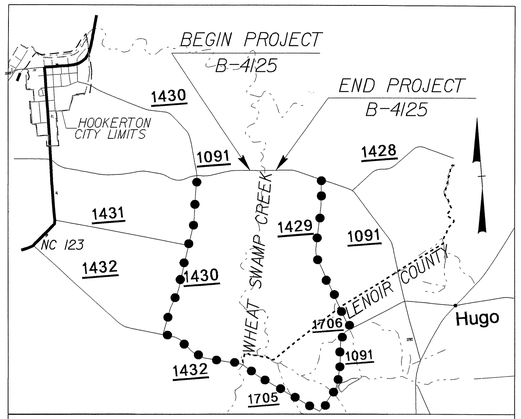
09/08/99

TIP PROJECT: B-4125

CONTRACT: C201638

See Sheet 1-A For Index of Sheets



VICINITY OF STATE PROJECT B-4125
DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

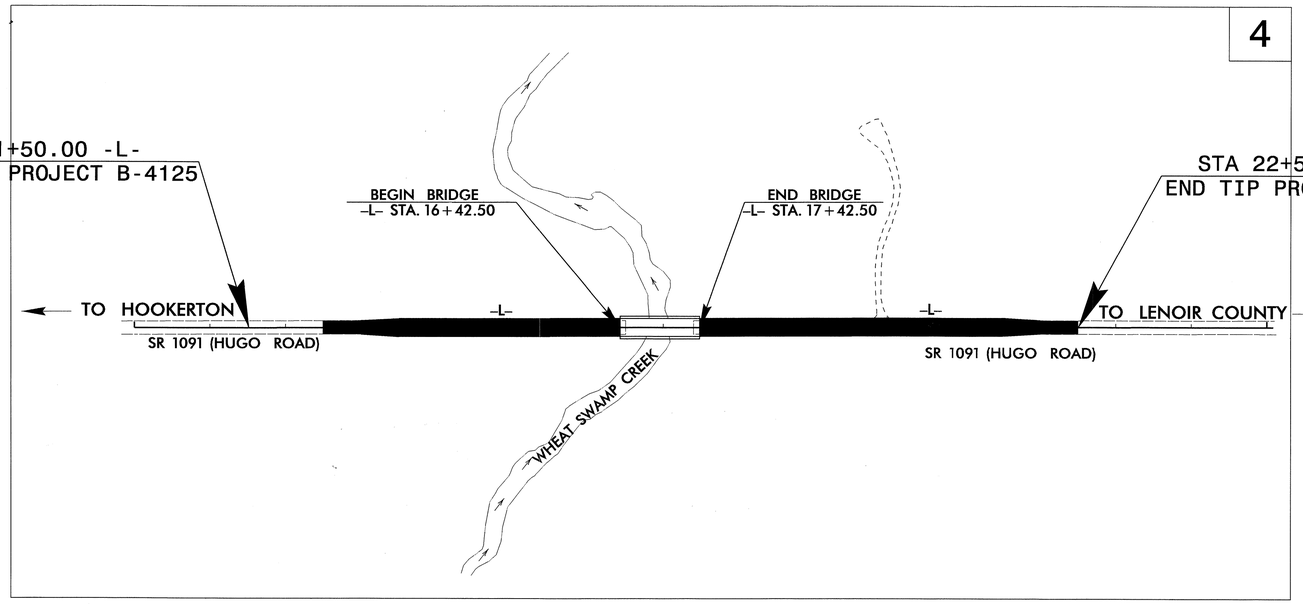
GREENE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4125	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33478.1.1	BRZ-1091(1)	P.E.
33478.2.1	BRZ-1091(1)	R/W, UTL
33478.3.1	BRZ-1091(1)	CONST

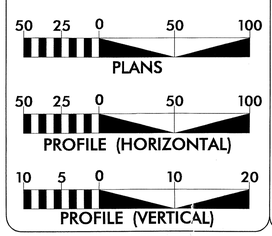
LOCATION: ***BRIDGE NO. 46 OVER WHEAT SWAMP CREEK ON SR 1091***

TYPE OF WORK: ***GRADING, DRAINAGE, PAVING & STRUCTURE***



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

GRAPHIC SCALES



DESIGN DATA

ADT 2007 = 1560
ADT 2027 = 2604
DHV = 10 %
D = 60 %
T = 5 % *
V = 60 MPH
****TTST 3 % DUAL 2 %***
FUNC CLASS =
RUR MNR COLL
TIER: REGIONAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4125 = 0.189 MILE
LENGTH STRUCTURE TIP PROJECT B-4125 = 0.019 MILE
TOTAL LENGTH TIP PROJECT B-4125 = 0.208 MILE

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 19, 2005

LETTING DATE:
FEBRUARY 16, 2010

TONY HOUSER, PE
PROJECT ENGINEER

BRUCE PAYNE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19775 ENGINEER RAY D. LOVINGGOOD
SIGNATURE: Ray D. Lovinggood 28 FEB 07

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE S. PAYNE, JR.
SIGNATURE: February 27, 2007

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR ***DATE***

13-FEB-2007 15:18
r:\Roadway\Proj\b4125_rdy_tsh_040216.dgn
$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4125	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22510 ENGINEER JAMES B. PAYNE, JR.

November 5, 2009

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	MODIFIED CONCRETE FLUME DETAIL
2-B	ANCHORAGE FOR FRAME DETAIL
2-C THRU 2-D	METHOD OF PIPE INSTALLATION
3	SUMMARY OF QUANTITIES
3A	SUMMARY OF EARTHWORK, SUMMARY OF ASPHALT PAVEMENT REMOVAL, & SUMMARY OF ASPHALT PAVEMENT BREAKING
3B	DRAINAGE SUMMARY & GUARDRAIL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-5	TRAFFIC CONTROL PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
UO-1	UTILITIES BY OTHERS
X-0	CROSS-SECTION SUMMARY
X-1 THRU X-6	CROSS-SECTIONS
S-1 THRU S-21	STRUCTURE PLANS

EFF. 07-18-06

2006 ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.45	Precast Drainage Structure
846.01	Concrete Curb, Gutter and Curb & Gutter
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION TO THE SUBSURFACE CONDITIONS.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE EMBARQ - TELEPHONE, NEW WAVE CABLE - CATV,

PITT/GREENE COUNTY EMC, AND GREENE COUNTY PUBLIC WORKS

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

05-NOV-2009 11:58
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3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-4125	1-B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

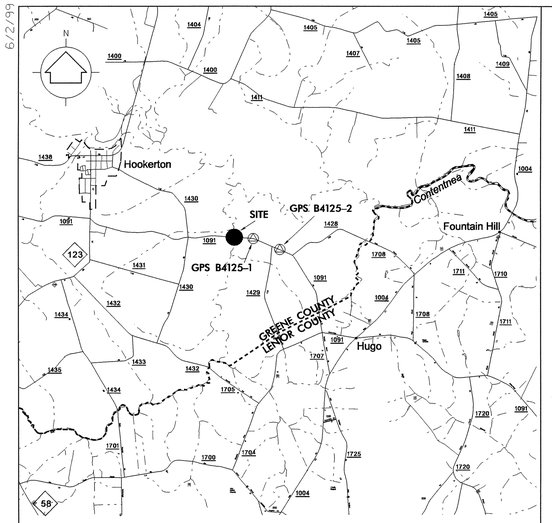
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-4125	1C
Location and Surveys	

SURVEY CONTROL SHEET B-4125



VICINITY MAP
(Not to Scale)

CONTROL DATA

BL

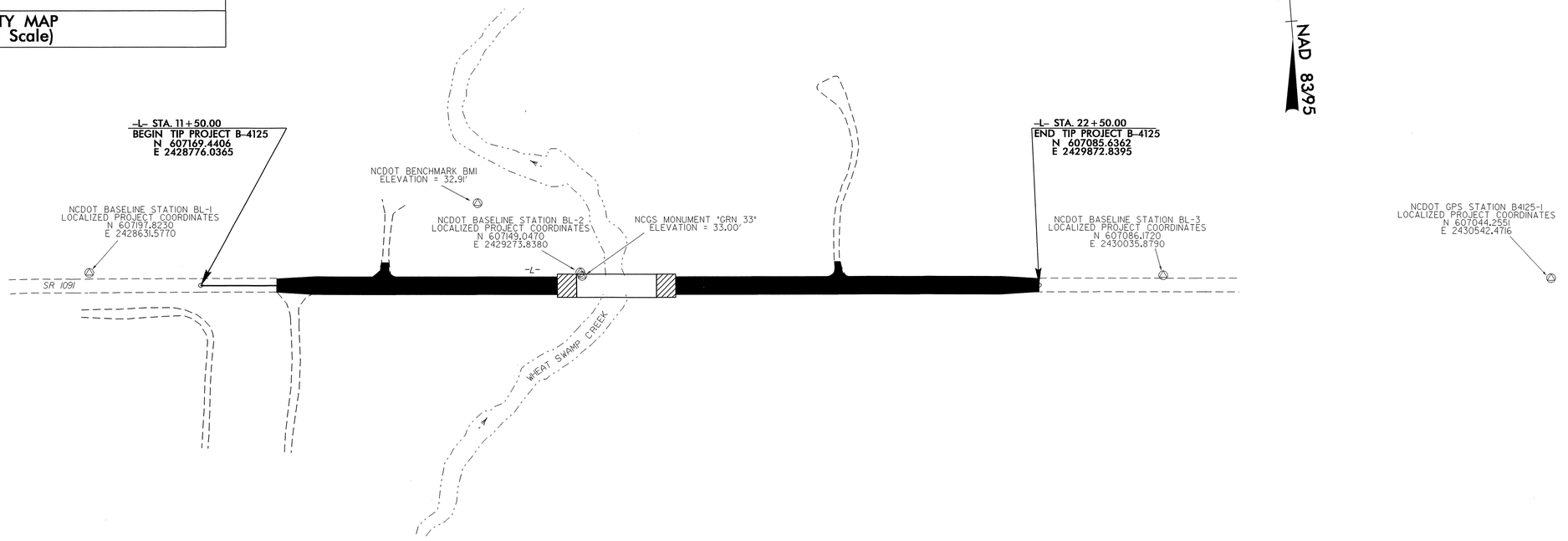
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	607197.8230	2428631.5770	34.72	10+03.80	17.29 LT
2	BL-2	607149.0470	2429273.8380	31.83	16+47.91	17.59 LT
3	BL-3	607086.1720	2430035.8790	55.21	24+12.52	12.96 LT
4	GPS B4125-1	607044.2551	2430542.4716	69.41	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

BM1 ELEVATION = 32.91
N 607250 E 2429147
L STATION 15+14 109 LEFT
RAILROAD SPIKE SET IN 15" OAK TREE

BM2 ELEVATION = 33.00
N 607144 E 2429276
L STATION 16+50 13 LEFT
NCGS MONUMENT "GRN33"

NAD 8395



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS B4125-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 607044.2551(ft) EASTING: 2430542.4716(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987859
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B4125-1" TO -L- STATION 11+50.00 IS N 85°56'46.6" W 1770.8654 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT

File: b4125_ls_control_041108.txt

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

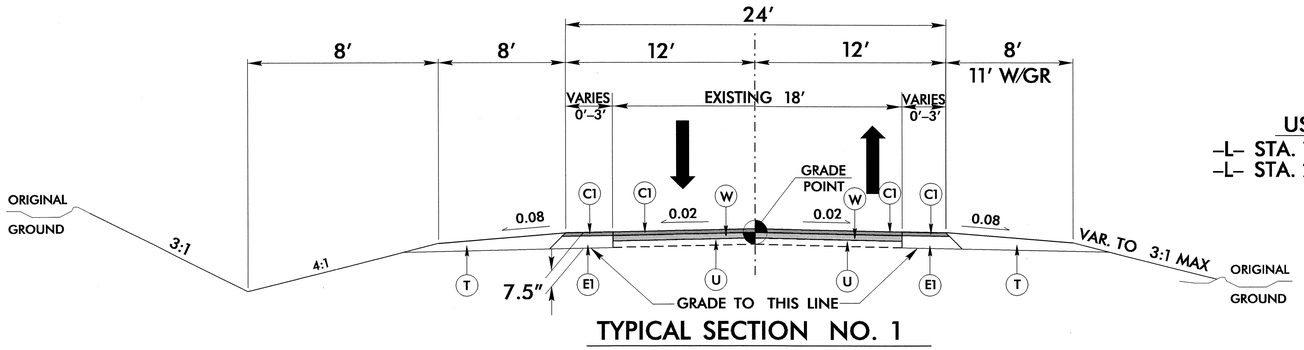
NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4125	2

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22610 ENGINEER BRUCE B. PAYNE, JR. — February 27, 2007

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON — 2-28-07

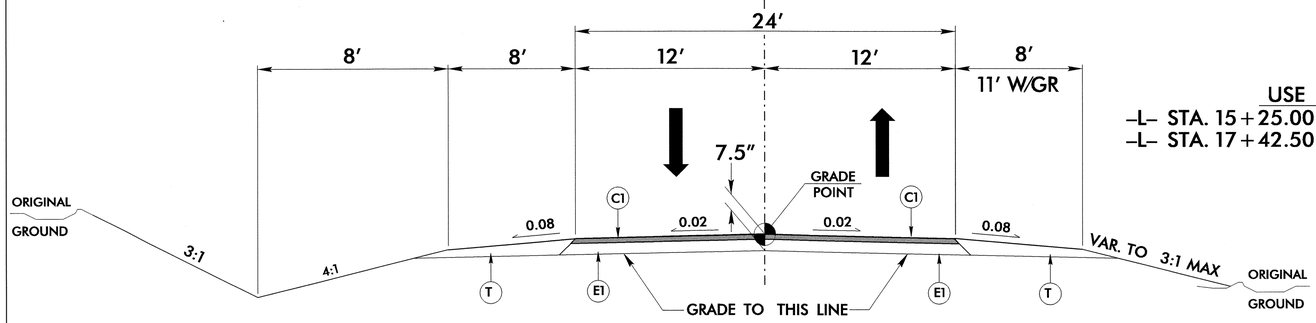
℄ –L– SR 1091 (HUGO ROAD)



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 13+00.00 TO –L– STA. 15+25.00
–L– STA. 21+50.00 TO –L– STA. 22+00.00

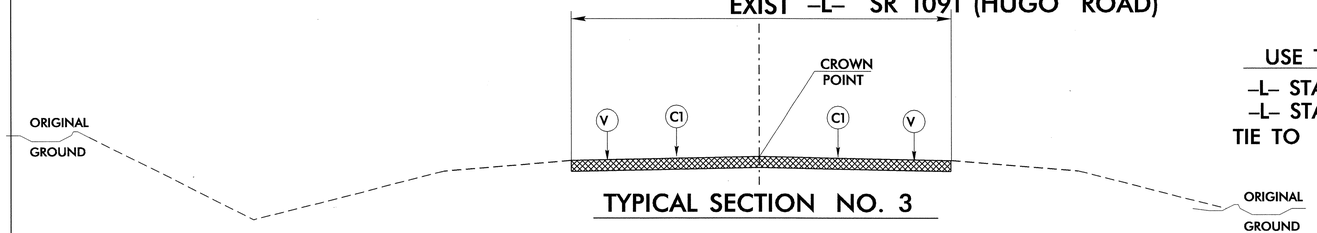
℄ –L– SR 1091 (HUGO ROAD)



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 15+25.00 TO –L– STA. 16+42.50 (BEGIN BRIDGE)
–L– STA. 17+42.50 (END BRIDGE) TO –L– STA. 21+50.00

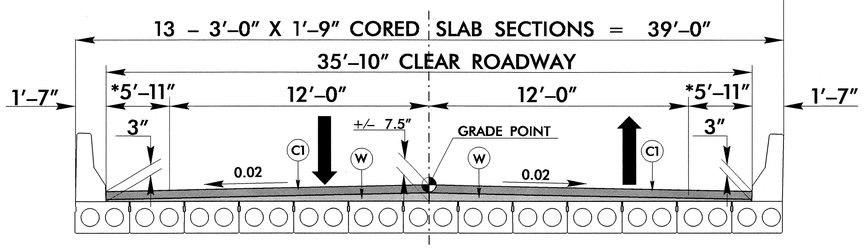
℄ EXIST –L– SR 1091 (HUGO ROAD)



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
–L– STA. 12+50.00 TO –L– STA. 13+00.00
–L– STA. 22+00.00 TO –L– STA. 22+50.00
TIE TO EXISTING – INCIDENTAL MILLING AS NEEDED.

℄ –L– SR 1091 (HUGO ROAD)



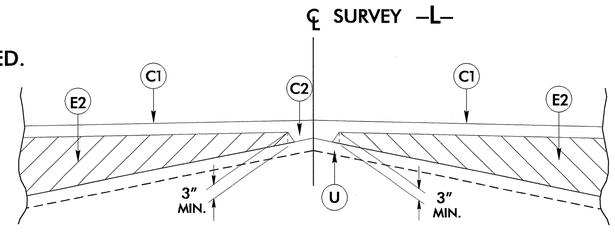
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
–L– STA. 16+42.50 (BEGIN BRIDGE) TO
–L– STA. 17+42.50 (END BRIDGE)

* SHOULDERS ON THE BRIDGE WERE WIDENED FROM 2′ 11″ TO 5′ 11″ TO CARRY STORM WATER COMPLETELY WITHIN THE SHOULDER AREA

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1″ OR GREATER THAN 1.5″ IN DEPTH.
E1	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging

PROJECT REFERENCE NO.	SHEET NO.
B-4125	2-A

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

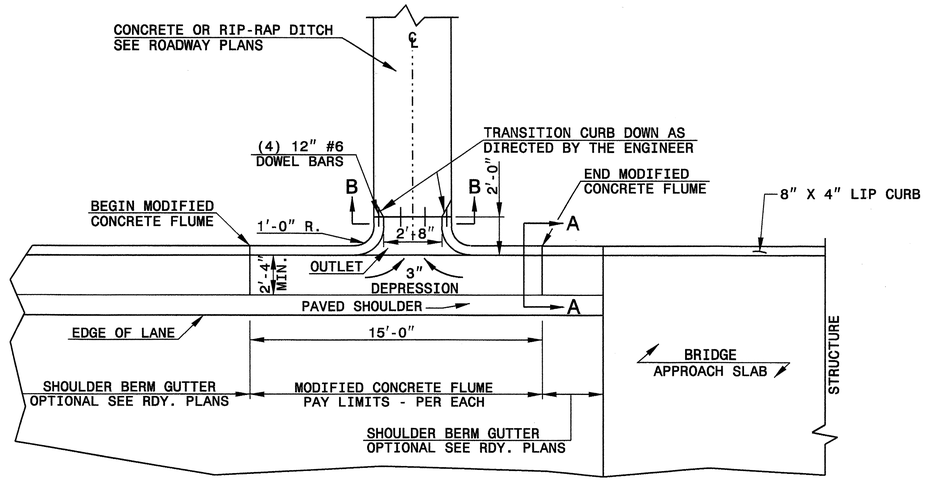
ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

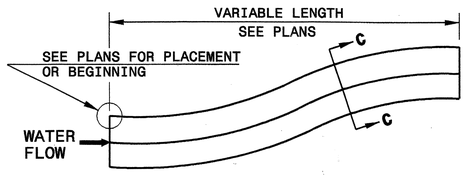
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

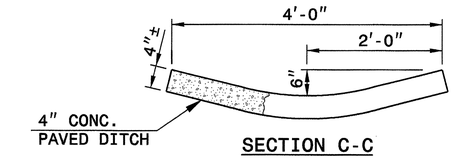
MODFLMDTCH



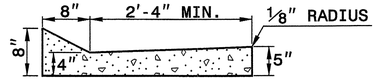
PLAN VIEW



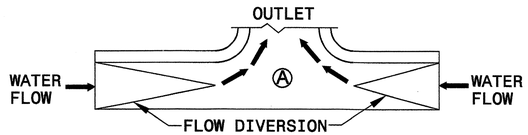
DOWNGRADE OR SAG



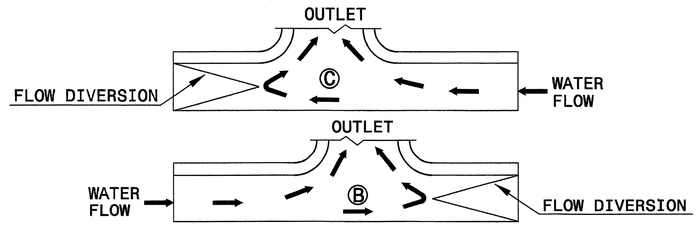
SECTION C-C



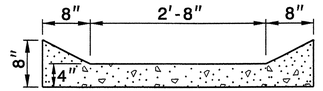
SECTION A-A



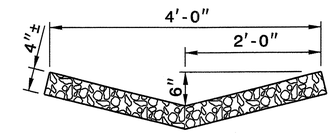
SAG



DOWN GRADE



SECTION B-B



RIP-RAP LINED DITCH

FLOW DIVERSION EXAMPLES

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

STATE OF
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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

MODIFIED CONCRETE FLUME

WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1

MODFLMDTCH

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON 3/6/07

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: E.E. Ward DATE: July 2004
CHECKED BY: Joel S. Howerton DATE: 2/16/05
FILE SPEC.: w:\details\stand\modifiedflume.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4125	2-B

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

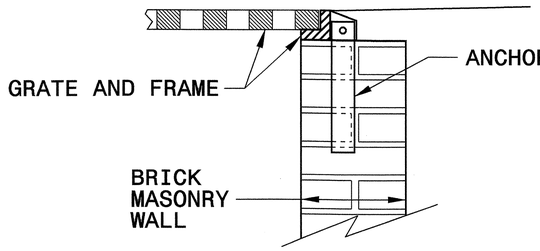
ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

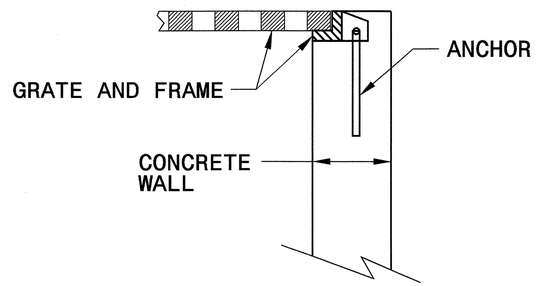
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

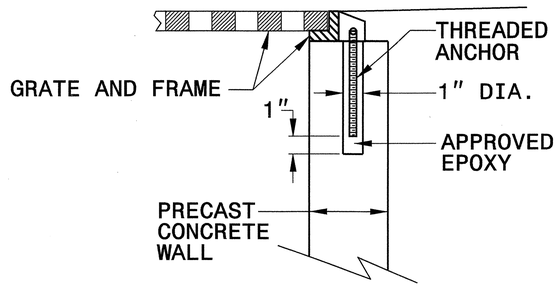
840D25



BRICK MASONRY CONSTRUCTION



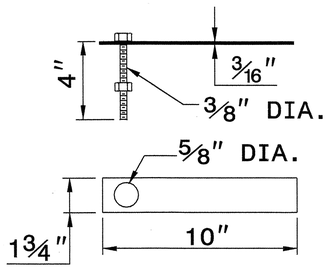
CONCRETE CONSTRUCTION



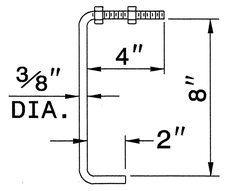
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

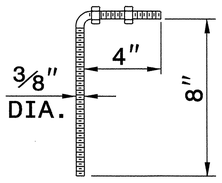
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



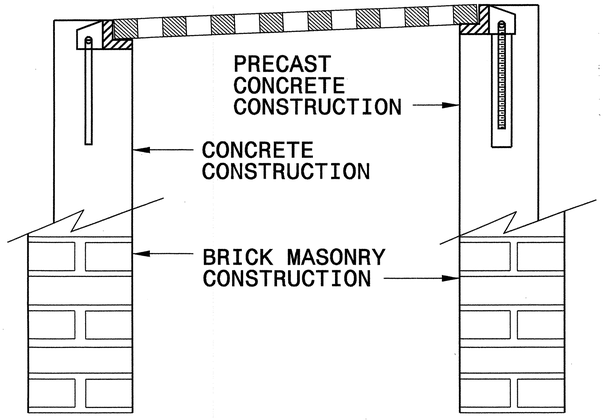
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

ANCHORAGE FOR FRAMES

BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1

840D25

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
3/6/07

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY:	2006 STD 840.25	DATE: 07/18/06
MODIFIED BY:	E.E. WARD	DATE: 9/25/06
CHECKED BY:		DATE: 9/27/06
FILE SPEC.:		

27-SEP-2006 09:01
s:\Contracts\Special Details\ericward\stds\06 Stds to Special Details\840D25 Anchorage for Frames\0840d25.dgn
ericward AT FS222293

PROJECT REFERENCE NO.	SHEET NO.
B-4125	2-C

5/14/99

30-JUL-2009 08:48
s:\contracts\contracts\special details\ericward\stds\06' stds to special details\30001\0300d01.dgn
jhowerton AT PS23750I

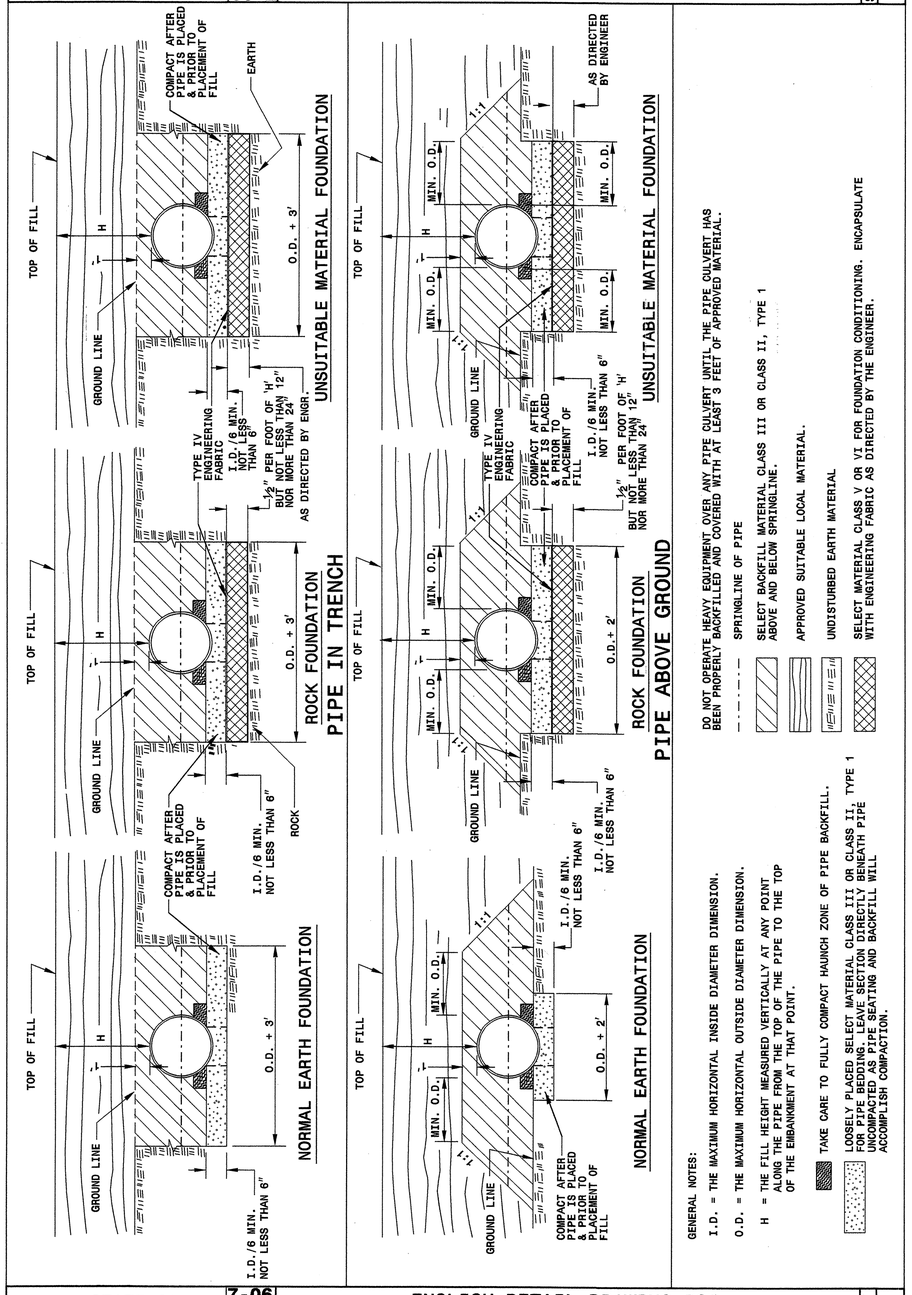
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3 — 300D01



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3 — 300D01

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
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NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
12/31/09

5/14/99

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

7-06

ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3

300D01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	Maximum Height of Cover (feet) (Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

HDPE - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 60″
* (Maximum fill) 20′ for pipe diameters ≤ 24″
17′ for pipe diameters ≥ 30″ and ≤ 60″

PVC - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 36″
* (Maximum fill) 30′ for pipe diameters ≥ 12″ and ≤ 36″

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1′ for Class IV & CLASS V
2′ for Class III & Class II

* (Maximum fill) 10′ - Class II pipe
20′ - Class III pipe
30′ - Class IV pipe
40′ - Class V pipe

(For fills > 40′ & < 80′ use LRFD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

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

7-06

ENGLISH DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FILL HEIGHT TABLES

SHEET 3 OF 3

300D01

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: KKoenef DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/9/09
FILE SPEC: /projects/contracts/stds/statestandardsdetails/30000/0300d01.dgn

JOHN C. HOWERTON
ENGINEER
SEAL 025996
NORTH CAROLINA PROFESSIONAL
12/9/09

PROJECT REFERENCE NO. B-4125
SHEET NO. 2-D

PROJECT REFERENCE NO.	SHEET NO.
B-4125	3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201638

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ********** (16+92.50)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	200	CY	UNDERCUT EXCAVATION
0134000000-E	240	70	CY	DRAINAGE DITCH EXCAVATION
0234000000-E	SP	100	CY	GENERIC GRADING ITEM SELECT GRANULAR MATERIAL
0320000000-E	SP	160	SY	FOUNDATION CONDITIONING FABRIC
0330000000-E	SP	50	TON	GENERIC DRAINAGE ITEM FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0335200000-E	SP	56	LF	15" DRAINAGE PIPE
0582000000-E	310	408	LF	15" CS PIPE CULVERTS, 0.064" THICK
0636000000-E	310	2	EA	**" CS PIPE ELBOWS, *****" THICK (15", 0.064")
0995000000-E	340	56	LF	PIPE REMOVAL
1220000000-E	545	100	TON	INCIDENTAL STONE BASE
1330000000-E	607	225	SY	INCIDENTAL MILLING
1489000000-E	610	550	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	450	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1560000000-E	620	53	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	60	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	23	CY	SUBDRAIN EXCAVATION
2033000000-E	815	17	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.24
2556000000-E	846	110	LF	SHOULDER BERM GUTTER
2570000000-N	SP	2	EA	MODIFIED CONCRETE FLUME
2619000000-E	850	10	SY	4" CONCRETE PAVED DITCH
3030000000-E	862	550	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3656000000-E	876	200	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	472	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4810000000-E	1205	9,600	LF	PAINT PAVEMENT MARKING LINES (4")
4900000000-N	1251	15	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	450	LF	TEMPORARY SILT FENCE
6006000000-E	1610	50	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	85	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	30	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	2	ACR	TEMPORARY MULCHING
6018000000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	75	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	2	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	500	LF	SAFETY FENCE
6030000000-E	1630	270	CY	SILT EXCAVATION
6036000000-E	1631	700	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	15	SY	COIR FIBER MAT
6038000000-E	SP	335	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	50	LF	1/4" HARDWARE CLOTH
6048000000-E	SP	80	SY	FLOATING TURBIDITY CURTAIN
6071030000-E	SP	135	LF	COIR FIBER BAFFLES
6071050000-E	SP	2	EA	**" SKIMMER (2")
6084000000-E	1660	2	ACR	SEEDING & MULCHING
6087000000-E	1660	1	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	2	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	8	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION

PROJECT REFERENCE NO.	SHEET NO.
B-4125	3-A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	EMBT + 30%	BORROW	WASTE
BEFORE BRIDGE				
–L– STA. 13 + 00.00 TO 16 + 42.50 (BEGIN BRIDGE)	834	103	0	731
SHOULDER MATERIAL		116	116	
WASTE IN LIEU OF BORROW			–116	–116
AFTER BRIDGE				
–L– STA. 17 + 42.50 (END BRIDGE) TO STA. 22 + 00.00	342	1372	1030	
SHOULDER MATERIAL		228	228	
WASTE IN LIEU OF BORROW				
SUBTOTAL	1176	1816	1258	615
EARTH WASTE TO REPLACE BORROW			–615	–615
TOTAL	1176	1816	643	0
EST 5% TO REPLACE TOPSOIL ON BORROW PIT			32	
PROJECT TOTAL	1176		675	
SAY	1200		700	

UNDERCUT EXCAVATION = 200 CUBIC YARDS
DRAINAGE DITCH EXCAVATION = 70 CUBIC YARDS

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

SUMMARY OF ASPHALT PAVEMENT REMOVAL

IN SQUARE YARDS

LOCATION	AVERAGE WIDTH	AREA SY
–L–		
STA. 15 + 50.00 TO STA. 16 + 50.00	18.2′	202.22
STA. 17 + 40.00 TO STA. 18 + 40.00	18.2′	202.22
TOTAL		404.44
SAY		450.00

SUMMARY OF ASPHALT PAVEMENT BREAKING

IN SQUARE YARDS

LOCATION	ADVERAGE WIDTH	AREA SY
–L–		
STA. 18 + 40.00 TO STA. 20 + 00.00	18.2′	323.56
TOTAL		323.56
SAY		350.00

4/04/06

COMPUTED BY: RLC DATE: 10-20-09
CHECKED BY: BBP DATE: 11-5-2009

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4125	3-B

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE	12"	15"	18"	24"	30"	36"	42"	48"
								THICKNESS OR GAUGE								
-L- 14+28.15	RT	1		29.18												
		1	2		26.14	29.70										
-L- 14+28.15	LT	3		29.18												
		1	3		26.14	26.43				56						
		1	4		26.14	18.80										
-L- 19+88.00	LT															
TOTAL										56						

C.S. PIPE (UNLESS NOTED OTHRWISE) SIZE	12"	15"	18"	24"	30"	36"	42"	48"
THICKNESS OR GAUGE								
	.064	.064	.064	.064	.079	.079	.109	.109
		176						
		232						
		408						

CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) SIZE	12"	15"	18"	24"	30"	36"	42"	48"

15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	ENDWALLS CU. YDS. C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. PER EACH (0' THRU 5.0')	A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02
					1			
					1			
					1			
					2			

FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	MODIFIED CONCRETE FLUME	C.S. ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
								1					1		1				
																		27.72	OPEN END
								1					1		1				
																2@15"			
																		27.72	OPEN END
								2					2		2	2@15"		55.44	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END
-L-	13+42.50	16+42.50 (BR)	RT	300.00			16+42.50 (BR)		5' 11"	11	281.25		3' 1"	
-L-	15+05.00	16+42.50 (BR)	LT	137.50				16+42.50 (BR)	5' 11"	11		118.75		2' 6"
-L-	17+42.50 (BR)	18+80.00	RT	137.50				17+42.50 (BR)	5' 11"	11		118.75		2' 6"
-L-	17+42.50 (BR)	19+87.50	LT	225.00			17+42.50 (BR)		5' 11"	11	206.25		3' 1"	
		SUBTOTAL		800									ANCHOR UNIT DEDUCTIONS	
		ANCHOR DEDUCTION		-275									GRA-350	
													B-77	
		TOTAL		525									TOTAL	
		SAY		550										
		ADDITIONAL GUARDRAIL POST =		5										

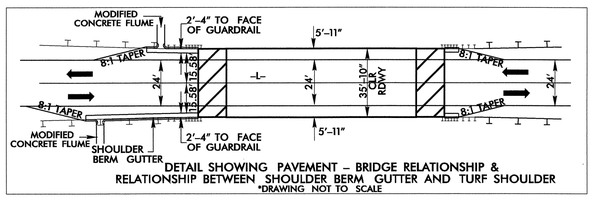
ANCHORS B-77	XI	GRAU 350	M-350	XIII	CAT-1	VI MOD	BIC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
1		1													
1		1													
1		1													
1		1													GUARDRAIL SHORTENED BY DRIVEWAY
4 @ 50'															
4 @ 18.75'															
275															

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4125	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22510 ENGINEER BRIDGET B. PAYNE, JR. — February 27, 2007

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 19775 ENGINEER RANDALL D. LOVINGOOD — 28 FEB 07



DETAIL SHOWING PAVEMENT – BRIDGE RELATIONSHIP & RELATIONSHIP BETWEEN SHOULDER BERM GUTTER AND TURF SHOULDER
*DRAWING NOT TO SCALE

POT Sta. 10+00.00

-BL-1 POT 5+00.00
-L- 10+03.80 (17.29' LT)

BEGIN PAVEMENT -L- STA. 12+50.00

BEGIN TIP PROJECT B-4125 -L- STA. 11+50.00

NOTE: NCGS 'GRN 33' LOCATED IN CONCRETE WHEEL GUARD IN NORTHWEST CORNER OF BRIDGE.

BEGIN APPROACH SLAB -L- STA 16+28.50

BM-A
-L- STA 15+13.57
108.61' LT
ELEV. 32.91'

-BL-2 PINC 11+44.11
ELEV=31.83 IP&CAP SET
-L- 16+47.91 (17.59' LT)

END BRIDGE -L- STA 17+42.50

END APPROACH SLAB -L- STA 17+56.50

REMOVE CLASS B RIP RAP AND REPLACE WITH CLASS II RIP RAP AT BOTH END BENTS STRUCTURES PAY ITEM

END TIP PROJECT B-4125 -L- STA. 22+50.00

1 GREENE COUNTY
DB 534 - PG 316

2 ALVIN CARROLL ORMOND, et ux
DB 488 - PG 57
DB 434 - PG 81
MB 24 - PG 276

3 JAMES A. FIELDS, et ux
DB 461 - PG 252

4 ELY J. PERRY
DB 464 - PG 740
DB 535 - PG 171

5 PERRY MANAGEMENT, INC.
DB 464 - PG 787

KEITH ALTON DUNN
DB 473 - PG 868

JOHNNY M. TURNAGE
DB 480 - PG 574

TH 3 +06.8 2.5' EL. 29.61' 6½" PLAS. WATER LINE

TH 4 +45.2 8.0' EL. 25.82' 6½" DI. WATER LINE

TH 5 +36.1 5.8' EL. 26.78' 6½" PLAS. WATER LINE

TH 6 +74.7 LT EL. 37.58' 6½" PLAS. WATER LINE

TH 1 +06.8 28.9' EL. 30.13' 2" PLAS. CATV (F.O.) CONDUIT

TH 2 +75.1 27.1' EL. 38.02' 2" PLAS. CATV (F.O.) CONDUIT

ISFD ABANDONED & UNINHABITABLE

2' BASE GRASS SWALE SEE DETAIL B

MODIFIED CONCRETE FLUME

REMOVE 15" DDE = 70 CUBIC YARDS

SPECIAL CUT DITCH SEE DETAIL A

GRADE TO DRAIN

RETAIN 24"

PERMANENT SOIL REINFORCEMENT MAT 30' x 6'

20' x 6'

GRAU 350

15" CSP

15" CSP w/2 ELBOWS

REMOVE 15"

24" PLASTIC

15" CONC.

WOODS

SOIL DRIVE

50' TAPER

TOP OF BANK

BZ 1

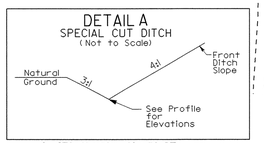
BZ 2

SHOULDER BERM GUTTER
STA 15+49.20 -L- (RT) TO
STA 16+28.50 -L- (RT)
STA 16+05.40 -L- (LT) TO
STA 16+28.50 -L- (LT)

SHOULDER BERM GUTTER
STA 17+56.50 -L- (RT) TO
STA 17+66.00 -L- (RT)
STA 17+56.50 -L- (LT) TO
STA 17+66.00 -L- (LT)

BEGIN BRIDGE -L- STA 16+42.50

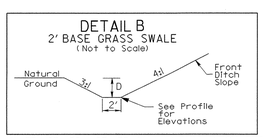
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



-L- STA 11+50 – 12+50 RT

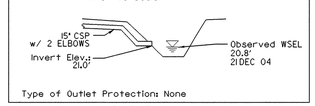
BEGIN STA 11+50 EL = 32.80'
END STA 12+50 EL = 29.70'

DETAIL B
2' BASE GRASS SWALE
(Not to Scale)



-L- STA 13+00 – 15+50 RT MAINTAIN DITCH ELEV PER TYP. SECTION
-L- STA 15+00 – 16+00 LT MAINTAIN DITCH ELEV PER TYP. SECTION
-L- STA 14+10 – 15+00 LT

DETAIL C
PIPE OUTLET AT STREAM
(Not to Scale)



Type of Outlet Protection: None

-L- STA 16+62 RT.

PAVED SHOULDER

SEE SHEET 5 FOR -L- PROFILE
SEE SHEET S-1 THRU S-21 FOR STRUCTURE PLANS
SEE SHEET 2-A FOR DETAIL OF MODIFIED CONCRETE FLUME

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4125	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26910 ENGINEER BRIAN B. PAYNE, JR.

FEBRUARY 27, 2007

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19775 ENGINEER RAY D. LOVINGOOD

28 FEB 07

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2000	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 31.5	FT
BASE DISCHARGE	= 3035	CFS
BASE FREQUENCY	= 10	YRS
BASE HW ELEVATION	= 33.5	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= *10+	YRS
OVERTOPPING ELEVATION	= 32.5	FT

*Overtopping frequency has been determined by using backwater condition of Cantentnea Creek

BM-A
RAILROAD SPIKE SET IN 15" OAK
-L- STA 15+13.57, 108.61' LT,
ELEV=32.91'

THREE SPAN 21" CORED SLAB BRIDGE
W/ SPAN LENGTHS OF 25',50',25'

BEGIN SPECIAL CUT DITCH RT
STA 11+50.00, EL = 32.60'

END SPECIAL CUT DITCH RT
STA 12+50.00, EL = 29.70'

BEGIN GRADE -L- STA 13+00.00
EL = 32.81'

PI = 14+00.00
EL = 32.20'
K = 150
VC = 125'

BEGIN 2' BASE GRASS SWALE DITCH LT
STA 14+06.96, EL = 29.45'

PI 14+28.15' LT, EL = 29.18

PI =15+00.00 LT, EL = 29.31'

TIE TO EXISTING INCIDENTAL MILLING AS NEEDED

(-)3.000%

(-)0.5050%

(+)0.2292%

(+)0.1809%

BEGIN BRIDGE
STA.16+42.50

END BRIDGE
STA.17+42.50

STRUCTURE EXCAVATION
APPROX. 180 CU YDS

STRUCTURE EXCAVATION
APPROX. 170 CU YDS

PI = 18+62.00
EL = 33.26'
K = 138
VC = 500'

(+)0.2292%

(+)3.8453%

PI = 21+55.00
EL = 44.52'
K = 143
VC = 86'

END GRADE -L- STA 22+00
EL = 46.52

(+)4.4444%

TIE TO EXISTING INCIDENTAL MILLING AS NEEDED

RIGHT DITCH ----------

LEFT DITCH -·-·-·-·-

SEE SHEET 4 FOR ALIGNMENT

60
50
40
30
20
10
0

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

21-FEB-2007 11:41
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