



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.  
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

E. NORRIS TOLSON  
SECRETARY

June 2, 1998

MEMORANDUM TO: Mr. F. D. Martin, P.E.  
Division 14 Engineer

FROM: David C. Robinson, Ph.D., P.E. *Beth Robinson*  
Assistant Manager *DR*  
Planning and Environmental Branch

SUBJECT: Graham and Swain Counties, US 74 from SR 1232 to SR 1121 at  
Almonds; State Project Nos. 8.T991202 and 6.939001T; T.I.P. #s  
A-9DB and A-9DC

Attached are the U. S. Army Corps of Engineers Individual Permit and the Division of Water Quality 401 Certification for the above referenced project. All environmental permits have been received for the construction of this project.

DCR/eah

Attachment

cc: Mr. G. T. Shearin, P.E.  
Mr. Whit Webb, P.E.  
Mr. A. L. Hankins, P.E.  
Mr. Victor Barbour, P.E.  
Mr. William Rogers, P.E.  
Mr. W. D. Johnson, P.E.  
Mr. N. L. Graf, FHWA  
Mr. R. L. Hill, P.E. (cover only)  
Mr. Gary Jessup (cover only)





DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS

P.O. BOX 1890  
WILMINGTON, NORTH CAROLINA 28402-1890

May 26, 1998

IN REPLY REFER TO

Regulatory Division

Action ID. 199505335

Mr. David C. Robinson  
Planning and Environmental Branch  
North Carolina Department of Transportation  
Post Office Box 25201  
Raleigh, North Carolina 27611-5201

Dear Sir:

In accordance with your written request of June 2, 1997, and the ensuing administrative record, enclosed is a Department of the Army (DA) permit to place fill material into 1.5 acres of wetlands and 3.6 acres of surface waters including 5240 linear feet of stream channel piping and/or relocation affecting the waters and adjacent wetlands of Fontana Lake, Tobacco Branch, Panther Creek and Little Horse Branch to facilitate the widening and realignment of a 3.6-mile long section of N.C. Highway 28 west of Almond, Graham and Swain Counties, North Carolina (State Project No. 8.3019122, TIP No. A-9 DB/DC).

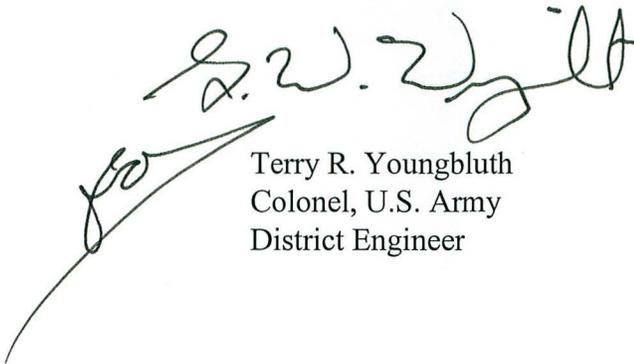
If any change in the authorized work is required because of unforeseen or altered conditions or for any other reason, the plans revised to show the change must be sent promptly to this office. Such action is necessary, as revised plans must be reviewed and the permit modified.

Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

- a. You must complete construction before December 31, 2001
- b. You must notify this office in advance as to when you intend to commence and complete work.
- c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

The enclosed Notice of Authorization, ENG Form 4336, must be conspicuously displayed at your worksite.

Sincerely,

A handwritten signature in black ink, appearing to read "T.R. Youngbluth", written over a horizontal line. The signature is stylized and cursive.

Terry R. Youngbluth  
Colonel, U.S. Army  
District Engineer

Enclosures

Copy Furnished with enclosures:

Chief, Source Data Unit  
NOAA/National Ocean Service  
ATTN: Sharon Tear N/CS261  
1315 East-west Hwy., Rm 7316  
Silver Spring, MD 20910-3282

Mr. William L. Cox, Chief  
Wetlands Protection Section - Region IV  
Water Management Division  
U.S. Environmental Protection Agency  
61 Forsyth Street  
Atlanta, Georgia 30303

Copies Furnished with special conditions  
and plans:

U.S. Fish and Wildlife Service  
Fish and Wildlife Enhancement  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

Mr. John Parker  
Division of Coastal Management  
North Carolina Department of  
Environment and Natural Resources  
Post Office Box 27687  
Raleigh, North Carolina 27611-7687

Mr. Larry Hardy  
National Marine Fisheries Service  
Pivers Island  
Beaufort, North Carolina 28516



DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS

P.O. BOX 1890  
WILMINGTON, NORTH CAROLINA 28402-1890

March 23, 1998

IN REPLY REFER TO

Regulatory Division

Action ID No. 199505335



Mr. H. Franklin Vick  
Planning and Environmental Branch  
North Carolina Department of Transportation  
Post Office Box 25201  
Raleigh, North Carolina 27611-5201

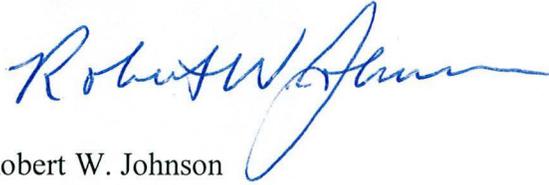
Dear Mr. Vick:

In accordance with your written request of June 2, 1997, and the ensuing administrative record, enclosed are two copies of a permit to place fill material into 1.5 acres of wetlands and 3.6 acres of surface waters including 5240 linear feet of stream channel piping and/or relocation affecting the waters and adjacent wetlands of Fontana Lake, Tobacco Branch, Panther Creek and Little Horse Branch to facilitate the widening and realignment of a 3.6-mile long section of NC Highway 28 west of Almond, Graham and Swain Counties, North Carolina (State Project No. 8.3019122, TIP No. A-9 DB/DC).

You should acknowledge that you accept the terms and conditions of the enclosed permit by signing and dating each copy in the spaces provided ("Permittee" on page 3). Your signature, as permittee, indicates that, as consideration for the issuance of this permit, you voluntarily accept and agree to comply with all of the terms and conditions of this permit. Per your mitigation proposal, we have utilized credits from the Tulula Creek Mitigation Site for both wetland and stream channel impacts associated with this work. In order to effectively manage this multi-project mitigation bank and comply with Federal guidance, we must have a signed mitigation banking agreement for this site. Therefore, we will not agree to any further debits from the Tulula Creek Mitigation Site until you provide a banking agreement that is acceptable to the mitigation banking team. All pages of both copies of the signed permit with drawings should then be returned to this office for final authorization. A self-addressed envelope is enclosed for your convenience.

After the permit is authorized in this office, the original copy will be returned to you; the duplicate copy will be permanently retained in this office. Should you have questions, please contact Mr. Steven Lund in our Asheville Regulatory Field Office at telephone (704) 271-4857.

Sincerely,



Robert W. Johnson  
Office Manager  
Asheville Regulatory Field Office

Enclosures

DEPARTMENT OF THE ARMY PERMIT

RECEIVED

MAY 06 1998

REGULATORY

Permittee North Carolina Department of Transportation

Permit No. 199505335

Issuing Office CESAW-RG-A

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

to place fill material into 1.5 acres of wetlands and 3.6 acres of surface waters including 5240 linear feet of stream channel piping and/or relocation affecting the waters and adjacent wetlands of Fontana Lake, Tobacco Branch, Panther Creek and Little Horse Branch to facilitate the widening and realignment of a 3.6-mile long section of NC Highway 28

Project Location:

west of Almond, Graham and Swain Counties, North Carolina (State Project No. 8.3019122, TIP No. A-9 DB/DC)

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2001. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**Special Conditions:**

**SEE ATTACHED SPECIAL CONDITIONS**

**Further Information:**

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

Section 404 of the Clean Water Act (33 U.S.C. 1344).

Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

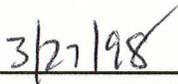
c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

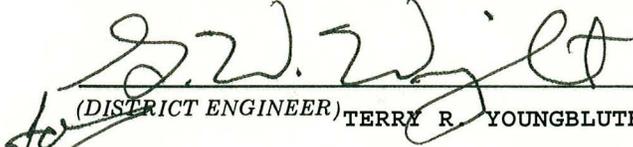
6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

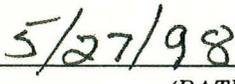
Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

  
\_\_\_\_\_  
(PERMITTEE) Mr. H. Franklin Vick

  
\_\_\_\_\_  
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

  
\_\_\_\_\_  
(DISTRICT ENGINEER) TERRY R. YOUNGBLUTH, COLONEL

  
\_\_\_\_\_  
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

\_\_\_\_\_  
(TRANSFEREE)

\_\_\_\_\_  
(DATE)

## SPECIAL CONDITIONS

1. All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit.
2. In order to protect trout waters resources, stringent erosion control measures will be installed and maintained on all fill slopes, cut slopes, waste disposal areas, channel fills and relocations, and other disturbed areas until such areas are well stabilized. The Corps of Engineers may direct the permittee to repair, add or upgrade erosion control measures where inspections indicate such action is warranted to protect aquatic resources.
3. All conditions of Section 401, Clean Water Act, Water Quality Certification No. 3179 issued by the North Carolina Division of Water Quality on February 9, 1998, should be regarded as conditions of this Department of the Army permit.
4. All channel relocations will be designed and constructed according to the North Carolina Wildlife Resources Commission's Guidelines for Stream Relocation and Restoration in North Carolina, November 1996 to the maximum extent practicable. Prior to initiating any channel relocation work, the permittee and his contractor will meet onsite with representatives from the Corps of Engineers and the NC Wildlife Resources Commission to review design details for the Little Horse Branch relocation.
5. The permittee shall schedule a preconstruction meeting between their representatives, the contractor, and a representative from the Corps of Engineers, Asheville Regulatory Field Office prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all terms and conditions contained in this Department of the Army permit. The permittee shall notify the Corps of Engineers a minimum of thirty (30) days in advance of the meeting.
6. The permittee and his contractors and/or agents shall not excavate, fill or perform land clearing at any time in the construction or maintenance of this project within waters and/or wetlands except as authorized by this permit or any modification to this permit. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit.
7. To ensure that all borrow and waste activities occur on uplands, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material or to dispose of excess dredged, fill or waste material. The permittee shall ensure that all such areas comply with Special Condition No. 6 of this permit and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with Special Condition No. 6 above. All information will be available to the Corps of Engineers upon request.

8. In order to compensate for unavoidable impacts to waters and wetlands, the permittee will restore and/or enhance 3 acres of wetlands and 3077 linear feet of stream channel on the property identified in the Stream and Wetland Mitigation Plan, Tulula Creek Wetlands Mitigation Bank, Graham County, North Carolina, dated September 1997. This mitigation will be integrated into the overall plan to restore streams and wetlands to those portions of the 232-acre site that retain hydric soils. More specific wetland mitigation success criteria, monitoring and reporting requirements, property dispensation requirements, and the like will be incorporated into this permit as a modification upon completion of the mitigation banking agreement for the Tulula Creek site or by December 31, 1999, whichever occurs first. The stream and wetland mitigation work for TIP No. A-9 DB/DC should commence by March 15, 1999 and be completed by December 31, 1999.

9. The permittee shall identify and survey the acreage restored and/or enhanced to satisfy Special Condition No. 8 (the mitigation property), and provide a copy of the survey to the Corps of Engineers, Asheville Regulatory Field Office, within 30 days of the date of this permit.

10. The permittee will maintain the mitigation property in its current condition, as modified by implementation of the mitigation plan. Prohibited activities within the mitigation property, except as required by the mitigation plan, include but are not limited to the construction or placement of buildings, signs, or any debris, waste or garbage; excavation, grading, dredging, leveling or other earth moving activity; cutting, removal or damage of any vegetation; any activity which would impact the drainage or water quality on the site; and the use of the property for any agricultural purpose including the watering of any livestock.

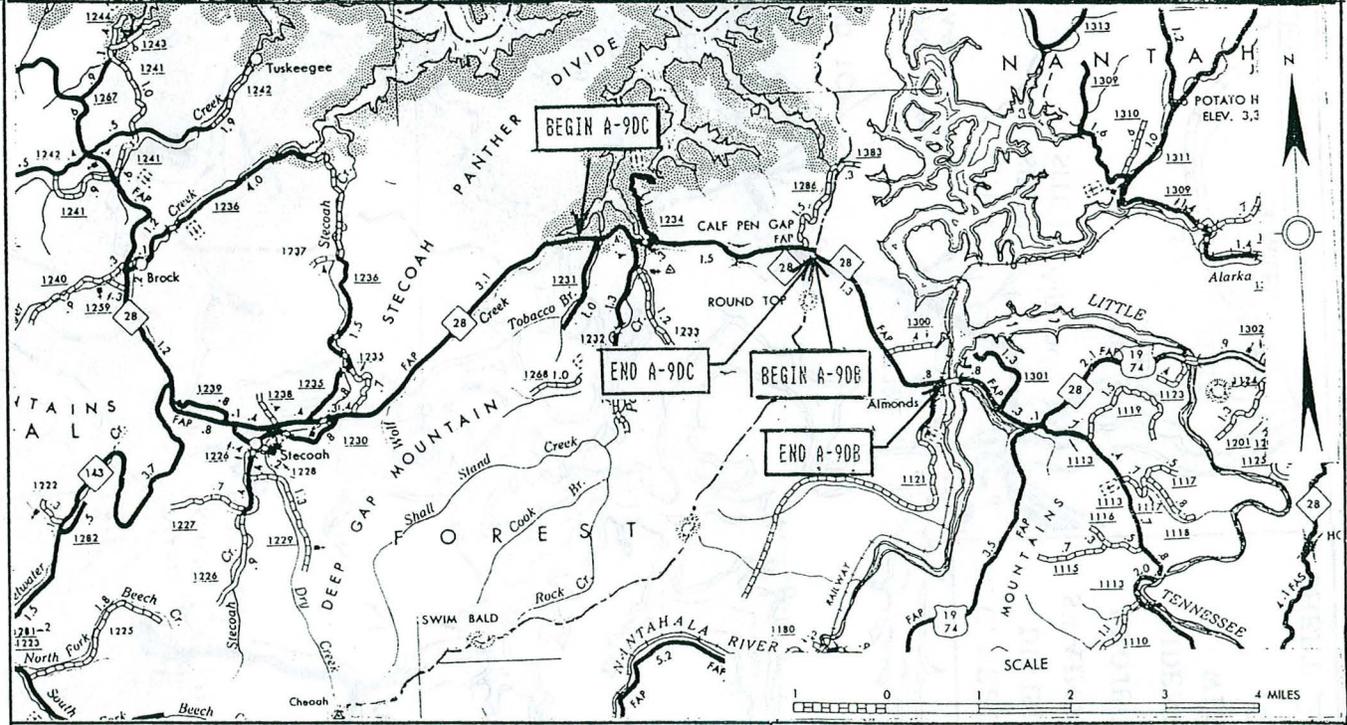
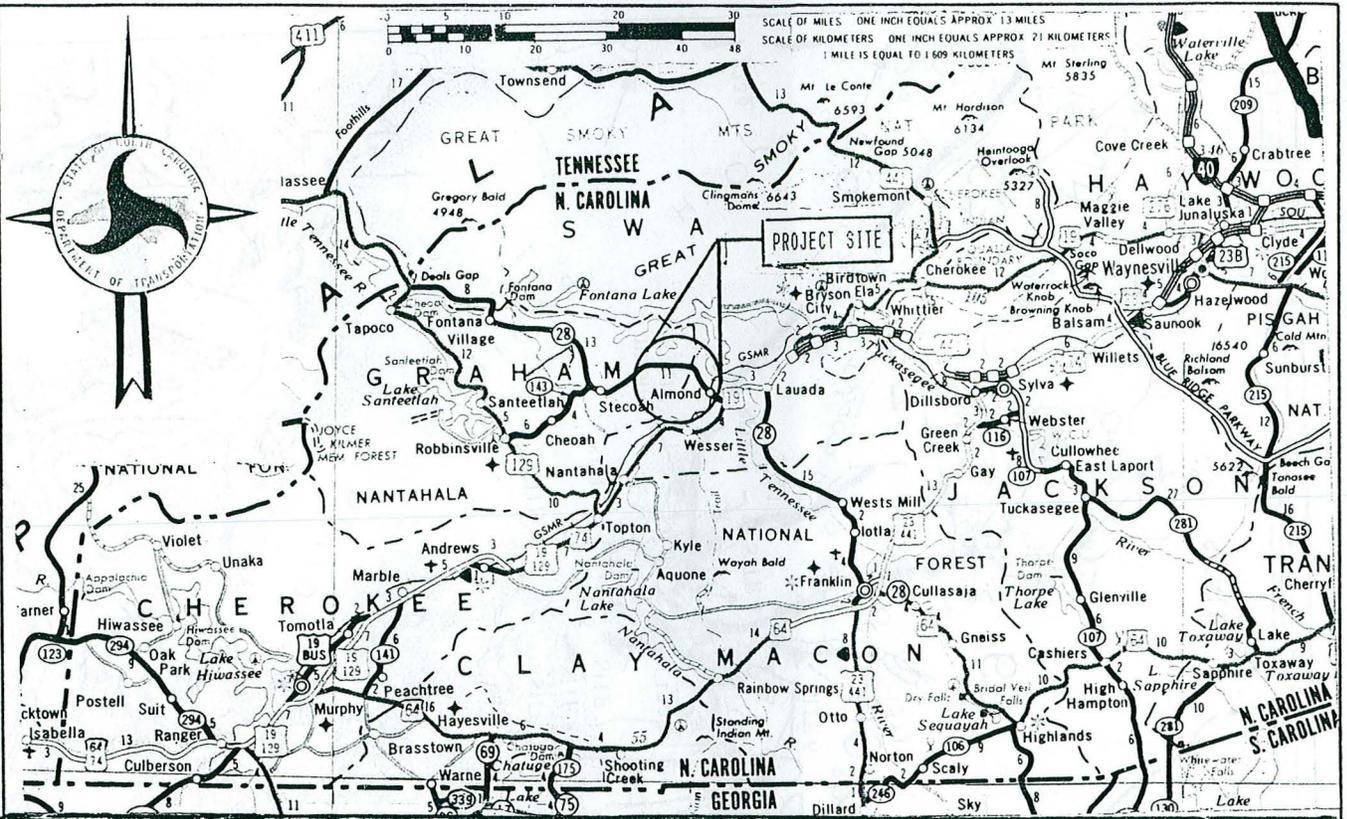
11. Special Condition No. 10, above, runs with the land. The permittee shall not sell, lease, or otherwise convey any interest in the mitigation property without the written consent of the Corps of Engineers. Any such conveyance shall be to an acceptable conservation, or shall be subject to restrictions designed to maintain the property in its mitigated state, approved by the Corps of Engineers.

12. Baffles shall be constructed in the bottom of the authorized concrete box culverts at 15-foot intervals to allow for the accumulation of natural substrate materials, reduce flow velocities and provide resting places for fish moving through the structures.

13. In order to monitor for the exposure of sulfidic (acid) rock, the permittee will continue the existing water quality sampling program of surface waters in the project area until construction is completed. Existing baseline data will be provided to the Corps of Engineers, Asheville Regulatory Field Office, the North Carolina Division of Water Quality and the North Carolina Wildlife Resources Commission. Following initiation of construction, water quality sampling data will be provided to these agencies on a monthly basis. A pH reading of 6.0 or below will trigger implementation of the same acid rock contingency plan developed for TIP No. A-10, Action ID No. 199505135.

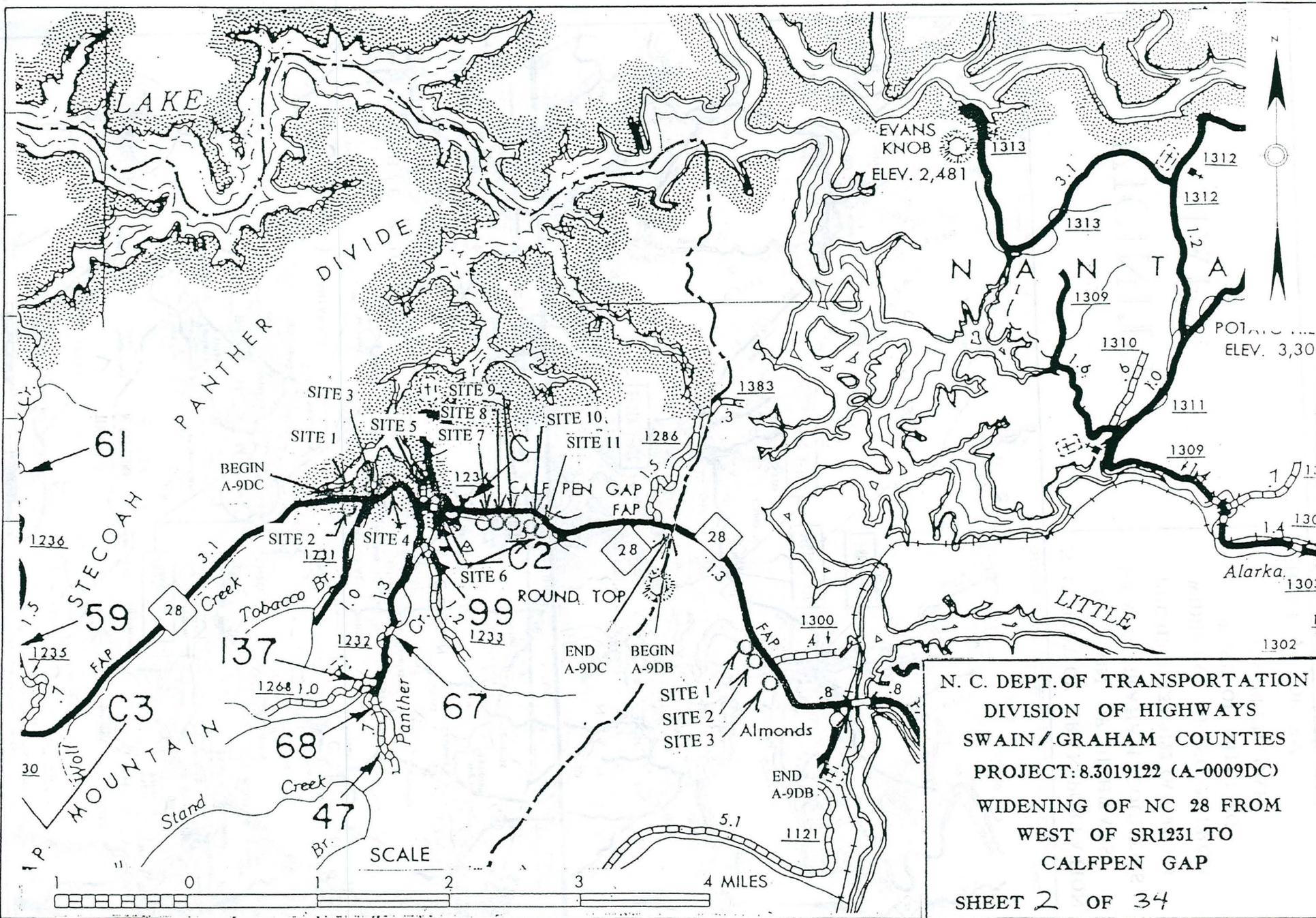
14. Wet concrete will be isolated from any contact with surface waters.

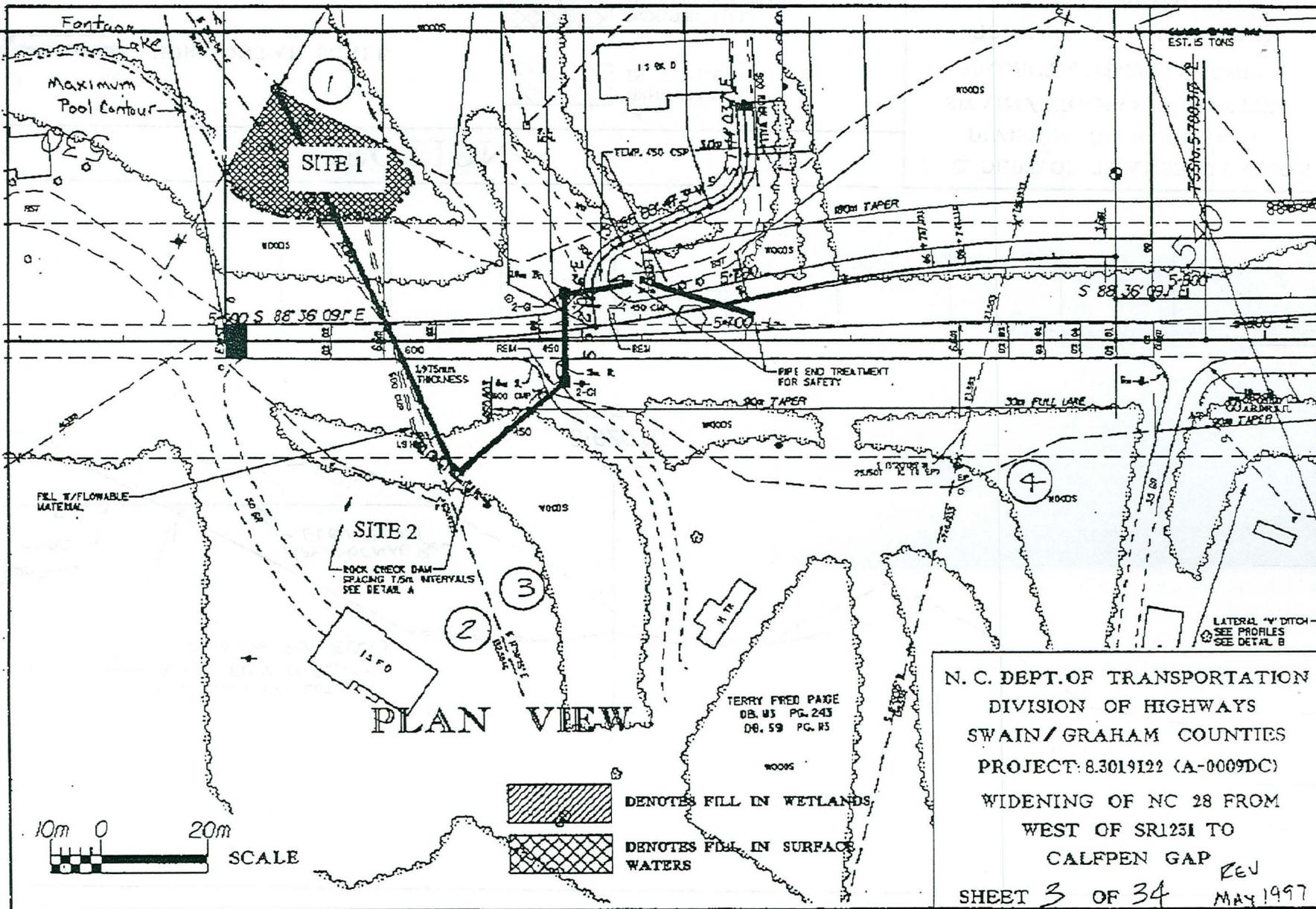
15. In order to protect trout spawning, no instream construction will occur during the period January 1 through April 15 of any year.



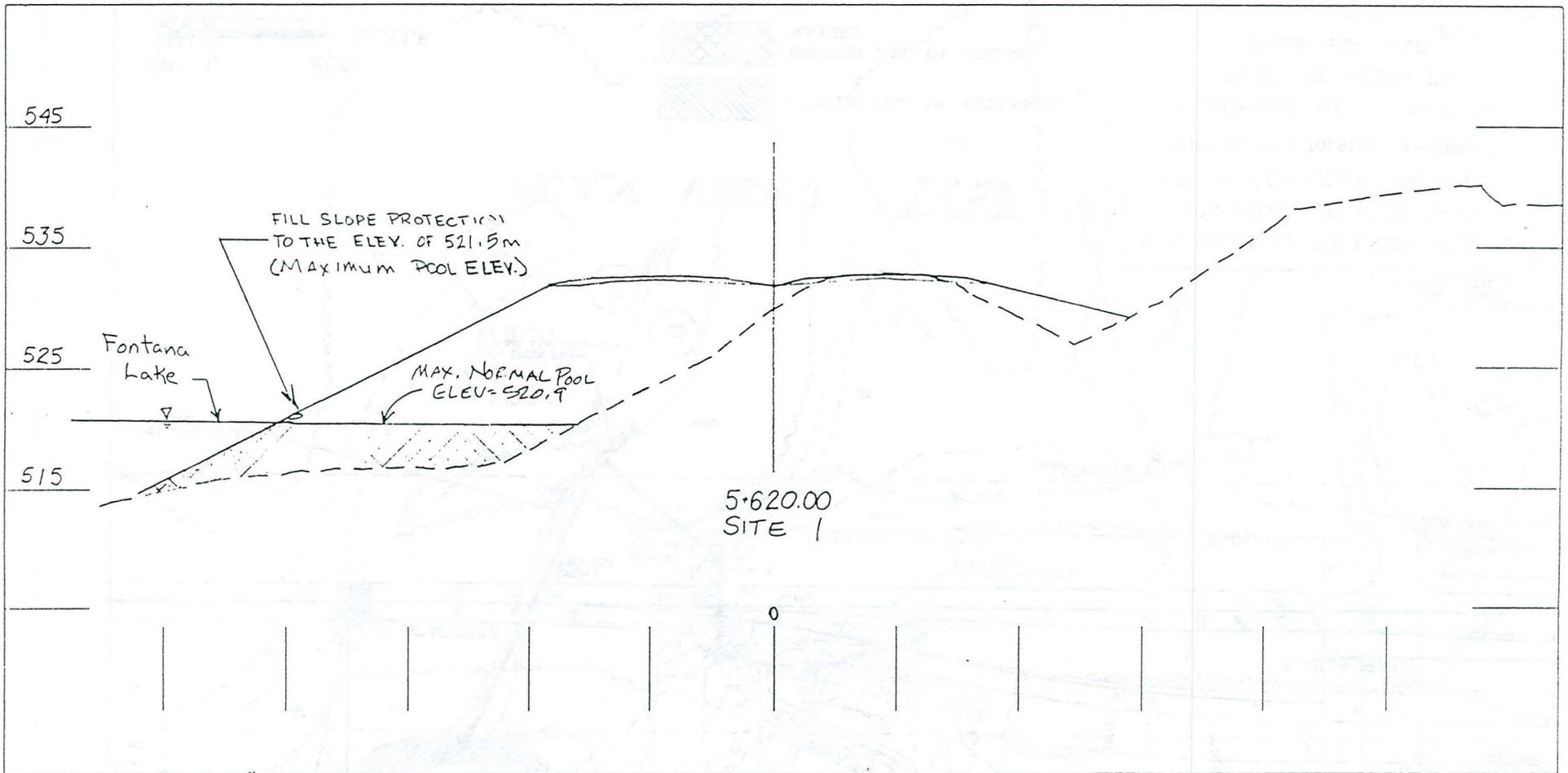
# VICINITY MAPS

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/ GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1231 TO  
CALFPEN GAP  
SHEET 1 OF 34

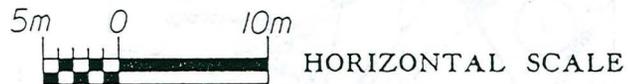




N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1251 TO  
 CALFPEN GAP  
 SHEET 3 OF 34  
 REV  
 MAY 1997



## SECTION



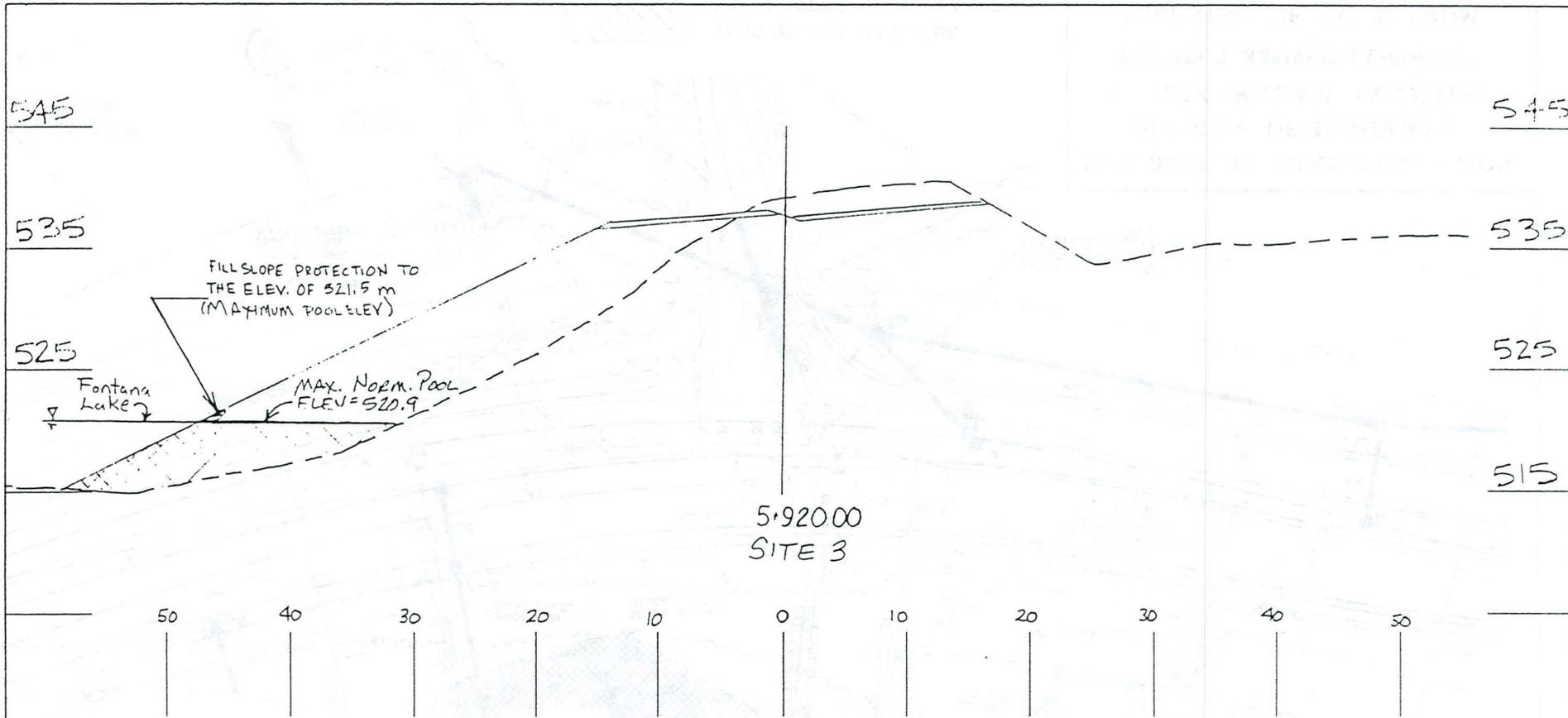
 DENOTES FILL  
IN WETLANDS

 DENOTES FILL  
IN SURFACE WATER

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1231 TO  
CALFPEN GAP

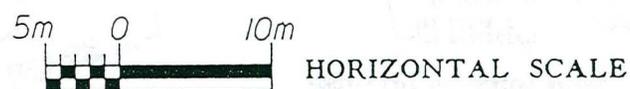
SHEET 4 OF 34 REV. 5/97





5+92000  
SITE 3

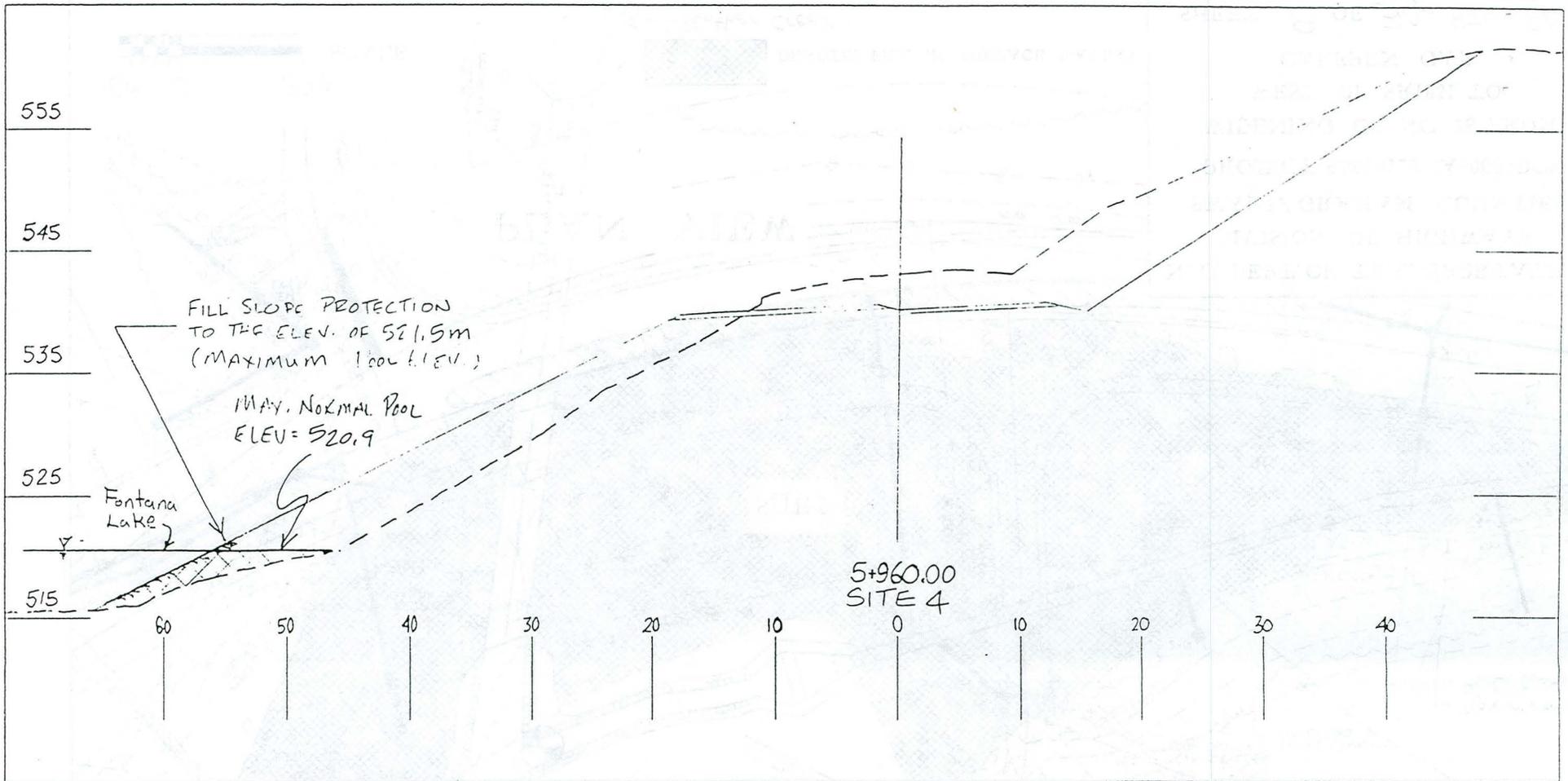
SECTION



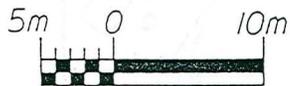
 DENOTES FILL IN WETLANDS

 DENOTES FILL IN SURFACE WATER

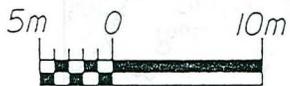
N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1231 TO  
CALFPEN GAP  
SHEET 6 OF 34 REV. 5/97



## SECTION



HORIZONTAL SCALE



VERTICAL SCALE



DENOTES FILL  
IN WETLANDS

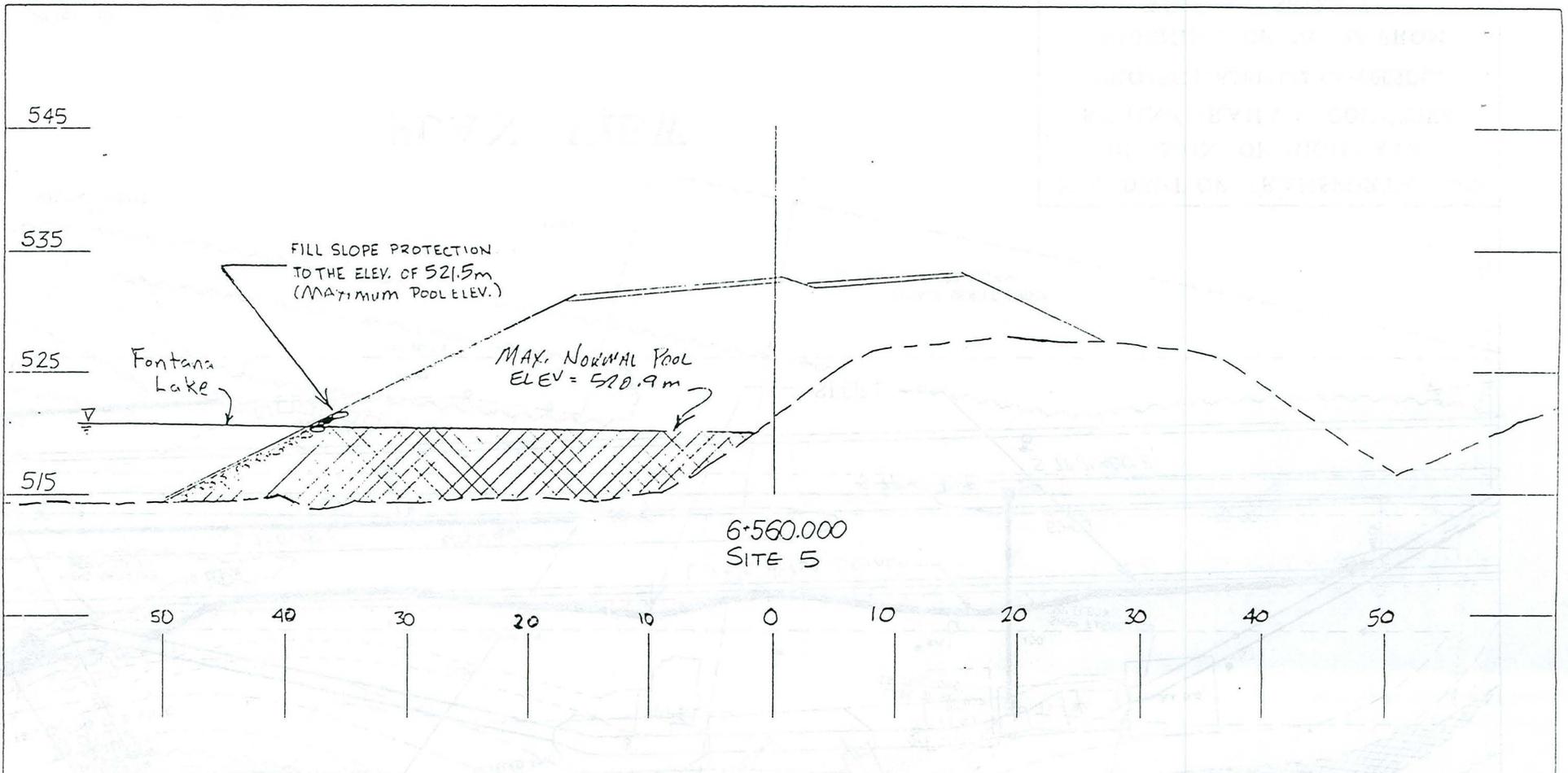


DENOTES FILL  
IN SURFACE WATER

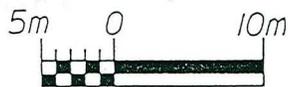
N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1251 TO  
CALFPEN GAP

SHEET 7 OF 34 REV. 5/97

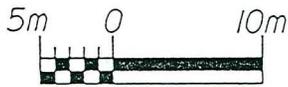




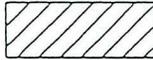
SECTION



HORIZONTAL SCALE



VERTICAL SCALE



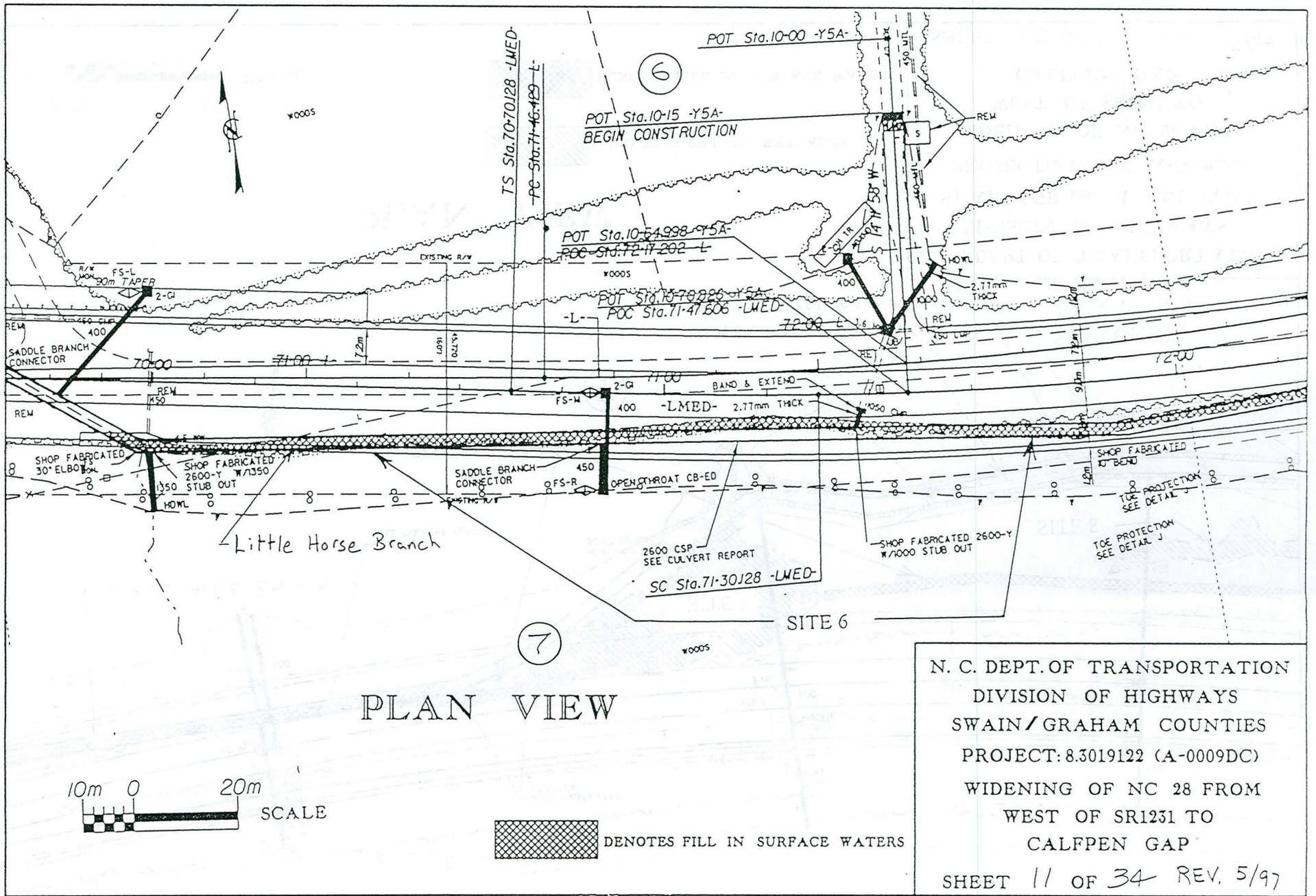
DENOTES FILL IN WETLANDS



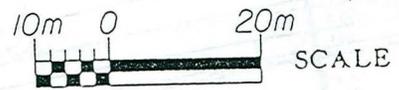
DENOTES FILL IN SURFACE WATER

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN / GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 9 OF 34 REV 5/97



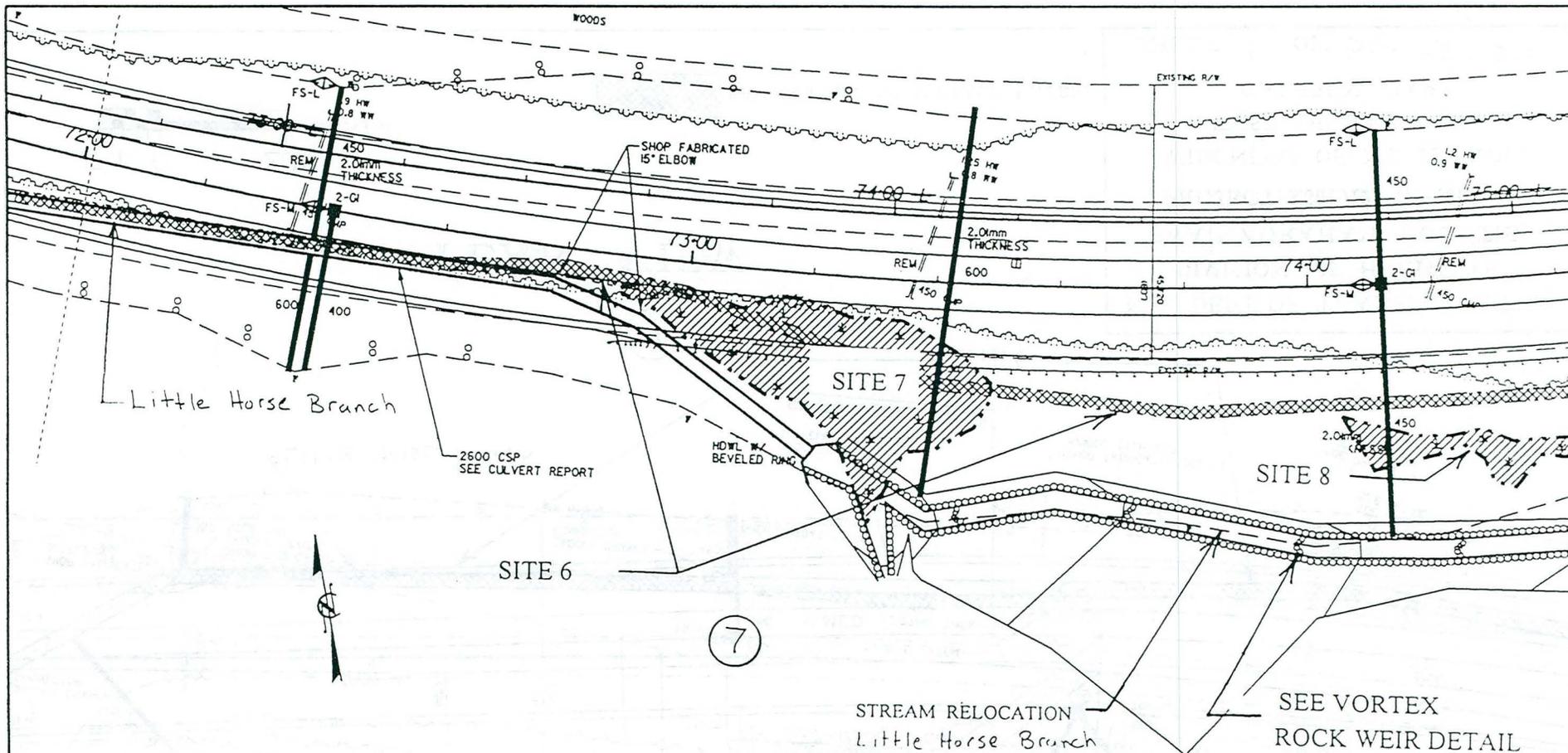


PLAN VIEW



 DENOTES FILL IN SURFACE WATERS

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 11 OF 34 REV. 5/97

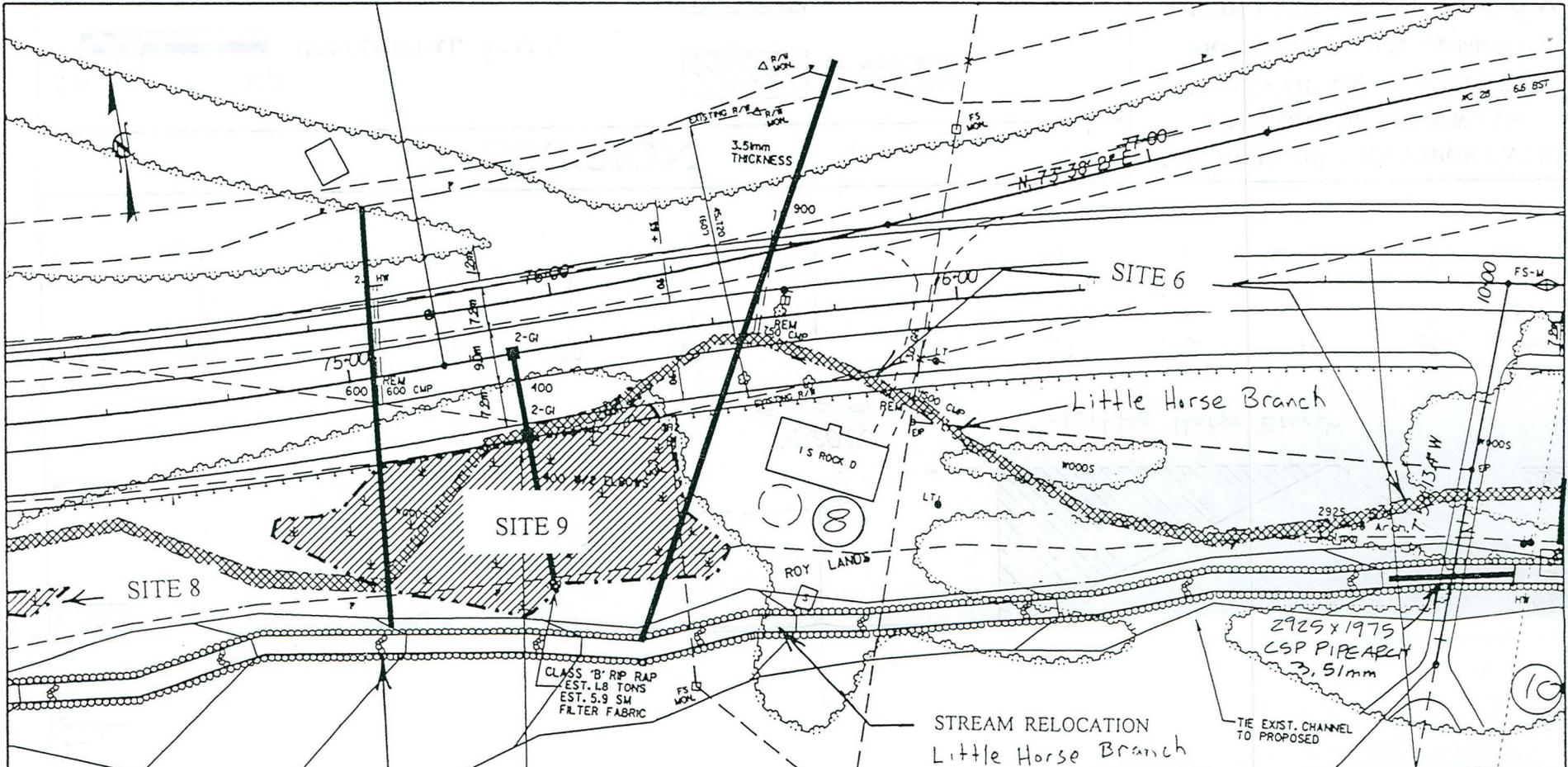


# PLAN VIEW



- DENOTES FILL IN WETLANDS
- DENOTES FILL IN SURFACE WATERS

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN / GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 12 OF 34 REV. 5/97



7

9

10

BEGIN SHOULDER  
 BERM GUTTER  
 STA. 75+27

CLASS. 'B' RIP RAP  
 EST. 1.8 TONS  
 EST. 5.9 SQ  
 FILTER FABRIC

2925 x 1975  
 CSP PIPE ARCH  
 2.51m

STREAM RELOCATION  
 Little Horse Branch

Little Horse Branch

1'S ROCK D

ROY LANDS

SITE 6

SITE 9

SITE 8

3.5mm  
 THICKNESS

N. 75° 30' 27" E  
 77.00

MC 28 6.6 BST

1900

15+00

15+00

600  
 600 CLMP

2 HW

2-GI

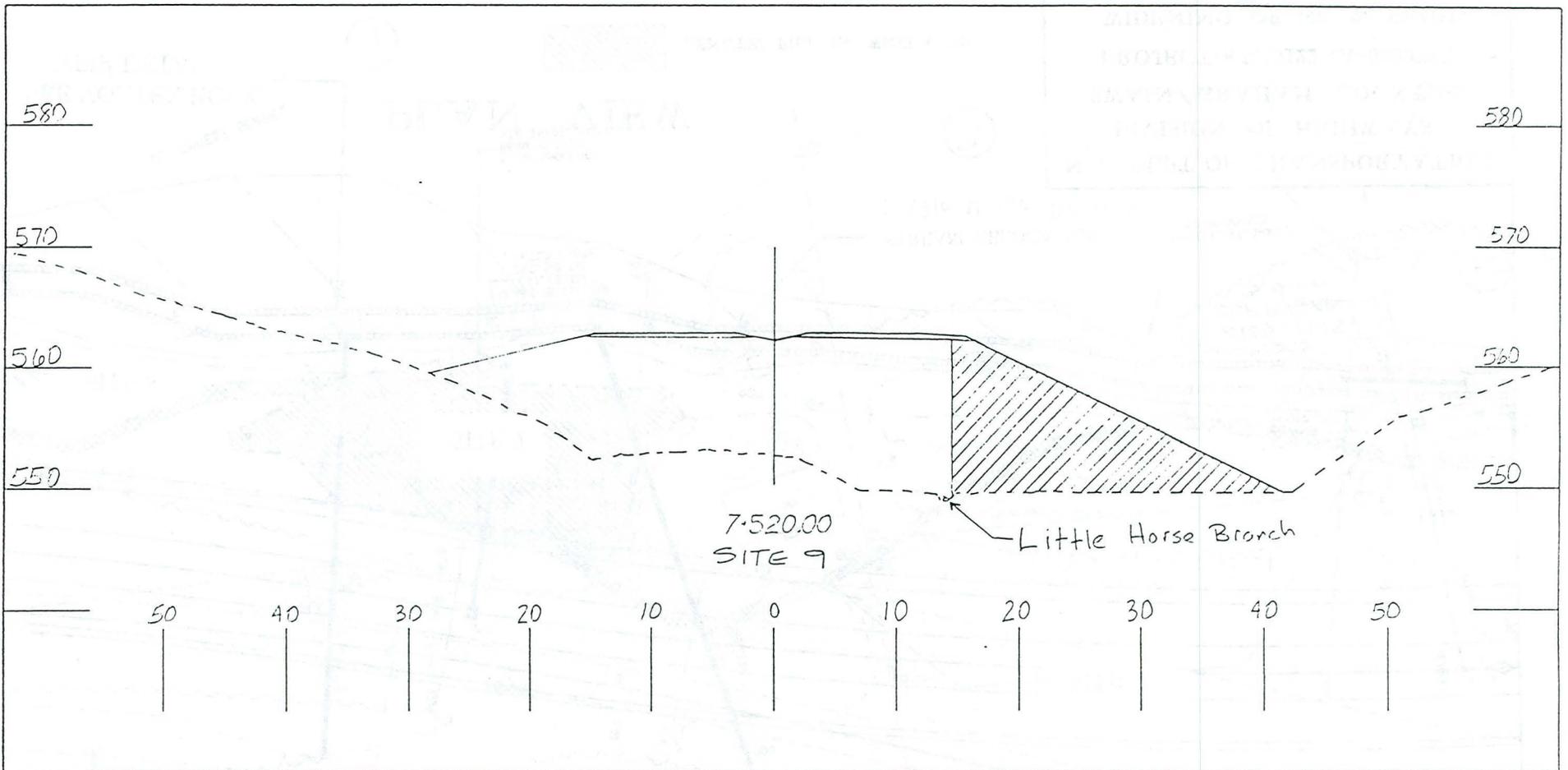
2-GI

7.2m

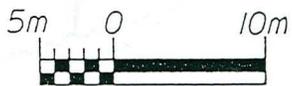
9.3m

7.2m

1.2m



## SECTION



HORIZONTAL SCALE



VERTICAL SCALE



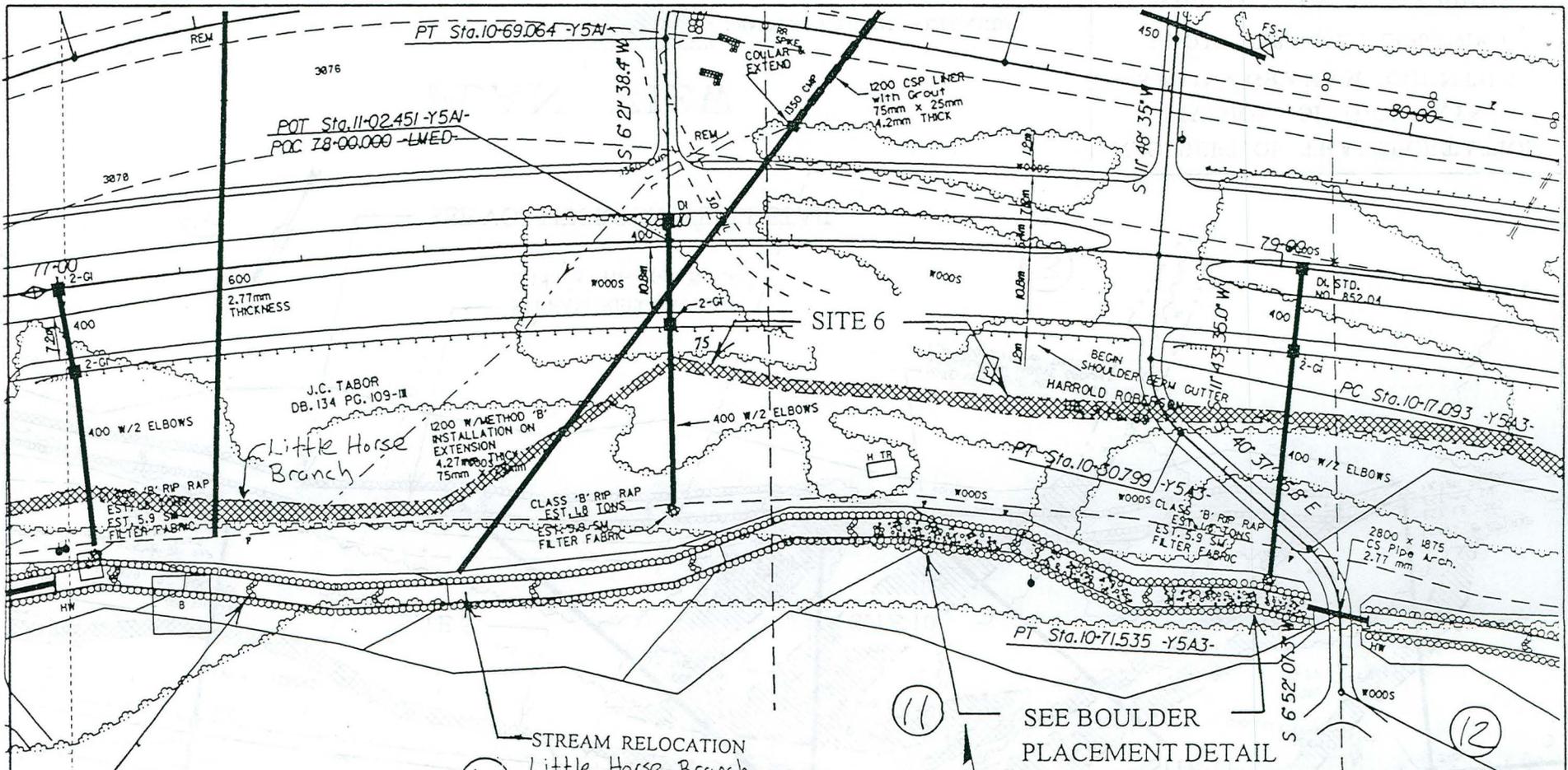
DENOTES FILL  
IN WETLANDS



DENOTES FILL  
IN SURFACE WATER

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC).  
WIDENING OF NC 28 FROM  
WEST OF SR1231 TO  
CALF PEN GAP

SHEET 14 OF 34 REV. 5/97



SEE VORTEX ROCK WEIR DETAIL

10

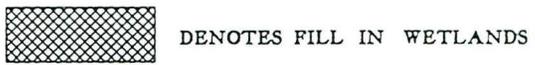
PLAN VIEW

STREAM RELOCATION Little Horse Branch

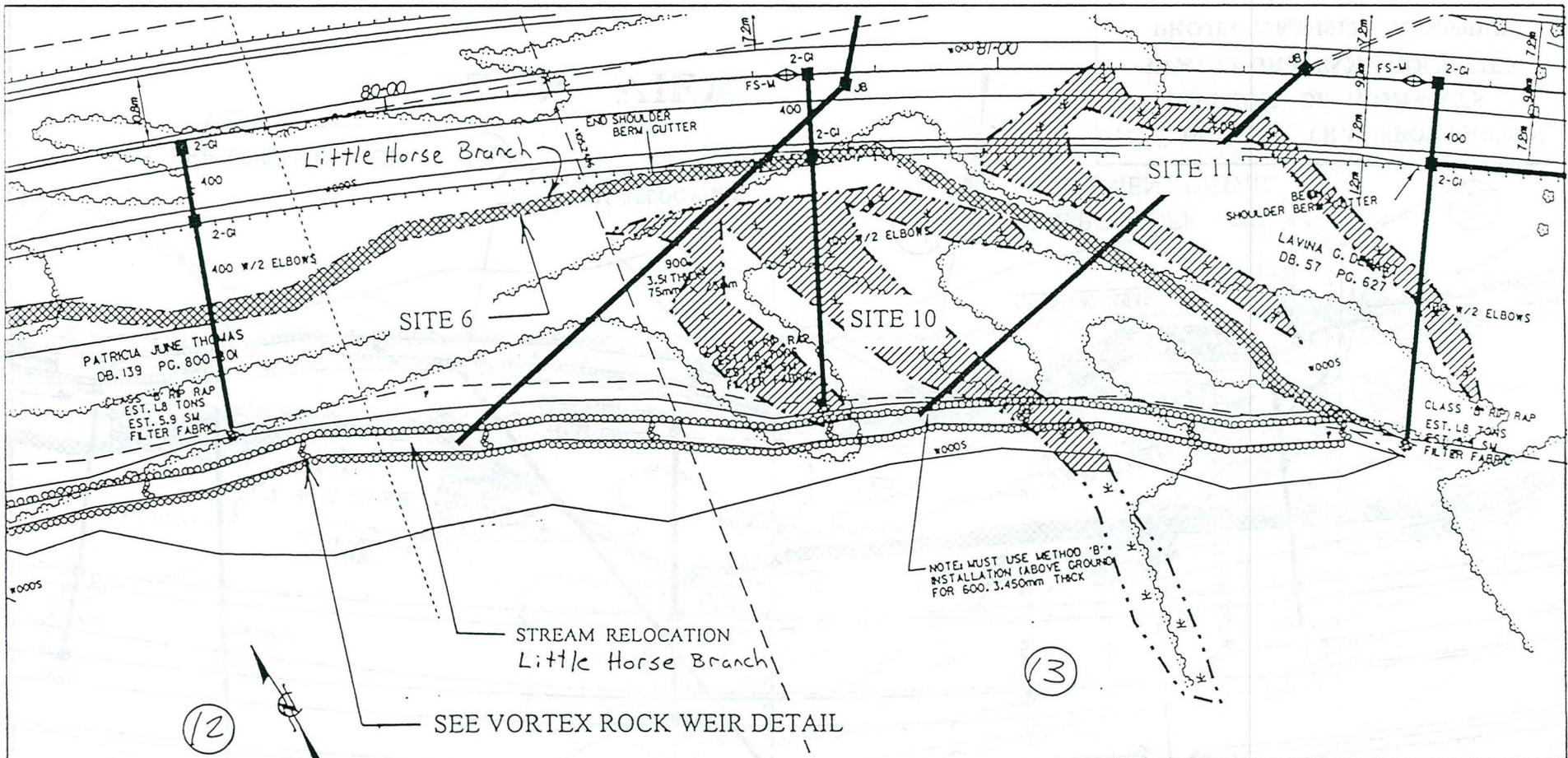
11

SEE BOULDER PLACEMENT DETAIL

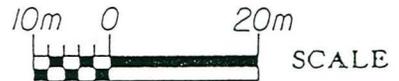
12

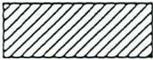
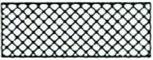


N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALF PEN GAP  
 SHEET 15 OF 34 REV. 5/97

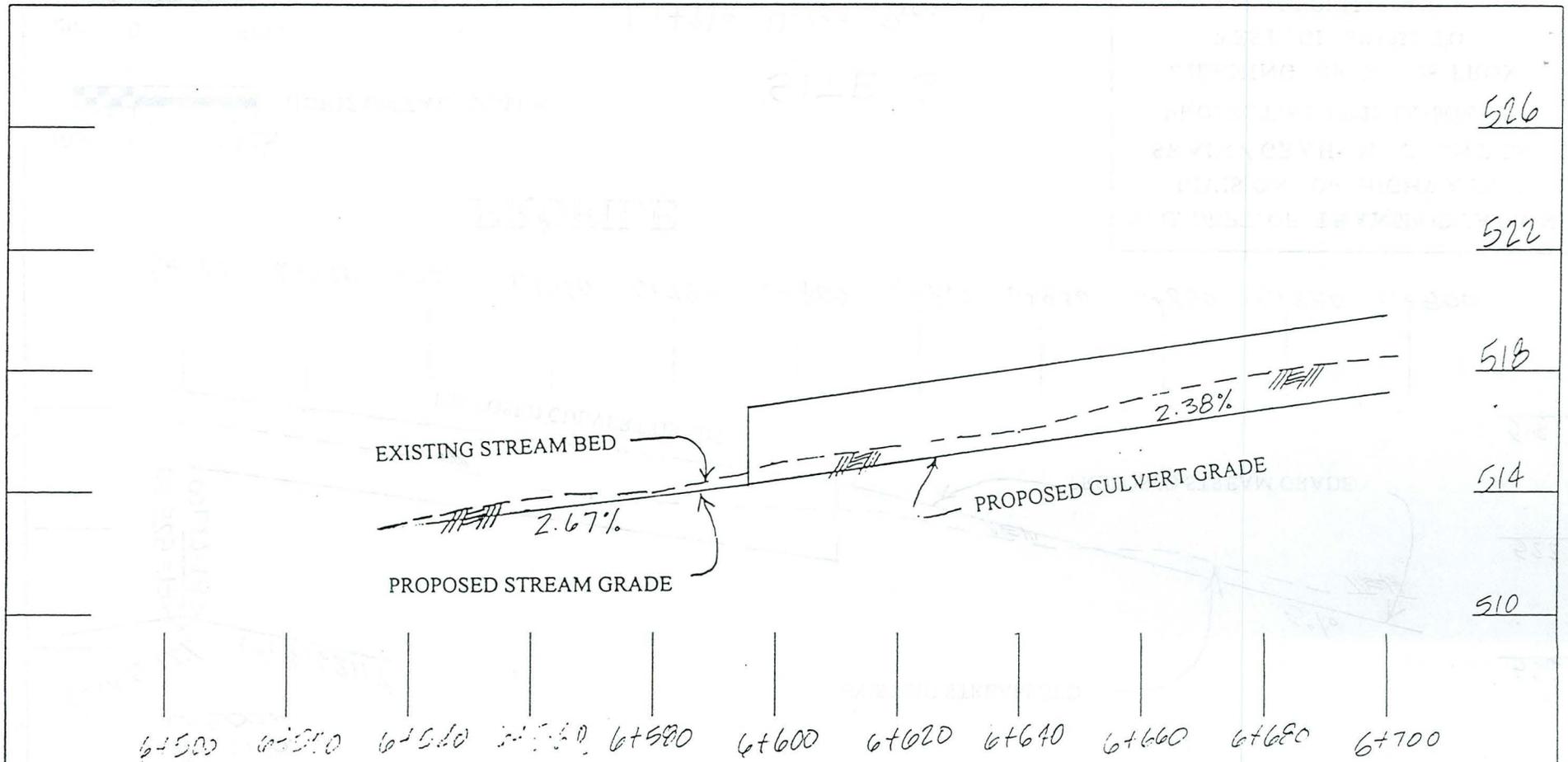


PLAN VIEW

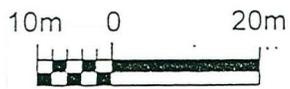


-  DENOTES FILL IN WETLANDS
-  DENOTES FILL IN SURFACE WATERS

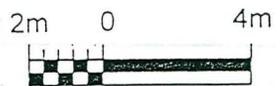
N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 16 OF 34 REV. 5/97



PROFILE



HORIZONTAL SCALE

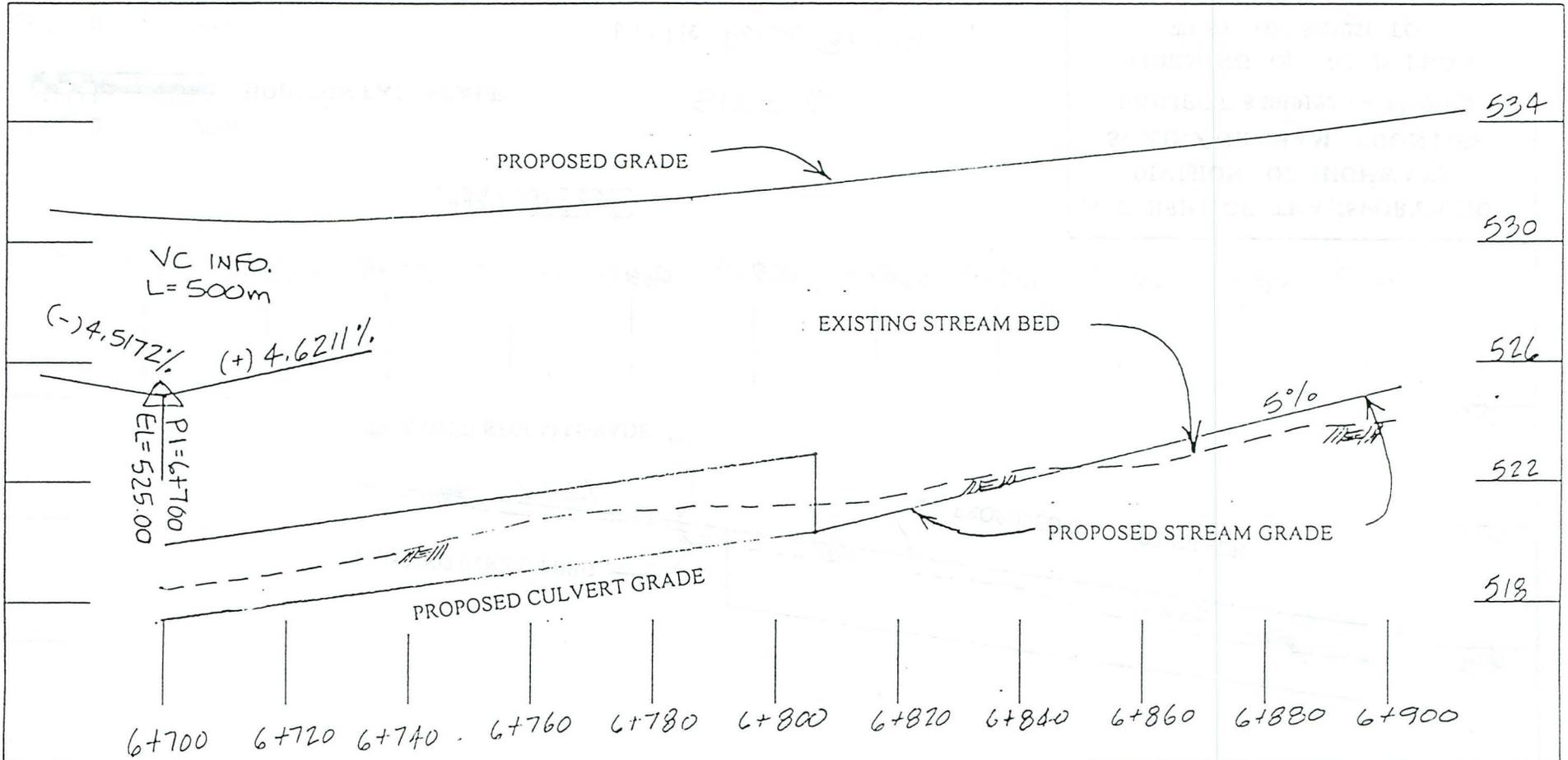


VERTICAL SCALE

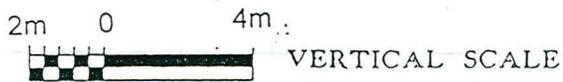
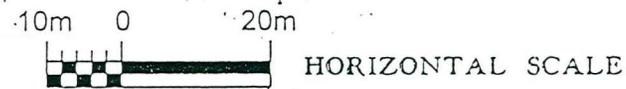
SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN / GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1231 TO  
CALFPEN GAP  
SHEET 17 OF 34 REV. 5/97



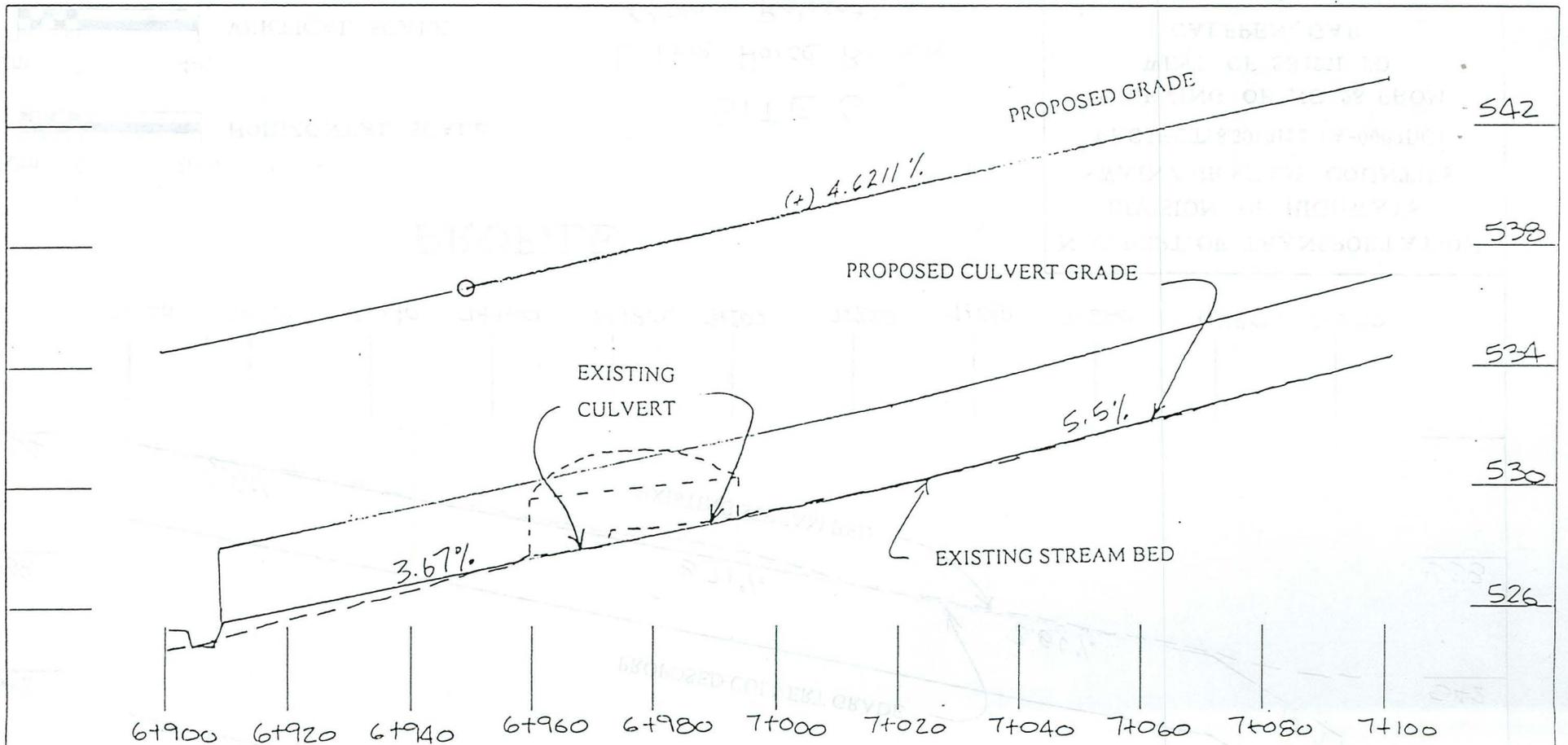
PROFILE



SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1251 TO  
CALF PEN GAP  
SHEET 18 OF 34 REV. 5/97



PROFILE

10m 0 20m



HORIZONTAL SCALE

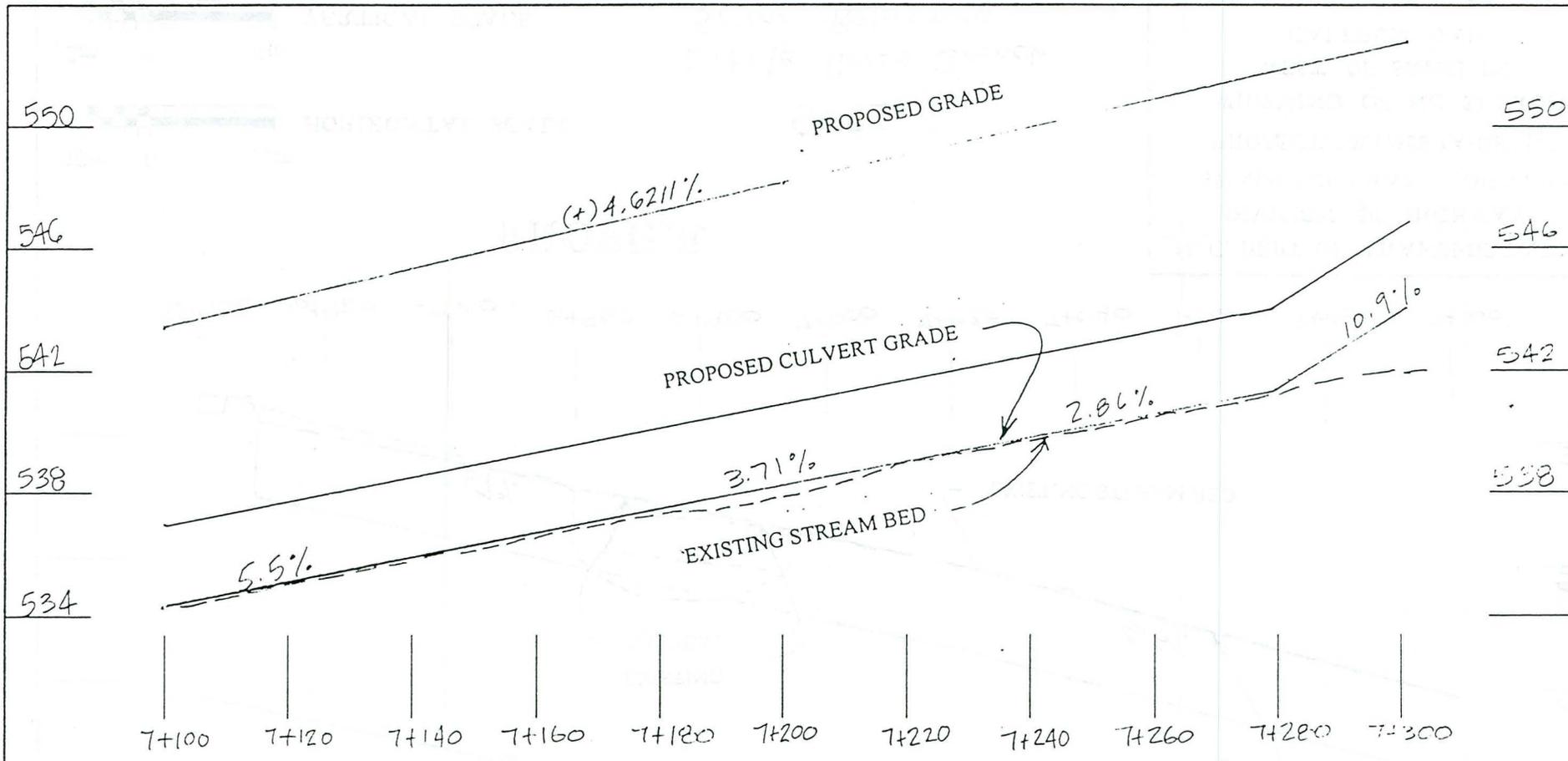
2m 0 4m



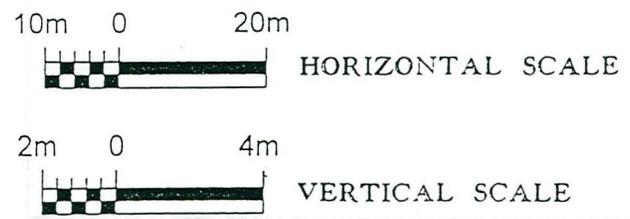
VERTICAL SCALE

SITE 6  
 Little Horse Branch  
 Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN / GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 19 OF 34 REV 5/97

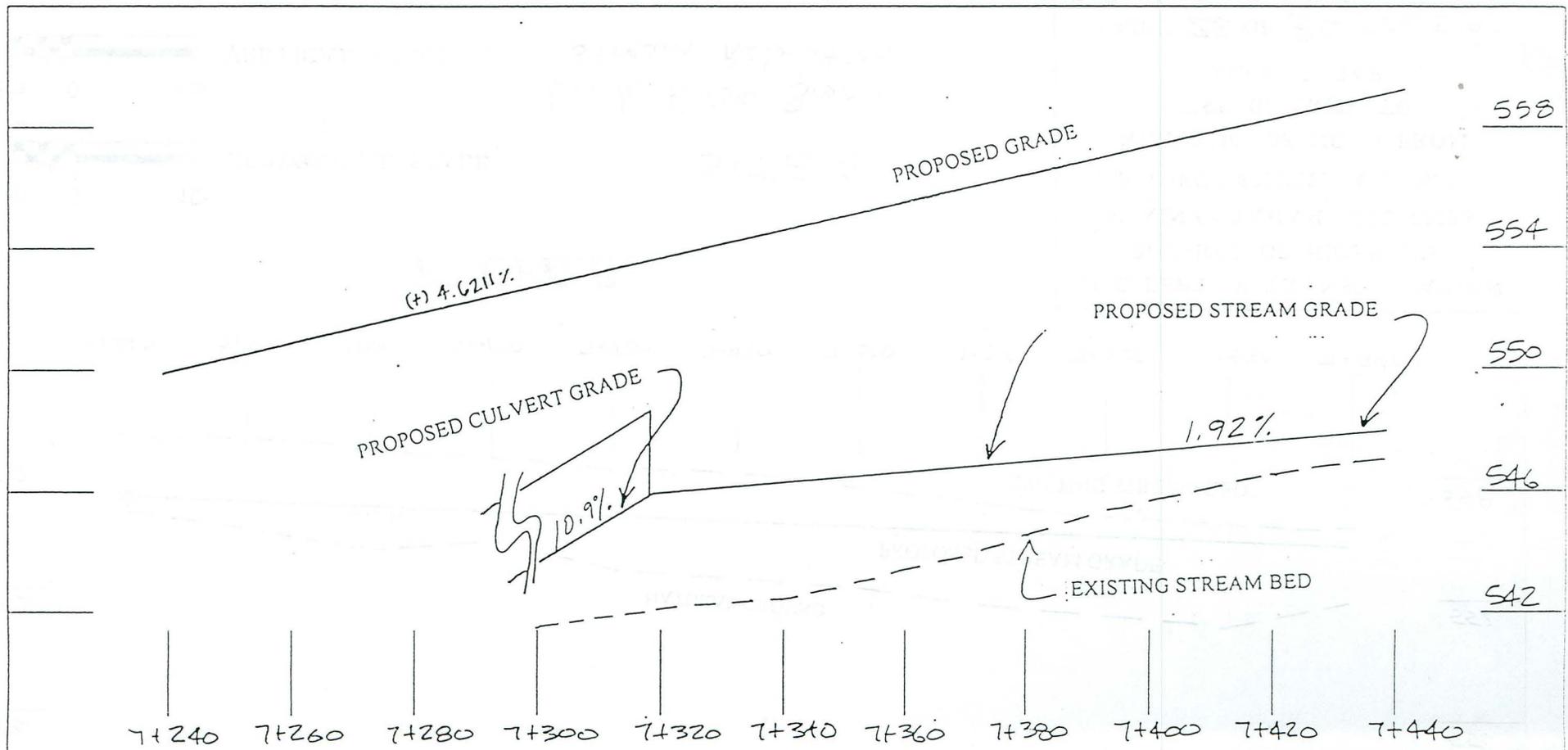


PROFILE

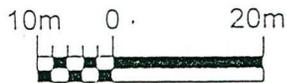


SITE 6  
 Little Horse Branch  
 Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1251 TO  
 CALFPEN GAP  
 SHEET 20 OF 34 REV. 5/97



## PROFILE



HORIZONTAL SCALE

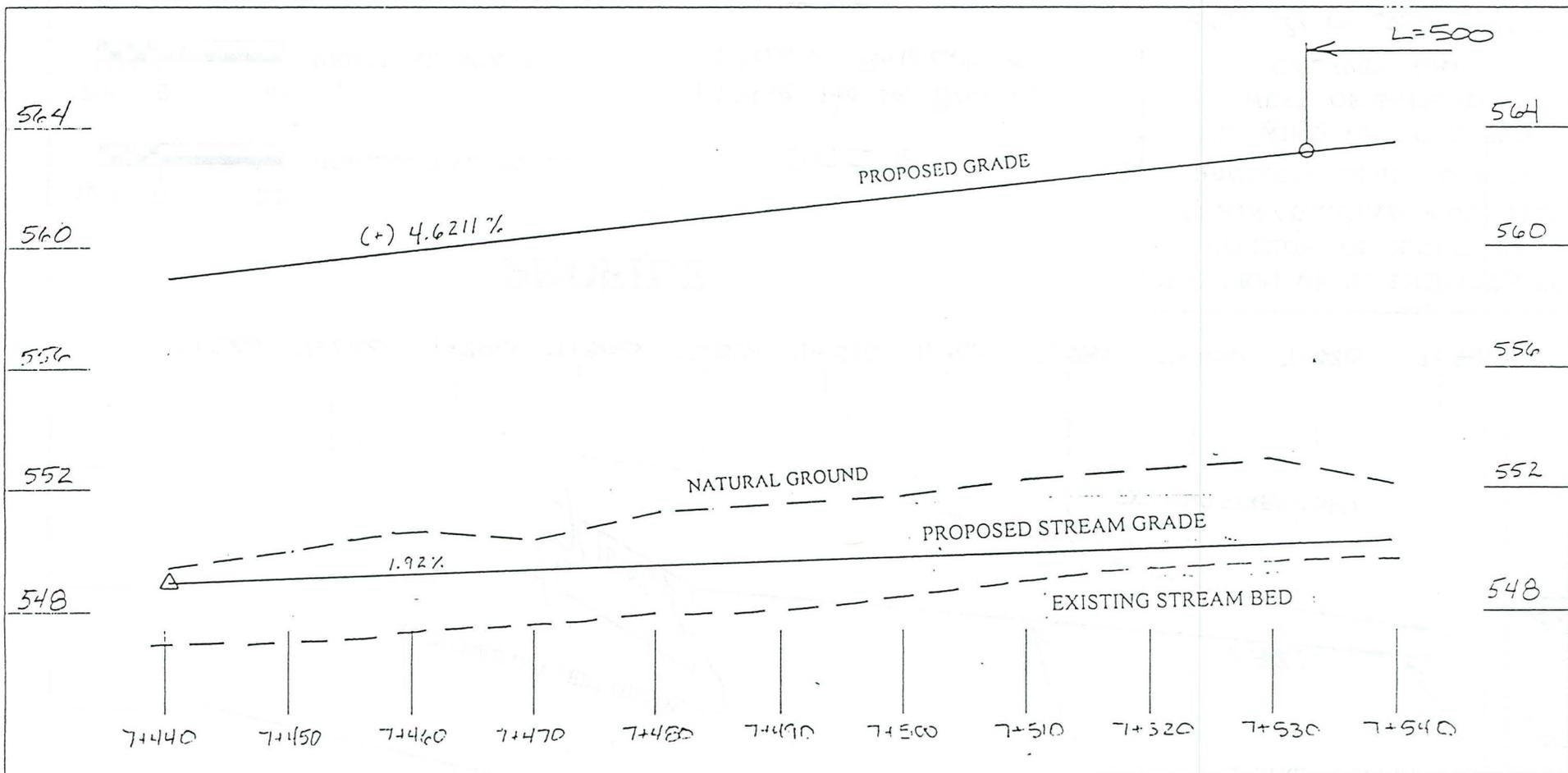


VERTICAL SCALE

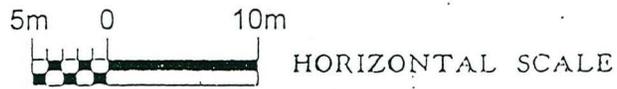
SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.5019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1251 TO  
CALFPEN GAP  
SHEET 21 OF 34 REV 5/97



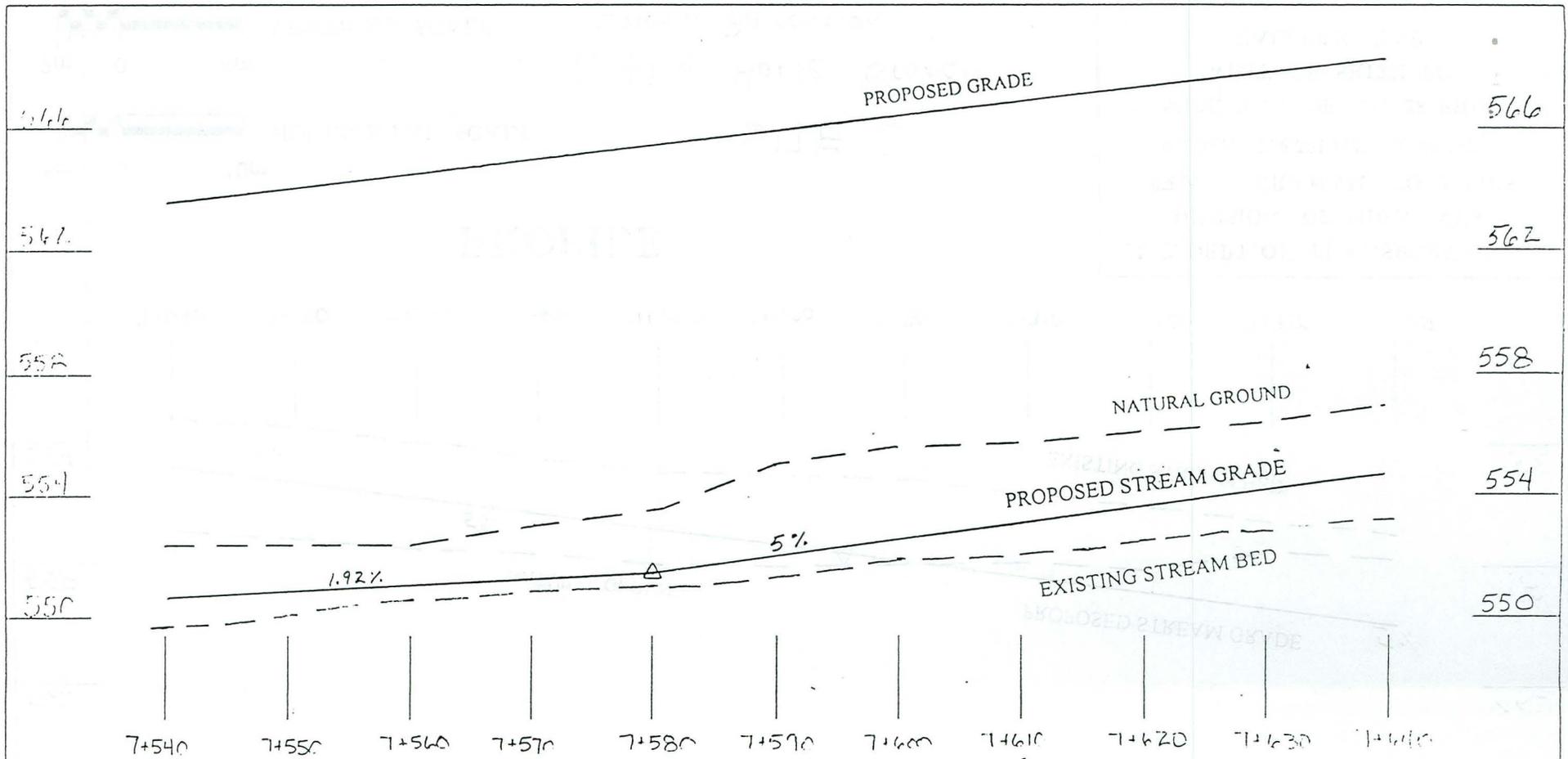
PROFILE



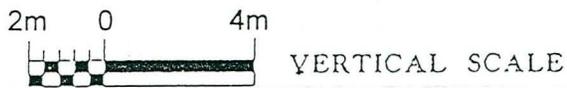
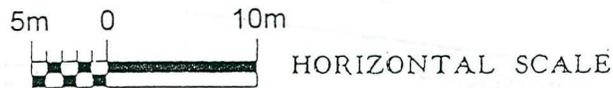
SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 22 OF 34 REV. 5/97



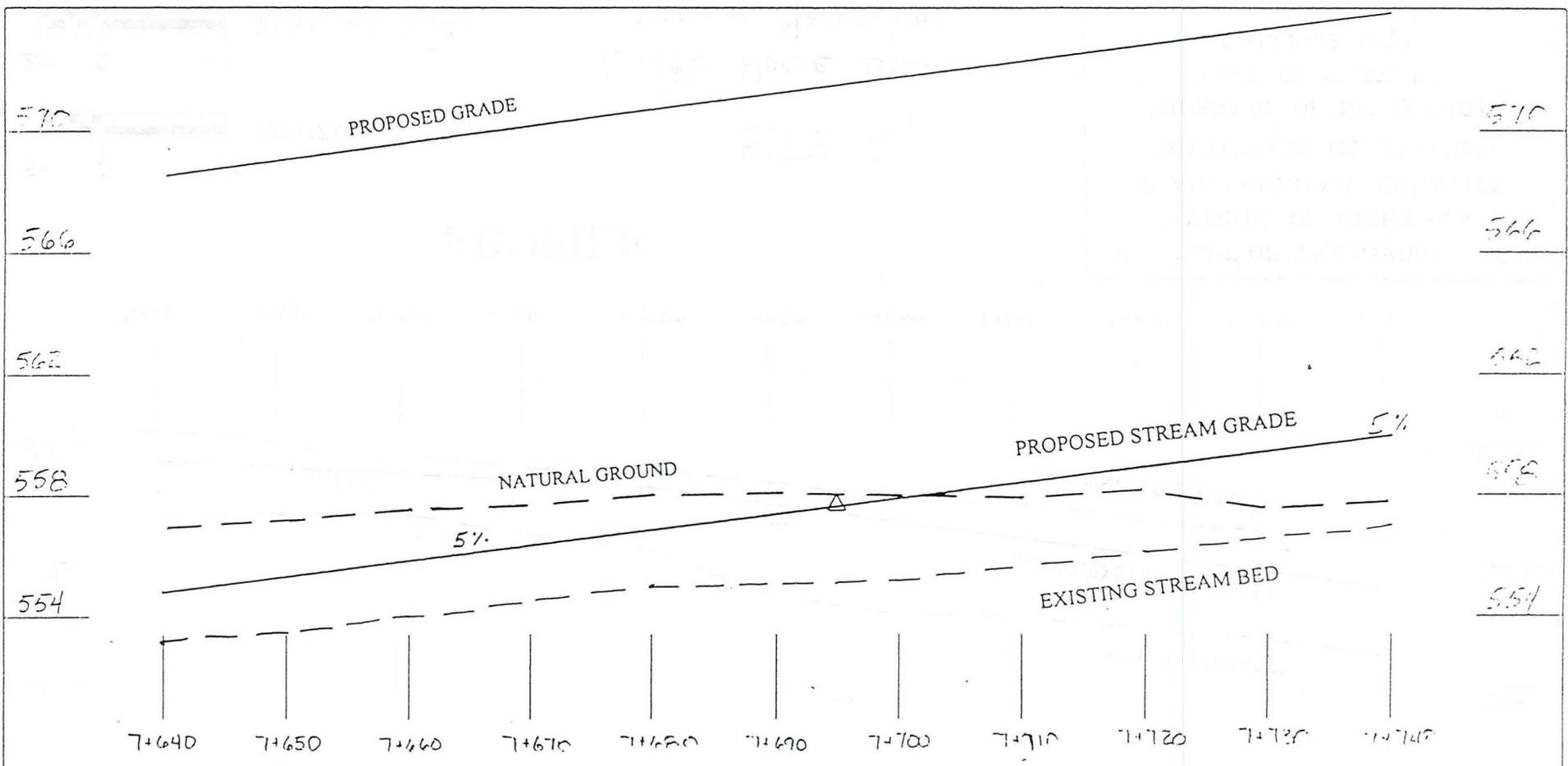
PROFILE



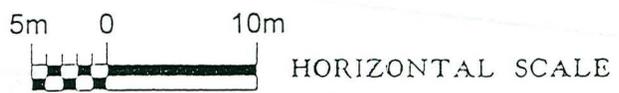
SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 23 OF 34 REV. 5/97



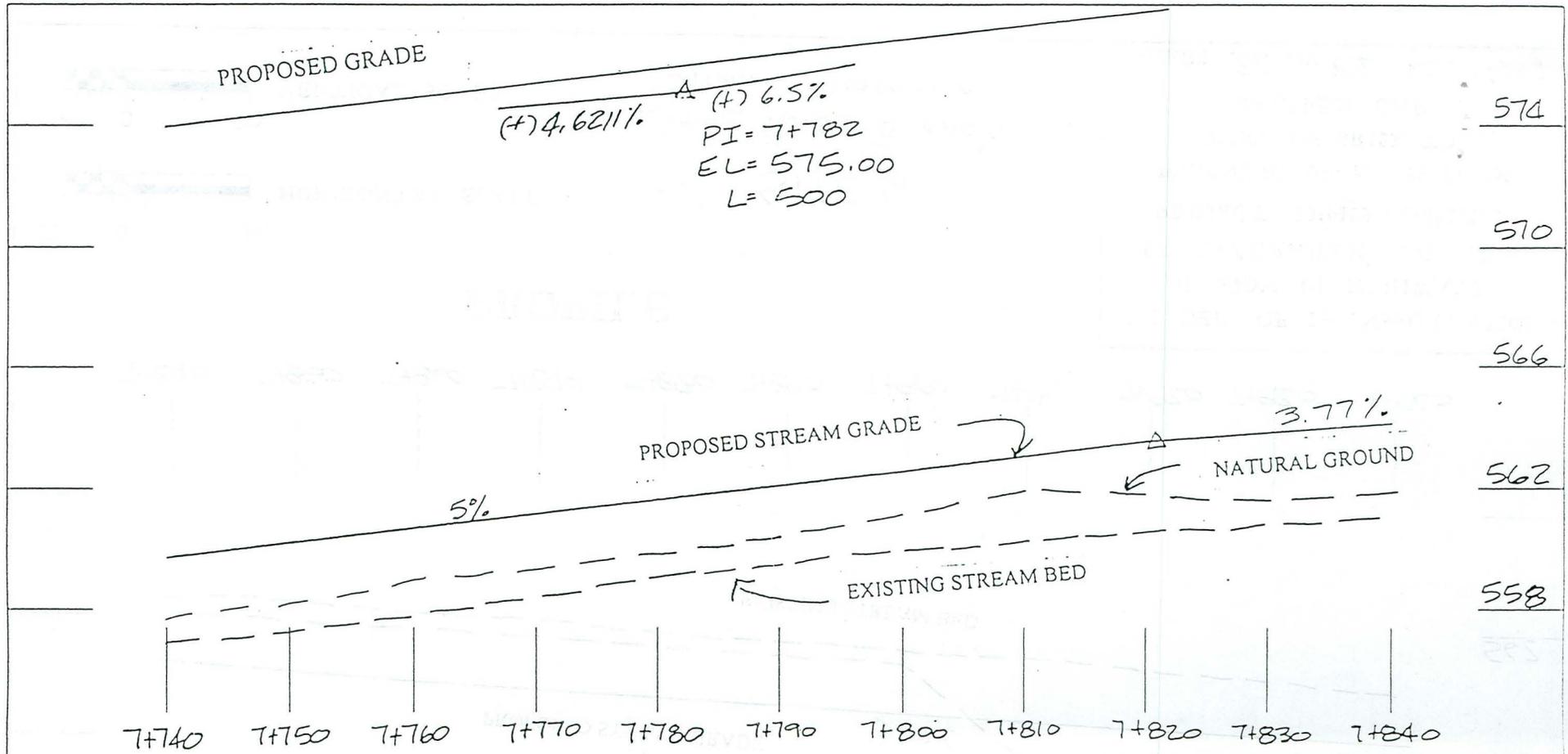
PROFILE



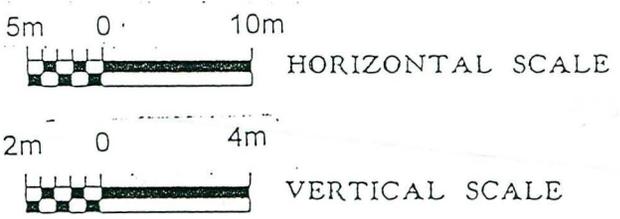
SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN / GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 24 OF 34 REV. 5/97

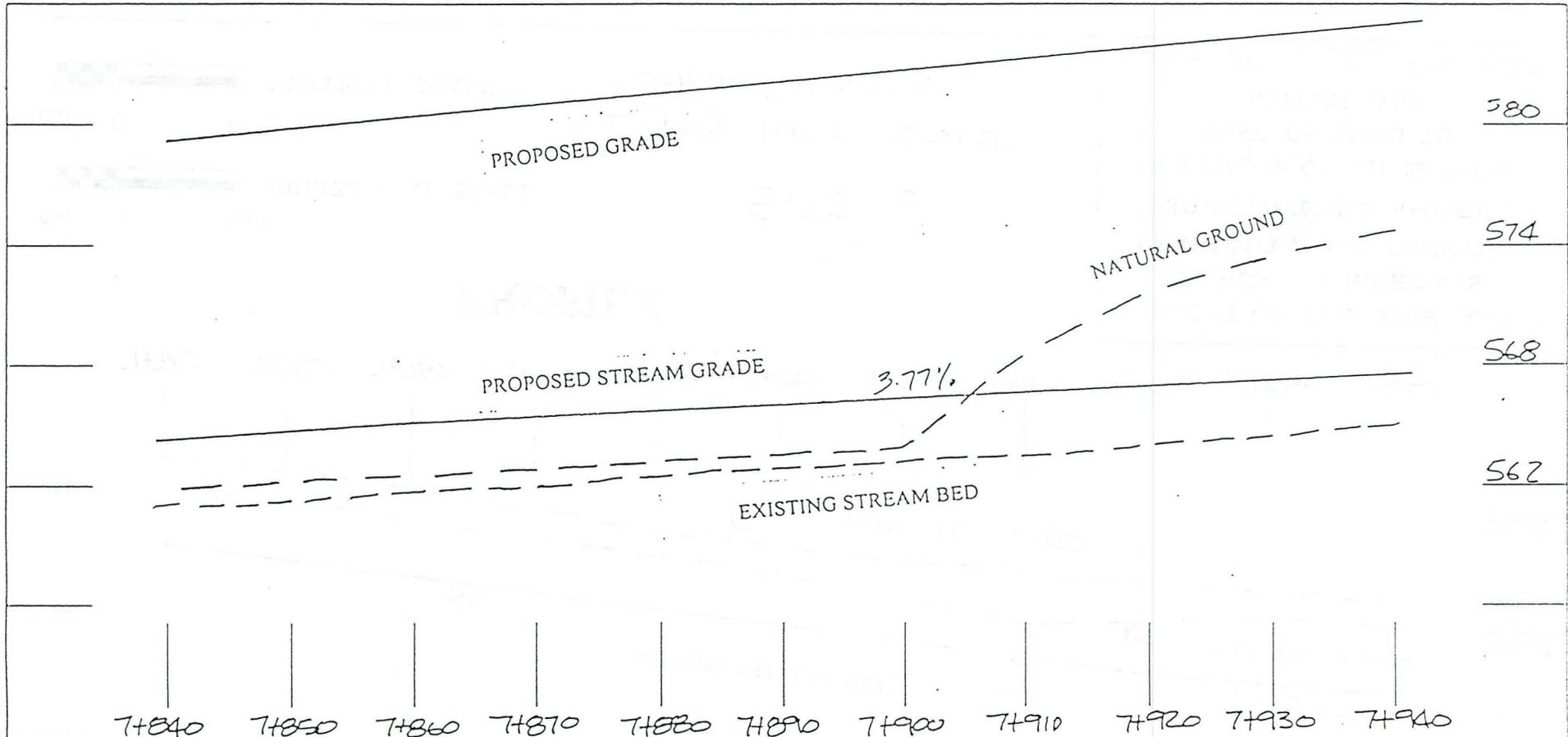


PROFILE



SITE 6  
 Little Horse Branch  
 Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 25 OF 34 REV. 5/97



PROFILE

5m 0 10m



HORIZONTAL SCALE

3m 0 6m

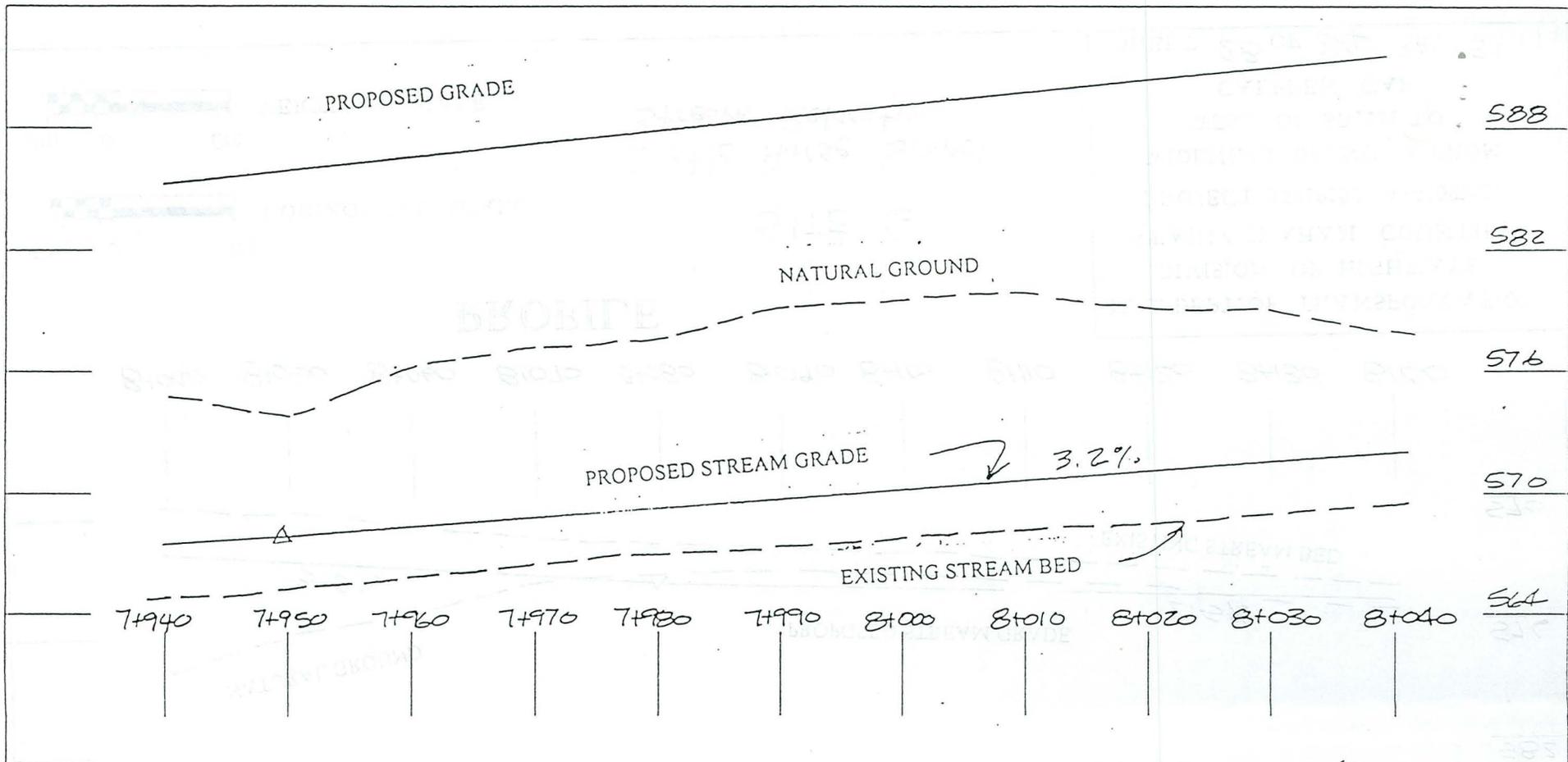


VERTICAL SCALE

SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN / GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALF PEN GAP  
 SHEET 26 OF 34 REV. 5/97



PROFILE

5m 0 10m



HORIZONTAL SCALE

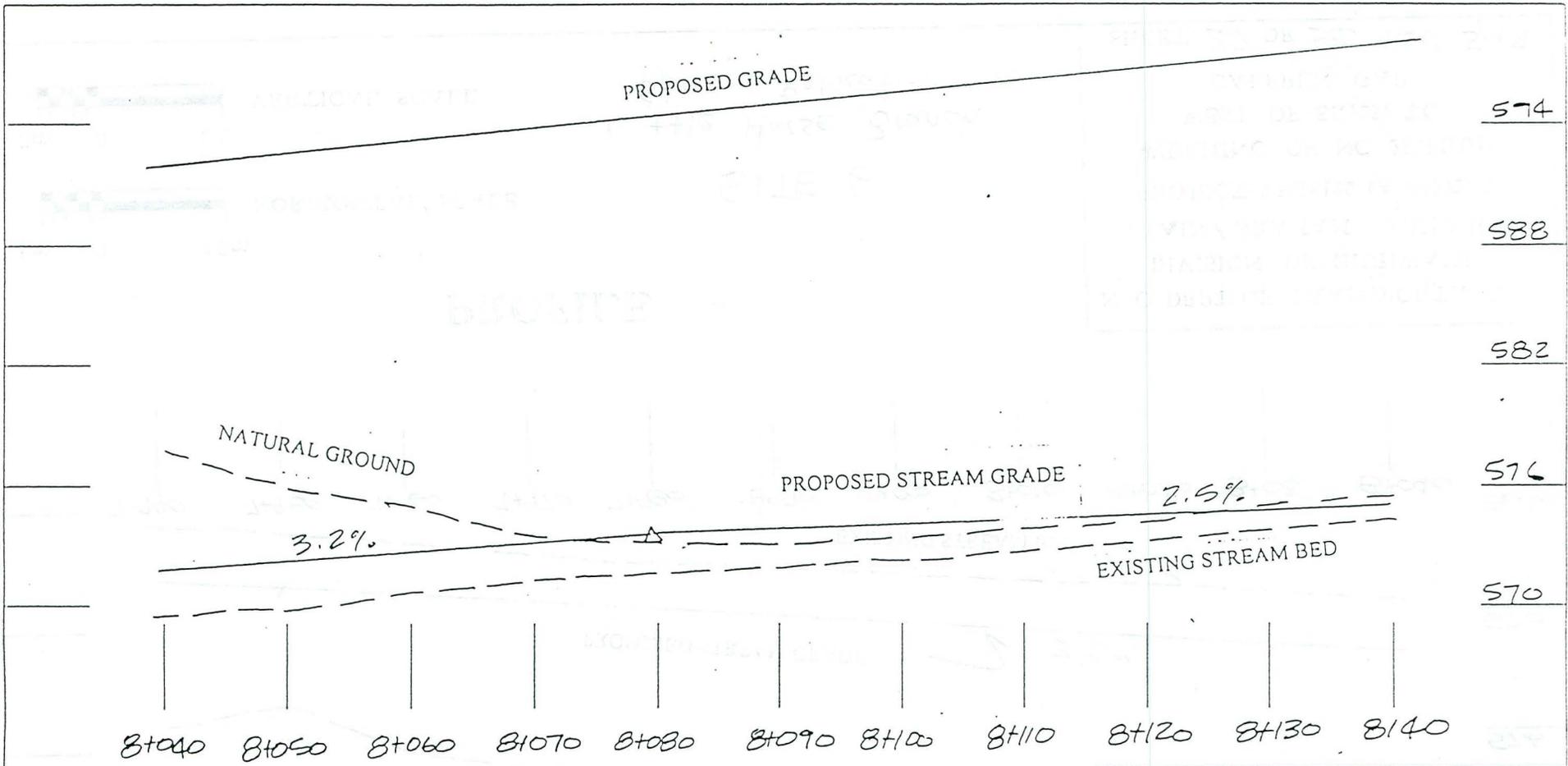
3m 0 6m



VERTICAL SCALE

SITE 6  
 Little Horse Branch  
 Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/ GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALF PEN GAP  
 SHEET 27 OF 34 REV. 5/97



PROFILE

5m 0 10m



HORIZONTAL SCALE

3m 0 6m



VERTICAL SCALE

SITE 6

Little Horse Branch  
Stream Relocation

N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN/GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 28 OF 34 REV 5/97

598

(+) 6.500% PROPOSED GRADE

592

586

580

574

TIE TO EXISTING STREAM

PROPOSED STREAM GRADE

2.5%

NATURAL GROUND

EXISTING STREAM BED

8+140 8+150 8+160 8+170 8+180

### PROFILE

5m 0 10m



HORIZONTAL SCALE

3m 0 6m



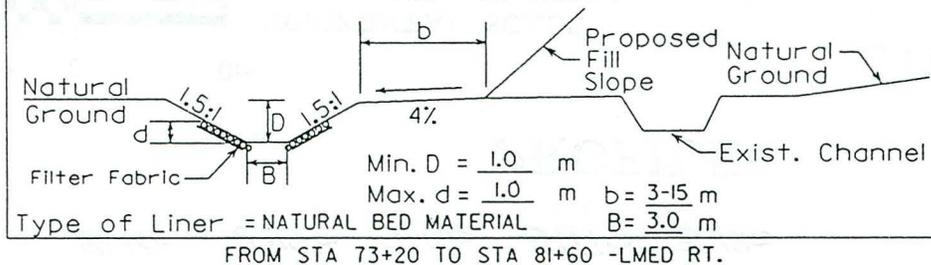
VERTICAL SCALE

SITE 6

Little Horse Branch  
Stream Relocation

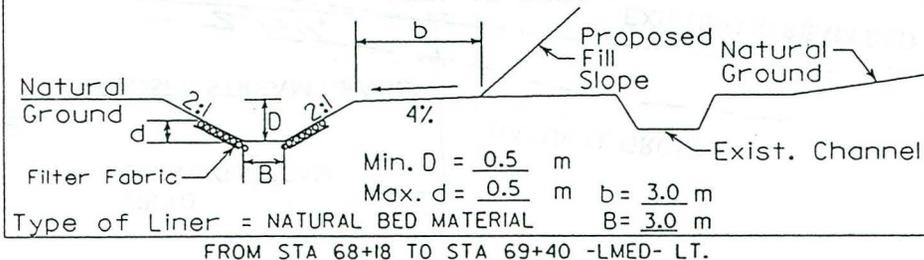
N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN / GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP  
 SHEET 29 OF 34 REV. 5/97

DETAIL L  
 STREAM RELOCATION  
 (Not to Scale)



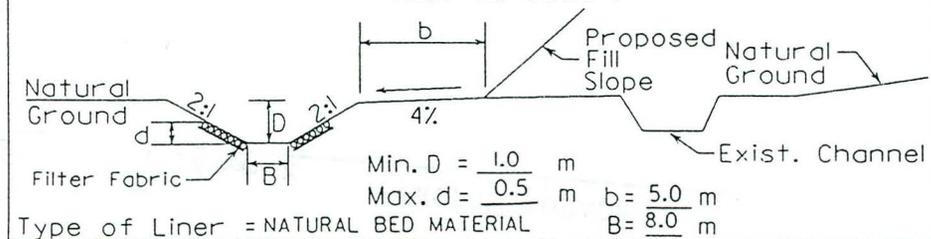
# STREAM RELOCATION DETAIL

DETAIL H  
 STREAM RELOCATION  
 (Not to Scale)

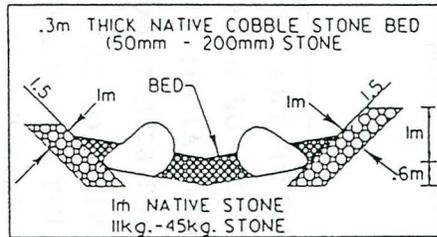


NOTE: PLACEMENT OF BOULDERS AND VORTEX ROCK WEIRS ARE BASED ON FIELD MEASUREMENTS TAKEN ALONG THE EXISTING STREAM.

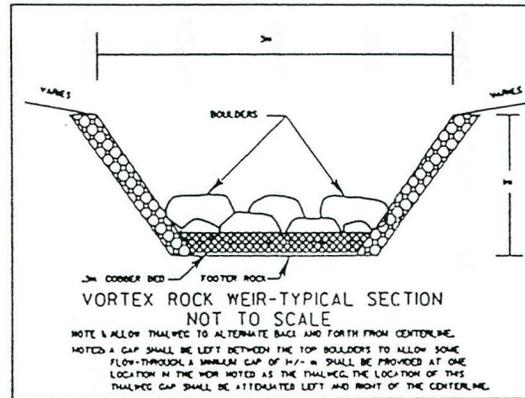
DETAIL I  
 STREAM RELOCATION  
 (Not to Scale)



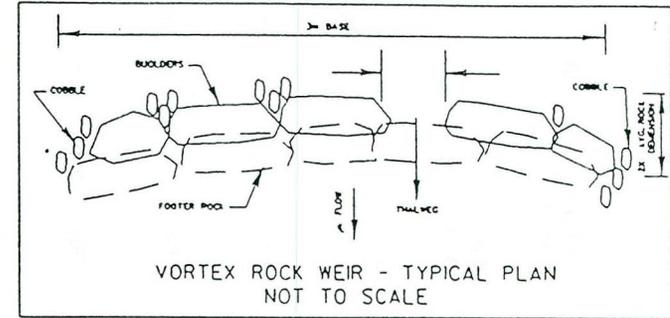
N. C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 SWAIN / GRAHAM COUNTIES  
 PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALFPEN GAP



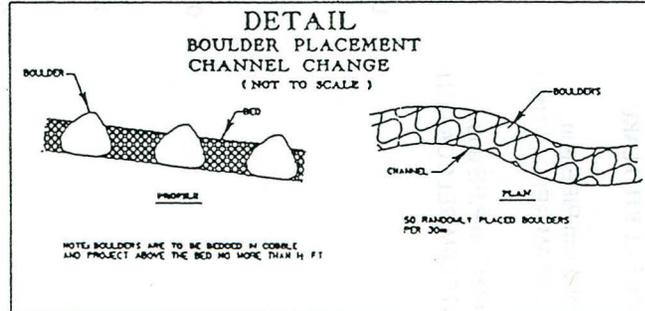
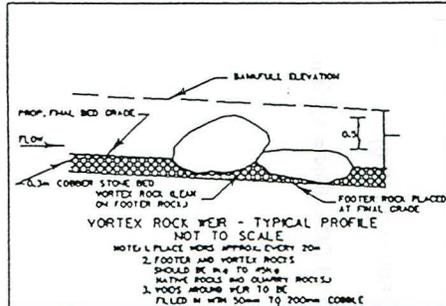
VOR1



VOR2



VOR3



NOTE: PLACEMENT OF BOULDERS AND VORTEX ROCK WEIRS ARE BASED ON FIELD MEASUREMENTS TAKEN ALONG THE EXISTING STREAM.

## VORTEX ROCK WEIR AND BOULDER PLACEMENT DETAIL

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1231 TO  
CALFPEN GAP

SHEET 31 OF 34

SUMMARY REPORT  
A9DC

SITE	STATION	STRUCTURE	FILL IN WETLANDS		FILL BELOW SURFACE WATER		TOTAL FILL (M^3)
			ha	ac	ha	ac	
1	5+62 LMED LEFT	600 mm PIPE and FILL INTO LAKE			0.04	0.09	4000
2	5+640 LMED RIGHT	600 mm PIPE	0.001	0.003			40
3	5+900 LMED LEFT	2600 mm PIPE and FILL INTO LAKE			0.12	0.3	4800
4	5+980 LMED LEFT	FILL INTO LAKE			0.04	0.1	800
5	6+560 LMED LEFT	2 @ 3.1m X 5.3m RCBC and FILL INTO LAKE			0.998	2.466	104,790
6	6+530 LMED LT TO 6+960 LMED LT	2600 mm PIPE and STREAM RELOCATION			0.023	0.06	1840
	7+000 LMED RT TO 8+160 LEMD RT	2600 mm PIPE and STREAM RELOCATION			0.23	0.57	24580
7	7+320 LMED RIGHT		0.09	0.22			9000
8	7+450 LMED RIGHT		0.02	0.05			1600
9	7+520 LMED RIGHT		0.15	0.37			18000
10	8+060 LMED RIGHT		0.13	0.31			15100
11	8+110 LMED RIGHT		0.08	0.21			9600
	TOTAL		0.47	0.16	1.451	3.586	194,150

LENGTH OF EXISTING STREAM = 1669 m (SITE 6)

LENGTH OF PROPOSED STREAM RELOCATION = 1374 m

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DC)  
WIDENING OF NC 28 FROM  
WEST OF SR1231 TO  
CALFPEN GAP

SHEET 32 OF 34

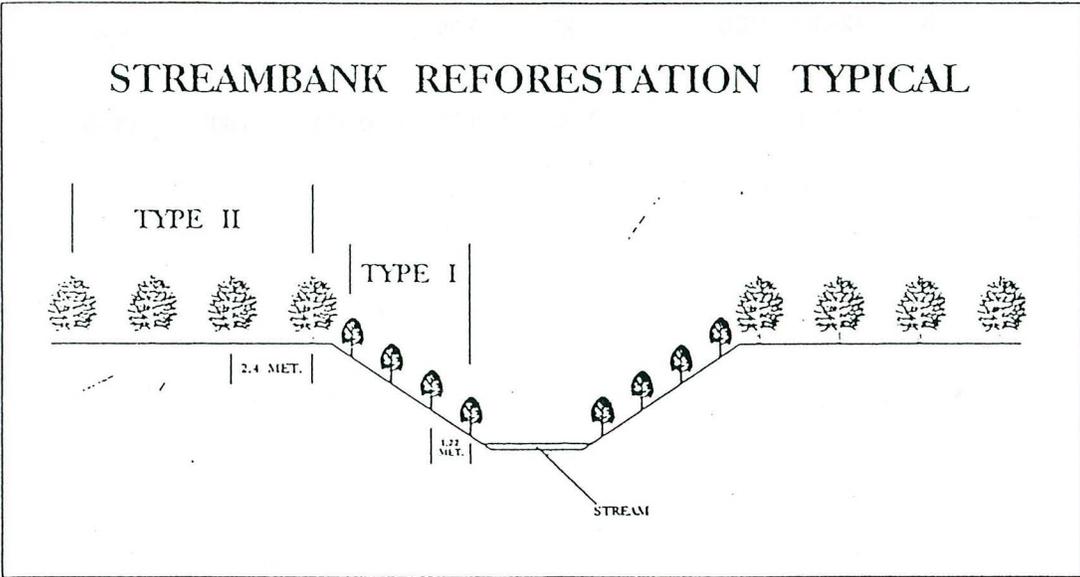
SUMMARY REPORT  
A9DB

SITE	STATION	FILL IN WETLANDS		FILL BELOW OHW		TOTAL FILL (M^3)
		ha	ac	ha	ac	
1	11+780 LMED LEFT	0.02	0.05			2222
2	12+040 LMED RIGHT	0.04	0.11	0.003	0.007	4085
3	12+355 LMED LEFT	0.02	0.05			606
	TOTAL	0.06	0.21	0.003	0.007	6913

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SWAIN/GRAHAM COUNTIES  
PROJECT: 8.3019122 (A-0009DB)  
WIDENING OF NC 28 FROM  
FONTANA LAKE TO  
CALFPEN GAP

STATE	STATE PROJECT REFERENCE	SHEET NO.	TOTAL SHEETS
N.C.	A-0009DB, A-0009DC	RF-	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

- TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 0.9m TO 1.52m ON CENTER, RANDOM SPACING, AVERAGING 1.22m ON CENTER, APPROXIMATELY 6726 PLANTS PER HECTARE.
- TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 1.8m TO 3.0m ON CENTER, RANDOM SPACING, AVERAGING 2.4m ON CENTER, APPROXIMATELY 1680 PLANTS PER HECTARE.
- NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"



**STREAMBANK REFORESTATION**

MIXTURE, TYPE, SIZE AND FURNISH SHALL CONFORM TO THE FOLLOWING:

<u>TYPE 1</u>			
50%	SALIX NIGRA	BLACK WILLOW	300mm - 460mm BR
50%	CORNUS AMOMUM	SILKY DOGWOOD	300mm - 460mm BR
<u>TYPE 2</u>			
25%	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	300mm - 460mm BR
25%	PLATANUS OCCIDENTALIS	SYCAMORE	300mm - 460mm BR
25%	PRUNUS SEROTINA	BLACK CHERRY	300mm - 460mm BR
25%	BETULA NIGRA	RIVER BIRCH	300mm - 460mm BR

PROJECT: 8.3019122 (A-0009DC)  
 WIDENING OF NC 28 FROM  
 WEST OF SR1231 TO  
 CALF PEN GAP  
 SHEET 34 OF 34

BE PLANTED

**STREAMBANK REFORESTATION**  
**DETAIL SHEET**  
 N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

State of North Carolina  
Department of Environment  
and Natural Resources  
Division of Water Quality



NORTH CAROLINA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES

February 9, 1998

Mr. Franklin Vick  
NC DOT  
PO Box 25201  
Raleigh NC 27611-2501

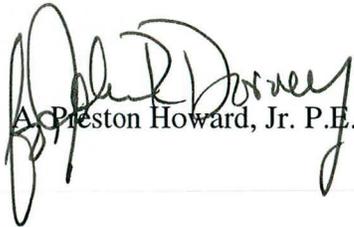
Dear Mr. Vick:

Re: Certification Pursuant to Section 401 of the Federal Clean Water Act,  
Proposed NC 28 Widening and Realignment from SR 1232 to SR 1121  
WQC Project #970409, COE #199505335  
TIP # A-9DB1DC/DC  
Graham and Swain Counties

Attached hereto is a copy of Certification No. 3179 issued to NC DOT dated January 5, 1998.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,



A. Preston Howard, Jr. P.E.

Attachments

970409.wqc

cc: Wilmington District Corps of Engineers  
Corps of Engineers Asheville Field Office  
Asheville DWQ Regional Office  
Mr. John Dorney  
Mr. John Parker, Division of Coastal Management  
Central Files

## NORTH CAROLINA 401 WATER QUALITY CERTIFICATION

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H, Section .0500 to NC DOT resulting in 1.5 acres of wetland impact and 3,077 linear feet of stream in Graham and Swain Counties pursuant to an application filed on the 2<sup>nd</sup> day of May 1997 to widen and relocate NC 28 from SR 1232 to SR 1121.

The application provides adequate assurance that the discharge of fill material into the waters of Little Horse Branch in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application, as described in the Public Notice. If you change your project, you must notify us and you may be required to submit a revised application. If total wetland fills for this project (now or in the future) exceed one acre, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to be valid, you must follow the conditions listed below. In addition, you should get any other federal, state or local permits before you go ahead with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations.

### Condition(s) of Certification:

1. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" (available from the Division of Land Resources in the DEHNR Regional or Central Offices) shall be utilized to prevent exceedances of the appropriate turbidity water quality standard (50 NTUs in all fresh water streams and rivers not designated as trout waters; 25 NTUs in all lakes and reservoirs, and all saltwater classes; and 10 NTUs in trout waters);
2. All sediment and erosion control measures placed in wetlands or waters shall be removed and the natural grade restored after the Division of Land Resources has released the project;
3. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;
4. Should waste or borrow sites be located in wetlands, compensatory mitigation is required since it is a direct impact from road construction activities;

5. Compensatory mitigation shall be done in accordance with the Corps of Engineers requirements. DWQ shall be copied on the approved ratio, location, size and method of mitigation (restoration, enhancement, creation and preservation) within 30 days after the 404 is issued and annual reports for the entire length of the monitoring period.

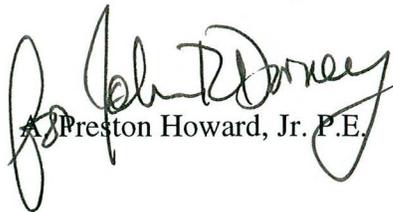
6. Compensatory mitigation shall be done in accordance with the Corps of Engineers requirements. This is to include 3.0 acres of wetland restoration and 3,077 linear feet of stream restoration at the Tallulah Bog mitigation site. DWQ shall be copied on the approved ratio, location, size and method of mitigation (restoration, enhancement, creation and preservation) and annual reports for the entire length of the monitoring period.

Violations of any condition herein set forth shall result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or coastal Area Management Act Permit. This Certification shall expire upon expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, P.O. Box 27447, Raleigh, N.C. 27611-7447. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 9<sup>th</sup> day of February 1998

DIVISION OF WATER QUALITY

  
A. Preston Howard, Jr. P.E.

WQC # 3179