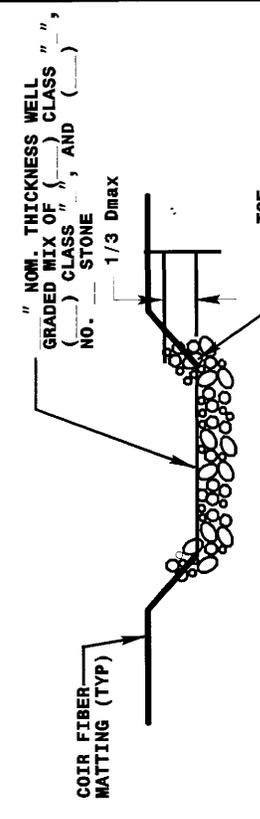




SECTION A-A

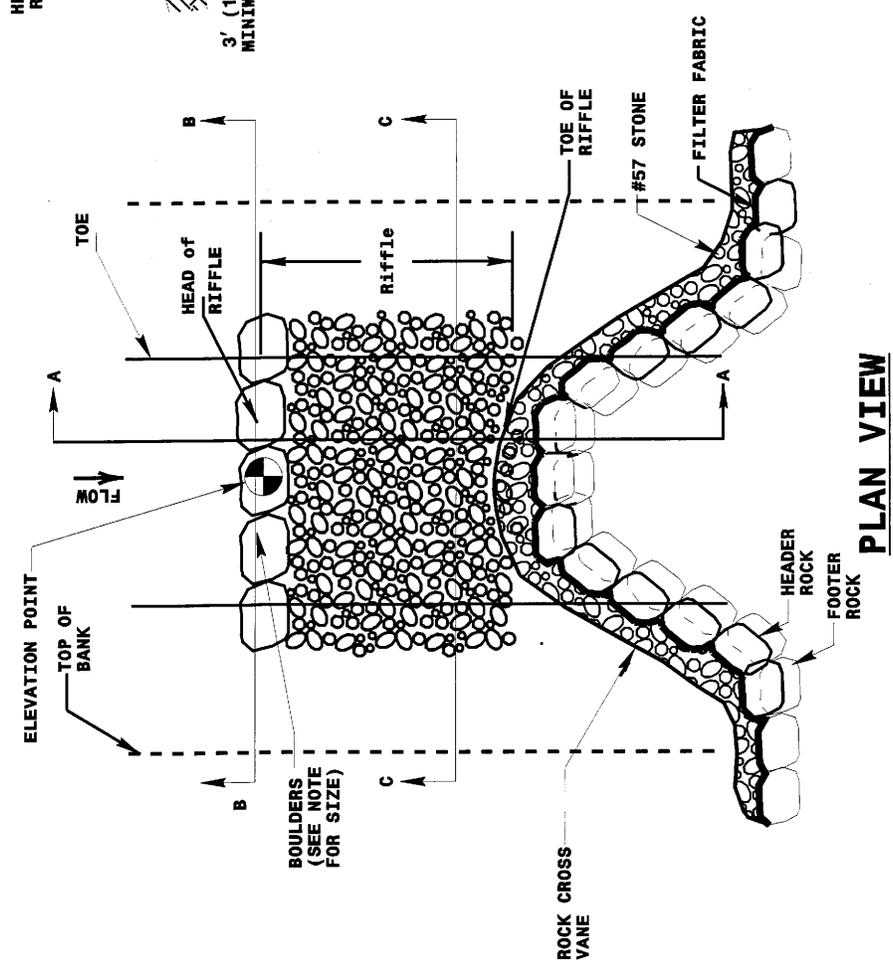


SECTION B-B



SECTION C-C

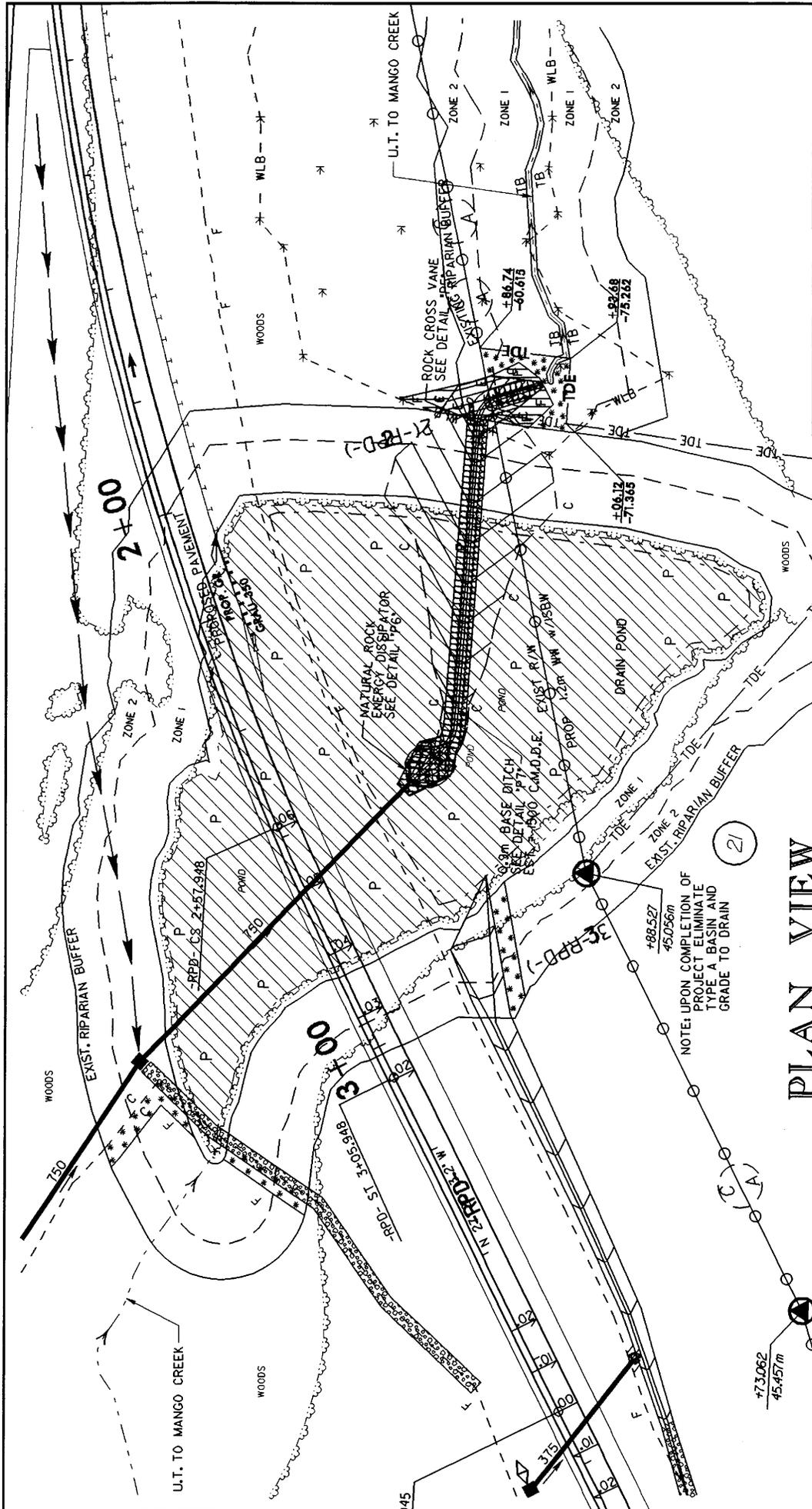
NOTE:
 1. BOULDERS SHOULD BE NATIVE STONES OR SHOT ROCK, ANGULAR AND OBLONG, WITH AN AXIS APPROXIMATELY Lx Wx D



PLAN VIEW

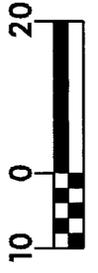
REACH	Wbkf (ft) (m)	Dmax (ft) (m)

CONSTRUCTED RIFFLE DETAIL
 NOT TO SCALE

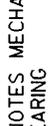


PLAN VIEW SITE 13

DA =	2.62 ac.
Q2 =	5.9 cfs
V2 =	2.0 ft/sec
Q10 =	8.1 cfs
V10 =	2.2 ft/sec
SWALE =	295 ft
S =	3.0Z
SS =	3:1



NOTE: UPON COMPLETION OF PROJECT ELIMINATE TYPE A BASIN AND GRADE TO DRAIN

-  DENOTES EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING
-  DENOTES FILL IN SURFACE WATER (POND)

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.U401712 (R-2000G)

I-540 NORTHERN WAKE EXPRESSWAY

SHEET 37^a OF 50

Rev 7/27/06

Utility Impact Site 9--Neuse River Buffer Impact Mitigation Calculation

Site	9 (sq. ft.)	Totals (sq. ft.)
Zone 1 Impact	1,934	1,934
Wetlands in Zone 1	859	859
Zone 1 - Buffers not Wetlands	1,075	1,075
Zone 1 Impact previously mitigated by Wakefield Associates	641	641
Zone 1 Buffer Mitigation Required	434	434
Zone 1 Buffer Mitigation Required (using 3:1 ratio)	1,302	1,302
Zone 2 Impact	1,624	1,624
Wetlands in Zone 2	0	0
Zone 2 - Buffers not Wetlands	1,624	1,624
Zone 1 Impact previously mitigated by Wakefield Associates	0	0
Zone 2 Buffer Mitigation Required	1,624	1,624
Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)	2,436	2,436
Grand Total Mitigation Required (1,302 + 2,436)		3,738

R-2000 G

Utility Permit Drawing

3 of 3 8/10/06