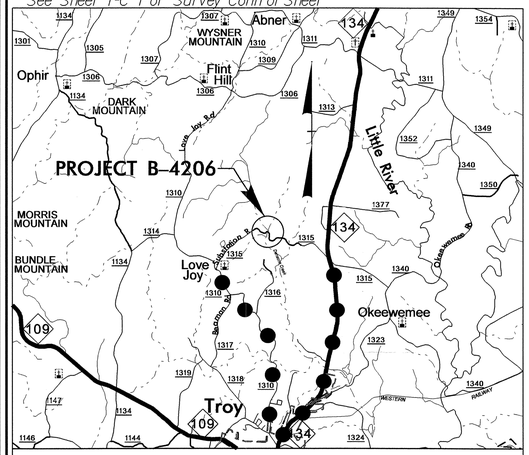
09/08/99

TIP PROJECT: B–4206

CONTRACT: C202656

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols
See Sheet 1-C For Survey Control Sheet



VICINITY MAP

DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MONTGOMERY COUNTY

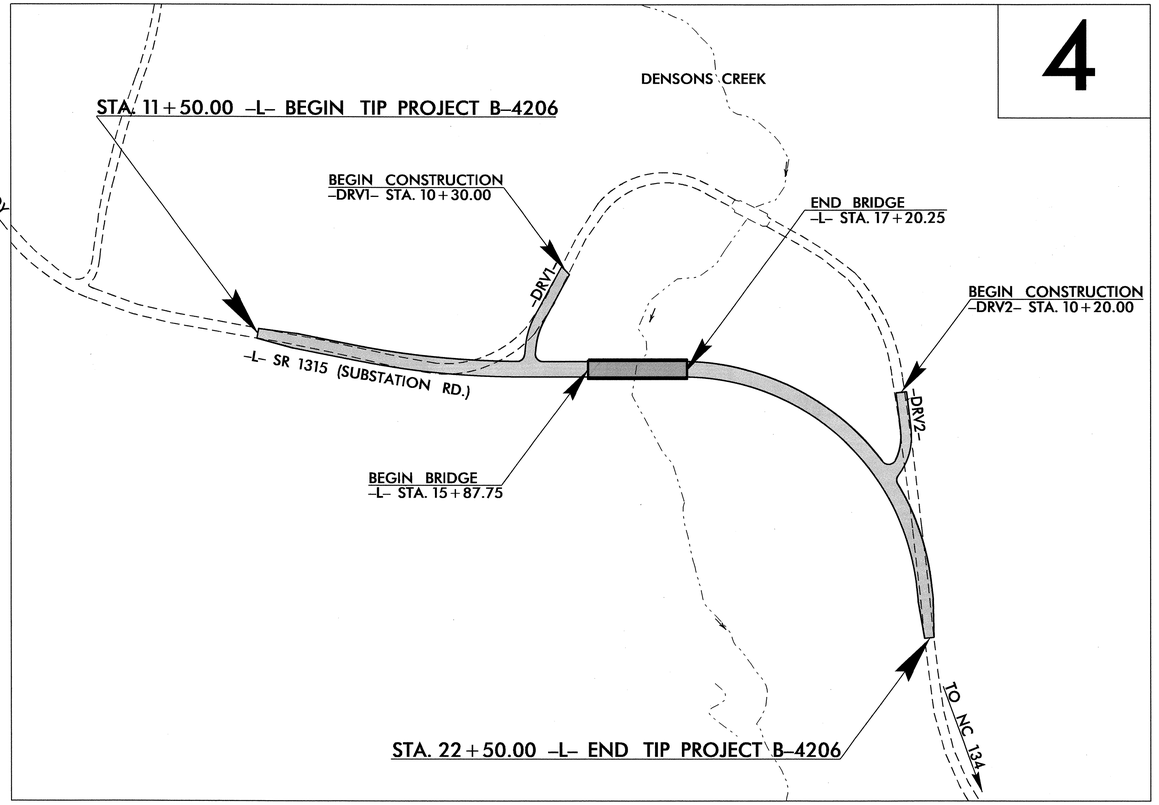
LOCATION: BRIDGE NO. 128 OVER DENSONS CREEK ON SR 1315 (SUBSTATION ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–4206	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33553.1.1	BRZ–1315(5)	PE
33553.3.1	BRZ–1315(5)	R /W & UTILITIES
33553.2.2	BRZ–1315(5)	CONST.

NAD 83'95



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011 = 475
ADT 2025 = 600
DHV = 12 %
D = 70 %
T = 3 % *
V = 40 MPH
* TTST 1% DUAL 2%
FUNC CLASS = RURAL LOCAL
"SUB-REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–4206 = 0.183 MI.
LENGTH STRUCTURE TIP PROJECT B–4206 = 0.025 MI.
TOTAL LENGTH OF TIP PROJECT B–4206 = 0.208 MI.

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: OCTOBER 21, 2010

LETTING DATE: OCTOBER 18, 2011

JAMES A. SPEER, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL

SIGNATURE: W. Galen Cail 7/20/11

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER JR.

SIGNATURE: Daniel W. Gardner P.E. 7/20/11

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

art McMillan P.E.
STATE HIGHWAY DESIGN ENGINEER

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-4206	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER

Daniel W. Gardner

7-20-11

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 SHEETS
1-D	CENTERLINE COORDINATE LIST
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2-A THRU 2-B	METHOD OF PIPE INSTALLATION DETAIL
2-C	ANCHORAGE FOR FRAMES DETAIL
2-D	BRIDGE APPROACH FILL-SUB REGIONAL
3	SUMMARY OF QUANTITIES
3-A	GUARDRAIL SUMMARY, DRAINAGE SUMMARY, EARTHWORK SUMMARY, AND SHOULDER BERM GUTTER SUMMARY
4	PLAN SHEET
5 THRU 6	PROFILE SHEETS
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLANS
SD-1	SIGN DESIGN SHEET
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-1	CROSS SECTION SUMMARY
X-2 THRU X-14	CROSS-SECTIONS
S-1 THRU S-20	STRUCTURE PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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.

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 Randolph EMC

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 CONTRACT.

EFF. 07-18-06
REV. 01-02-07

2006 ROADWAY ENGLISH 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 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
B-4206	1-B

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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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 Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Curb Cut Future 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
- 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
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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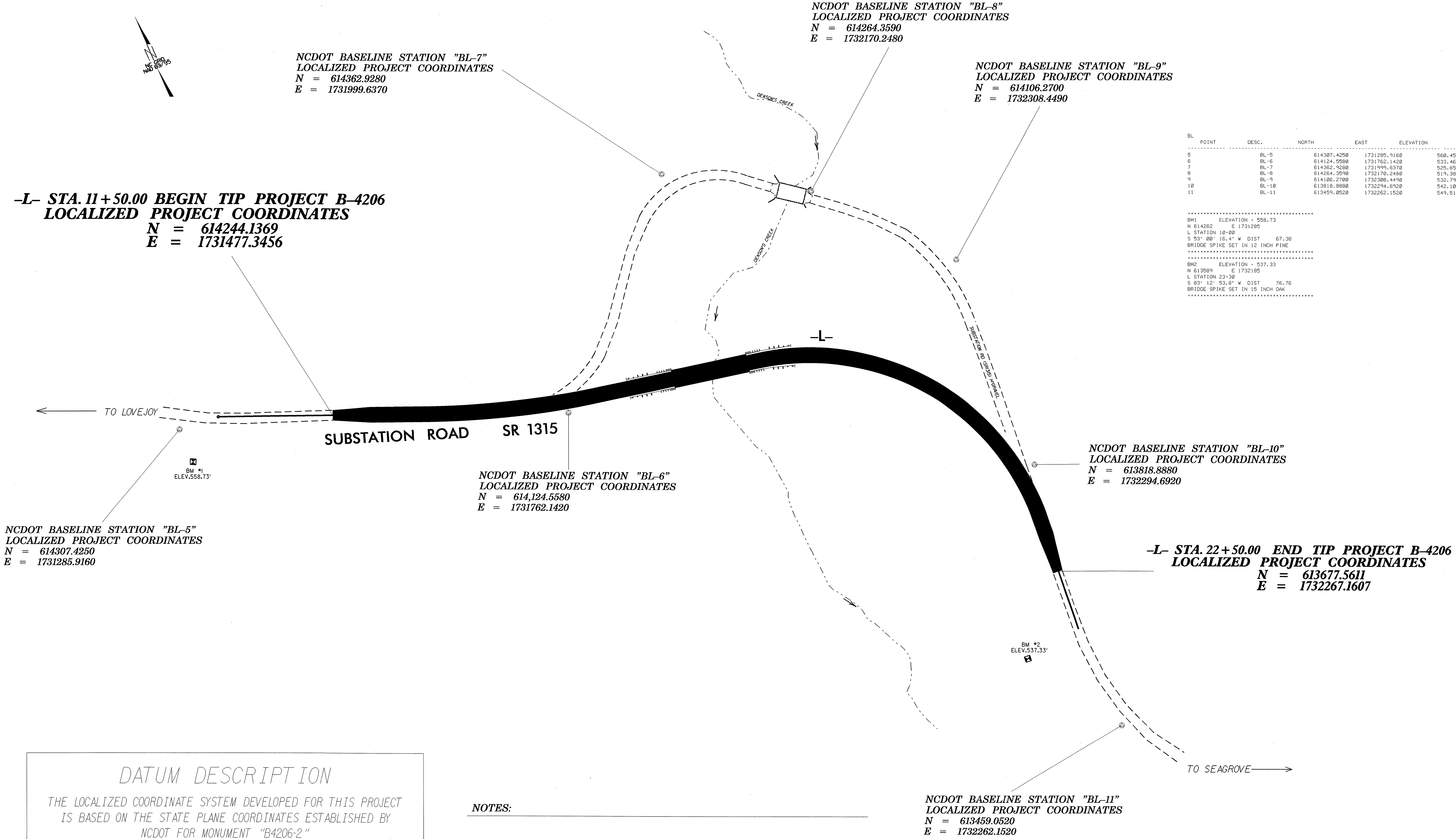
SURVEY CONTROL SHEET B-4206



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BL-5	614307.4250	1731285.9160	560.45	OUTSIDE PROJECT LIMITS	
6	BL-6	614124.5580	1731762.1420	533.46	14+57.28	14.99 RT
7	BL-7	614362.9280	1731999.6370	525.65	16+43.05	266.14 LT
8	BL-8	614264.3590	1732170.2480	519.38	17+83.30	215.60 LT
9	BL-9	614106.2700	1732308.4490	532.79	19+12.14	165.63 LT
10	BL-10	613818.8880	1732294.6920	542.10	21+11.36	23.66 LT
11	BL-11	613459.0520	1732262.1520	549.51	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 558.73
N 614262 E 1731285
L STATION 10+00
S 53° 00' 16.4" W DIST 67.38
BRIDGE SPIKE SET IN 12 INCH PINE

BM2 ELEVATION = 537.33
N 613589 E 1732185
L STATION 23+30
S 83° 12' 53.8" W DIST 76.76
BRIDGE SPIKE SET IN 15 INCH OAK

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4206-2" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 614428.768(ft) EASTING: 1730354.036(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985331
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4206-2" TO -L- STATION 10+00.00 IS S 82° 40' 29.0" E 993.086'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. 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/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B4206_LS_CONTROL_090422.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.

NOTE: DRAWING NOT TO SCALE

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PROJ. REFERENCE NO.	SHEET NO.
B-4206	1-D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

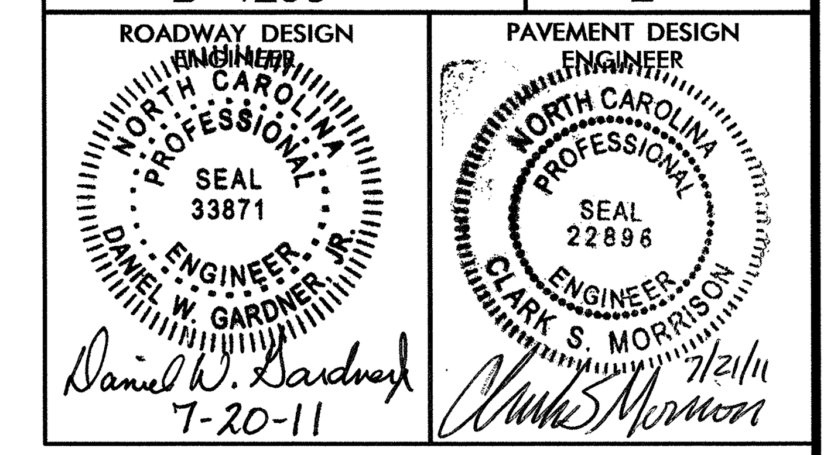
Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	10+00.00	614302.1473	1731339.0170
2	L	11+00.00	614263.4737	1731431.2361
3	L	12+00.00	614224.8002	1731523.4551
4	L	13+00.00	614186.4105	1731615.7907
5	L	14+00.00	614153.9683	1731710.3486
6	L	15+00.00	614129.8608	1731807.3668
7	L	16+00.00	614110.3249	1731905.4400
8	L	17+00.00	614090.7960	1732003.5145
9	L	18+00.00	614059.9881	1732098.2603
10	L	19+00.00	614001.7819	1732179.0744
11	L	20+00.00	613921.5493	1732238.0796
12	L	21+00.00	613827.0621	1732269.5605
13	L	22+00.00	613727.3996	1732271.1765
14	L	23+00.00	613627.7226	1732263.1449
15	L	23+30.15	613597.6689	1732260.7233

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)



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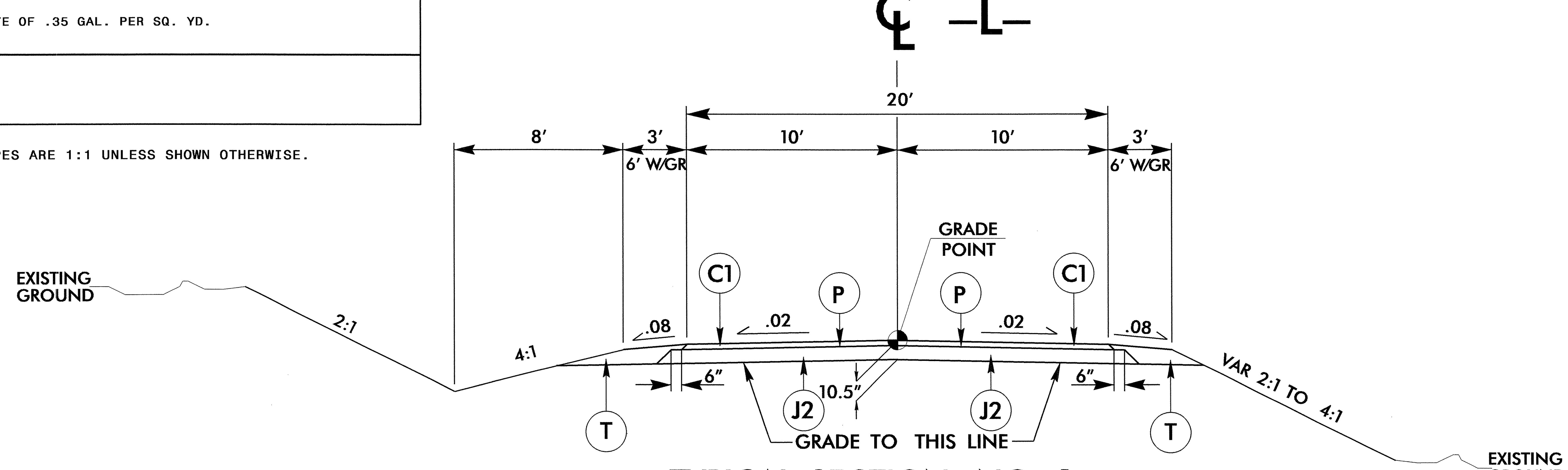
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
J1	6" AGGREGATE BASE COURSE
J2	8" AGGREGATE BASE COURSE
P	PRIME COAT A THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL.

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



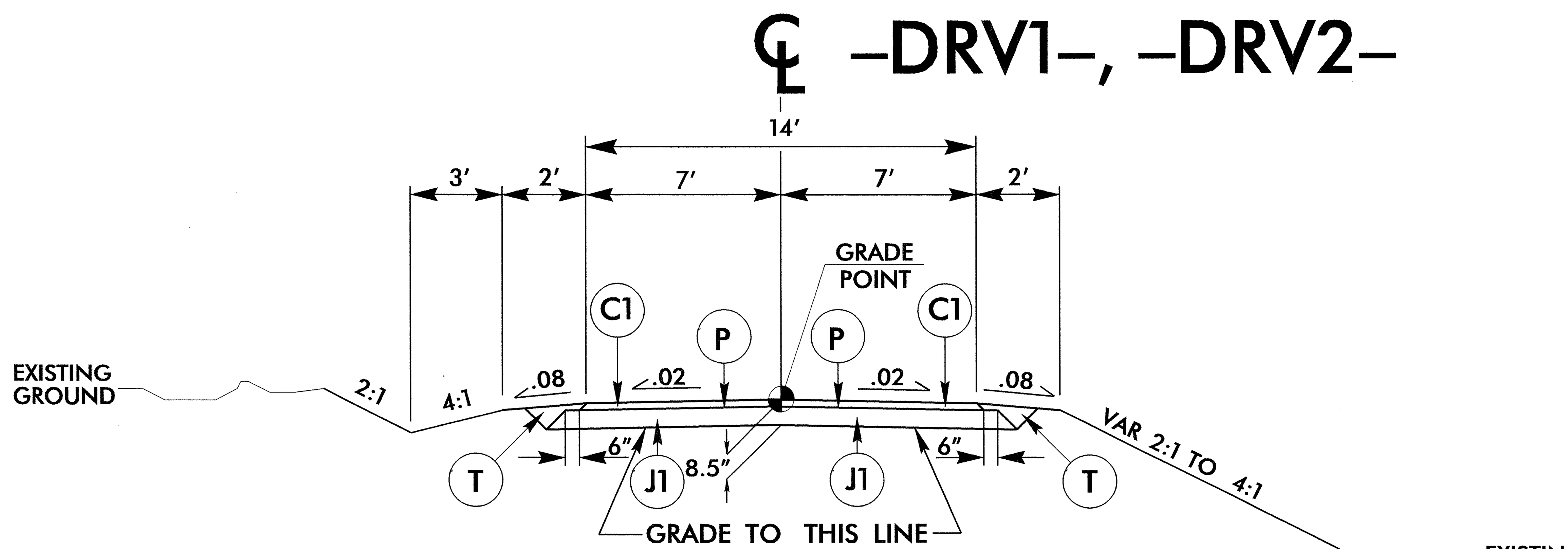
TYPICAL SECTION NO. 1

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 11+50.00 TO STA. 12+00.00

USE TYPICAL SECTION NO. 1

-L- STA. 12+00.00 TO STA. 15+87.75 (BEGIN BRIDGE)
-L- STA. 17+20.25 (END BRIDGE) TO STA. 22+00.00

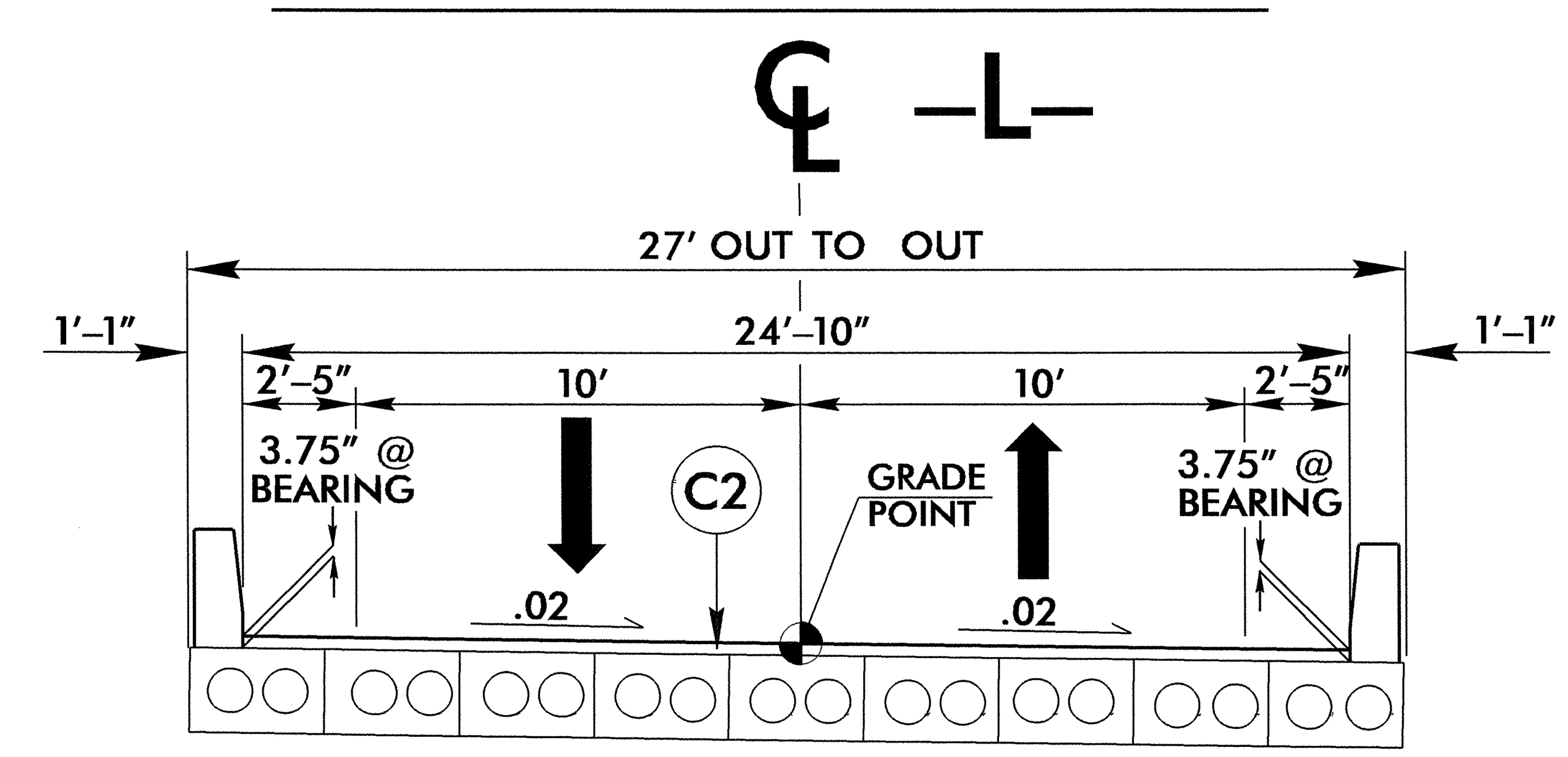
NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO EXISTING
-L- STA. 22+00.00 TO STA. 22+50.00



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-DRV1- STA. 10+30.00 TO STA. 11+61.15
-DRV2- STA. 10+20.00 TO STA. 11+33.83



DETAIL FOR WEARING SURFACE ON CORED SLAB BRIDGE

TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-L- STA. 15+87.75 (BEGIN BRIDGE) TO STA. 17+20.25 (END BRIDGE)

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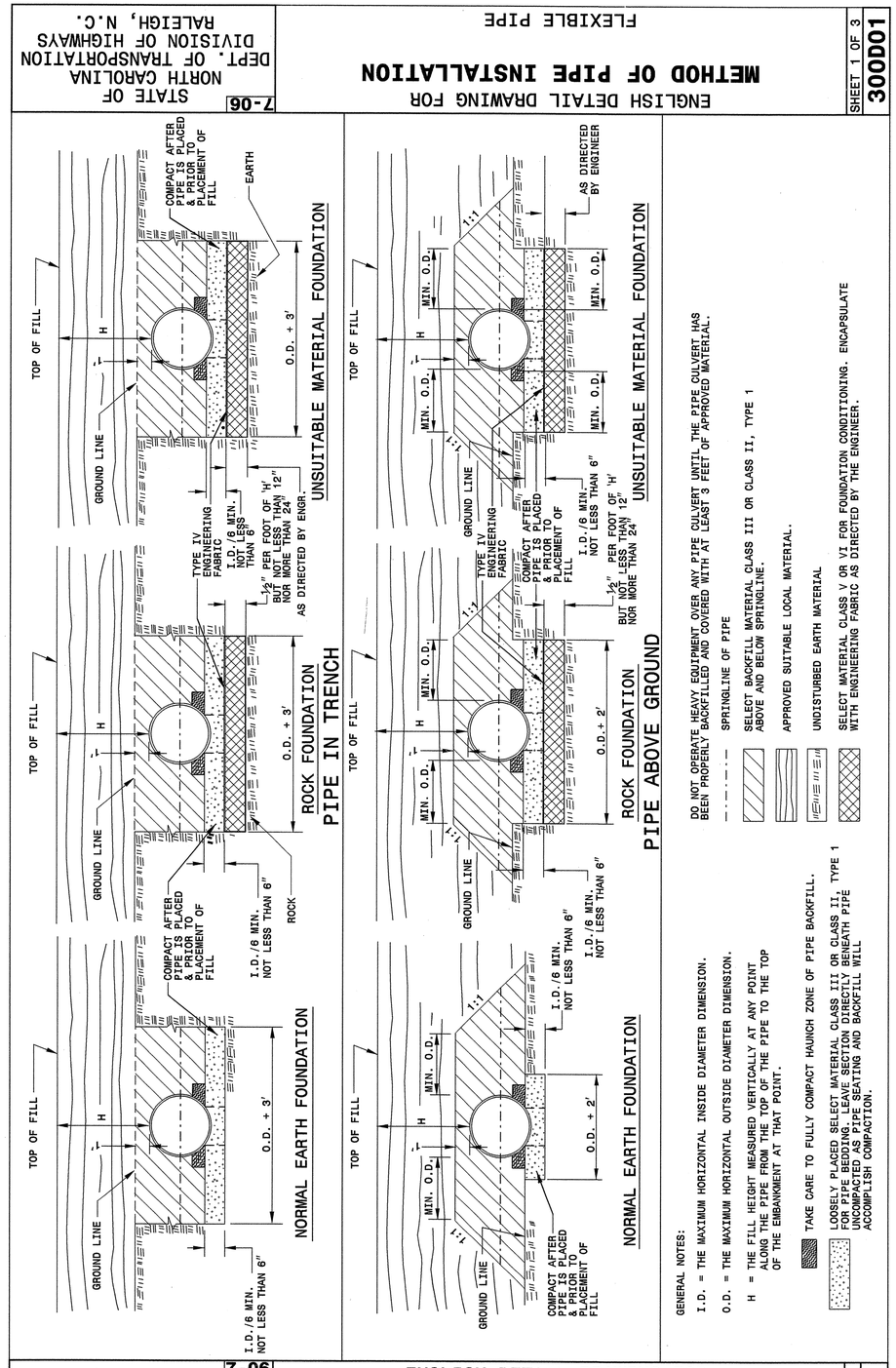

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

7-06

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
FLEXIBLE PIPE

SHEET 1 OF 3
300D01

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

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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: 7/21/09
FILE SPEC: c:/ericward/stds/stdstodetails/30001/0300d01.dgn

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

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER

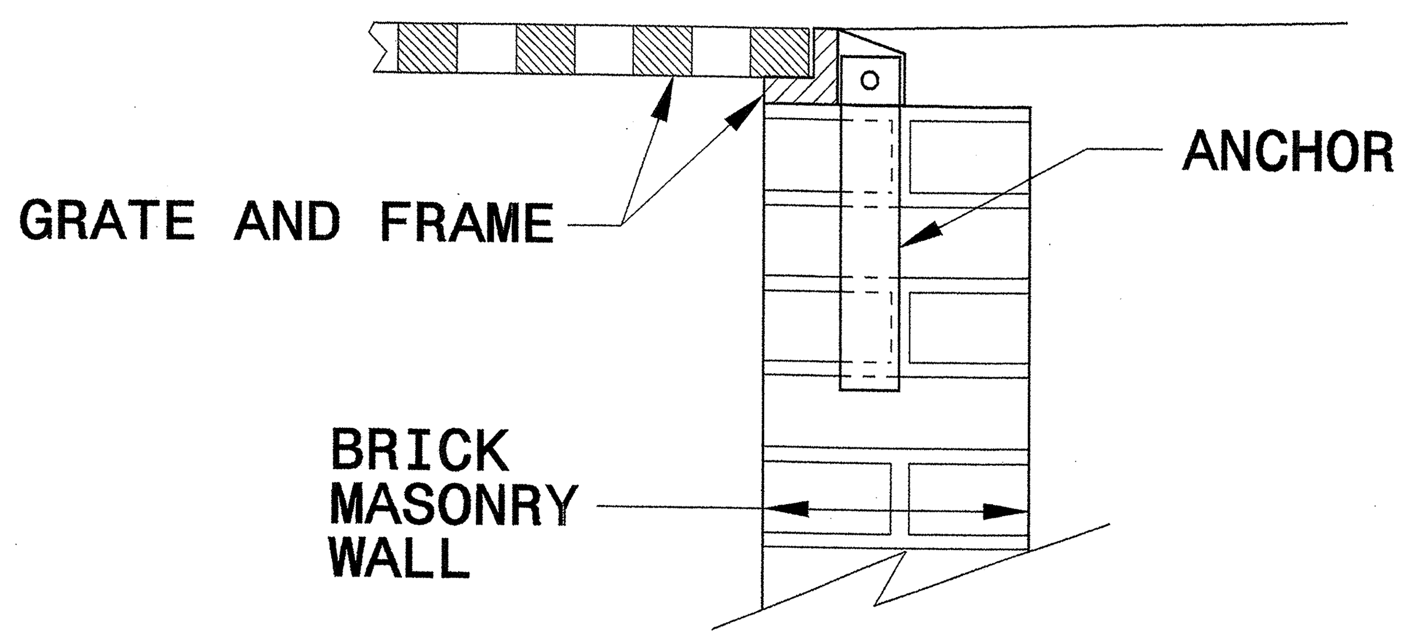
PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

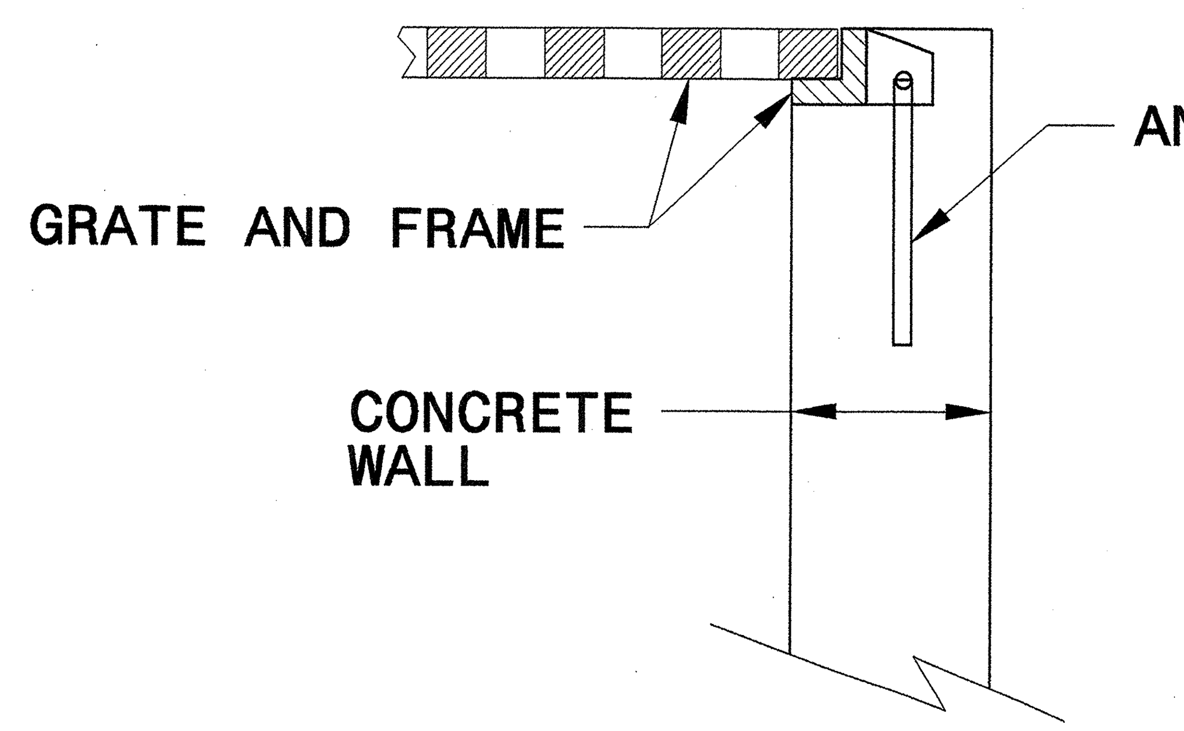
ORIGINAL BY: KKempf DATE: 5-15-09
MODIFIED BY: DATE:
CHECKED BY: DATE: 7/30/09
FILE SPEC: /ericward/stds/stdstodetails/30001/0300d01.dgn

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

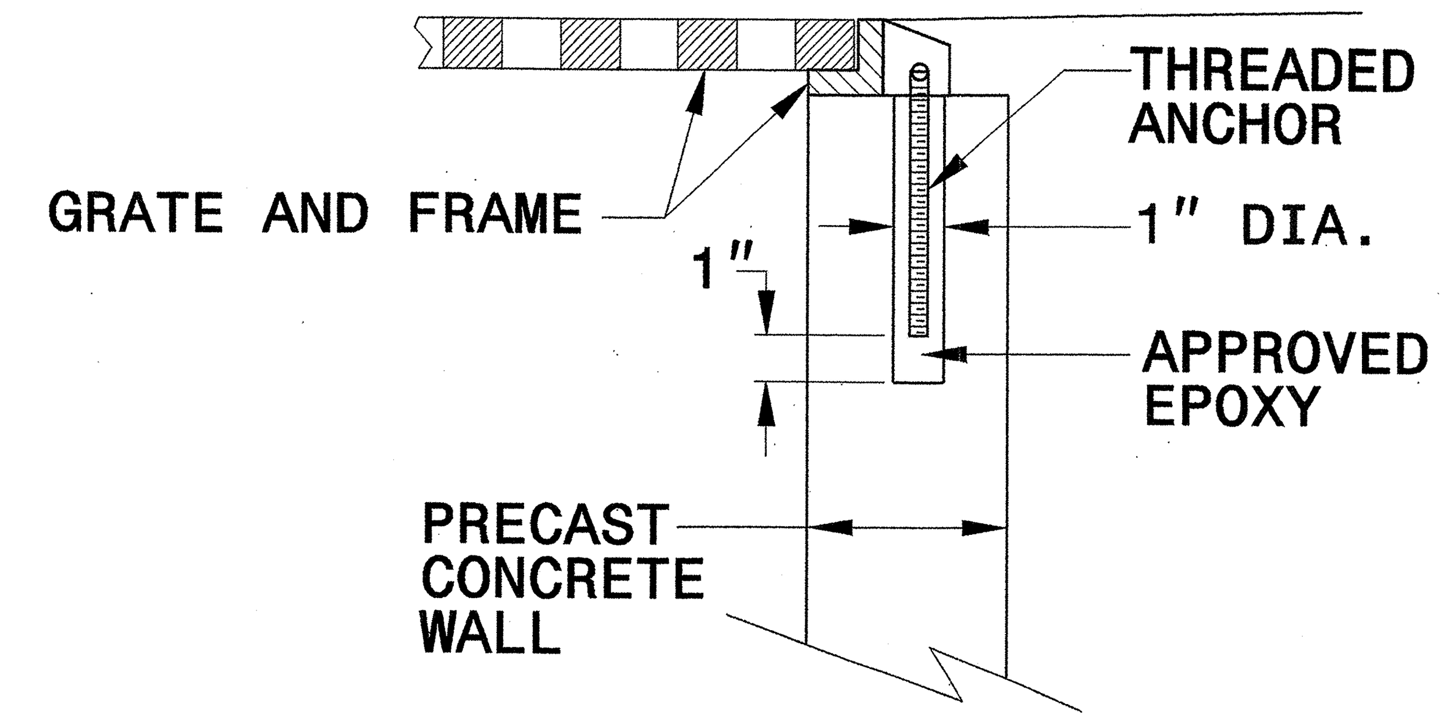
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE



BRICK MASONRY CONSTRUCTION



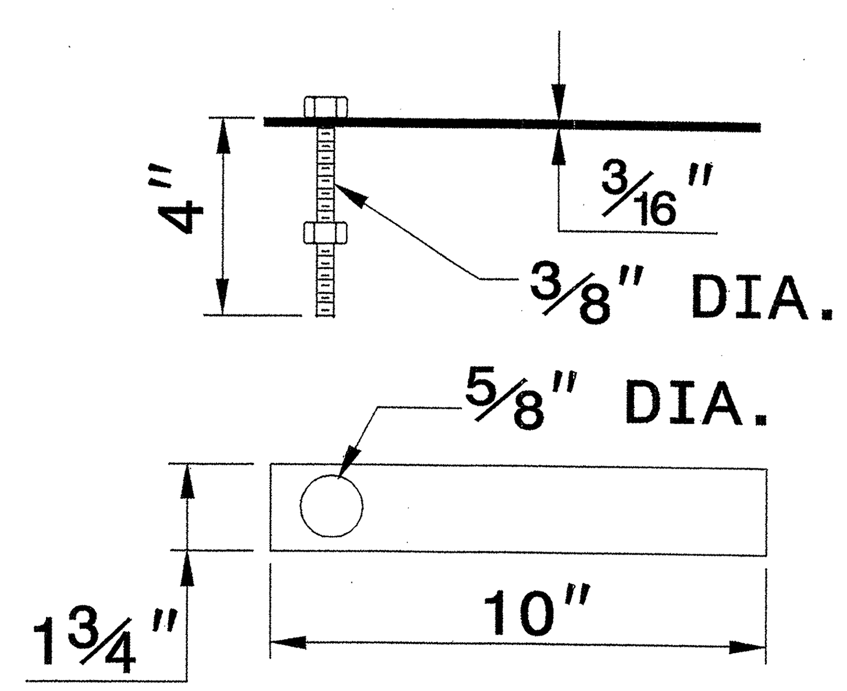
CONCRETE CONSTRUCTION



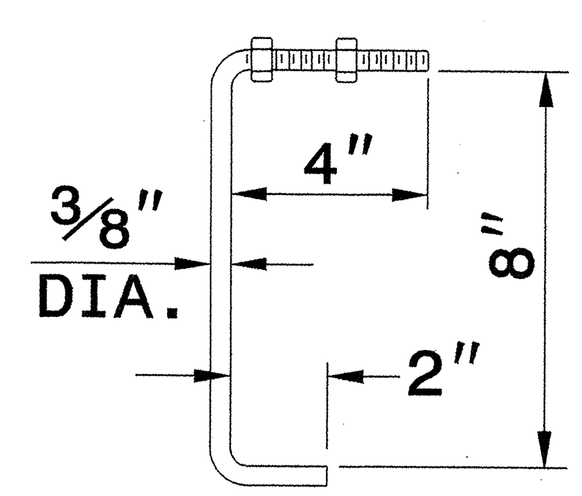
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

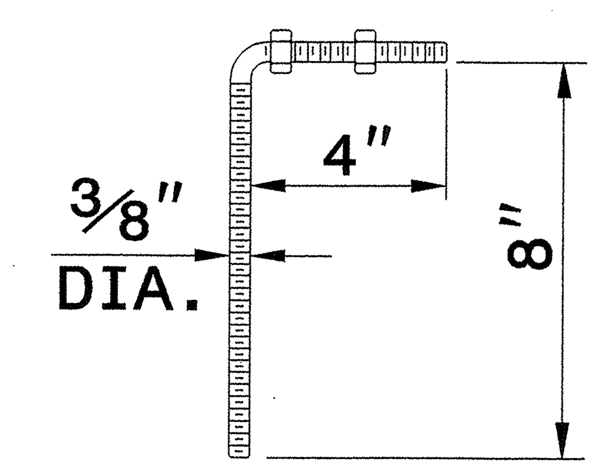
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



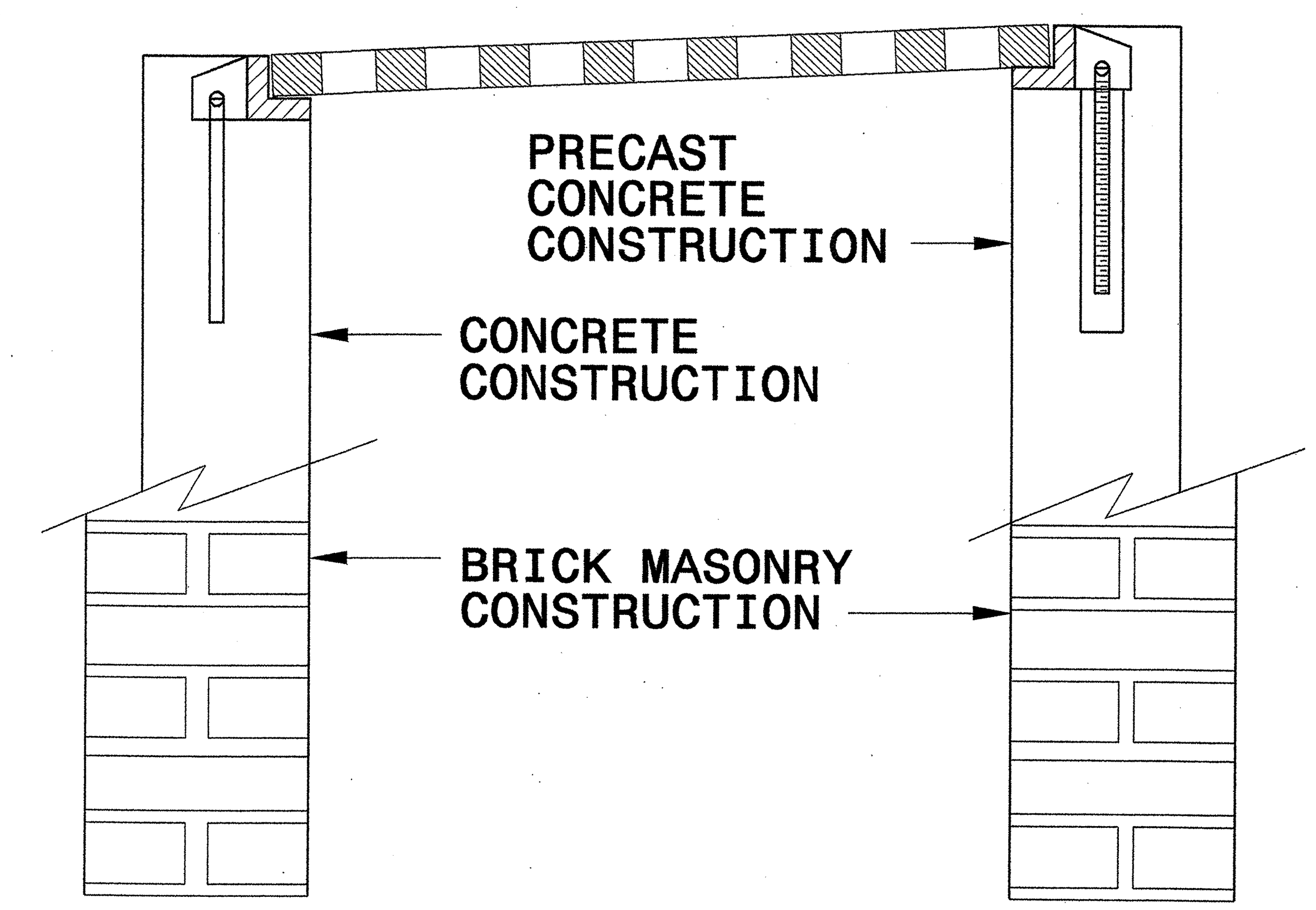
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



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

SHEET 1 OF 1
840D25

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

NORTH CAROLINA PROFESSIONAL SEAL 022866 ENGINEER

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: 11/13/06
FILE SPEC.:

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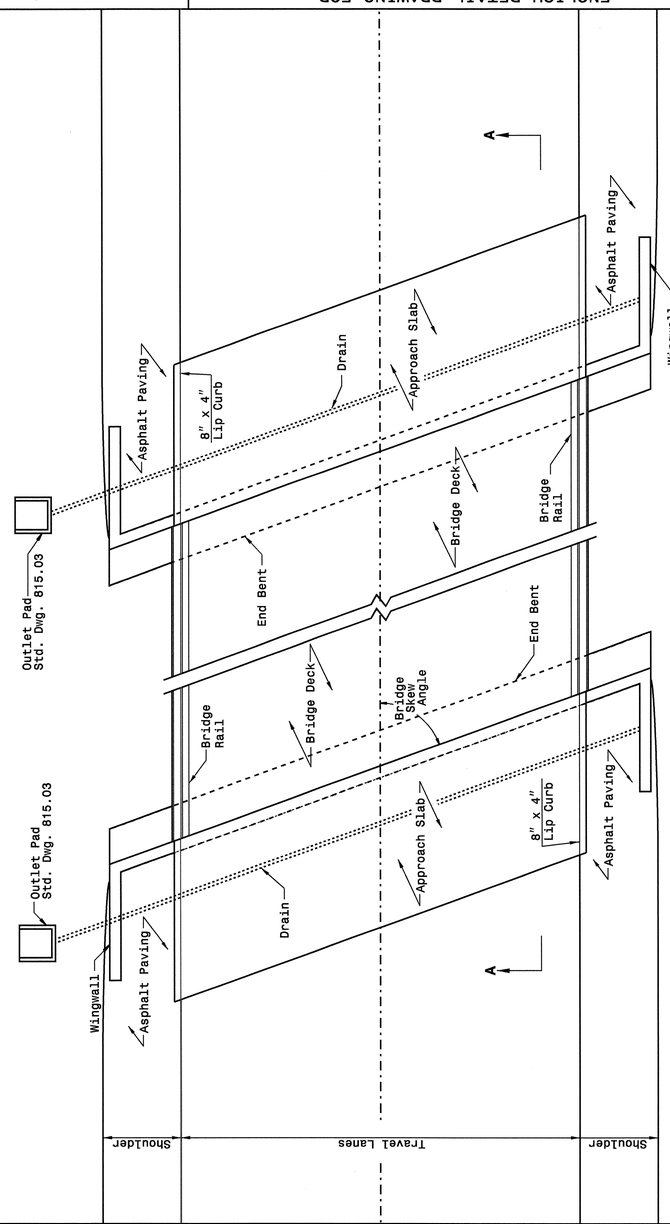
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-42016	2-D

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 1 OF 2
422D11

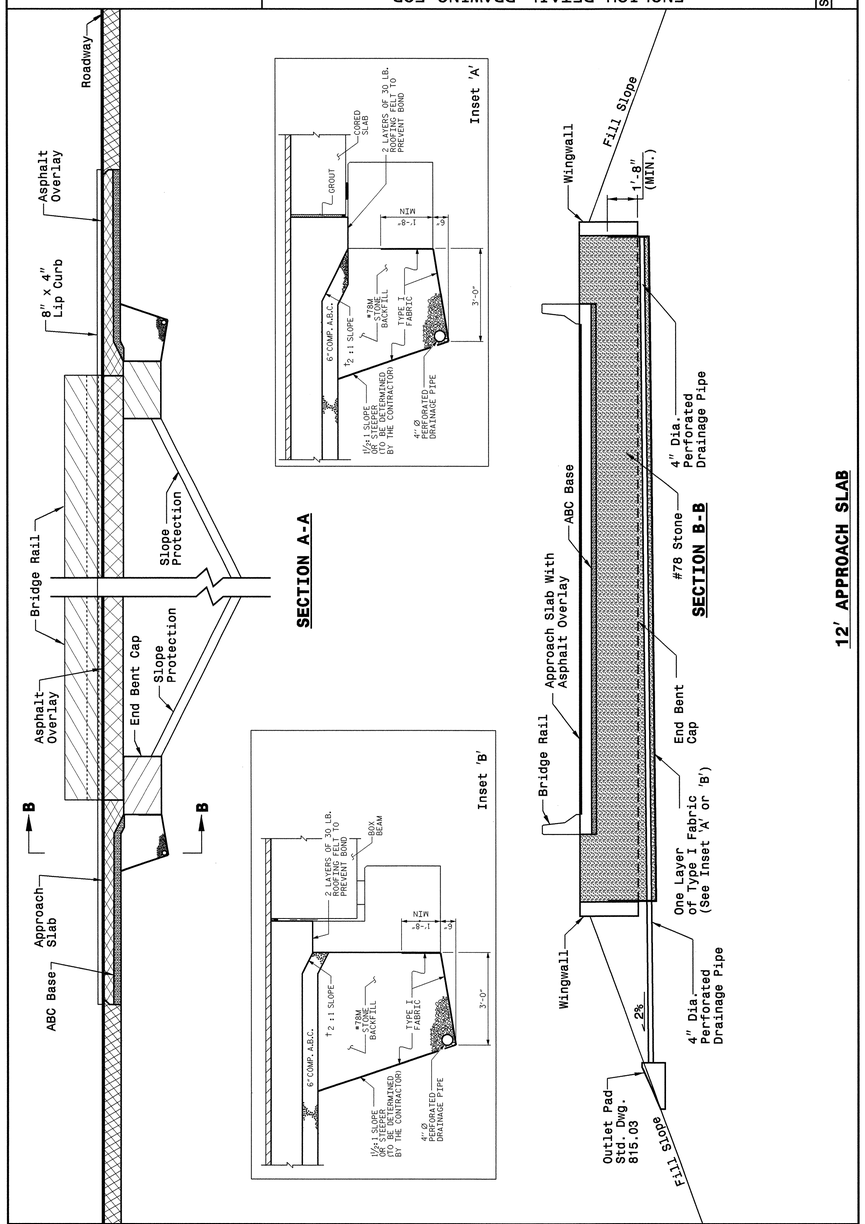


PLAN VIEW
12' APPROACH SLAB

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

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 2 OF 2
422D11



SECTION A-A

SECTION B-B

12' APPROACH SLAB

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

BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

ORIGINAL BY: K. A. Kempf DATE: 6-10-08
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: kkempf\english\bridge approach fills.dgn

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
B-4206	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202656

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (-L- 16+54)
0038000000-E	SP	350	CY	SHALLOW UNDERCUT
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0080000000-E	SP	650	TON	CLASS IV SUBGRADE STABILIZATION
0134000000-E	240	135	CY	DRAINAGE DITCH EXCAVATION
0196000000-E	270	1,300	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	SP	40	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0320000000-E	SP	120	SY	FOUNDATION CONDITIONING FABRIC
0335200000-E	SP	84	LF	15" DRAINAGE PIPE
0335300000-E	SP	212	LF	18" DRAINAGE PIPE
0335850000-E	SP	2	EA	**" DRAINAGE PIPE ELBOWS (15")
0343000000-E	SP	40	LF	15" SIDE DRAIN PIPE
1121000000-E	520	1,330	TON	AGGREGATE BASE COURSE
1275000000-E	600	945	GAL	PRIME COAT
1525000000-E	610	430	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	SP	30	TON	ASPHALT BINDER FOR PLANT MIX
2000000000-N	806	26	EA	RIGHT OF WAY MARKERS
2022000000-E	SP	45	CY	SUBDRAIN EXCAVATION
2033000000-E	SP	35	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	SP	200	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	SP	1	EA	SUBDRAIN PIPE OUTLETS
2077000000-E	SP	6	LF	6" OUTLET PIPE (SUBDRAINS)
2286000000-N	840	3	EA	MASONRY DRAINAGE STRUCTURES
2364200000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.20
2367000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	10	LF	SHOULDER BERM GUTTER
3030000000-E	862	75	LF	STEEL BM GUARDRAIL
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3165000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** (350 TL-2)
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3628000000-E	876	111	TON	RIP RAP, CLASS I
3649000000-E	876	3	TON	RIP RAP, CLASS B
3656000000-E	876	857	SY	FILTER FABRIC FOR DRAINAGE
4072000000-E	903	305	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4102000000-N	904	24	EA	SIGN ERECTION, TYPE E
4116100000-N	904	1	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)
4155000000-N	907	8	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4192000000-N	907	1	EA	DISPOSAL OF SUPPORT, U-CHANNEL
4400000000-E	1110	494	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	45	EA	DRUMS
4435000000-N	1135	69	EA	CONES
4445000000-E	1145	80	LF	BARRICADES (TYPE III)
4455000000-N	1150	38	MD	FLAGGER
4810000000-E	1205	12,260	LF	PAINT PAVEMENT MARKING LINES (4")
4900000000-N	1251	16	EA	PERMANENT RAISED PAVEMENT MARKERS
6000000000-E	1605	1,950	LF	TEMPORARY SILT FENCE
6006000000-E	1610	405	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	100	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	80	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	4.5	ACR	TEMPORARY MULCHING
6018000000-E	1620	200	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	2.75	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	300	LF	TEMPORARY SLOPE DRAINS
6027000000-N	1622	6	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
6029000000-E	SP	500	LF	SAFETY FENCE
6030000000-E	1630	500	CY	SILT EXCAVATION
6036000000-E	1631	8,725	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	975	SY	COIR FIBER MAT
6038000000-E	SP	891	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	120	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	1,030	LF	WATTLE
6071020000-E	SP	150	LB	POLYACRYLAMIDE (PAM)
6071030000-E	SP	155	LF	COIR FIBER BAFFLE
6071050000-E	SP	3	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	4.5	ACR	SEEDING & MULCHING
6087000000-E	1660	4.5	ACR	MOWING
6090000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	125	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	3.5	TON	FERTILIZER TOPDRESSING
6114500000-N	SP	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	25	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	1	ACR	REFORESTATION

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COMPUTED BY: AEV DATE: 6/17/09
CHECKED BY: DWG DATE: 03/02/11

"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

12/06/07

PROJECT REFERENCE NO.	SHEET NO.
B-4206	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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	ANCHORS TYPE III	ANCHORS TL-2							IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-	15+31.50	15+87.75 (BR)	LT	56.25				15+87.75 (BR)	2.42	6					1	1													
-L-	15+31.50	15+87.75 (BR)	RT	56.25			15+87.75 (BR)		2.42	6					1	1													
-L-	17+20.25 (BR)	17+76.50	LT	56.25			17+20.25 (BR)		2.42	6					1	1													
-L-	17+20.25 (BR)	17+76.50	RT	56.25				17+20.25 (BR)	2.42	6					1	1													
		SUBTOTAL		225																									
	LESS DEDUCTIONS FOR ANCHORS																												
	TL-2 4 @ 25' =			-100																									
	TYPE III 4 @ 18.75' =			-75																									
	TOTAL			50											4	4													
	SAY			75											4	4													

ADDITIONAL GUARDRAIL POSTS = 5 EACH

NOTE: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

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) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- 14+78	CL	1			531.80	528.40				108									
-L- 17+34	RT	2		530.30															
	RT	2	OUT		527.50	512.20			44							X			
-L- 18+60	LT	3		528.60															
	LT	3	4		525.80	524.40			40								X	X	
-L- 18+60	RT	4		527.20															
	RT	4	OUT		524.40	512.20				104						X			
-DRV2- 11+13	CL	5																	
TOTALS									84	212									

STATION	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	36" .079	42" .109	48" .109	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	CONCRETE TRANSITIONAL SECTION DROP INLET	G.D.I. TYPE "B" STD. 840.18 OR 840.27	T.B.D.I. STD. 840.35	T.B.G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	G.D.I. FRAME WITH TWO GRATES STD. 840.20						DRAINAGE PIPE ELBOWS NO. & SIZE	REMARKS
-L- 14+78																																																		
-L- 17+34																														1											1	1								
																																																	2@15"	ROD AND LUG CONNECTORS
-L- 18+60																														1										1			1							
-L- 18+60																														1										1			1							
-DRV2- 11+13																										40																								
TOTALS																										40				3										2	1	1	2						2@15"	

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

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
SUMMARY NO. 1					
-L- 11+50.00	-L- 15+87.75	239	1708	1469	
-DRV1- 10+30.00	-DRV1- 11+61.15	4	151	147	
SUMMARY NO. 1 TOTAL		243	1859	1616	
SUMMARY NO. 2					
-L- 17+20.25	-L- 22+50.00	4086	2987		1099
-DRV2- 10+20.00	-DRV2- 11+33.83	527	2		525
SUMMARY NO. 2 TOTAL		4613	2989		1624
SUMMARY NO. 3					
-BL- 14+16.00	-BL- 15+94.00	575			575
SUMMARY NO. 3 TOTAL		575			575
SUMMARY TOTALS		5431	4848	1616	2199
LOSS DUE TO C & G		-575		575	
WASTE IN LIEU OF BORROW				-1624	-1624
EST. SHOULDER MATERIAL			288	288	
PROJECT TOTALS		4856	5136	855	575
5% TO REPLACE TOPSOIL ON				43	
BORROW PIT					
GRAND TOTALS		4856	5136	898	575
SAY		4900		950	
SHALLOW UNDERCUT = 350 CY				UNDERDRAIN = 200 LF	
FABRIC FOR SOIL STABILIZATION = 1000 SY				DDE = 135 CY	
CLASS IV SUBGRADE STABILIZATION = 650 TONS					

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.

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

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L- RT.	17+31.25	17+35.00	3.80
		TOTAL:	3.80
		SAY:	10.00

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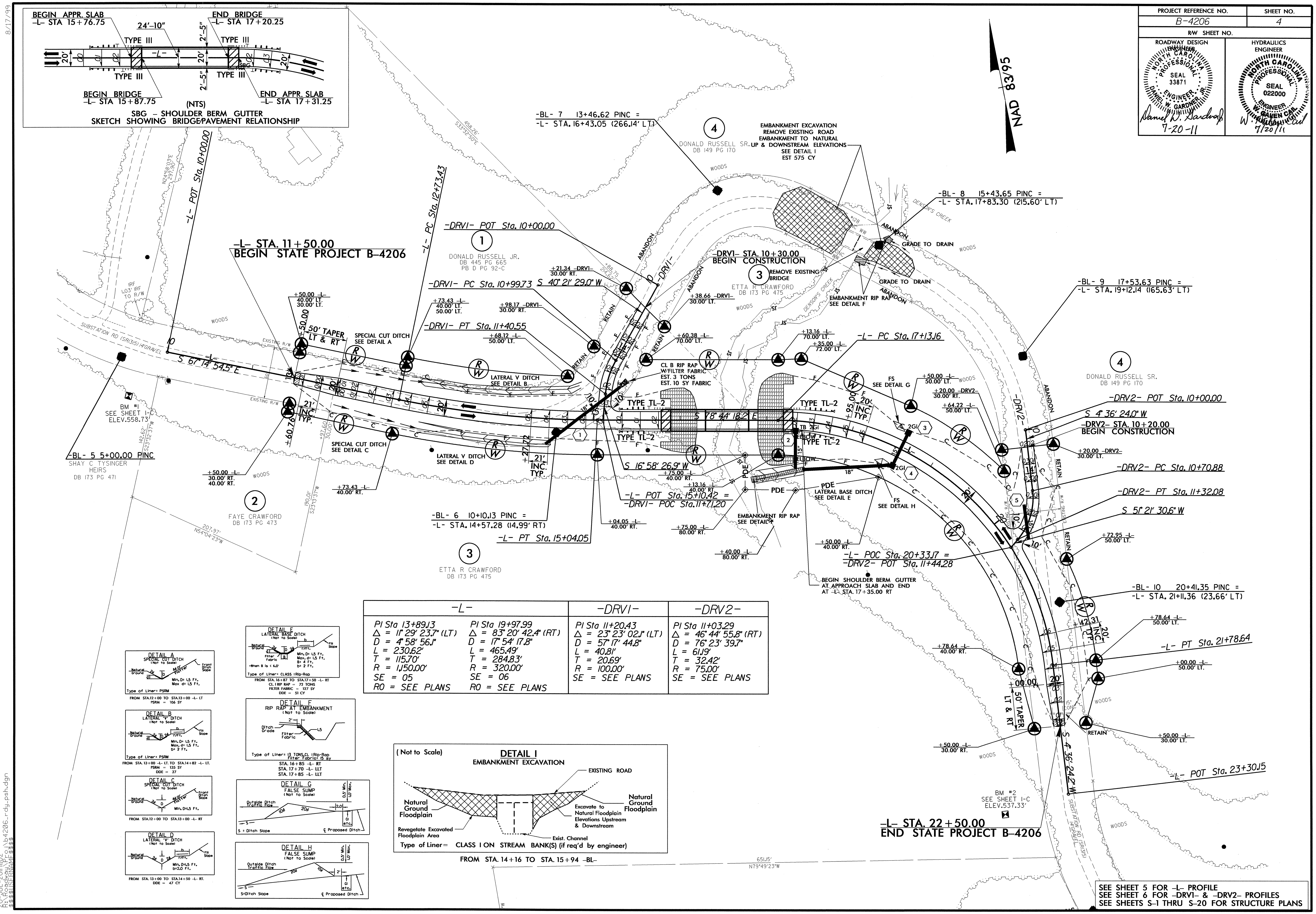
PROJECT REFERENCE NO.	SHEET NO.
B-4206	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. — 7-20-11

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GAVEN CAIL — 7/20/11



-L-		-DRV1-	-DRV2-
PI Sta 13+89.13	PI Sta 19+97.99	PI Sta 11+20.43	PI Sta 11+03.29
Δ = 11° 29' 23.7" (LT)	Δ = 83° 20' 42.4" (RT)	Δ = 23° 23' 02.1" (LT)	Δ = 46° 44' 55.8" (RT)
D = 4° 58' 56.1"	D = 17° 54' 17.8"	D = 57° 17' 44.8"	D = 76° 23' 39.7"
L = 230.62'	L = 465.49'	L = 40.81'	L = 61.19'
T = 115.70'	T = 284.83'	T = 20.69'	T = 32.42'
R = 1,150.00'	R = 320.00'	R = 100.00'	R = 75.00'
SE = 05	SE = 06	SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS		

PROJECT REFERENCE NO. B-4206
SHEET NO. 5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER
7-20-11
NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL
7/20/11
-L-
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 1500 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 515.10 FT
BASE DISCHARGE = 2229 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 516.89 FT
OVERTOPPING DISCHARGE = 3400 CFS
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING ELEVATION = 529.80 FT
DATE OF SURVEY = 6/12/09
W.S. ELEVATION AT DATE OF SURVEY = 507.30 FT
BEGIN GRADE -L- STA.11+50.00
ELEV.= 553.06'
END GRADE -L- STA.22+50.00
ELEV.= 542.43'
PI = 14+60.00
EL = 535.05'
VC = 270'
K = 66, DS > 40 MPH
STATION 16+54.00 -L-
ELEVATION = 531.80'
1@40', 1@50', 1@40'
21 in. CORED SLAB
SKEW 90 DEGREES
PI = 19+10.00
EL = 527.47'
VC = 400'
K = 66, DS > 40 MPH
BM1 ELEVATION = 558.73'
N 614262 E 1731285
-L- STA. 10+00
S 53° 00' 16.4" W DIST. 67.38'
BRIDGE SPIKE SET IN 12" PINE
BM2 ELEVATION = 537.33'
N 613589 E 1732185
-L- STA. 23+30
S 83° 12' 53.8" W DIST. 76.76'
BRIDGE SPIKE SET IN 15" OAK
(-)7.1533%
(-)7.4000%
(-)5.8097%
(-)5.5800%
(-)5.9091%
(-)1.6844%
(-)1.6844%
(+)4.4000%
(+)8.2540%
1.5:1
1.5:1
CLASS II RIP RAP (STR. PAY ITEM)
PROP 100 Yr WS EL=516.90
PROP 25 Yr WS EL=515.1
CLASS II RIP RAP (STR. PAY ITEM)
NWS ELEV.=507.3
BEGIN SPECIAL DITCH RT STA.12+00 RT ELEV.= 548.00'
END SPECIAL DITCH RT- BEGIN LAT "V" DITCH RT. STA.13+00.00
PI STA.13+50 RT ELEV.=537.30'
END LAT "V" DITCH STA.14+50 RT ELEV.=531.80'
BEGIN SPECIAL DITCH LT STA.12+00 LT ELEV.= 547.90'
END SPECIAL DITCH LT- BEGIN LAT "V" DITCH LT. STA.13+00.00
PI STA.13+50 LT. ELEV.=536.80'
END LAT "V" DITCH STA.14+82 LT. ELEV.=529.00'
BEGIN 4' BASE DITCH STA.16+87 RT ELEV.=507.00'
END 4' BASE DITCH STA.17+50 RT ELEV.= 512.20'
DITCH LEGEND
RIGHT DITCH
LEFT DITCH
SEE SHEET 4 FOR PLAN VIEW
650 640 630 620 610 600 590 580 570 560 550 540 530 520 510 500 490 480 470 460 450
10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00
5/14/99
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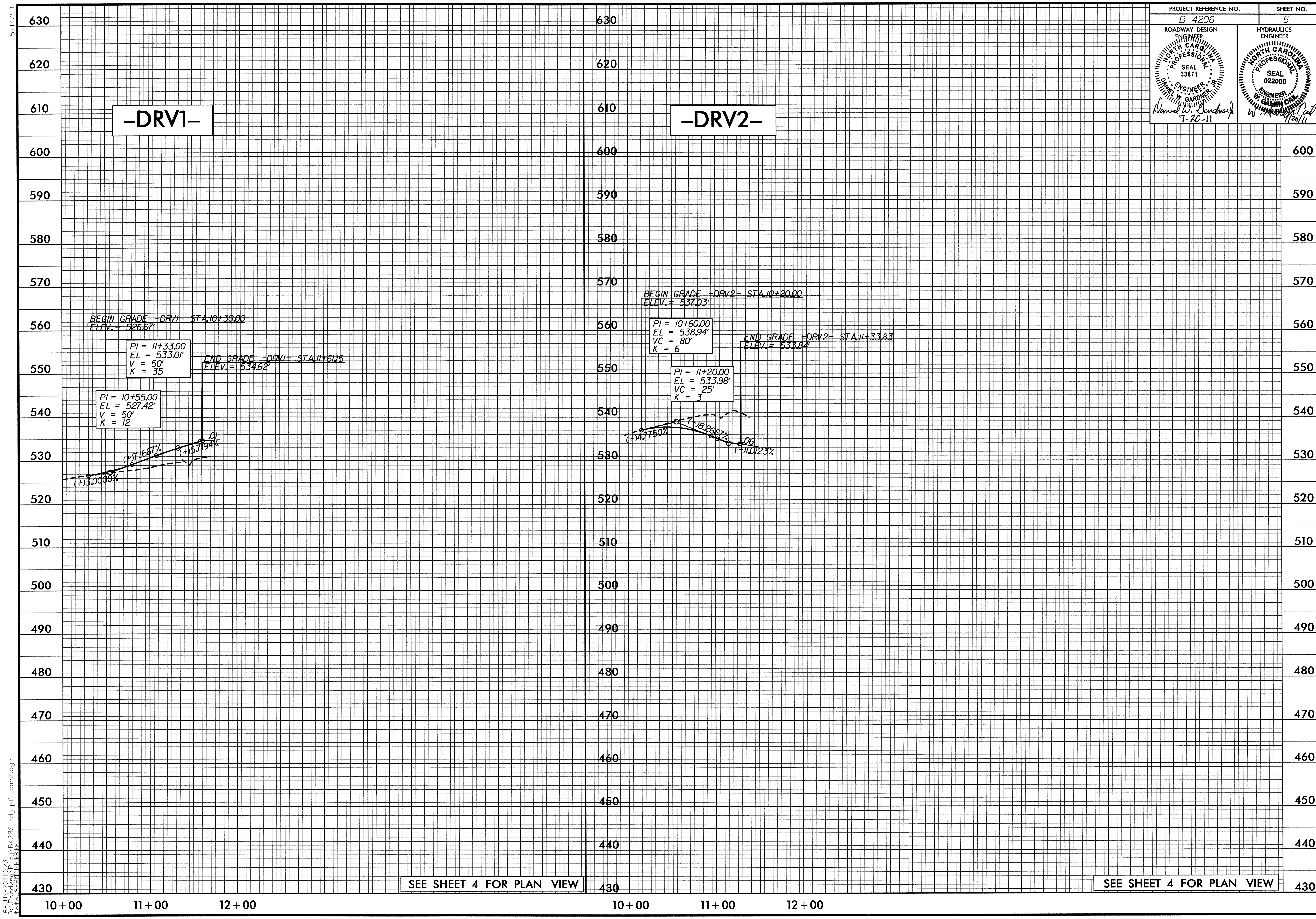
PROJECT REFERENCE NO.	SHEET NO.
B-4206	6

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 33871 ENGINEER DANIEL W. GARDNER, JR. — Daniel W. Gardner Jr. 7-20-11

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL — W. Galen Cail 7/20/11



SEE SHEET 4 FOR PLAN VIEW

5/14/99

16-JUN-2011 10:23
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