



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

August 3, 2006

U.S. Army Corps of Engineers  
Raleigh Field Office  
6508 Falls of the Neuse Road, Suite 120  
Raleigh, NC 27615

Attention: Mr. Eric C. Alsmeyer  
NCDOT Coordinator, Division 5

Dear Sir:

Subject: **Application for Modification to Section 404 Nationwide Permit, Section 401 Water Quality Certification and Neuse Riparian Buffer Certification:**  
Widening of Interstate 85 from west of Broad Street to west of Camden Avenue, Durham County, Division 5; Federal Aid Project No. I-85-4(49)174:  
TIP No. I-0306DB: \$475.00 Debit WBS Element 34143.1.7

Reference: USACE Action ID 200020902  
DWQ Project No. 001040

The North Carolina Department of Transportation (NCDOT) is currently widening Interstate 85 in Durham County from west of Broad Street to west of Camden Avenue. Construction of this project has been affected by stability problems along relocated and non-relocated portions of Ellerbe Creek and South Ellerbe Creek. The United States Army Corps of Engineers (USACE) originally issued a Nationwide and General Permit for this project on August 17, 2000 (Action ID 200020902 and General Permit No. 198200031). The North Carolina Division of Environment and Natural Resources, Division of Water Quality issued the 401 Water Quality Certification and Neuse River Buffer Certificate (NCDENR-DWQ Project No. 001040) for this project on September 29, 2000. The USACE issued a modification to the Section 404 permit and issued a Section 404 Nationwide 12 on April 10, 2001.

The purpose of this submittal is to request a modification to the Section 404 and Section 401 Water Quality Certification and Neuse Buffer Certificate. This modification is for changes to stream impacts. However, the revised permit drawings also depict other changes to the hydraulic design such as revisions to riparian buffer treatment devices, changes to structure layout, design and size, and rock planting in the riparian buffer.

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

TELEPHONE: 919-715-1534  
FAX: 919-715-5501  
WEBSITE: [WWW.NCDOT.ORG](http://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:

- Non-Erosive Velocities in Buffers
- Protected Species
- Aquatic Life passage
- FEMA compliance
- Cultural Resources

## IMPACTS

### Sheet 4 of 27 (Revised June 2006)

-Additional rip rap (approximately 7 linear meters (m)) at 3+320 Lt –LREV- has been installed along the east bank near the outlet of the structure in Zone 1 of the riparian buffer to provide for slope stability. No additional length of rip rap along the streambank has been installed beyond the limit depicted in the original permit drawing.

### Sheet 5 of 27 (Revised June 2006)

-The outlet pipe at 4+192 Lt –LREV- has been revised from a 600 mm structure to a 1200 mm structure with a headwall.

-The pre-formed scour hole at the outlet of the 1200 mm structure at 4+192 Lt –LREV- has been revised to a boulder energy dissipator.

-A pipe system in the median has been added from 4+200 to the structure at 4+282 –LREV-.

-A rock grade control structure has been installed in the unnamed tributary to South Ellerbe Creek at 4+240 Lt –LREV-. This has impacted 12 linear m of stream.

-Boulder toe protection, constructed out of natural shot rock, has been installed to stabilize the toe of the relocated stream at 4+180 Lt –LREV- (approximately 19 linear m), 4+250 Lt –LREV- (approximately 22 linear m) and 4+290 Lt –LREV- (approximately 10 linear m).

-A rock-lined ditch has been installed at the terminal section of Buchanan Boulevard near 4+120 Lt –LREV-.

-Rip rap will be added along the streambank of South Ellerbe Creek at the inlet of the culvert at 4+110 Rt. This will impact 4 linear m of stream.

**\*\*Additional channel impacted at Site 2 on this permit drawing is 16 linear m which will require mitigation.**

### Sheet 6 of 27 (Revised June 2006)

-The culvert inlet (near 4+330 Lt –LREV-) and outlet (near 4+430 Lt –LREV-) have been redesigned at a skew to provide a more normal flow. This will reduce the amount of relocated channel by 6 linear m.

-A low flow diversion, constructed of boulders, was added at the culvert inlet at 4+330 Lt –LREV- to direct low flows in the northernmost barrel.

-Additional rip rap (approximately 8 linear m) has been installed in Zone 1 of the riparian buffer to provide for slope stability at 4+330 Lt –LREV-.

-The rip rap for streambank stabilization identified at the culvert inlet (near 4+330 Lt –LREV-) and outlet (near 4+430 Lt –LREV-) on the original permit drawing has been deleted.

-An unnamed tributary to South Ellerbe Creek has been impacted by construction of the project at 4+560 Lt –LREV-. This tributary was not identified in the original permit drawings or roadway construction plan sheets. Rip rap will need to be placed along a portion of this channel to provide stability as it changes grade prior to entering the 1500 mm overflow structure. This will impact 10 linear m of stream. Note that this channel is also depicted on Sheet 7 of 27.

-A cross vane rock weir has been installed at 4+460 Lt –LREV-.

**\*\*Additional channel impacted at Site 2 on this permit drawing is 10 m.**

**\*\*Relocated channel at Site 2 on this permit drawing has been reduced by 6 m.**

**Both impacts will require mitigation.**

#### Sheet 7 of 27 (Revised June 2006)

-A pre-formed scour hole has been added at 1+250 Lt –DUKELPA-. This device replaces a rip rap pad depicted on the original permit drawing.

-An open throat catch basin (OTCB) has been installed at the outlet of a structure at 1+100 Lt –DUKELPA-. The structure has been revised from a 600 mm pipe to a 900 mm pipe. The OTCB will serve as a stormwater detention device (note: a stormwater wetland has developed in this gore area).

#### Sheet 8 of 27 (Revised June 2006)

-The rip rap identified along the streambank at the culvert outlet at Station 1+220 Rt –DUKERPA- on the original permit drawing has been omitted. Additional rip rap (approximately 18 linear m) has been installed within Zone 1 of the riparian buffer for slope stabilization at this site.

#### Sheet 9 of 27 (Revised June 2006)

-Additional rip rap has been installed to provide streambank stabilization at the culvert outlet at Station 0+330 Lt –Y4-. This has impacted 11 linear m of stream.

-Additional rip rap has been installed to provide streambank stabilization at the culvert inlet at Station 0+330 Rt –Y4-. This has impacted 3 linear m of stream.

-A 1500 mm overflow pipe has been installed on the south side of the culvert to reduce the upstream 100 year surface water elevation near 0+340 –Y4-. A riser pipe will be installed near the inlet of the overflow pipe to control water flow in the stormwater wetland.

**\*\*Additional channel impacted at Site 2 on this permit drawing is 14 linear m which will require mitigation.**

#### Sheet 10 of 27 (Revised June 2006)

-A low flow diversion, constructed of boulders, was added at the culvert inlet at 5+440 Lt –LREV- to direct low flows in the southernmost barrel.

-Additional rip rap is required for streambank stabilization along relocated Ellerbe Creek at 5+465 to 5+515 Lt –LREV-. This rip rap is required to provide long-term stabilization around the outlet of a 375 mm structure, concrete footings of above-ground sewer crossing and the unstable north and south bank of relocated South Ellerbe Creek.

Please note that relocated South Ellerbe Creek in this location is in a high velocity area at its confluence with a tributary to South Ellerbe Creek. This will impact 50 linear m of relocated stream.

-Additional rip rap is required for streambank stabilization along Ellerbe Creek at 5+540 Lt –LREV-. This rip rap is required to provide stabilization around the outlet of a 600 mm structure.

This 600 mm structure has been conveying a substantial amount of water due to the presence of beavers located across I-85 at the inlet of the 600 mm structure. This will impact 3 linear m of stream.

-Additional rip rap (approximately 30 linear m) has been installed in Zone 1 of the riparian buffer to provide for slope stability at 5+530 to 5+550 Lt –LREV-.

-A pre-formed scour hole has been added 5+590 Lt –LREV-. This device replaces a rip rap pad depicted on the original permit drawing.

-Additional rip rap has been installed to provide streambank stabilization at an above-stream bed grade utility line crossing at an unnamed tributary to South Ellerbe Creek at 5+470 Rt –LREV-. This has impacted 5 m of stream.

**\*\*Additional channel impacted at Site 10 on this permit drawing is 8 linear m.**

**\*\*A total of 50 linear m of relocated South Ellerbe Creek will need to be stabilized with rip rap at Site 2 on this permit drawing.**

**Both impacts will require mitigation.**

#### Sheet 11 of 27 (Revised June 2006)

-Rock plating (approximately 110 linear m) has been installed in Zone 1 of the riparian buffer from 1+130 to 1+240 Lt –ROXB-. This was a requirement from NCDOT soils and foundation unit to stabilize the soils in this location.

-Rip rap toe protection (approximately 20 linear m) has been installed in Zone 1 and 2 of the riparian buffer along toe of the fill slope from 1+240 to 1+260 Lt –ROXB-.

-Additional rip rap has been installed to provide streambank stabilization along relocated Ellerbe Creek at Station 1+145 Lt –ROXB- at the outlet of a 900 mm structure. This has impacted 4 m of relocated stream.

-Revised pipe diameters have been depicted on structures located from 1+250 to 1+300 Lt –ROXB-.

-A 375 mm structure has been added that will drain to a 2 x 2 pre-formed scour hole at 0+340 Rt –Y6-. This is necessary to reconnect the outlet of an existing off-site catch basin that was inadvertently plugged during construction of the drainage system along Roxboro Road.

-A 2 x 2 pre-formed scour hole located at 1+290 Lt –ROXB- has been resized to a 3 x 3 pre-formed scour hole. A 900 mm csp structure outlets into this pre-formed scour hole.

**\*\*A total of 4 m of relocated Ellerbe Creek has been stabilized with rip rap at Site 13 on this permit drawing which will require mitigation.**

#### Sheet 12 of 27 (Revised June 2006)

-A 2 x 2 pre-formed scour hole located at 0+530 Lt –Y7- has been revised to a 4 x 4 pre-formed scour hole. Additionally, a conflict junction box has been added to the drainage system that flows to this pre-formed scour hole to accommodate a conflict with a utility gas line. The structure connecting the conflict junction box to the pre-formed scour hole has been revised to a 1050 mm structure.

-A 1650 mm structure (that conveys a perennial stream) has been installed at 1+175 Lt –CONAB- to outlet directly in the floodplain of relocated Ellerbe Creek. Rip rap will be needed along the banks of the channel to its confluence with relocated Ellerbe Creek to provide bank stability. This will impact 4 m of relocated stream.

**\*\*A total of 4 m of relocated Ellerbe Creek will need to be stabilized with rip rap at Site 13 on this permit drawing which will require mitigation.**

Sheet 14 of 17 (Revised June 2006)

-A cross-vane rock weir will be installed in an unnamed tributary to Ellerbe Creek at 1+275 Rt – CONCD-.

Sheet 17 of 27 (Revised June 2006)

-The 4 x 4 pre-formed scour hole located at 0+530 Lt –Y7- is now depicted on this permit drawing.

-A 3 x 3 pre-formed scour hole has been installed at the outlet of a 750 mm structure located at 1+310 –AVONA-.

Riparian Buffer Impacts

Construction revisions identified within the revised permit drawings do not result in additional impacts to riparian buffer. The installation of minor amounts of rip rap in the previously permitted riparian buffer impact are contained within the previously permitted area.

Mitigation

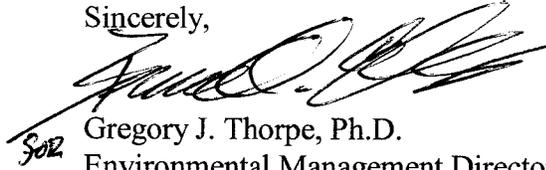
Additional stream impacts total 112 meters (367 feet). Previous NCDOT permit applications (dated April 11, 2000 and August 7, 2000) indicated that compensatory mitigation for stream impacts were conducted at a 1:1 ratio. The NCDOT is proposing to make payment to the EEP for the increased impacts to streams at a 1:1 ratio. The acceptance letter from EEP for the mitigation is enclosed with this application.

**Regulatory Approvals**

Application is hereby made for the modification of the Section 404 and Section 401 Water Quality Certification and Neuse Buffer Certification from the NCDENR-DWQ. The modification of the permit site on this project (I-306DB) has been designed to comply with the Riparian Buffer Mitigation Program (15A NCAC 2B .0242) and the Neuse River Basin Riparian Buffer Rules (15A NCAC 2B .0233). Therefore, as part of the Modification request, we respectfully request that the NCDENR-DWQ issue an Authorization Certificate pursuant to 15A NCAC 2B .0233 for the proposed use. In compliance with Section 143-215.3D(e) of the NCAA we have provided a method of debiting \$475, 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 NCDENR-DWQ, for their use.

If you have any questions or need additional information, please call Rachelle Beauregard at (919) 715-1383 or Chris Murray at (919) 560-6081.

Sincerely,



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

w/attachment

Mr. John Hennessy, NCDWQ (5 Copies)  
Mr. Travis Wilson, NCWRC  
Mr. Gary Jordan, USFWS  
Ms. Kathy Matthews, USEPA  
Mr. Ronald Mikulak, USEPA – Atlanta, GA  
Mr. Clarence W. Coleman, P.E., FHWA  
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  
Mr. Todd Jones, NCDOT External Audit Branch  
Ms. Beth Harmon, EEP



July 31, 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:

**I-0306DB**, I-85 Widening from West of Broad Street to West of Camden Avenue, Durham County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you in a letter dated July 14, 2006, the impacts are located in CU 03020201 of the Neuse River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream: 367 feet (Warm)

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 signed on July 22, 2003. EEP will commit to implementing sufficient compensatory stream 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 that reads "James B. Standish Jr".

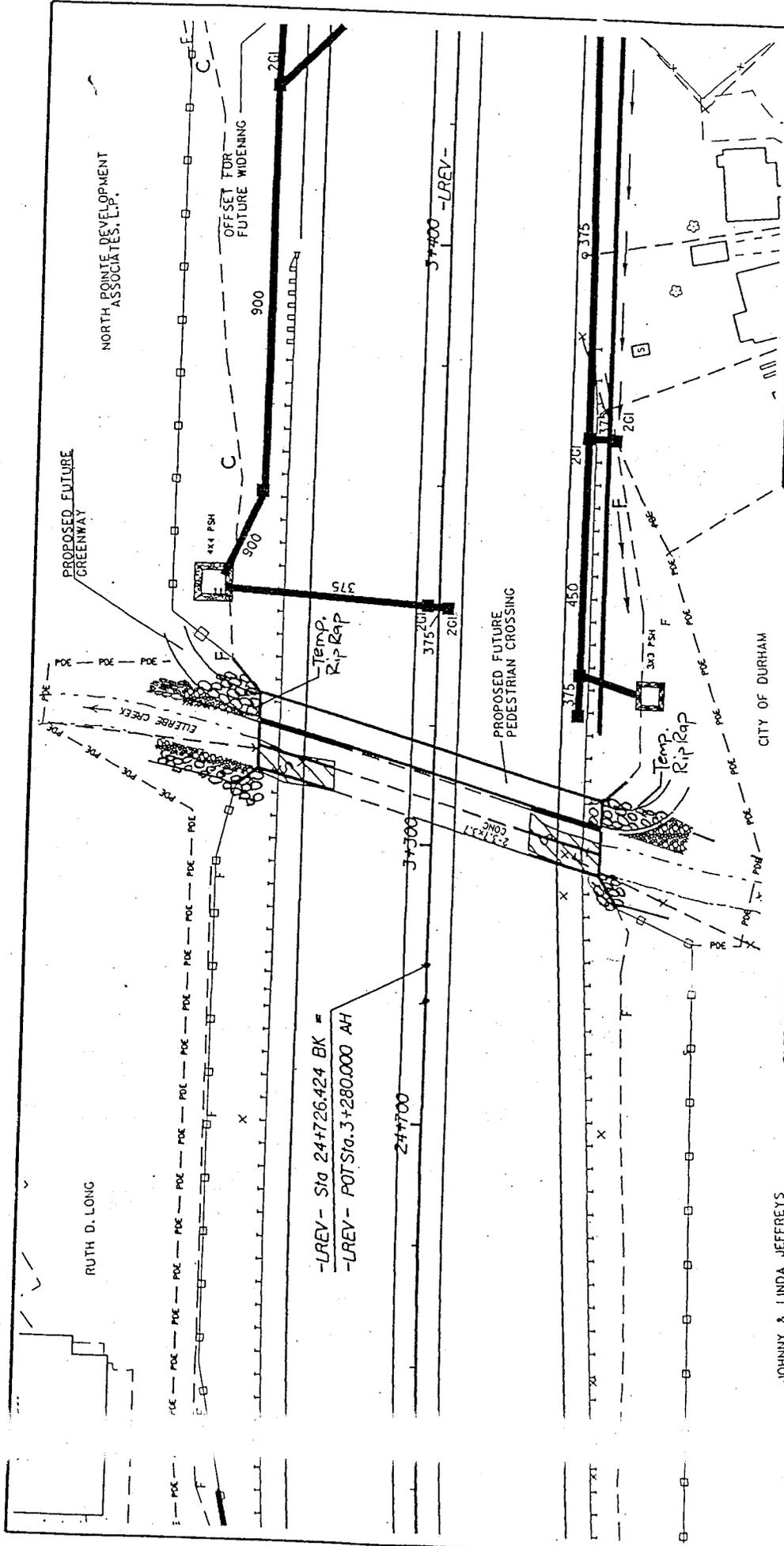
William D. Gilmore, P.E.  
EEP Director

cc: Mr. Eric Alsmeyer, USACE-Raleigh  
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit  
File: I-0306DB

*Restoring... Enhancing... Protecting Our State*



North Carolina Ecosystem Enhancement Program, 1652 Mail Service Center, Raleigh, NC 27699-1652 / 919-715-0476 / [www.nceep.net](http://www.nceep.net)

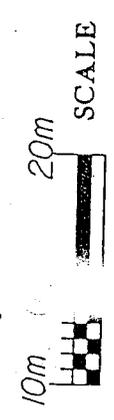


-LREV- Sta 24+726.424 BK =  
 -LREV- POT Sta. 3+280.000 AH

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 DURHAM COUNTY  
 PROJECT: 8.1414801 (I-0306DB)  
 I-85 FROM WEST OF BROAD  
 STREET TO WEST OF CAMDEN  
 AVENUE IN DURHAM  
 SHEET 4 OF 27 Rev 1/04

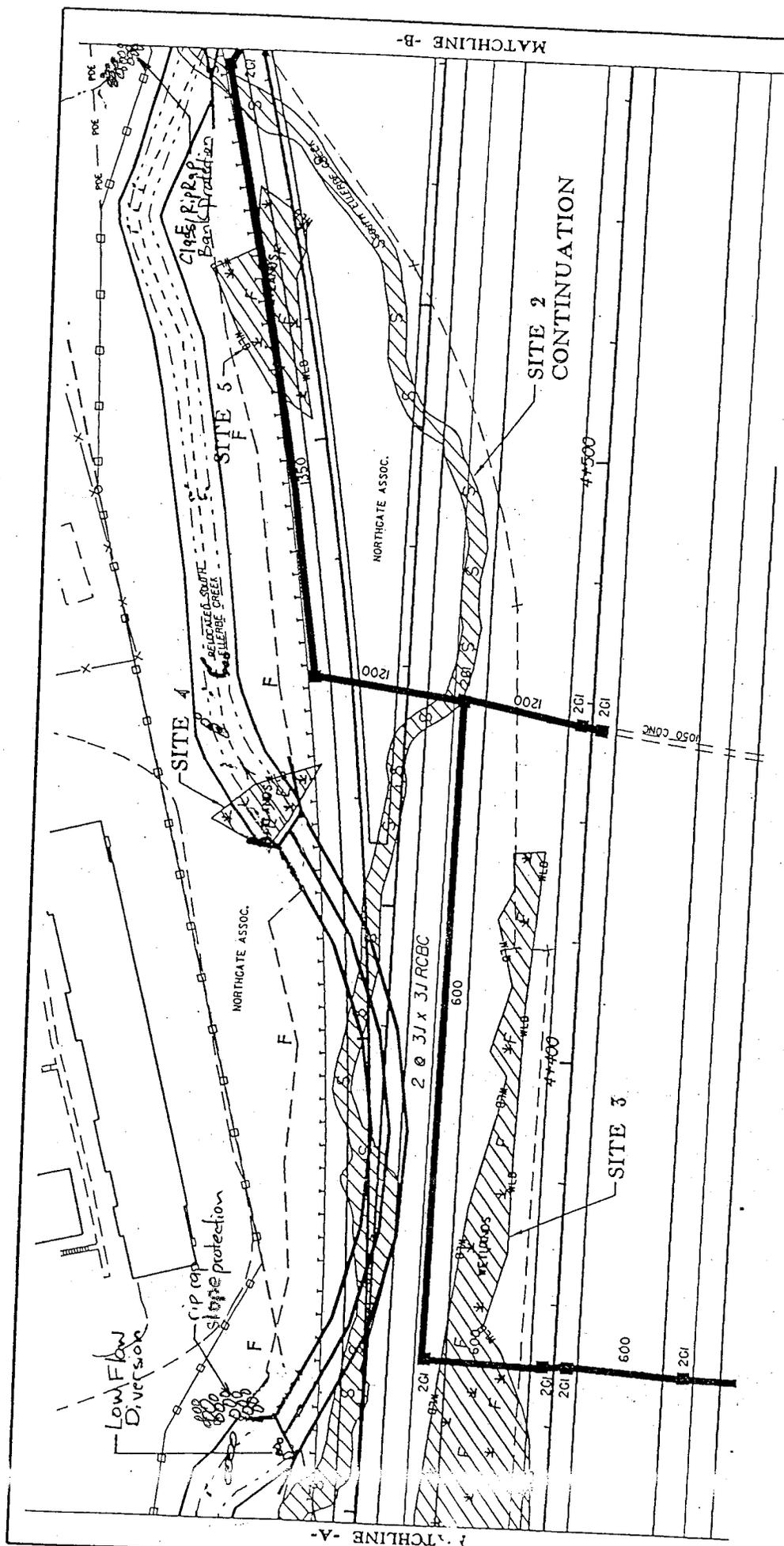
# SITE I PLAN VIEW

JOHNNY & LINDA JEFFREYS



Rev. 6/06

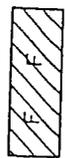
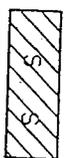


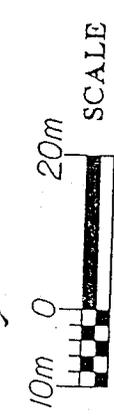


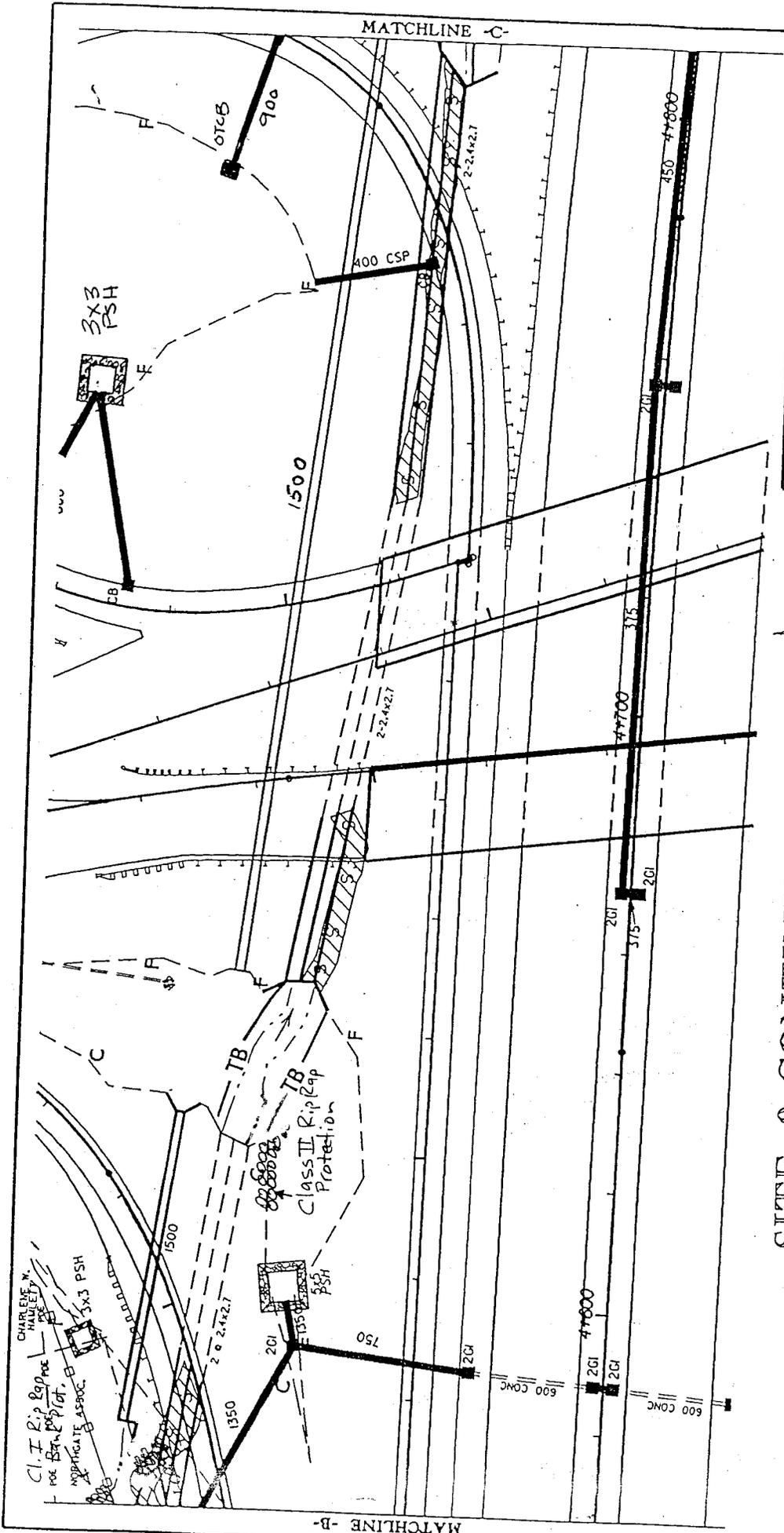
N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 DURHAM COUNTY  
 PROJECT: 8.1414801 (I-0306DB)  
 I-85 FROM WEST OF BROAD  
 STREET TO WEST OF CAMDEN  
 AVENUE IN DURHAM  
 SHEET 6 OF 27  
 REV. 3/05  
 REV. 1/04  
 Rev. 6/06



PLAN VIEW

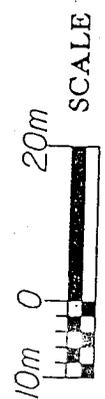
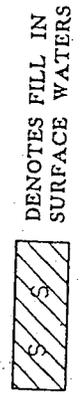
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-  DENOTES FILL IN SURFACE WATERS
-  DENOTES EXCAVATION IN WETLANDS

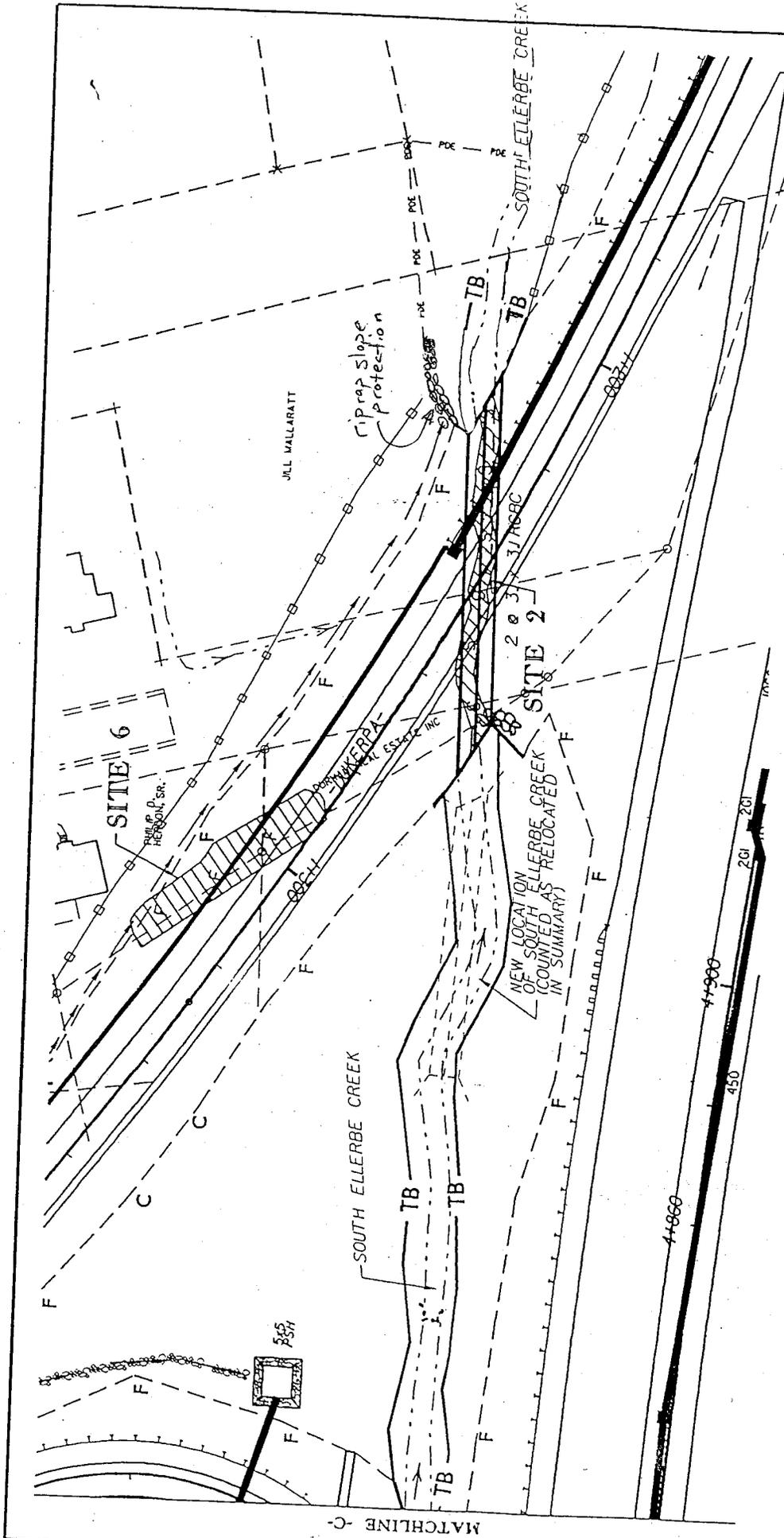




# SITE 2 CONTINUATION PLAN VIEW

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 I-85 FROM WEST OF BROAD  
 STREET TO WEST OF CAMDEN  
 AVENUE IN DURHAM  
 rev. 3/05  
 SHEET 7 OF 27 rev 1/04

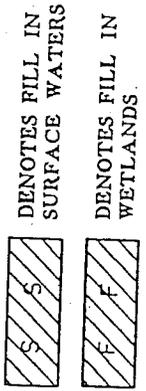




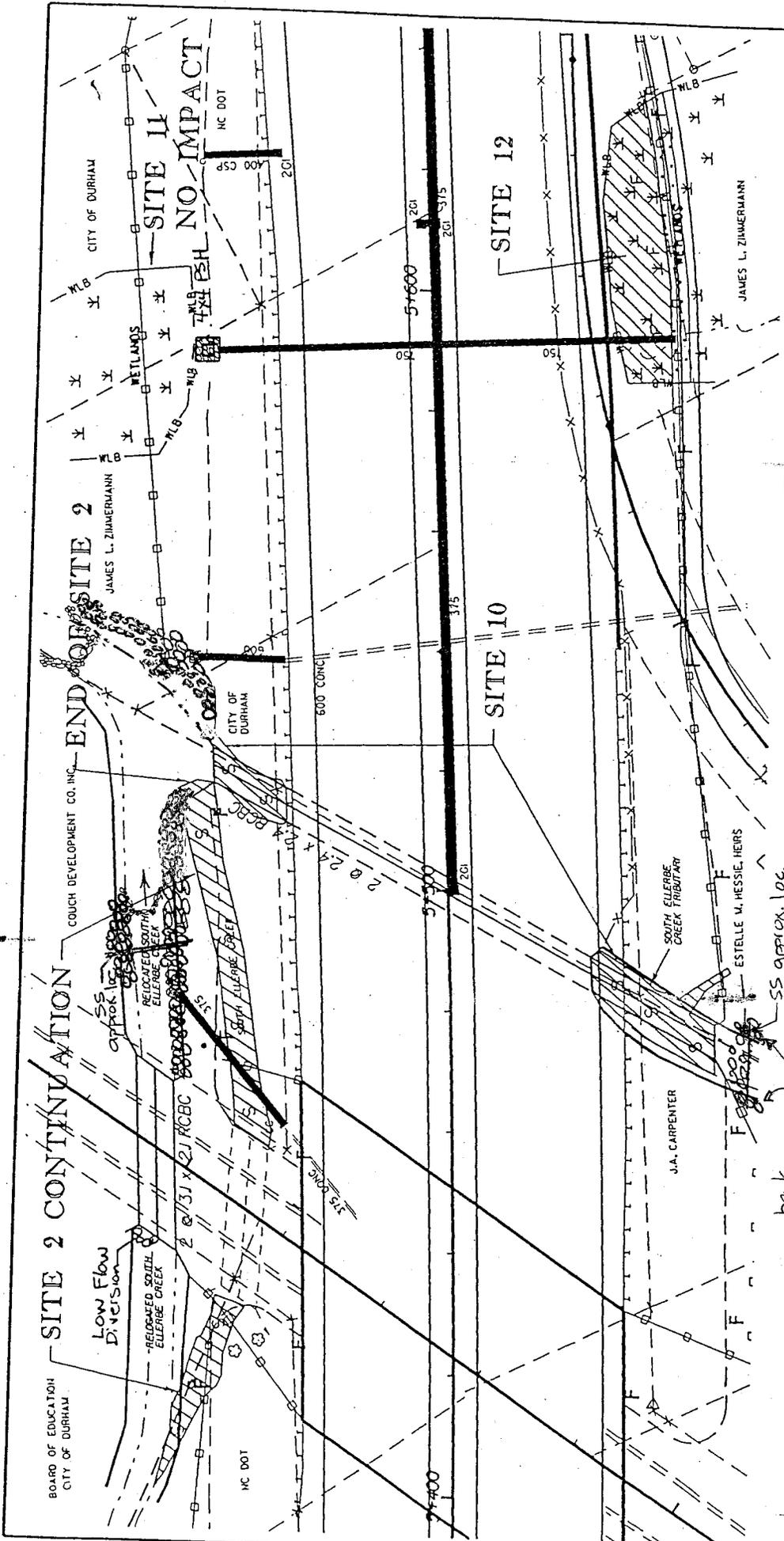
N. C. DEPT. OF TRANSPORTATION  
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 I-85 FROM WEST OF BROAD  
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 AVENUE IN DURHAM  
 SHEET 8 OF 27  
 rev: 3/05  
 rev: 1/04



PLAN VIEW

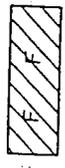
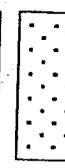


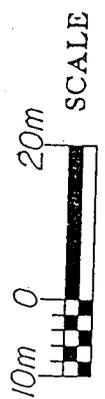


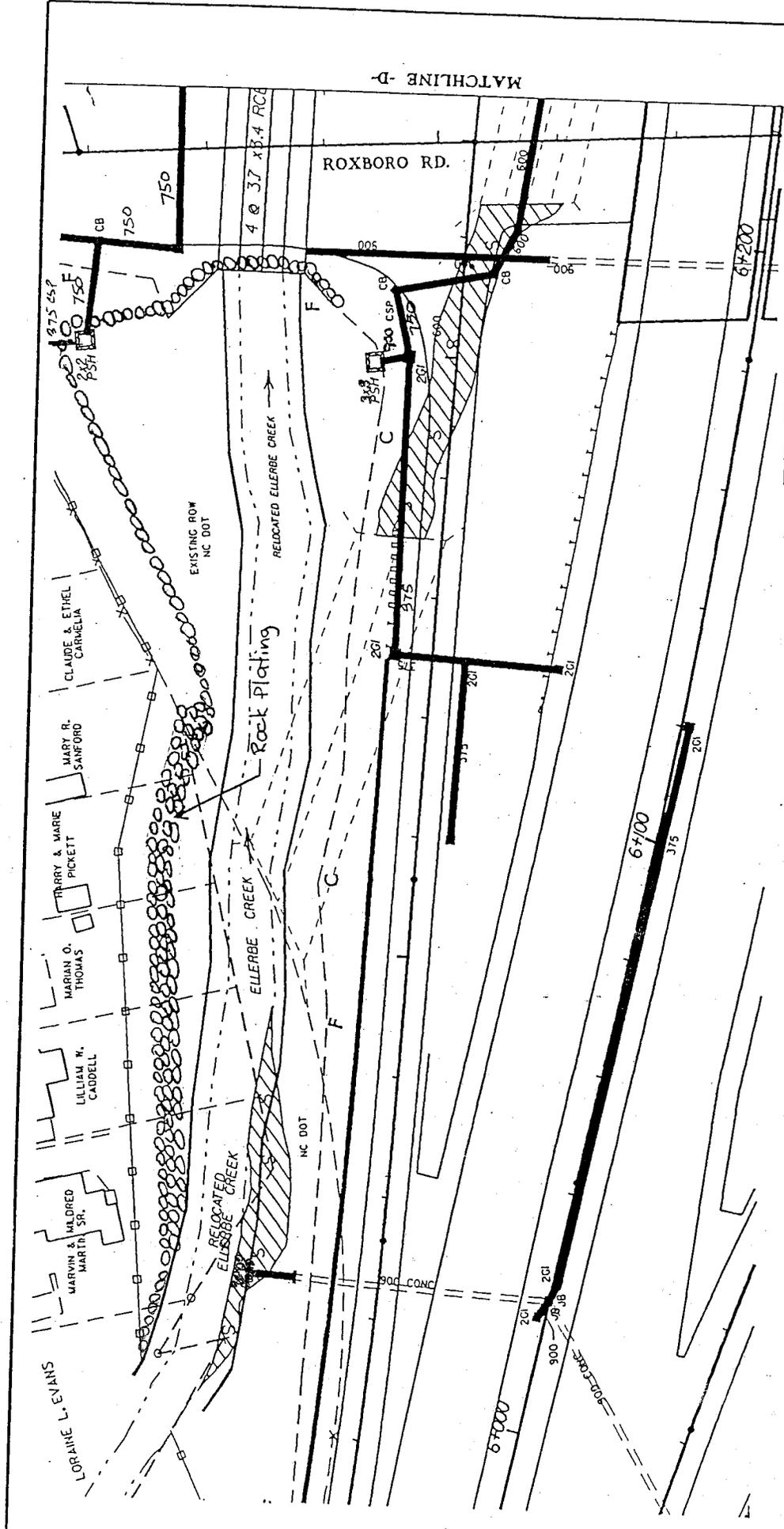


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 I-85 FROM WEST OF BROAD  
 STREET TO WEST OF CAMDEN  
 AVENUE IN DURHAM,  
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 SHEET 10 OF 27 rev. 1/04

PLAN VIEW

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



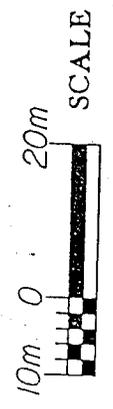


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 rev. 3/04  
 SHEET 11 OF 27 rev. 1/04



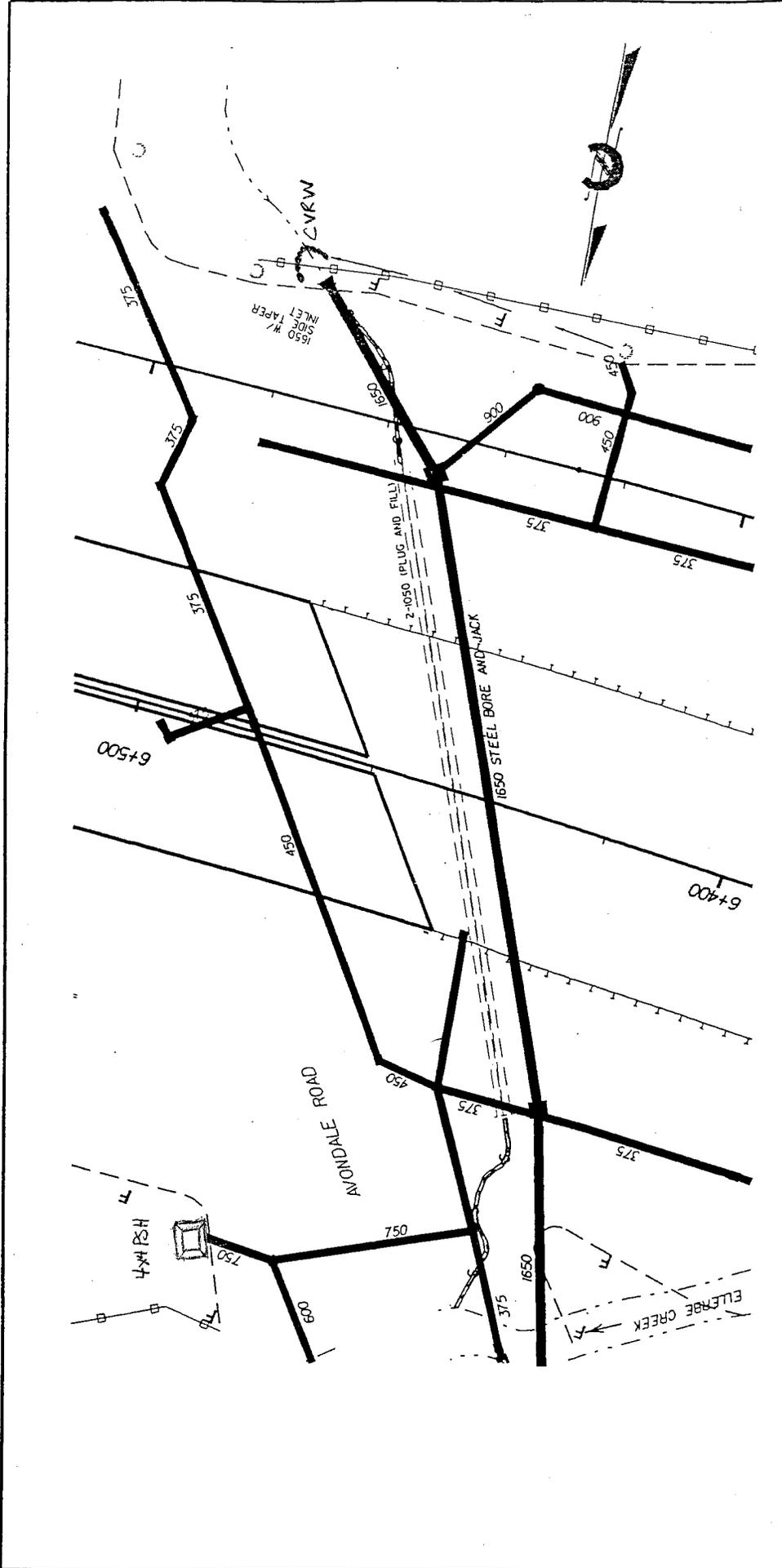
PLAN VIEW  
 SITE 13

SS DENOTES FILL IN SURFACE WATERS



Rev. 6/06

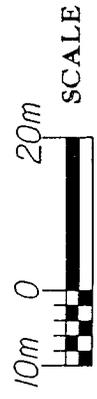
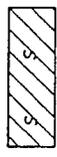


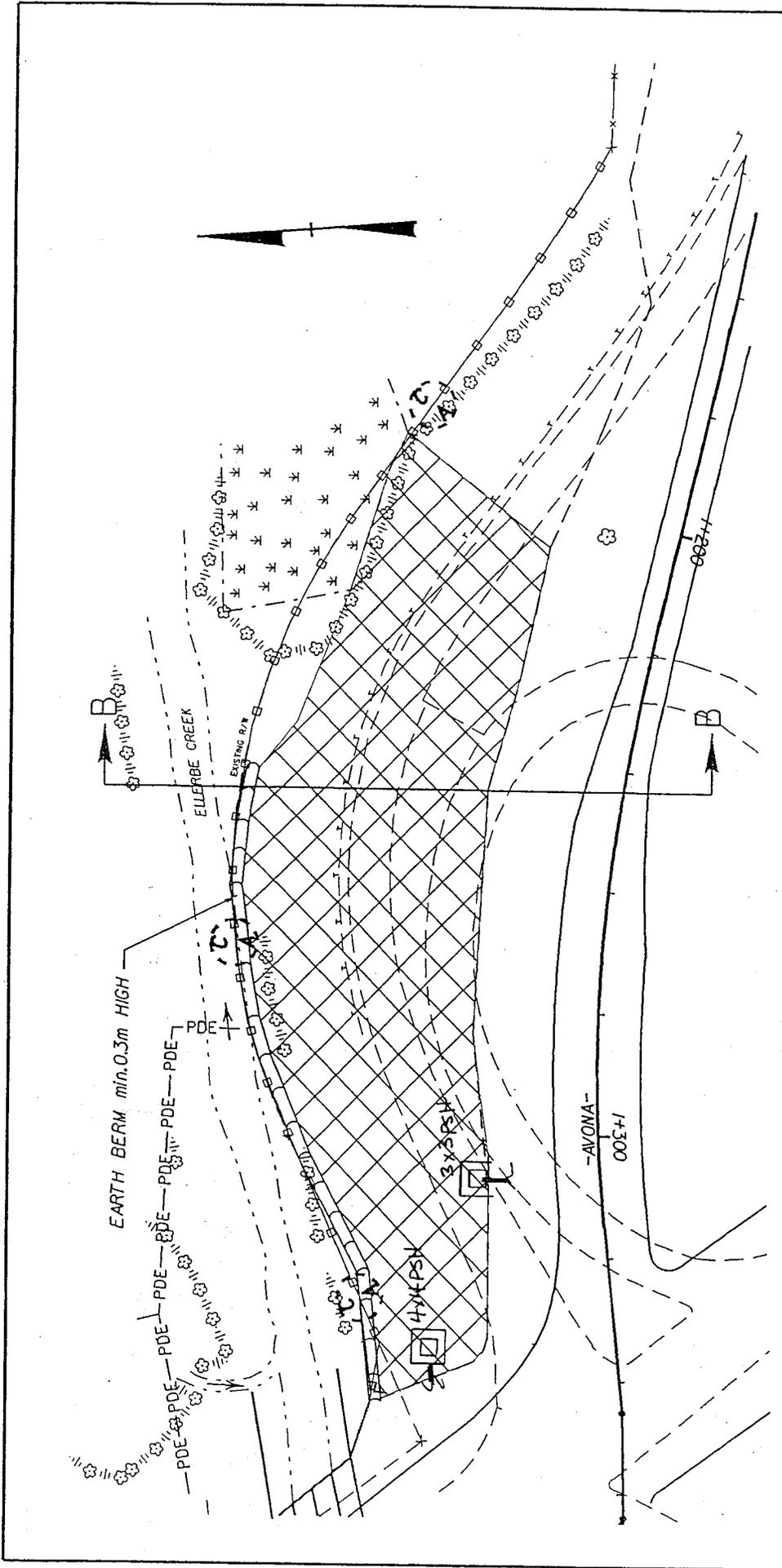


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 PROJECT: 8.1414801 (1-0306DB)  
 I-85 FROM WEST OF BROAD  
 STREET TO WEST OF CAMDEN  
 AVENUE IN DURHAM

**SITE 15**

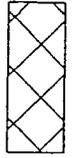
DENOTES FILL IN  
 SURFACE WATERS





PLAN VIEW  
 WETLAND CREATION SITE  
 NEAR AVONDALE ROAD

DENOTES EXCAVATION IN FLOOD PLAIN  
 FOR WETLAND CREATION  
 0.463 ha.



N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 DURHAM COUNTY

PROJECT: 8.1414801 (I-0306DB)  
 I-85 FROM WEST OF BROAD ST.  
 TO WEST OF CLUB BLVD.