



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR.
GOVERNOR

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

DAVID MCCOY
SECRETARY

September 7, 1999

MEMORANDUM TO: Mr. B. G. Payne, P.E.
Division 10 Engineer

FROM: V. Charles Bruton, Ph.D. *Ben Bruton*
Assistant Manager *for*
Planning and Environmental Branch

SUBJECT: Mecklenburg County, I-485 (Western Charlotte Outer Loop) from
Brown Grier Road Extension to North of I-85; State Project Numbers
8.U672204 and 8.U672205; TIP Numbers R-2248AC, AD, and BA

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

VCB/eah

Attachment

cc: Ms. Debbie Barbour, P.E.
Mr. Calvin Leggett, P.E.
Mr. John Alford, P.E.
Mr. A. L. Hankins, P.E.
Mr. William Rogers, P.E.
Mr. Victor Barbour, P.E.
Mr. W. D. Johnson
Mr. N. L. Graf (FHWA)
Mr. Gary Jessup (cover only)

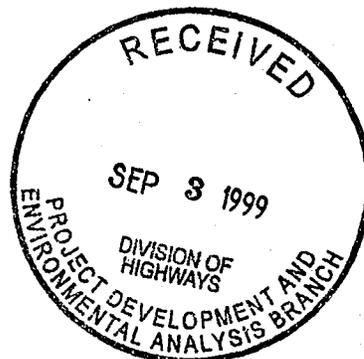


DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS

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

IN REPLY REFER TO

September 2, 1999



Regulatory Division

Action ID. 199930776

Mr. William D. Gilmore, Manager
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
Post Office Box 25201
Raleigh, North Carolina 27611-5201

Dear Mr. Gilmore:

In accordance with your written request of April 8, 1999, and May 17, 1999 and the ensuing administrative record, enclosed is a Department of the Army (DA) permit to discharge dredged or fill material into 2.56 acres of wetlands and 13,791 linear feet of stream channel in the waters and adjacent wetlands of Coffey Creek, Steel Creek, Beaverdam Creek, Little Paw Creek, Ticer Branch, Paw Creek and unnamed tributaries to facilitate the construction of 7.5 miles of the West Charlotte Outer Loop (I-485) between Brown Grier Road and Interstate Highway 85 west of Charlotte, Mecklenburg County, North Carolina (Tip R-2248 AC/AD/BA, State Project No. 8.1672201).

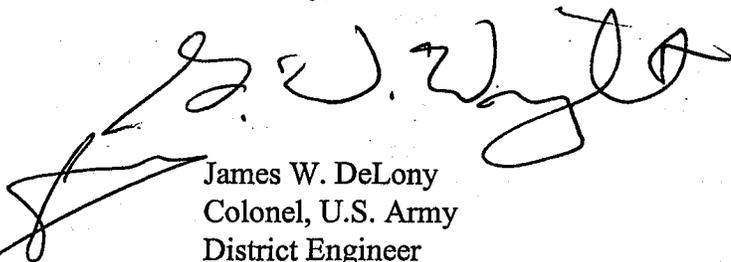
If any change in the authorized work is required because of unforeseen or altered conditions or for any other reason, the plans revised to show the change must be sent promptly to this office. Such action is necessary, as revised plans must be reviewed and the permit modified.

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, 2002.
- 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.

Should you have any questions, please contact Mr. Steve Lund, of my Asheville Regulatory Field Office, telephone (828) 271-4857.

Sincerely,



James W. DeLony
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. Doug Huggett
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

Mr. Ronald E. Ferrell, Program Manager
Division of Water Quality
North Carolina Department of Environment
and Natural Resources
Post Office Box 29535
Raleigh, North Carolina 27626-0535

DEPARTMENT OF THE ARMY PERMIT

Permittee **NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**

Permit No. **199930776**

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: **discharge dredged or fill material into 2.56 acres of wetland and 13,791 linear feet of stream channel in the waters and adjacent wetlands of Coffey Creek, Steele Creek, Beaverdam Creek, Little Paw Creek, Ticer Branch, Paw Creek and unnamed tributaries to facilitate the construction of 7.5 miles of the West Charlotte Outer Loop(I-485).**

Project Location: **Between Brown Grier Road and Interstate Highway 85 west of Charlotte, Mecklenburg County, North Carolina.**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2002**. 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).
 - (x) 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.

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

James B. Hunt, Jr., Governor
Wayne McDewitt, Secretary
Kerr T. Stevens, Director



August 26, 1999

Mr. William D. Gilmore, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
P.O. Box 25201
Raleigh, NC, 27611-5201

Dear Mr. Gilmore:

Re: Certification Pursuant to Section 401 of the Federal Clean Water Act,
Proposed construction of the West Charlotte Outer Loop in Mecklenburg County (R-2248, AC, AD,
BA).
WQC Project No. 990337, COE No. 199930776
Mecklenburg County

Attached hereto is a copy of Certification No. 3243 issued to The North Carolina Department of
Transportation dated August 26, 1999.

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

Sincerely,

Attachments

990337.wqc

cc: Wilmington District Corps of Engineers
Corps of Engineers Wilmington Field Office
DWQ Wilmington Regional Office
NCDWQ 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. This certification authorizes the NCDOT to place fill material in 2.56 acres of jurisdictional wetlands and 12,046 linear feet of streams in Mecklenburg County. The project shall be constructed pursuant to an application filed on the 8th day of April 1999 to construct the West Charlotte Outer Loop in Mecklenburg County (TIP R-2248 AC, AD, BA).

The application provides adequate assurance that the discharge of fill material into jurisdictional waters 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. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. 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 remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding 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 DENR 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 shall not be placed in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored after the Division of Land Resources has released the project;
3. If an environmental document is required, this Certification is not valid until a FONSI or ROD is issued by the State Clearinghouse;
4. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;
5. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit. Should waste or borrow sites be located in wetlands or stream, compensatory mitigation will be required since it is a direct impact from road construction activities.
- *6. It is our understanding that mitigation for impacts to 2.56 acres of wetlands will be mitigated for at a ratio of 2:1. Therefore, mitigation for 5.12 acres of impact will be performed. Moreover, it is our understanding that the remaining 12,064 linear feet of impacts to streams and the 5.12 acres of wetlands will be mitigated through an in lieu payment to the North Carolina Wetland Restoration Program (NCWRP). Furthermore, it is our understanding that the WRP has agreed to implement mitigation for the project. In accordance with 15A NCAC 2R.0500, the contribution will satisfy

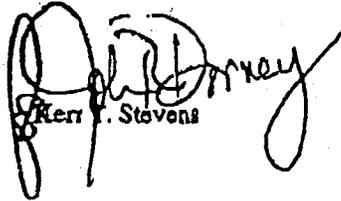
our compensatory mitigation requirements under 15A NCAC 2H.0506(h). Until the Wetland Restoration Program receives and clears your check (made payable to DENR - Wetland Restoration Program), wetland or stream fill shall not occur. Mr. Ron Ferrell should be contacted at 919-733-5083 ext. 358 if you have any questions concerning the Wetland Restoration Program. The payment to NCWRP shall be sent within two months of issuance of the 404 permit.

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 the 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 26th day of August 1999

DIVISION OF WATER QUALITY


Kerry F. Stevens

WQC # 3243

**NORTH CAROLINA - DIVISION OF WATER QUALITY
401 WATER QUALITY CERTIFICATION**

SUMMARY OF PERMITTED IMPACTS AND MITIGATION REQUIREMENTS

In accordance with 15A NCAC 2H.0500, the North Carolina Department of Transportation is authorized to impact the surface waters of the State of North Carolina as indicated below for the purpose of constructing the West Charlotte Outer Loop in Mecklenburg County (T.I.P. No. R-2248 AC, AD, BA, DWQ No. 990337). All activities associated with these authorized impacts must be conducted in accordance with the conditions listed in the attached certification transmittal letter. **THIS CERTIFICATION IS NOT VALID WITHOUT THE ATTACHMENTS.**

COMPENSATORY MITIGATION REQUIREMENTS FOR WETLAND RESTORATION:

LOCATION: Construction of the West Charlotte Outer Loop
COUNTY: Mecklenburg
Basin/SUBBASIN: Catawba, Cataloging Units 03050103 and 03050101
DWQ No.: 990337

As required by 15A NCAC 2H.0506, and the conditions of this certification, you are required to compensate for the above impacts through the restoration, creation, enhancement or preservation of wetlands and surface waters as outlined below prior to conducting any activities that impact or degrade waters of the state.

Note: Acreage requirements proposed to be mitigated through the Wetland Restoration Program must be rounded to one-quarter increments according to 15A 2R.0503(b).

5.25 acres of Class WL wetlands
5.25 acres of riparian wetlands
0.0 acres of non-riparian wetlands

0 acres of Class SWL wetlands

12,064 linear feet of stream channel

One of the options you have available to satisfy the compensatory mitigation requirements is through payment of a fee to the Wetland Restoration Fund per 15A NCAC 2R.0503. If you choose this option, please sign this form and mail it to the Wetlands Restoration Fund at the address listed below. An invoice for the appropriate amount of payment will be sent to you upon receipt of this form. **PLEASE NOTE, THE ABOVE IMPACTS ARE NOT AUTHORIZED UNTIL YOU RECEIVE NOTIFICATION THAT YOUR PAYMENT HAS BEEN PROCESSED BY THE WETLANDS RESTORATION PROGRAM.**

Signature

Date

WETLANDS RESTORATION PROGRAM
DIVISION OF WATER QUALITY
P.O. BOX 29535
RALEIGH, NC, 27626-0535
(919) 733-5083 ext. 358

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. All conditions of Section 401, Clean Water Act, Water Quality Certification No. 3243, issued by the North Carolina Division of Water Quality on August 26, 1999, will be regarded as conditions of this Department of the Army permit.
3. 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.
4. 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 dredged, fill or waste material. The permittee shall ensure that all such areas comply with Special Condition No. 3 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. 3 above. All information will be available to the Corps of Engineers upon request.
5. The permittee shall require his contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project and shall provide each of his contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit.
6. Wet concrete will be isolated from any contact with flowing streams.
7. All temporary diversion channels and stream crossings will be constructed of non-erodable materials. Any such structures located outside of the roadway cut or fill limits will be reported in writing to the Corps of Engineers, Asheville Regulatory Field Office, together with a location map and restoration plan.
8. The permittee shall schedule a preconstruction meeting between their representatives, the contractor, and a representative of 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.

9. The permittee will insure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any deviations in the construction design plans will be brought to the attention of the Corps of Engineers, Asheville Regulatory Field Office prior to any active construction in waters or wetlands.

10. All channel relocations will be constructed in a dry work area and stabilized before stream flows are diverted through them. Channel relocations will be completed during the growing season to allow for the establishment of stabilizing vegetation.

11. The permittee shall mitigate for unavoidable impacts to functional stream channel associated with this project by payment to the North Carolina Wetlands Restoration Program (NCWRP) in an amount determined by the NCWRP, sufficient to perform 24,128 linear feet of warm water stream restoration within Cataloging Units 03050101 and 03050103 of the Catawba River Basin. Construction within streams shall begin only after the permittee has made full payment to the NCWRP and the NCWRP has provided written confirmation to the Corps that it agrees to accept responsibility for the required mitigation work in compliance with the MOU between the North Carolina Department of Environment and Natural Resources and the United State Army Corps of Engineers, Wilmington District, dated November 4, 1998.

12. 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, January 1999". Prior to initiating channel relocation work on Paw Creek, Ticer Branch, and the unnamed tributary to the Catawba River (Site 5, Section AD), the permittee and his contractor will meet onsite with representatives of the Corps of Engineers and the North Carolina Wildlife Resources Commission to review the design details of these relocations.

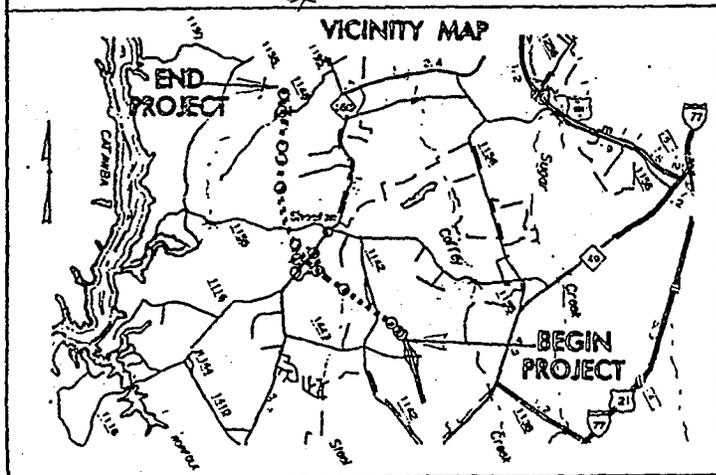
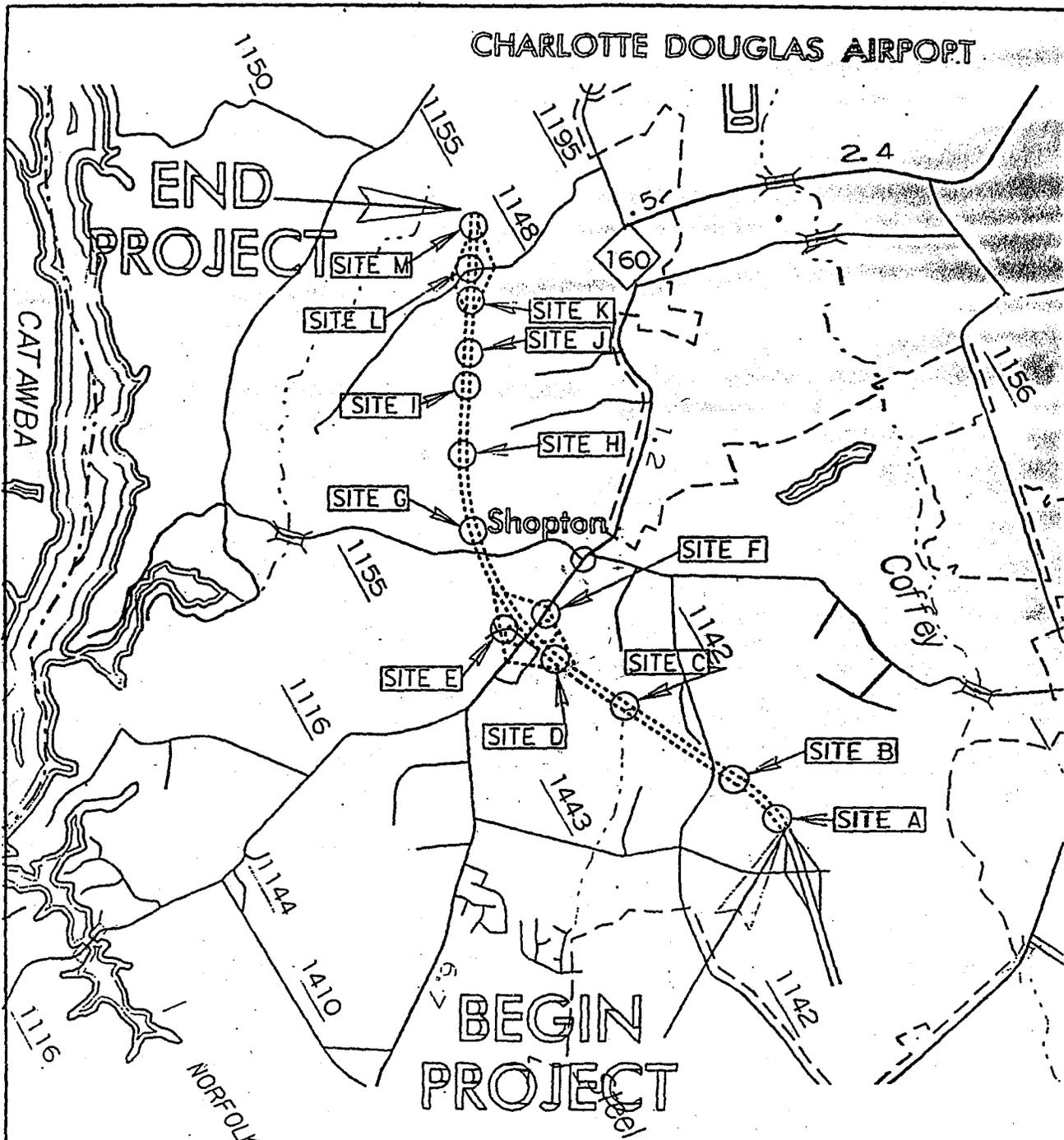
13. Concrete box culverts will be constructed so that the bottom of the culvert is one foot below the bed of the stream. Multiple cell box culverts will be constructed so that normal and low flows are diverted through only one cell. Notched baffles will be constructed at approximately 15-foot intervals within the bottom of the low flow cell to allow for the accumulation of natural bed materials and to create resting areas to facilitate the movement of fish and other aquatic organisms through these culverts.

14. In order to allow for continued movement of bed load and aquatic organisms, existing stream channel widths and depths will be maintained at the inlet and outlet ends of culverts. Riprap armoring of streams at culvert inlets and outlets shall be minimized in favor of bioengineering techniques such as bank sloping, erosion control matting and revegetation with deep-rooted, woody plants.

15. In order to minimize stream channel sedimentation and thermal pollution (stream warming), the clearing of riparian vegetation will not be accomplished until just before construction activities begin on a given section of stream.

16. In order to compensate for unavoidable impacts to wetlands, the permittee will utilize 5.12 acres of successfully created bottomland hardwood wetlands at the Long Creek Mitigation Site in accordance with the permittee's "Compensatory Mitigation Plan, Long Creek Site, Charlotte Outer Loop, Mecklenburg County, North Carolina" dated December 1995. In order to be considered successful, the hydrology and vegetation success criteria of this mitigation plan will be met. Monitoring of wetland hydrology and vegetation will be implemented and the property will be preserved in perpetuity according to this plan. The permittee will provide a survey identifying the location of the 5.12 acres of wetland that will satisfy this mitigation requirement.

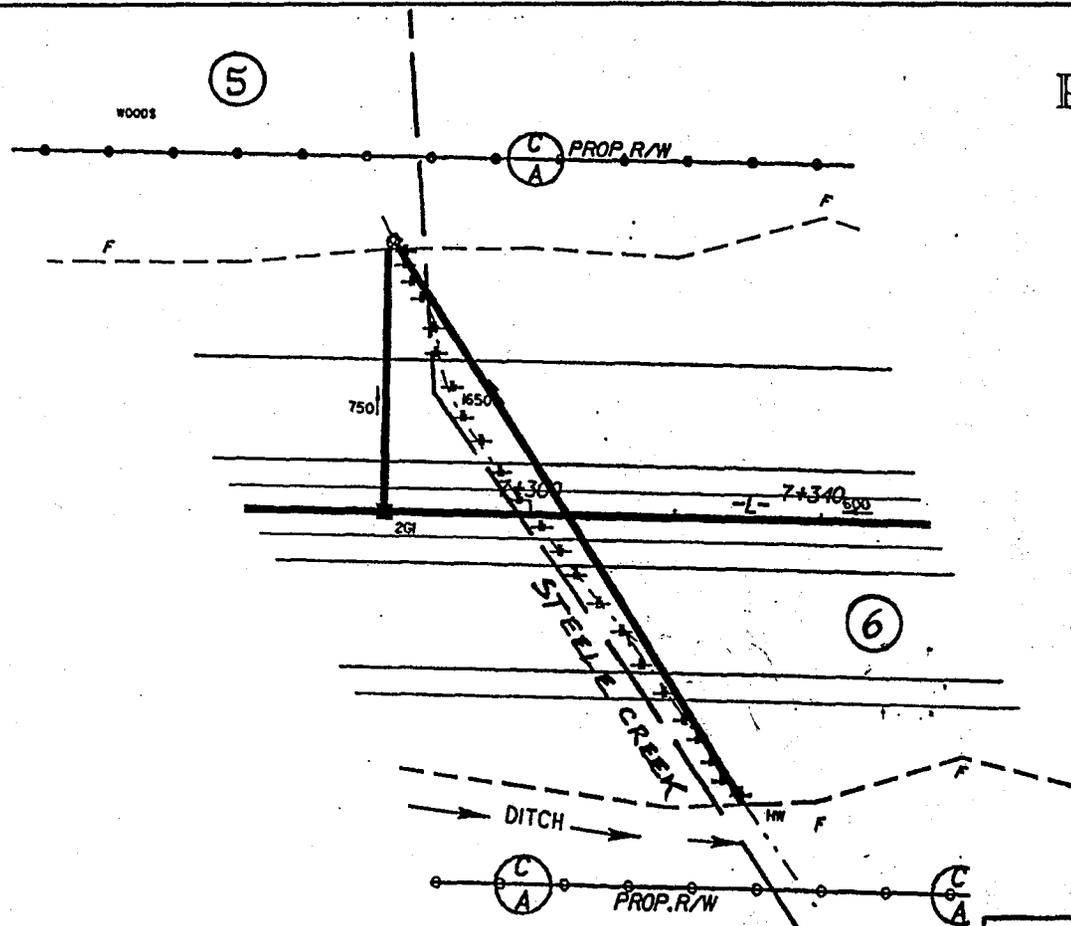
CHARLOTTE DOUGLAS AIRPORT



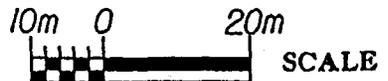
SECTION AC

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 MECKLENBURG COUNTY
 PROJECT: 8.U672204 (R2248AC)
 WEST CHARLOTTE OUTER LOOP
 FROM BROWN GRIER RDEXT
 TO SR1148 (GARRISON ROAD)
 SHEET / OF 20

PLAN VIEW



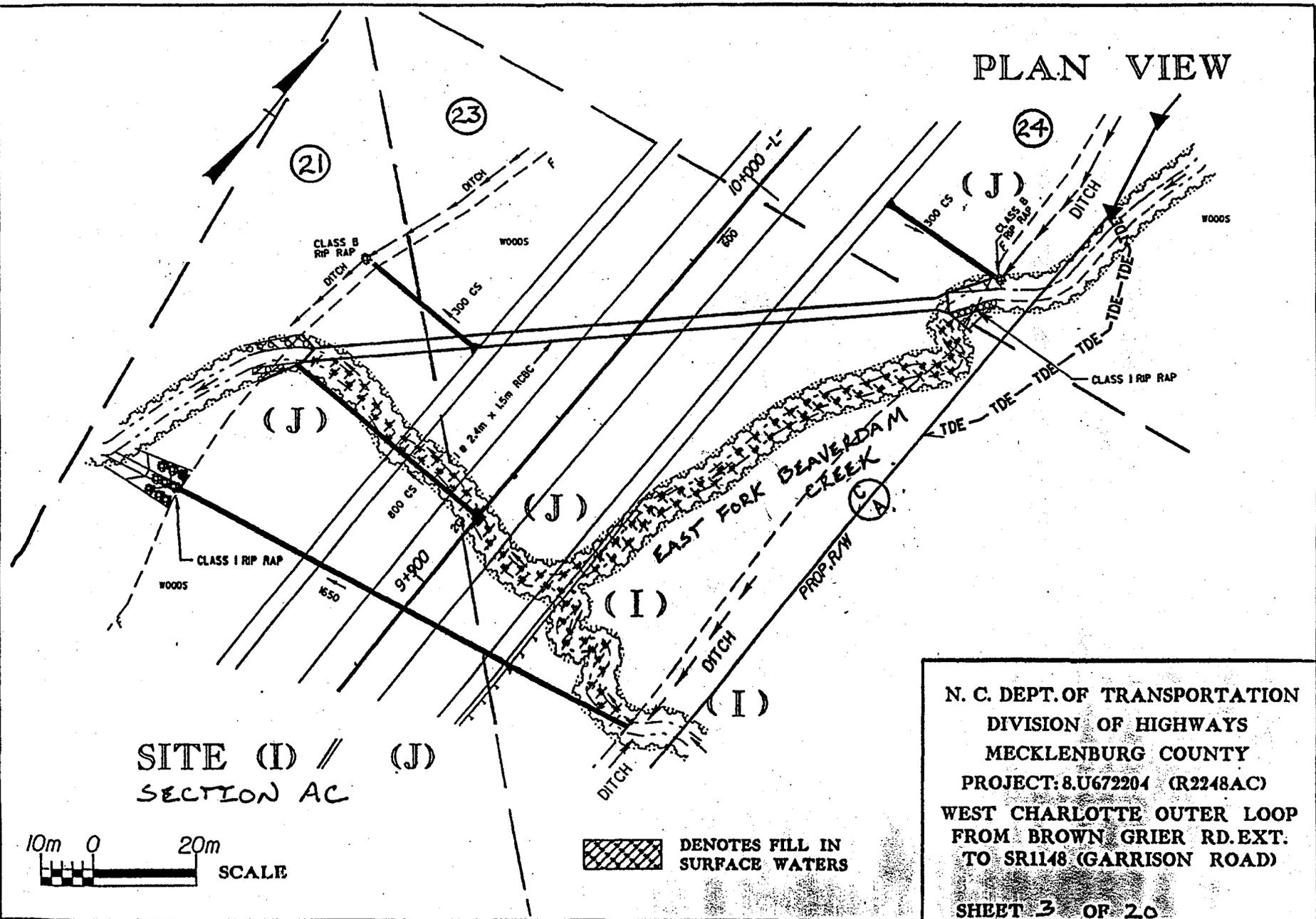
SITE (C)
SECTION AC



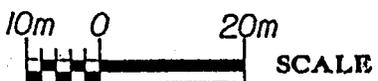
DENOTES FILL IN
SURFACE WATERS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: 8.U672204 (R2248AC)
WEST CHARLOTTE OUTER LOOP
FROM BROWN GRIER RD. EXT.
TO SR1148 (GARRISON ROAD)
SHEET 2 OF 20

PLAN VIEW



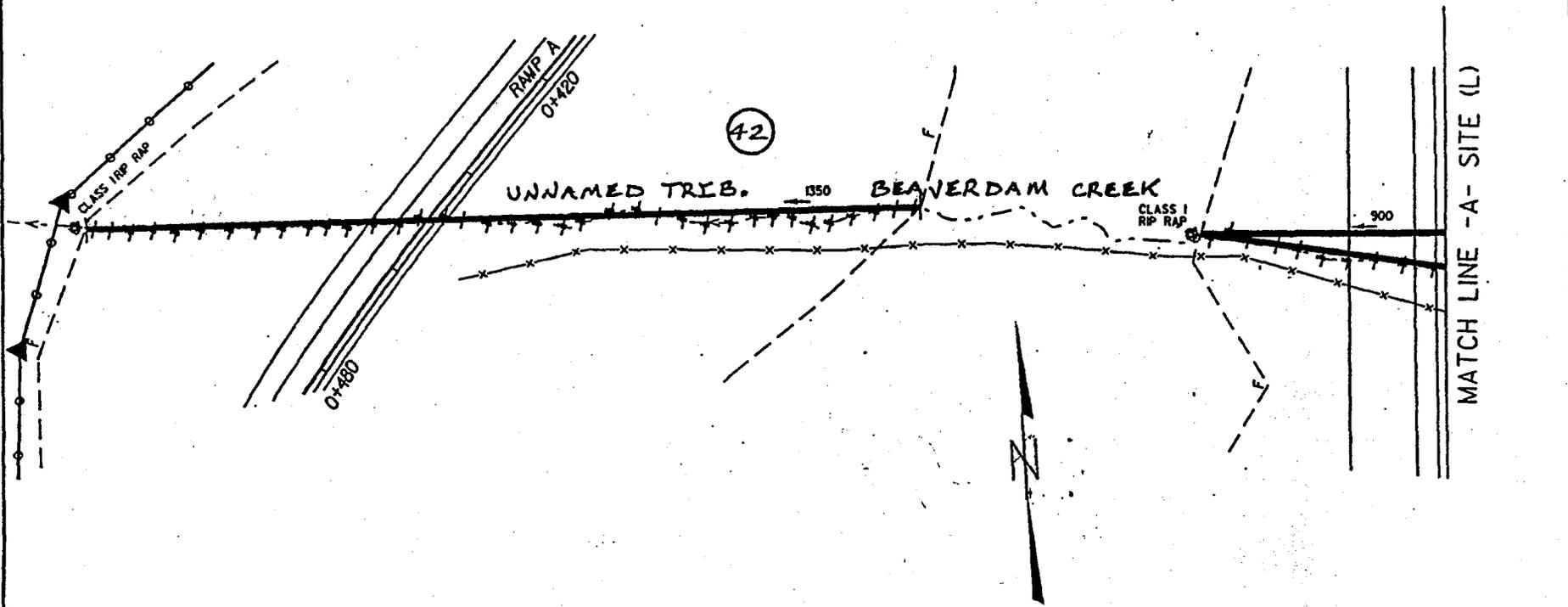
SITE (I) // (J)
SECTION AC



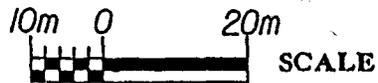
 DENOTES FILL IN SURFACE WATERS

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 MECKLENBURG COUNTY
 PROJECT: 8.U672204 (R2248AC)
 WEST CHARLOTTE OUTER LOOP
 FROM BROWN GRIER RD. EXT.
 TO SR1148 (GARRISON ROAD)
 SHEET 3 OF 20

PLAN VIEW



SITE (L)
SECTION AC



 DENOTES FILL IN SURFACE WATERS

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: 8.U672204 (R2248AC)
WEST CHARLOTTE OUTER LOOP
FROM BROWN GRIER RD. EXT.
TO SR1148 (GARRISON ROAD)

SHEET 4 OF 20

SUMMARY SECTION AC

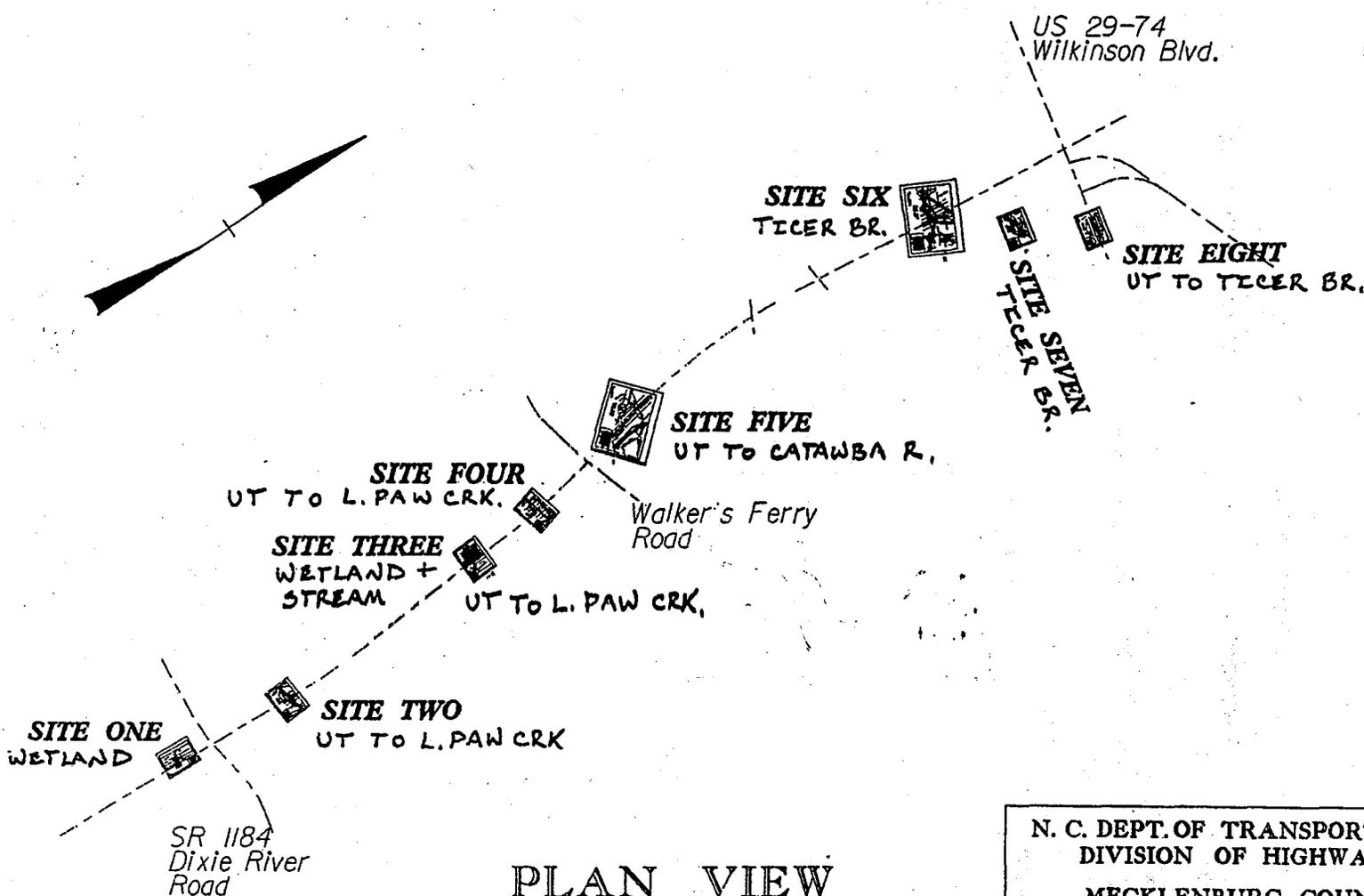
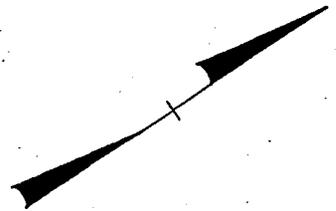
Site No.	Station	Structure Size	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Fill In Wetlands (ha)	Temp.Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Interchange Isolated Wetland (ha)	Mechanized Clearing (Method III) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Existing Channel Filled (m)	Relocated Channel (m)	Enclosed Channel (m)
A	64+43	1500	0.036	0	0	0	0	0.008	0	0	0	89
B	65+78/67+00	600	0	0	0	0	0	0.003	0	150	40	0
C	73+05	1650	0	0	0	0	0	0.01	0	0	0	90.7
D	77+98	1500	0.024	0	0	0	0	0.021	0	0	0	213.6
E	8+200	1050	0.052	0	0	0	0	0.012	0	0	0	110
F	85+00	1350	0	0	0	0	0	0.02	0	0	0	205
G	91+60	1050	0.04	0	0	0	0	0.018	0	0	0	138.3
H	98+00	1@2.4m X 1.5m RCBC	0	0	0	0	0	0.022	0	10	10	167
I	99+00	1650	0	0	0	0	0	0.007	0	0	12	35
J	99+00/100+00	1@2.4m X 1.5m RCBC	0	0	0	0	0	0.018	0	0	0	159
K	10+480	900	0	0	0	0	0	0.008	0	0	0	86.4
KK	10+700	N/A	0	0	0	0	0	0	0.1	0	0	0
L	11+600	1200	0	0	0	0	0	0.039	0	0	0	395
M	11+560	1850	0	0	0	0	0	0.018	0	7	7	153
TOTALS:			0.152	0	0	0	0	0.201	0.1	167	69	1842

NOTE:

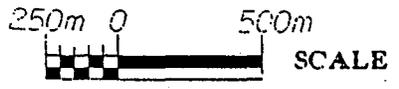
ALL SITES ARE ABOVE HEAD WATERS

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

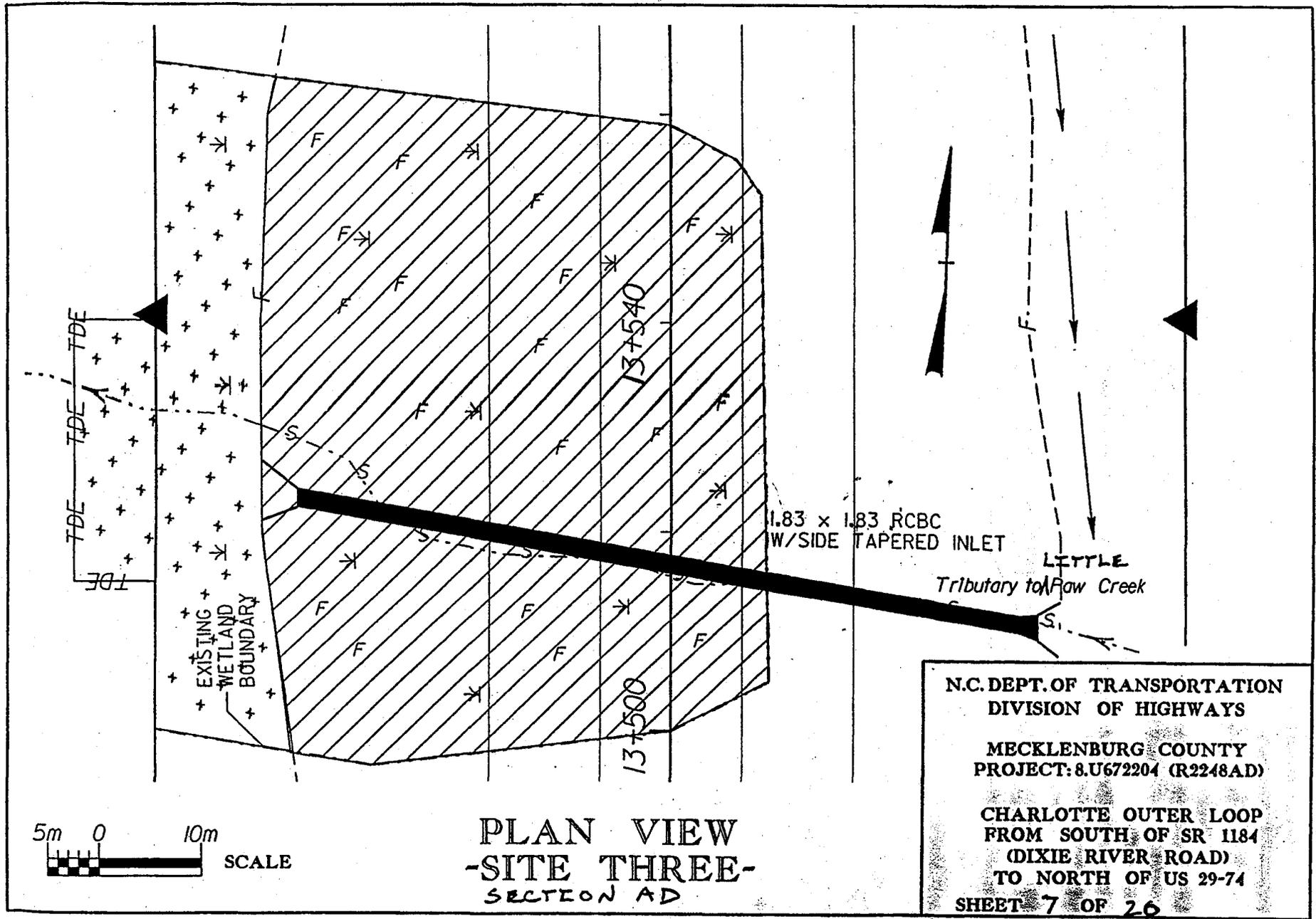
PROJECT: 8.U672204 (R2248 AC)



PLAN VIEW
-SITE LOCATIONS-
SECTION AD



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: 8.U672204 (R-2248AD)
CHARLOTTE OUTER LOOP
FROM SOUTH OF SR 1184
(DIXIE RIVER ROAD)
TO NORTH OF US 29-74



PLAN VIEW
 -SITE THREE-
 SECTION AD

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 MECKLENBURG COUNTY
 PROJECT: 8.U672204 (R2248AD)
 CHARLOTTE OUTER LOOP
 FROM SOUTH OF SR 1184
 (DIXIE RIVER ROAD)
 TO NORTH OF US 29-74
 SHEET 7 OF 26

Stream Relocation
with Cross Vane Rock Weirs and
Foodplain Terracing
See Detail

1850mm CL.V
METHOD B INSTALLATION

Tributary to Catawba River
(Lake Wylie)

14400

144300

2

2

2

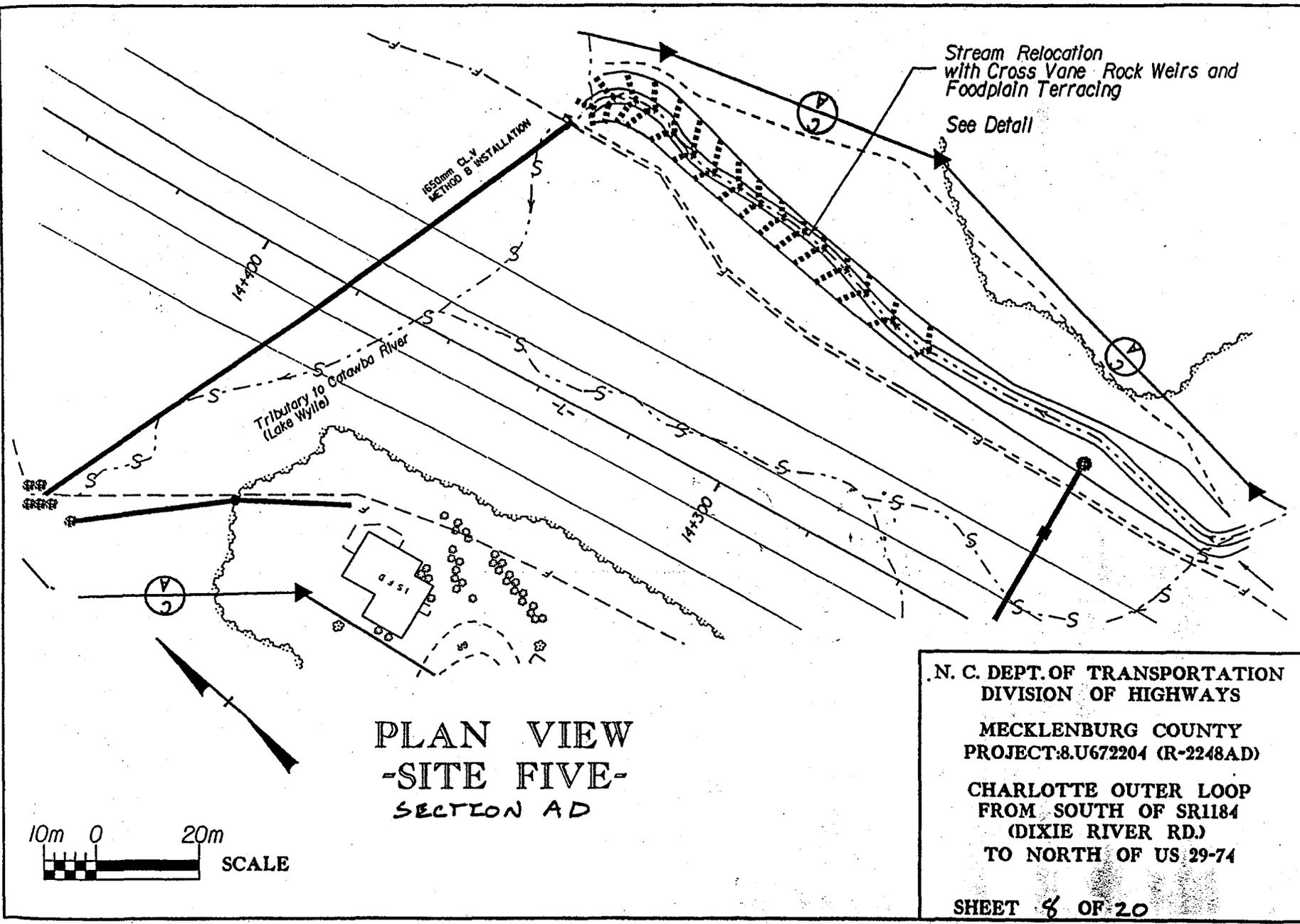
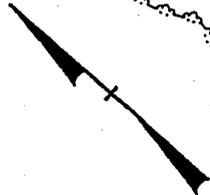
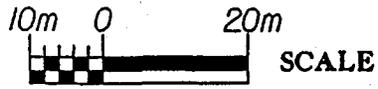
PLAN VIEW
-SITE FIVE-
SECTION AD

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY
PROJECT: 8.U672204 (R-2248AD)

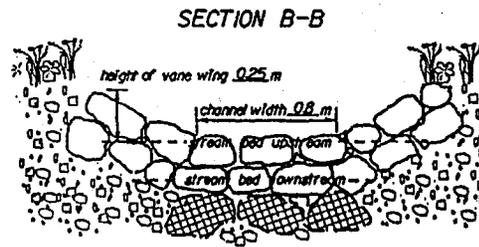
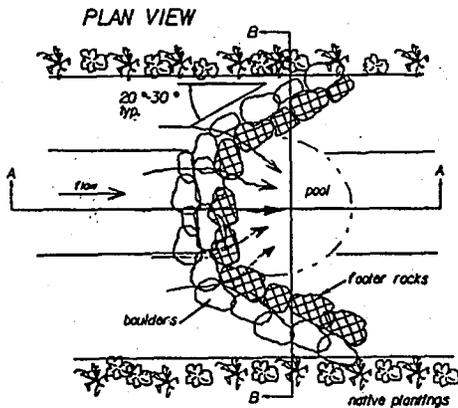
CHARLOTTE OUTER LOOP
FROM SOUTH OF SR1184
(DIXIE RIVER RD.)
TO NORTH OF US 29-74

SHEET 8 OF 20



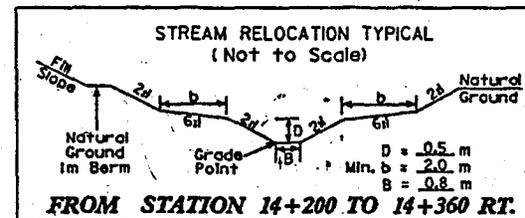
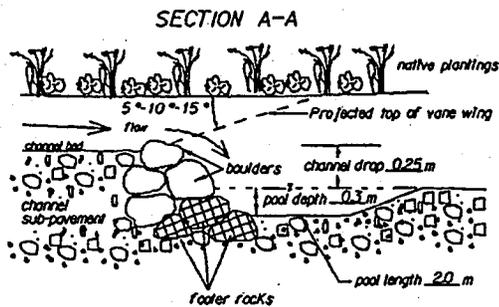
CROSS VANE ROCK WEIR DETAIL

SITE FIVE SECTION AD



Notes: Boulders should be native stone or split rock, angular and oblong with axis approximately 0.3 m in length

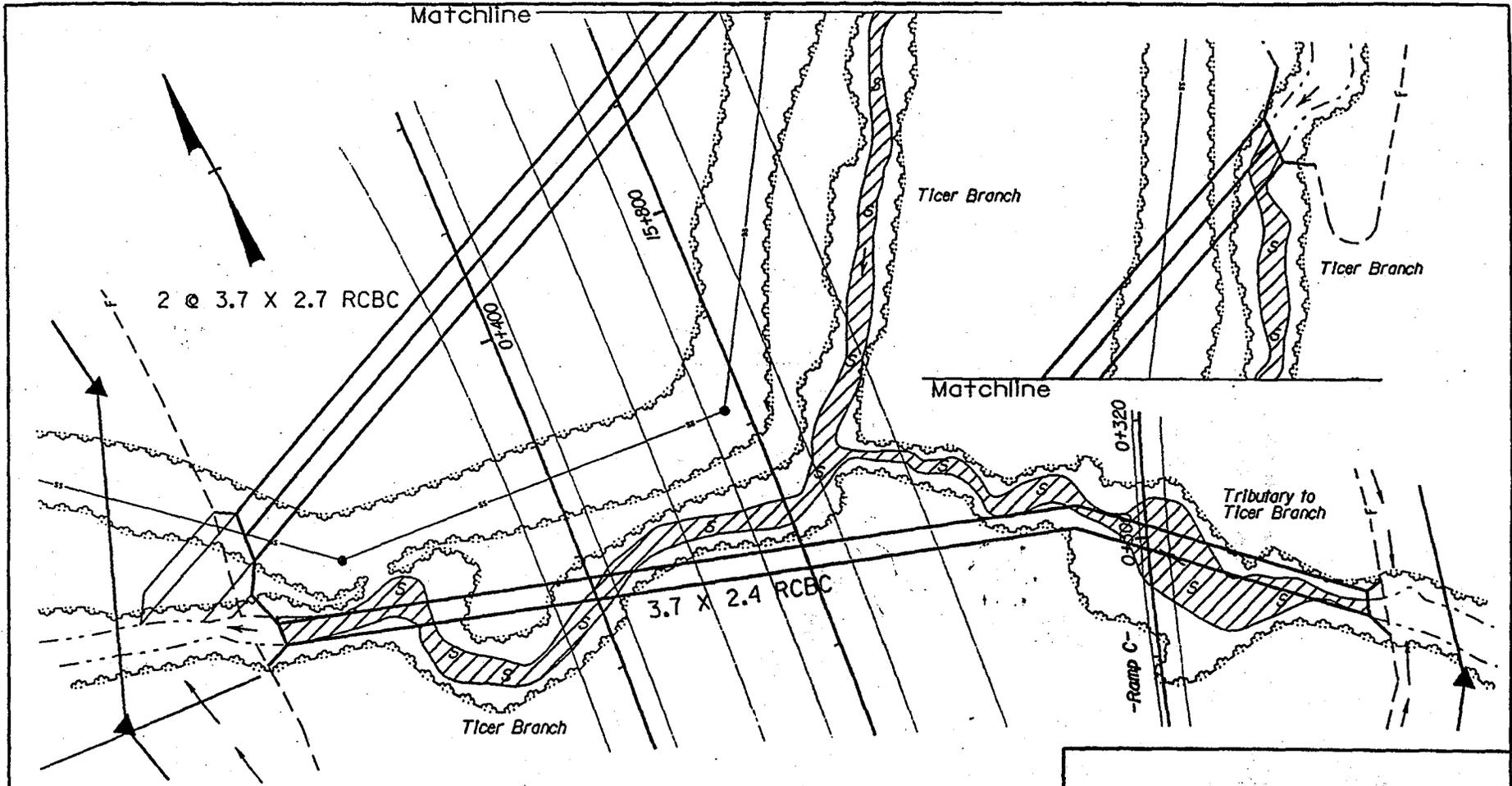
estimated 28 metric tons native stone



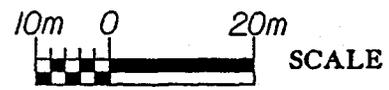
NOT TO SCALE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: 8.U672204 (R-2248AD)
CHARLOTTE OUTER LOOP
FROM SOUTH OF SR 1184
(DIXIE RIVER ROAD)
TO NORTH OF US 29-74

SHEET 9 OF 20



PLAN VIEW
 -SITE SIX-
 SECTION AD



DIVISION OF HIGHWAYS
 MECKLENBURG COUNTY
 PROJECT: 8.U672204 (R-2248AD)
 CHARLOTTE OUTER LOOP
 FROM SOUTH OF SR1184
 (DIXIE RIVER RD.)
 TO NORTH OF US 29-74
 SHEET 10 OF 20

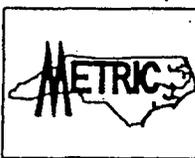
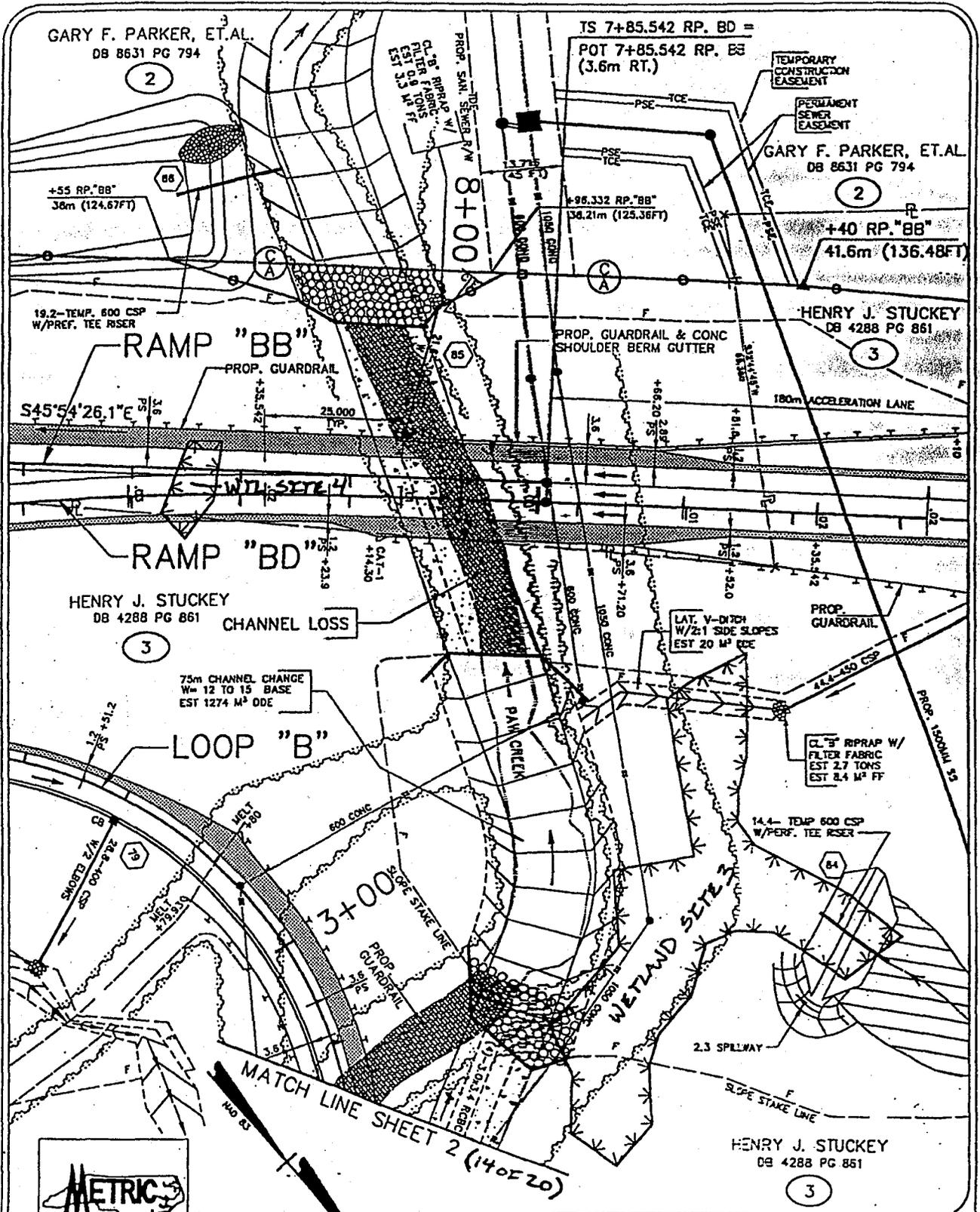
SUMMARY SECTION AD

Site No.	Station	Structure Size	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Fill In Wetlands (ha)	Temp.Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Interchange Isolated Wetland (ha)	Mechanized Clearing (Method III) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Existing Channel Filled (m)	Relocated Channel (m)	Enclosed Channel (m)
1	12+140 -L-	N.A.	0.05									
2	12+650 -L-	1650						0.0286		119	0	102
3	13+520 -L-	1.8 X 1.8	0.297					0.004		82.5		73
4	13+840 -L-	1800						0.018		89.5		62
5	14+300 -L-	1650						0.028		310	155	126
6	15+800 -L-	2@3.7X2.7						0.1349		334		358
	"	3.7X2.4										
7	0+620 -RPC-	2 @ 3.7 X 2.7						0.0514		73	27.4	
8	1+570 -Y9-	750						0.0038		24.7		24.7
TOTALS:			0.347	0	0	0	0.091	0.2687	0	1032.7	182.4	745.7

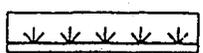
NOTE:
ALL SITES ARE ABOVE HEAD WATERS

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

PROJECT:8.U672204 (R-2248AD)



LEGEND

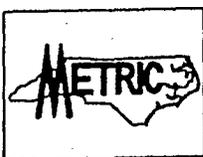
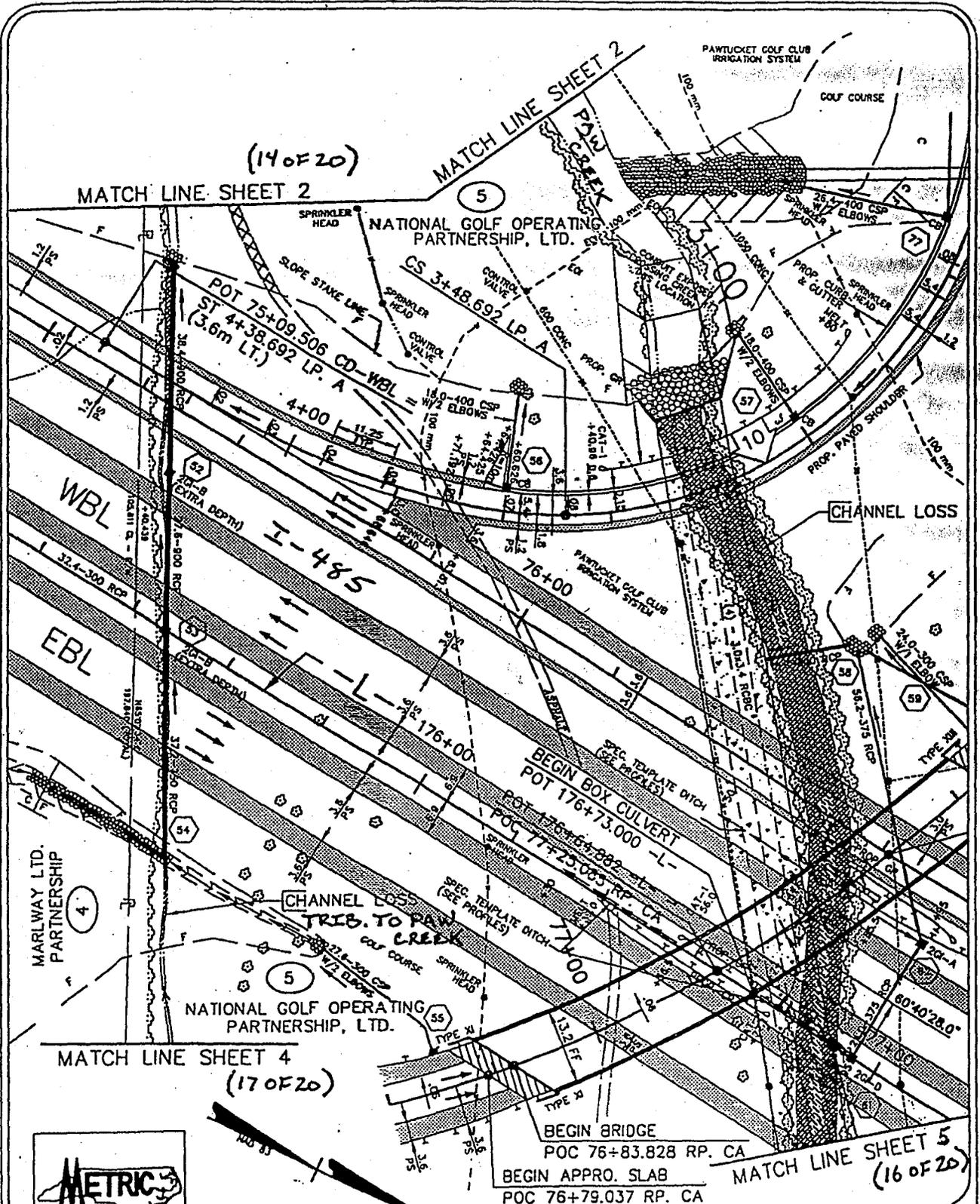
-  WETLANDS
-  EXISTING CHANNEL LOSS

CHANNEL LOSS SHEET 1 OF 7

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS
 MECKLENBURG COUNTY
 8.U672205 (R-22488A)
 WEST CHARLOTTE OUTER LOOP FROM NORTH OF US 29\74
 (WILKINSON BOULEVARD) TO NORTH OF I-85

SCALE AS SHOWN

SHEET 13 OF 20

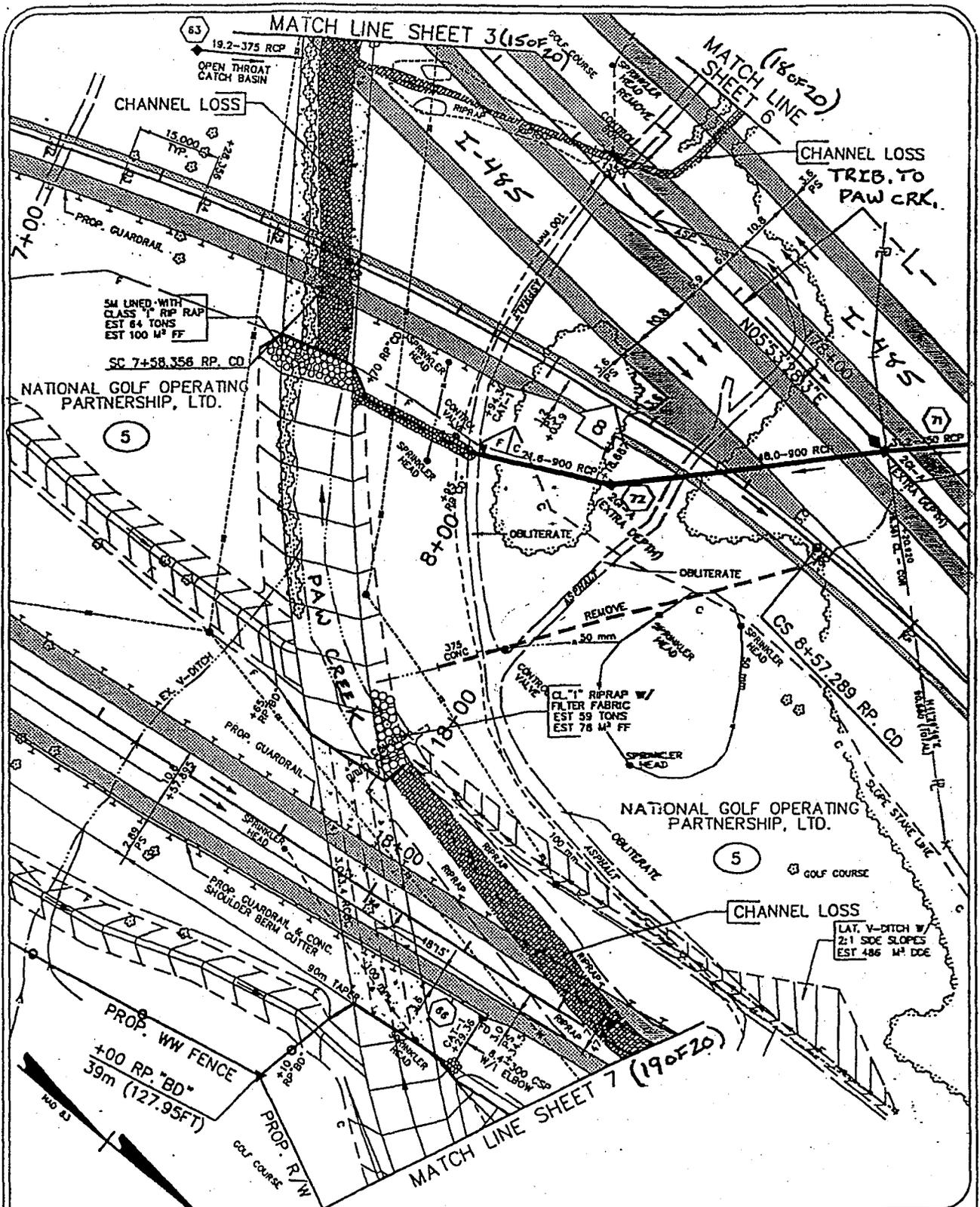


LEGEND

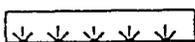
- WETLANDS
- EXISTING CHANNEL LOSS

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

MECKLENBURG COUNTY
8.U672205 (R-2248BA)
WEST CHARLOTTE OUTER LOOP FROM NORTH OF US 29\74
(WILKINSON BOULEVARD) TO NORTH OF I-85



LEGEND

-  WETLANDS
-  EXISTING CHANNEL LOSS



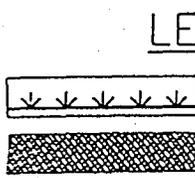
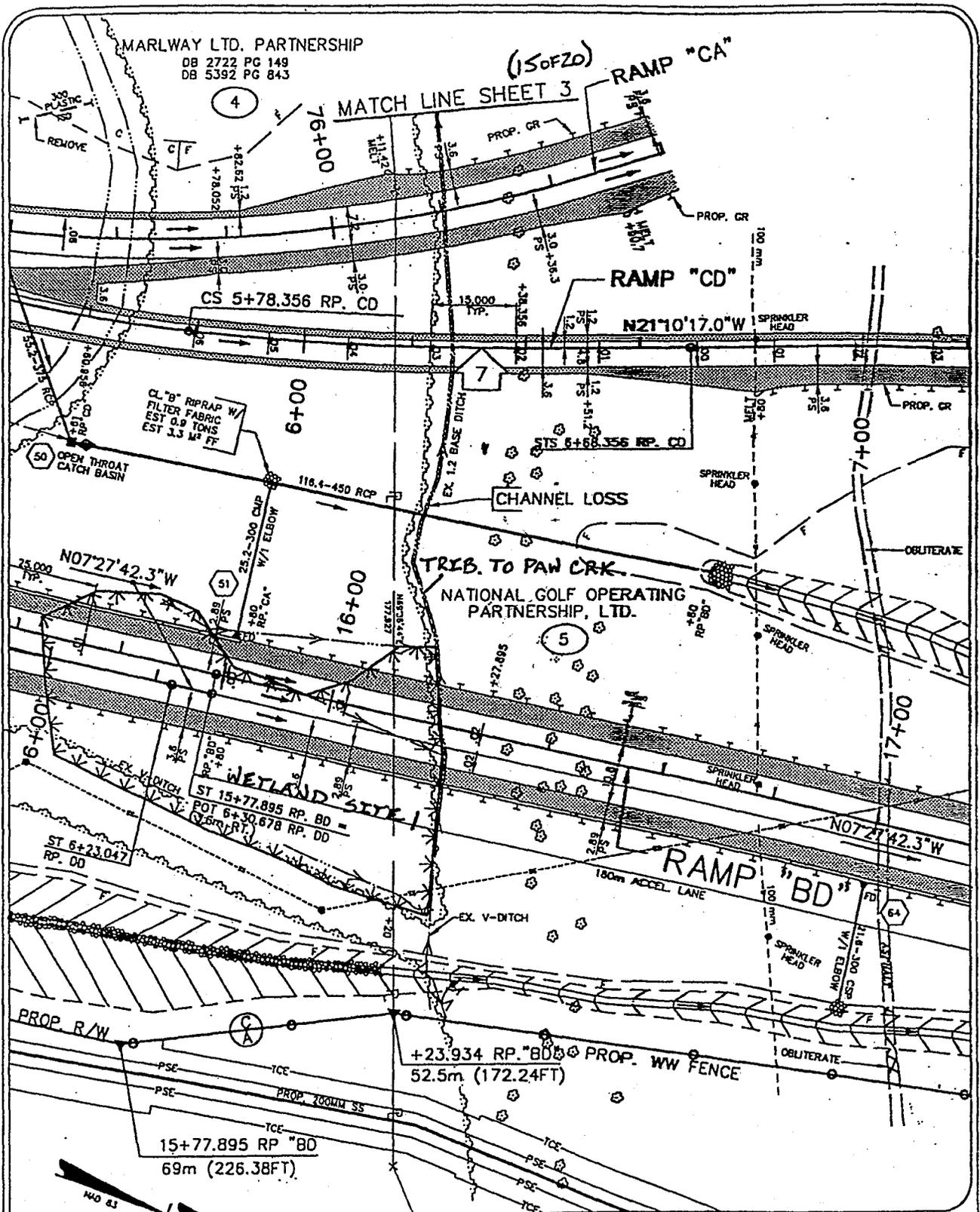
NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

MECKLENBURG COUNTY
 E.U672205 (R-22488A)
 WEST CHARLOTTE OUTER LOOP FROM NORTH OF US 29/74
 (WILKINSON BOULEVARD) TO NORTH OF I-85

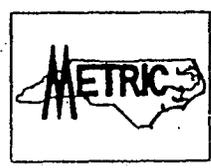
SCALE AS SHOWN SHEET 16 OF 20

MARLWAY LTD. PARTNERSHIP
 DB 2722 PG 149
 DB 5392 PG 843

(15 of 20)
 RAMP "CA"



LEGEND

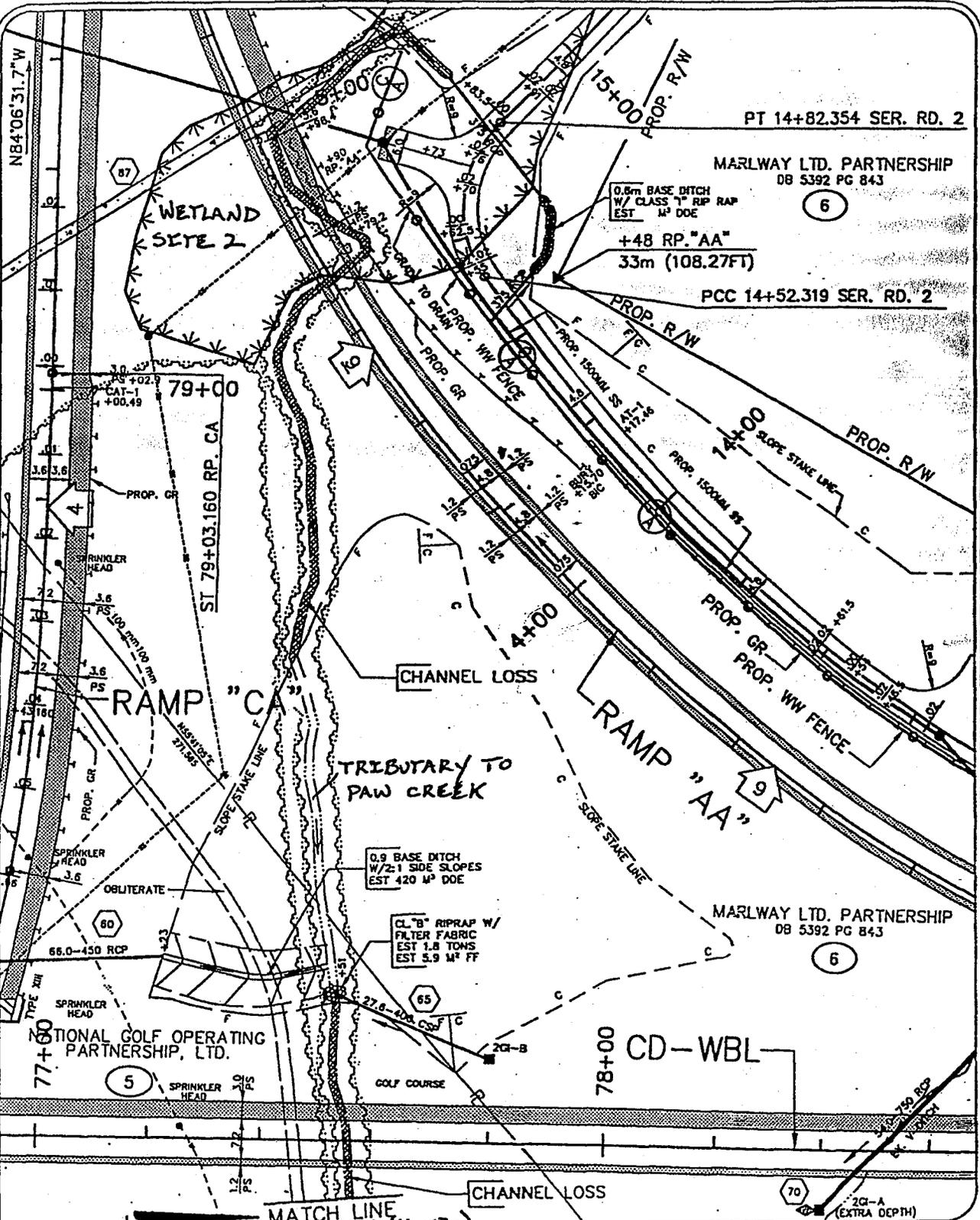


CHANNEL LOSS SHEET 4 OF 7

**NORTH CAROLINA
 DEPARTMENT OF HIGHWAYS**

MECKLENBURG COUNTY
 B.U672205 (R-22488A)
 WEST CHARLOTTE OUTER LOOP FROM NORTH OF US 29\74
 (WILKINSON BOULEVARD) TO NORTH OF I-85

SCALE AS SHOWN SHEET 17 of 20



PT 14+82.354 SER. RD. 2

MARLOWAY LTD. PARTNERSHIP
DB 5392 PG 843

6

0.6m BASE DITCH
W/ CLASS 1" RIP RAP
EST M² DOE

+48 RP. "AA"
33m (108.27FT)

PCC 14+52.319 SER. RD. 2

79+00

ST 79+03.160 RP. CA

RAMP "CA"

TRIBUTARY TO
PAW CREEK

CHANNEL LOSS

RAMP "AA"

0.9 BASE DITCH
W/ 2:1 SIDE SLOPES
EST 420 M² DOE

CL "B" RIPRAP W/
FILTER FABRIC
EST 1.8 TONS
EST 5.9 M² FF

MARLOWAY LTD. PARTNERSHIP
DB 5392 PG 843

6

NATIONAL GOLF OPERATING
PARTNERSHIP, LTD.

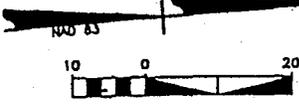
77+00

5

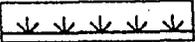
78+00 CD-WBL

MATCH LINE
SHEET 5 (16 OF 20)

CHANNEL LOSS



LEGEND

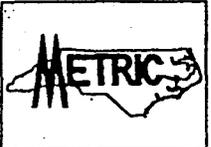


WETLANDS



EXISTING CHANNEL LOSS

CHANNEL LOSS SHEET 6 OF 7

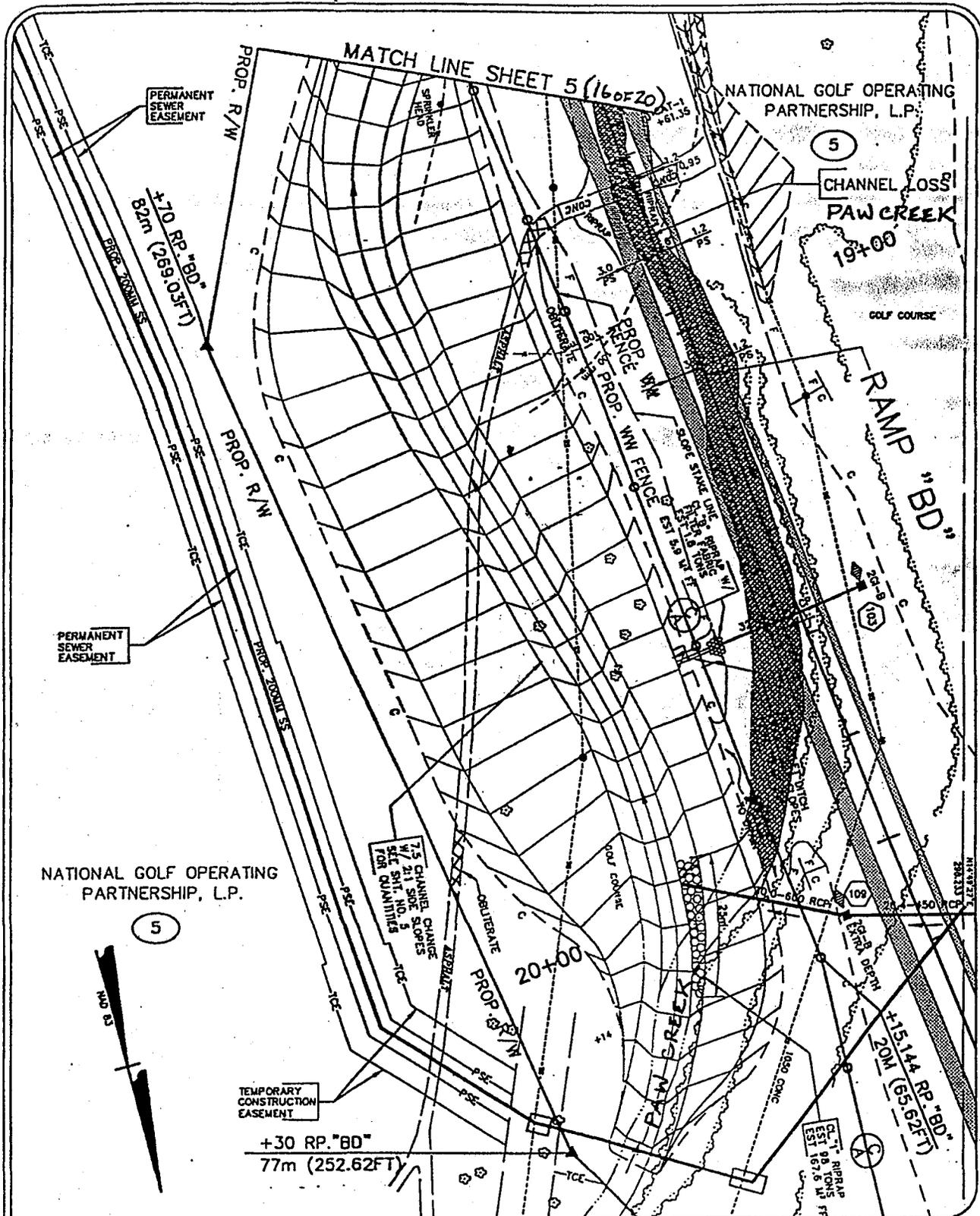


NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

MECKLENBURG COUNTY
8.U672205 (R-22488A)
WEST CHARLOTTE OUTER LCPC FROM NORTH OF US 29\74
(WILKINSON BOULEVARD) TO NORTH OF I-85

SCALE AS SHOWN

SHEET 16 OF 20



NATIONAL GOLF OPERATING PARTNERSHIP, L.P.

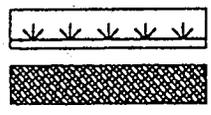
NATIONAL GOLF OPERATING PARTNERSHIP, L.P.

5
CHANNEL LOSS PAW CREEK

7.5' CHANNEL CHANGE
W/ 2:1 SIDE SLOPES
SEE SHT. NO. 5
FOR QUANTITIES



LEGEND



WETLANDS
EXISTING CHANNEL LOSS



NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

MECKLENBURG COUNTY
8.U672205 (R-2248BA)
WEST CHARLOTTE OUTER LOOP FROM NORTH OF US 29\74
(WILKINSON BOULEVARD) TO NORTH OF I-85

SUMMARY OF WETLAND IMPACTS SECTION BA

SITE	PROJECT STATION	STRUCTURE TYPE	WETLAND IMPACTS				CHANNEL IMPACTS			
			FILL IN WETLANDS	TEMPORARY FILL IN WETLANDS	EXCAVATION IN WETLANDS	MECHANIZED CLEARING IN WETLANDS	FILL IN SURFACE WATERS	FILLED LENGTH OF EXISTING CHANNEL	PROPOSED CHANNEL RESTORTATION	PROPOSED ENCLOSED CHANNEL
			(ha)	(ha)	(ha)	(ha)	(ha)	(m)	(m)	(m)
1	15+80 RP BD		0.256							
2	4+80 RP AA		0.280			0.024				
3	7+50 RP BD		0.027	0.022	0.008	0.031				
4	8+50 RP BD		0.012							
	CHANNEL LOSS							1161	275	465
	TOTAL		0.575	0.022	0.008	0.055		1161	275	465

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

MECKLENBURG COUNTY
8,067,2205 (R-22488A)

WEST CHARLOTTE OUTER LOOP FROM NORTH OF US 29\74
(MILKINSON BOULEVARD) TO NORTH OF I-85

SCALE AS SHOWN

SHEET 20 OF 20