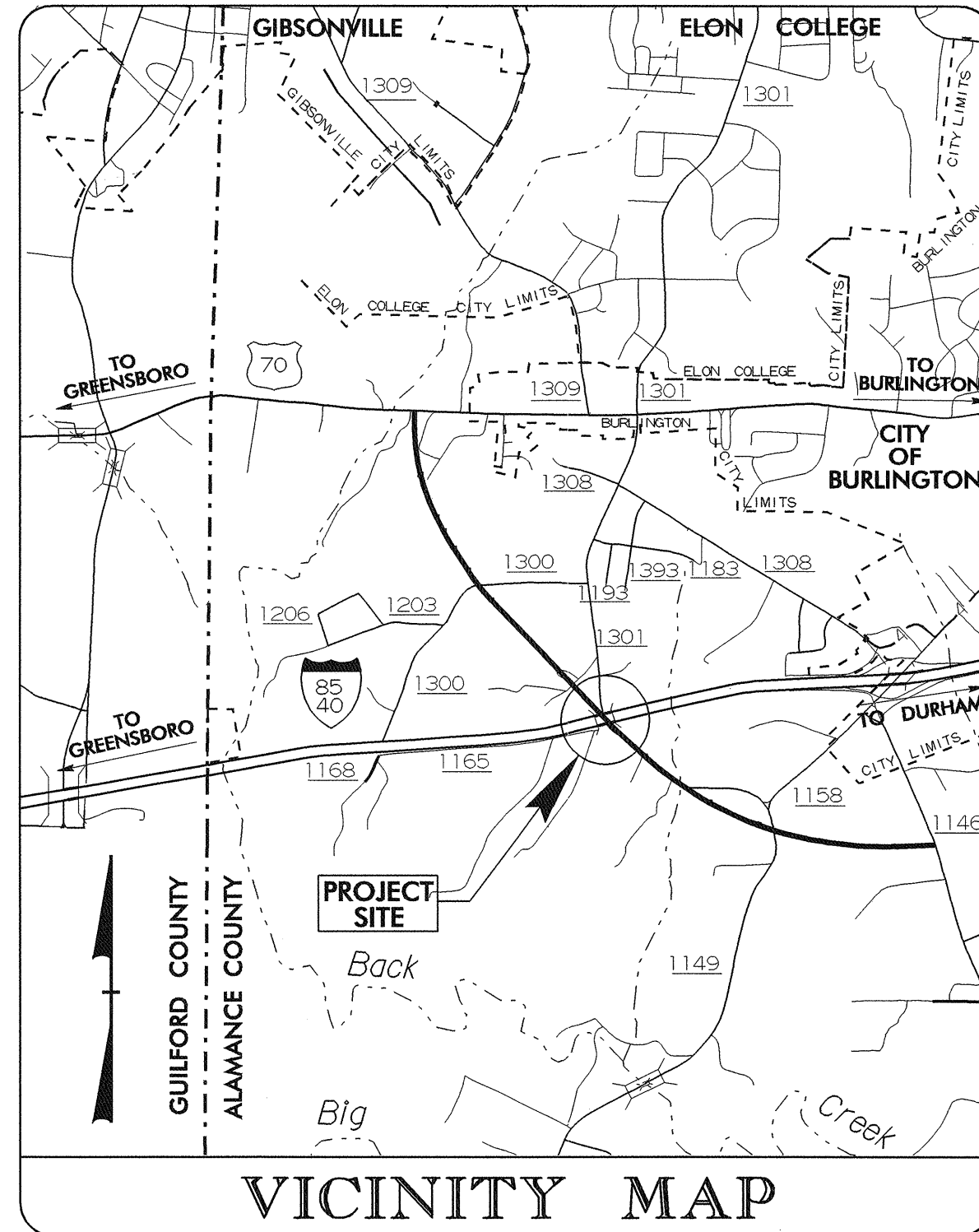


See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

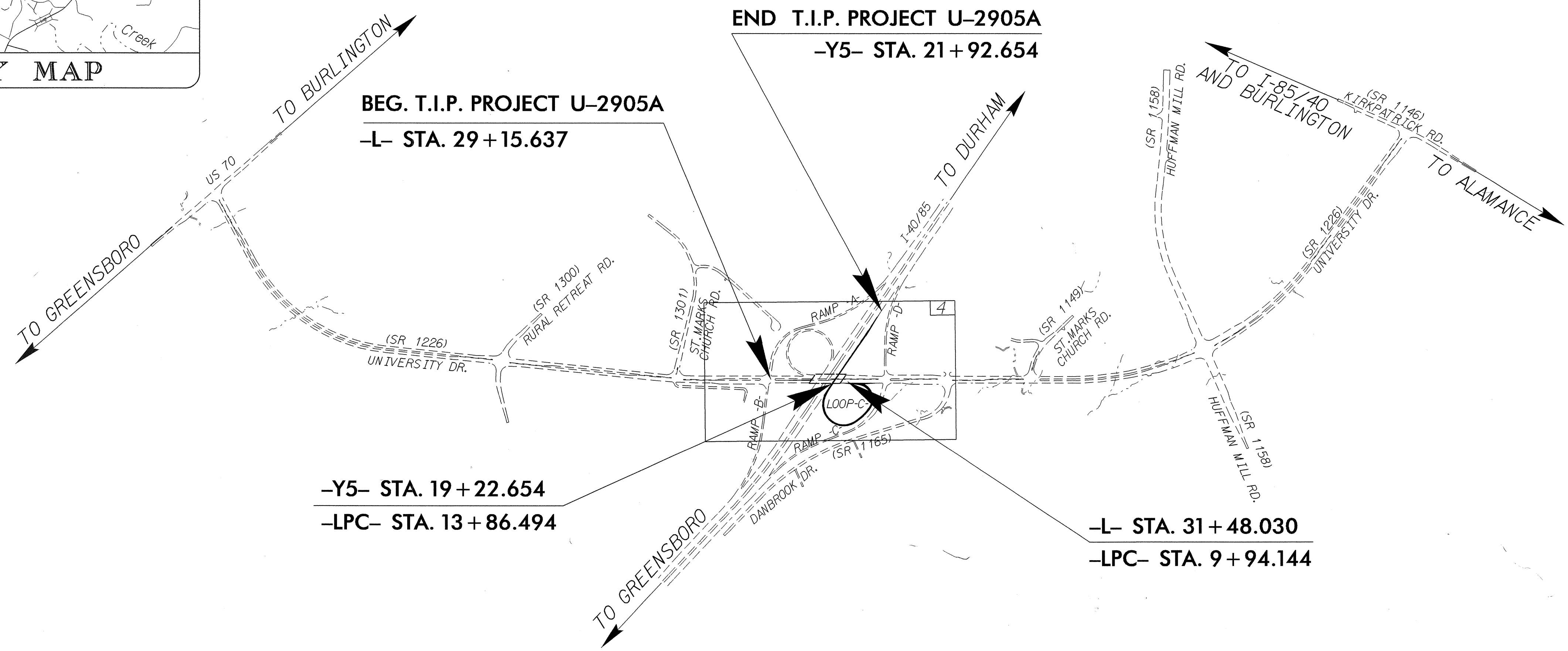
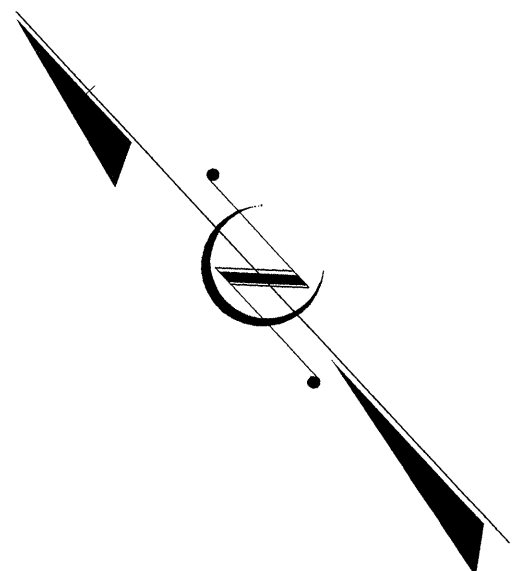
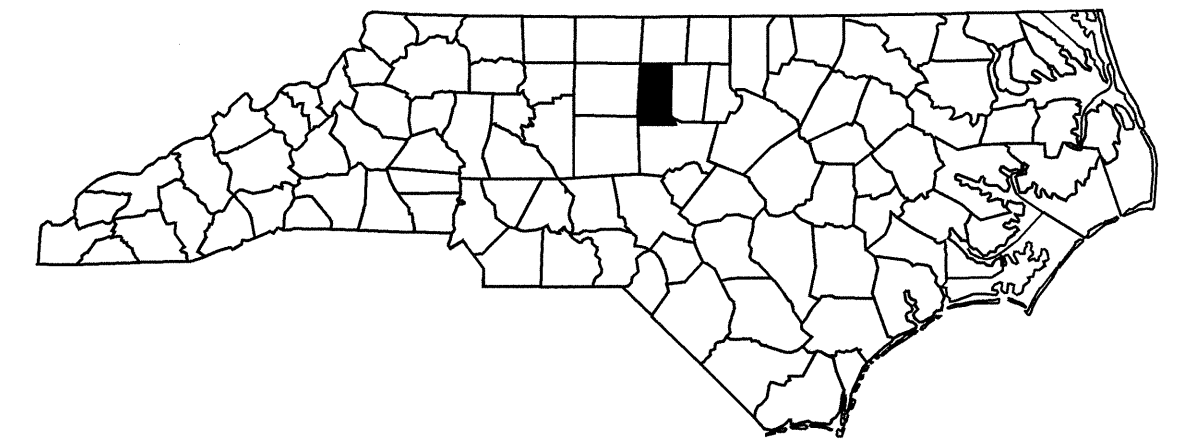
**ALAMANCE COUNTY**

**LOCATION: BURLINGTON - WESTERN ALAMANCE LOOP-  
CONSTRUCT LOOP RAMP AT I-85**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNAL  
(LOOP C ADDITION ONLY)**

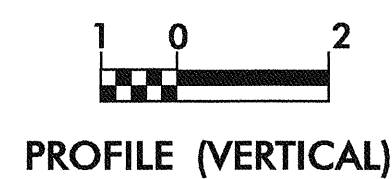
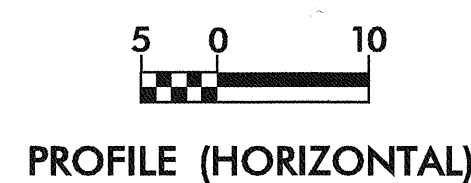
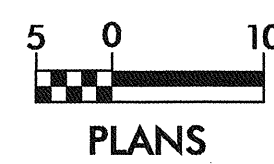
STATE N.C.	STATE PROJECT REFERENCE NO. <b>U-2905A</b>	SHEET NO. <b>1</b>	TOTAL SHEETS
	STATE PROJ. NO. 34881.1.1 34881.3.3	F. A. PROJ. NO. STPNHF-0701(5) STPNHS-701(14)	DESCRIPTION P.E. CONST.

ALL DIMENSIONS IN  
THESE PLANS ARE IN METERS



THIS IS A CONTROLLED-ACCESS PROJECT

GRAPHIC SCALES



LOOP C DATA

ADT 2005 =	4,000
ADT 2030 =	23,600
DHV =	9 %
D =	55 %
T =	3 % *
V =	40 km/h
* TTST 2%	DUAL 1%

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT U-2905A = 1.090 km  
TOTAL LENGTH T.I.P. PROJECT U-2905A = 1.090 km

Prepared in the Office of:

**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh, NC 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
N/A

LETTING DATE:  
DECEMBER 19, 2006

JASON MOORE, P.E.  
PROJECT ENGINEER

KEVIN E. MOORE, P.E.  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER



ROADWAY DESIGN ENGINEER



SIGNATURE:

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

*Ant McMillan* P.E.  
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED  
DIVISION ADMINISTRATOR DATE

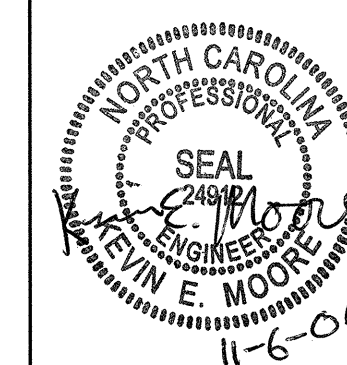
8/17/99

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS



PROJECT REFERENCE NO. U-2905A SHEET NO. 1-A

ROADWAY DESIGN ENGINEER



EFF. 01-15-02  
REV.11-23-04

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2-A	GUIDE FOR GRADING SUBGRADE - INTERSTATE AND FREEWAY
2-B	ASPHALT SHOULDER - MILLED RUMBLE STRIPS
2-C THRU 2-F	GUARDRAIL INSTALLATION
2-G	CONCRETE MEDIAN DETAILS
2-H	EXPRESSWAY GUTTER TRANSITION FOR DROP INLET
2-I	SLOPE PROTECTION DETAILS
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5 THRU 6	PROFILE SHEETS
TCP-1 THRU TCP-8	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLANS
E-1 THRU E-3	LIGHTING PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
SIG-1 THRU SIG-4	SIGNAL PLANS
X-1 THRU X-17	CROSS-SECTIONS

GENERAL NOTES: 2002 SPECIFICATIONS  
EFFECTIVE: 07-18-06  
REVISED:

### 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. 560.02.

### 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.

### SUBSURFACE PLANS:

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

### UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY CORP., BELLSOUTH, TIME WARNER, MCI, AT&T, PF.NET, LEVEL 3 & PIEDMONT NATURAL GAS.  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

### 2002 ROADWAY METRIC STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January 15, 2002 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
225.01	Guide for Grading Subgrade - Interstate and Freeway (Begin August 2003 Let Use Detail in Lieu of Standard)
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.09	Guide for Shoulder and Ditch Transition at Grade Separations
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
610.01	Guide for Paving Shoulders Under Bridges - Method I
654.01	Pavement Repairs
665.01	Milled Rumble Strips - Asphalt Pavements (Beg. March 2005 Let Use Detail in Lieu of Standard)
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 300mm thru 1350mm Pipe
840.02	Concrete Catch Basin - 300mm thru 1350mm Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.04	Concrete Catch Basin with Single and Multiple Pipes - 300mm thru 1200mm Pipe
840.05	Brick Catch Basin with Single and Multiple Pipes - 300mm thru 1200mm Pipe
840.18	Concrete Median Drop Inlet Type 'B' - 300mm thru 900mm Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete
840.27	Brick Median Drop Inlet Type 'B' - 300mm thru 900mm Pipe
840.31	Concrete Junction Box - 300mm thru 1650mm Pipe
840.32	Brick Junction Box - 300mm thru 1650mm Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Expressway Gutter Transition for Drop Inlet (Beg. August 2004 Let Use Detail in Lieu of Std)
852.01	Concrete Islands
854.02	Double Faced Concrete Barrier - Types 'T', 'T1' and 'T2'
862.01	Guardrail Placement
862.02	Guardrail Installation (Beg. September 2003 Let Use Detail in Lieu of Standard)
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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\*\*\*\*\*USERNAME\*\*\*\*\*

\*S.U.E = SUBSURFACE UTILITY ENGINEER

# CONVENTIONAL SYMBOLS

## ROADS & RELATED ITEMS

Edge of Pavement	-----
Curb	-----
Prop. Slope Stakes Cut	----- C -----
Prop. Slope Stakes Fill	----- F -----
Prop. Woven Wire Fence	----- ○ -----
Prop. Chain Link Fence	----- □ -----
Prop. Barbed Wire Fence	----- ◇ -----
Prop. Wheelchair Ramp	----- WCR -----
Exist. Guardrail	----- T -----
Prop. Guardrail	----- T -----
Equality Symbol	----- ⊕ -----
Pavement Removal	----- ⊗ -----

## RIGHT OF WAY

Baseline Control Point	----- ◆ -----
Existing Right of Way Marker	----- △ -----
Exist. Right of Way Line w/Marker	----- △ -----
Prop. Right of Way Line with Proposed	----- ▲ -----
R/W marker (Iron Pin & Cap)	----- ▲ -----
Prop. Right of Way Line with Proposed	----- ▲ -----
(Concrete or Granite) R/w Marker	----- ▲ -----
Exist. Control of Access Line	----- C/A -----
Prop. Control of Access Line	----- C/A -----
Exist. Easement Line	----- E -----
Prop. Temp. Construction Easement Line	----- E -----
Prop. Temp. Drainage Easement Line	----- TDE -----
Prop. Perm. Drainage Easement Line	----- PDE -----

## HYDROLOGY

Stream or Body of Water	-----
Flow Arrow	----->-----
Disappearing Stream	----->-----
Spring	-----
Swamp Marsh	-----
Shoreline	-----
Falls, Rapids	-----
Prop Lateral, Tail, Head Ditches	-----

## STRUCTURES

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

MINOR	
Head & End Wall	----- CONC HW -----
Pipe Culvert	-----
Footbridge	-----
Drainage Boxes	----- CB -----
Paved Ditch Gutter	-----

## UTILITIES

Exist. Pole	----- ● -----
Exist. Power Pole	----- ● -----
Prop. Power Pole	----- ○ -----
Exist. Telephone Pole	----- ● -----
Prop. Telephone Pole	----- ○ -----
Exist. Joint Use Pole	----- ● -----
Prop. Joint Use Pole	----- ○ -----
Telephone Pedestal	----- T -----
Cable TV Pedestal	----- C -----
Hydrant	----- ◆ -----
Satellite Dish	-----
Exist. Water Valve	----- ⊗ -----
Sewer Clean Out	----- ⊕ -----
Power Manhole	----- P -----
Telephone Booth	----- B -----
Water Manhole	----- W -----
Light Pole	-----
H-Frame Pole	-----
Power Line Tower	-----
Pole with Base	-----
Gas Valve	----- ◆ -----
Gas Meter	----- ◆ -----
Telephone Manhole	----- T -----
Power Transformer	-----
Sanitary Sewer Manhole	----- S -----
Storm Sewer Manhole	----- S -----
Tank; Water, Gas, Oil	-----
Water Tank With Legs	-----
Traffic Signal Junction Box	----- S -----
Fiber Optic Splice Box	----- F -----
Television or Radio Tower	-----
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement	----- TS -----

Recorded Water Line	----- W -----
Designated Water Line (S.U.E.*)	----- W -----
Sanitary Sewer	----- SS -----
Recorded Sanitary Sewer Force Main	----- FSS -----
Designated Sanitary Sewer Force Main(S.U.E.*)	----- FSS -----
Recorded Gas Line	----- G -----
Designated Gas Line (S.U.E.*)	----- G -----
Storm Sewer	----- S -----
Recorded Power Line	----- P -----
Designated Power Line (S.U.E.*)	----- P -----
Recorded Telephone Cable	----- T -----
Designated Telephone Cable (S.U.E.*)	----- T -----
Recorded U/G Telephone Conduit	----- TC -----
Designated U/G Telephone Conduit (S.U.E.*)	----- TC -----
Unknown Utility (S.U.E.*)	----- ?UTL -----
Recorded Television Cable	----- TV -----
Designated Television Cable (S.U.E.*)	----- TV -----
Recorded Fiber Optics Cable	----- FO -----
Designated Fiber Optics Cable (S.U.E.*)	----- FO -----
Exist. Water Meter	-----
U/G Test Hole (S.U.E.*)	-----
Abandoned According to U/G Record	----- ATTUR -----
End of Information	----- E.O.I. -----

## BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	----- PL -----
Exist. Iron Pin	----- EIP -----
Property Corner	-----
Property Monument	----- ECM -----
Property Number	----- 123 -----
Parcel Number	----- 6 -----
Fence Line	----- WW & ISBW -----
Existing Wetland Boundaries	----- WLB -----
Proposed Wetland Boundaries	----- WLB -----
Existing Endangered Animal Boundaries	----- EAB -----
Existing Endangered Plant Boundaries	----- EPB -----

## BUILDINGS & OTHER CULTURE

Buildings	-----
Foundations	-----
Area Outline	-----
Gate	-----
Gas Pump Vent or U/G Tank Cap	-----
Church	-----
School	-----
Park	-----
Cemetery	-----
Dam	-----
Sign	-----
Well	-----
Small Mine	-----
Swimming Pool	-----

## TOPOGRAPHY

Loose Surface	-----
Hard Surface	-----
Change in Road Surface	-----
Curb	-----
Right of Way Symbol	----- R/W -----
Guard Post	----- O GP -----
Paved Walk	-----
Bridge	-----
Box Culvert or Tunnel	-----
Ferry	-----
Culvert	-----
Footbridge	-----
Trail, Footpath	-----
Light House	-----

## VEGETATION

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

## RAILROADS

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

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6/16/99

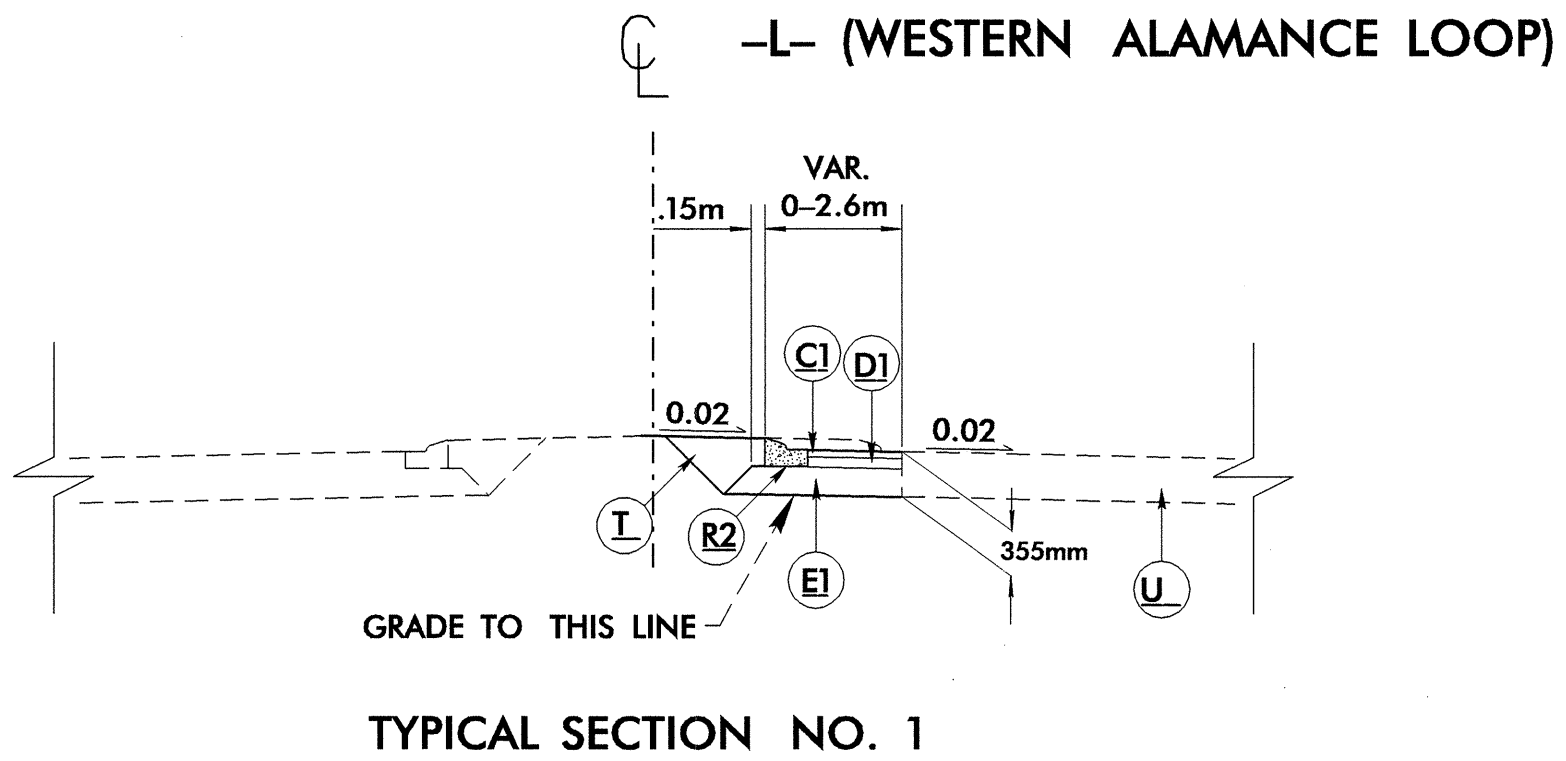
### PAVEMENT SCHEDULE

C1	PROP. APPROX. 80 mm ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 96 kg PER SQ. METER IN EACH OF TWO LAYERS.	R2	450 mm CONCRETE CURB AND GUTTER
D1	PROP. APPROX. 100 mm ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 245kg PER SQ. METER.	R3	750 mm CONCRETE CURB AND GUTTER
E1	PROP. APPROX. 175 mm ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 214.38 kg PER SQ. METER IN EACH OF TWO LAYERS.	S	ASPHALT MILLED RUMBLE STRIPS
E2	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 2.45kg PER SQ. METER PER 1 mm DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 75 mm IN DEPTH OR GREATER THAN 140 mm IN DEPTH.	T	EARTH MATERIAL
R1	EXPRESSWAY GUTTER	U	EXISTING PAVEMENT

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

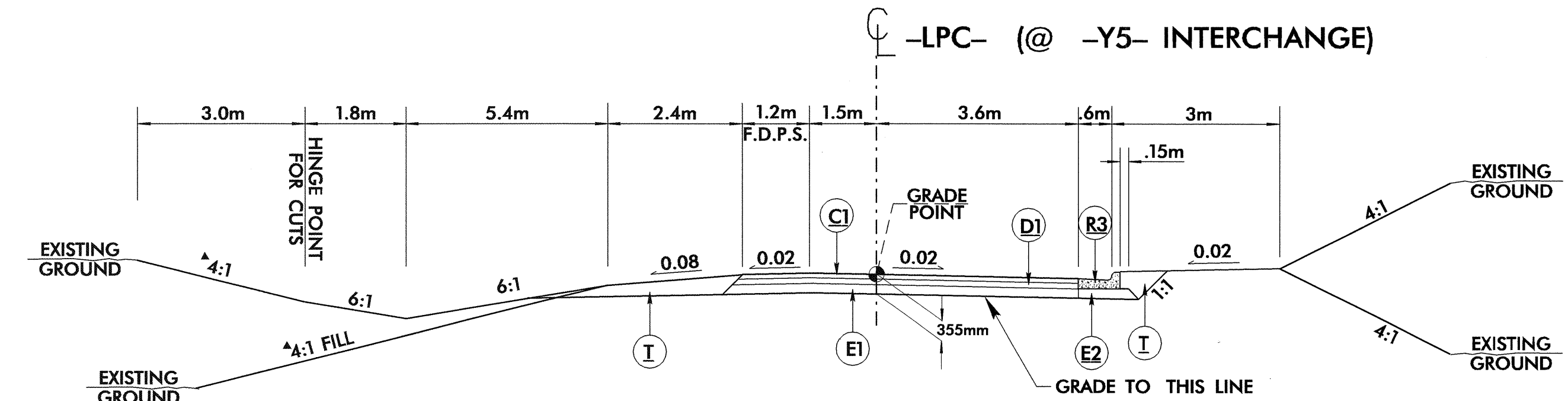


PROJECT REFERENCE NO. U-2905A	SHEET NO. 2
ROADWAY DESIGN ENGINEER VIN E. MOORE	PAVEMENT DESIGN ENGINEER CHRISTOPHER MORRISON
SEAL 22886	SEAL 22886

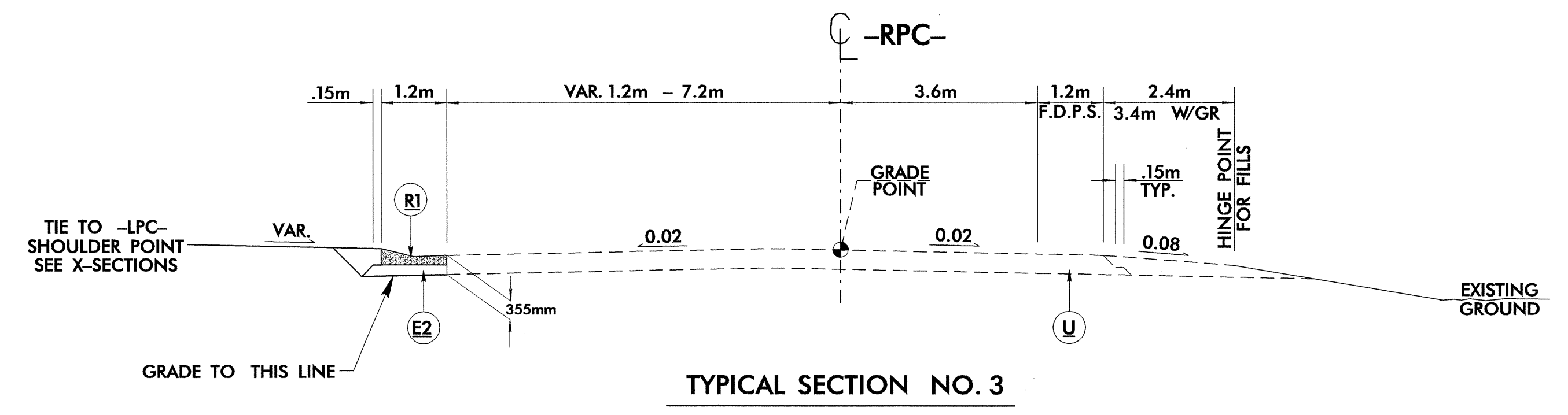


USE TYPICAL SECTION NO. 1 AS FOLLOWS

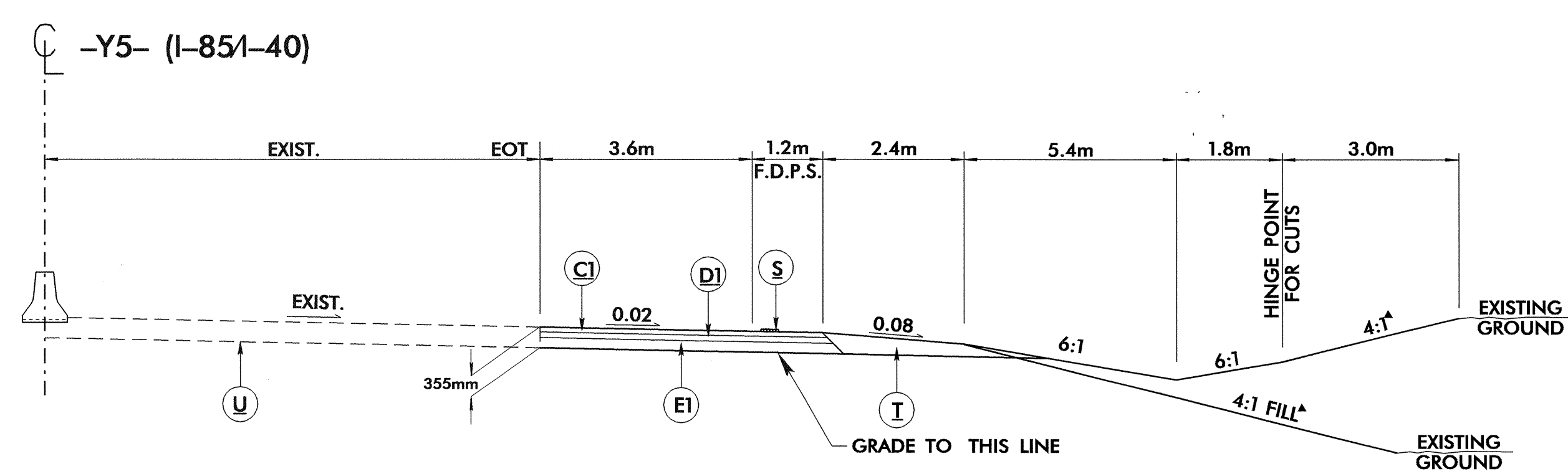
- L- STA. 29+27+/- TO 30+35+/-
- L- STA. 32+78+/- TO 33+13+/-



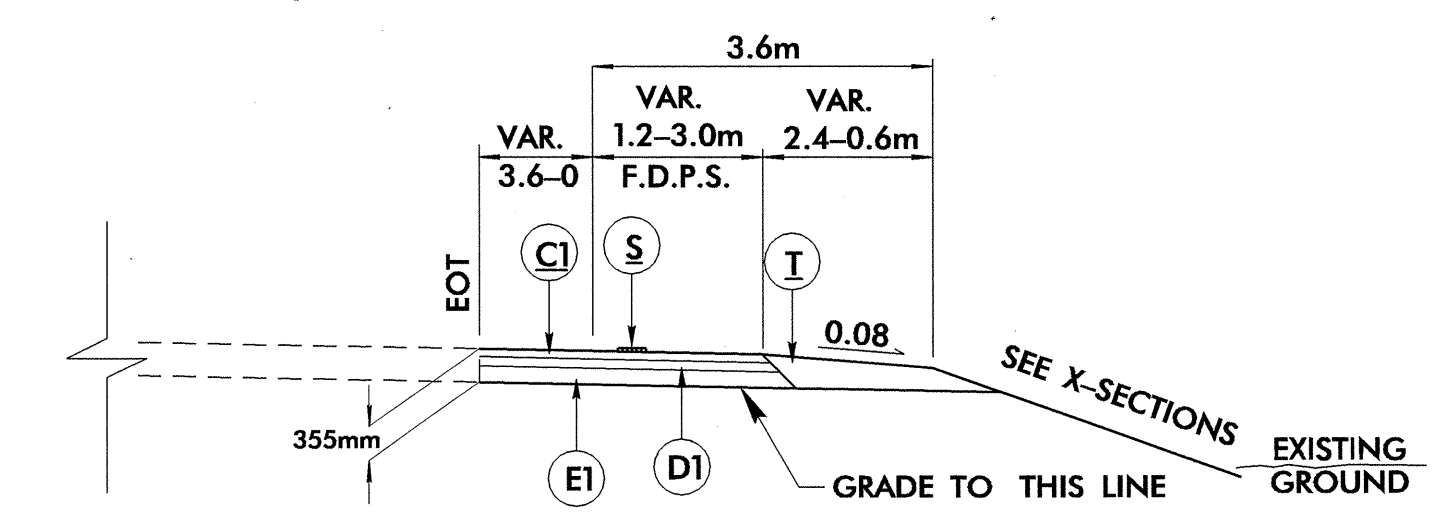
TYPICAL SECTION NO. 2  
 ^4:1 MAX INSIDE INTERCHANGE  
 USE TYPICAL SECTION NO. 2 AS FOLLOWS  
 -LPC- STA. 9+94.144 TO 13+86.494



USE TYPICAL SECTION NO. 3 AS FOLLOWS  
 -RPC- STA. 13+80.000 TO 14+90.000



TYPICAL SECTION NO. 4  
 USE TYPICAL SECTION NO. 4 AS FOLLOWS  
 -Y5- STA. 19+22.654 TO STA. 21+02.654



TYPICAL SECTION NO. 4A  
 USE IN CONJUNCTION WITH T.S. NO. 4  
 -Y5- STA. 21+02.654 TO STA. 21+92.654

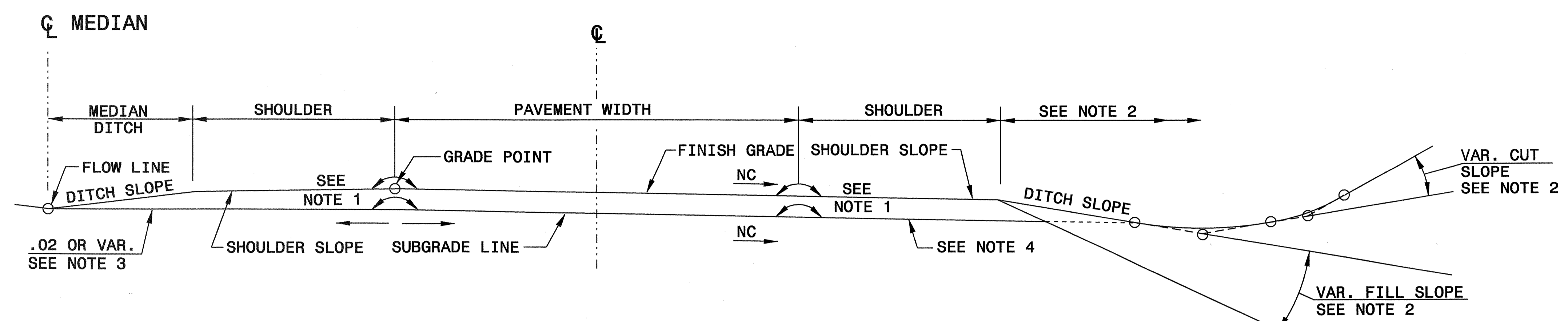
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STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

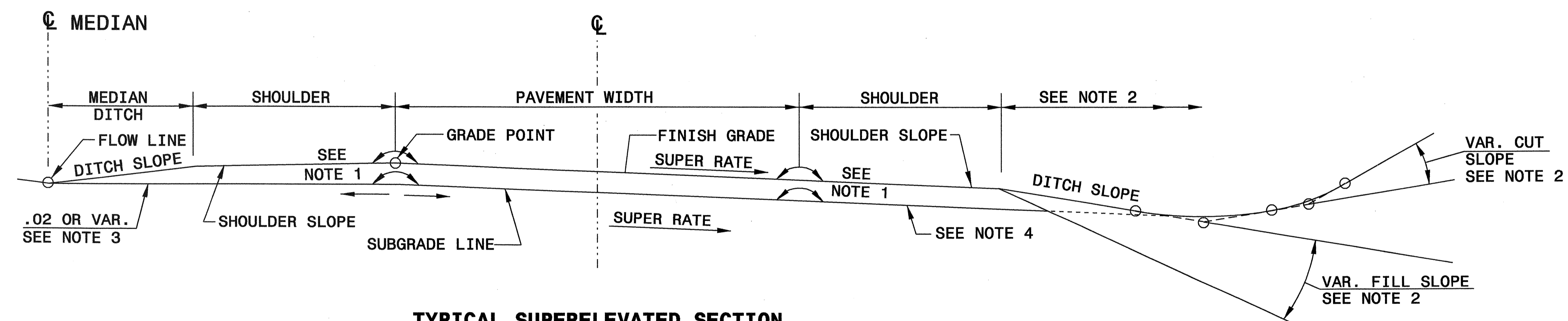
METRIC DETAIL DRAWING FOR  
**GUIDE FOR GRADING SUBGRADE**  
INTERSTATE AND FREEWAY  
(ROUND BOTTOM DITCH & MEDIAN DITCH)

SHEET 1 OF 1  
**225D01**



**TYPICAL NORMAL CROWN SECTION**

1. SEE TYPICAL SECTION FOR LATERAL LOCATION OF ROLLOVER.
2. SEE PLANS FOR METHOD OF CONSTRUCTING CUT AND FILL SLOPES.
3. SUBGRADE LINE WILL NOT UNDERCUT DITCH GRADE AT ANY POINT.
4. OUTSIDE SHOULDER SUBGRADES ARE THE SAME RATE OF SLOPE AS THE ADJACENT TRAVEL LANE SUBGRADES **UNLESS** CONSTRUCTED ON THE HIGH SIDE OF SUPERELEVATION OR CONSIST OF 3.0m AND WIDER FULL DEPTH PAVEMENT (SEE STDS. 560.01 AND 560.02).



**TYPICAL SUPERELEVATED SECTION**

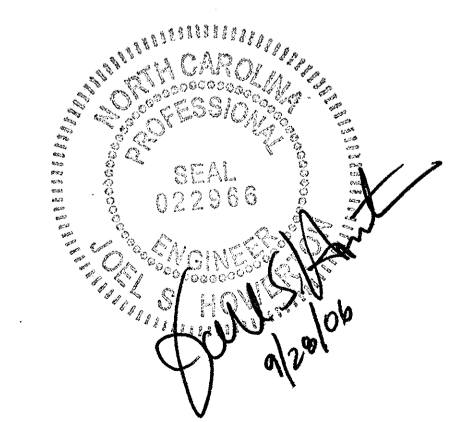
**Note:**  
This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

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

METRIC DETAIL DRAWING FOR  
**GUIDE FOR GRADING SUBGRADE**  
INTERSTATE AND FREEWAY  
(ROUND BOTTOM DITCH & MEDIAN DITCH)

SHEET 1 OF 1  
**225D01**

21-OCT-2004 12:44  
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 erickard AT 05/21/2006



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

**SEE PLATE FOR TITLE**

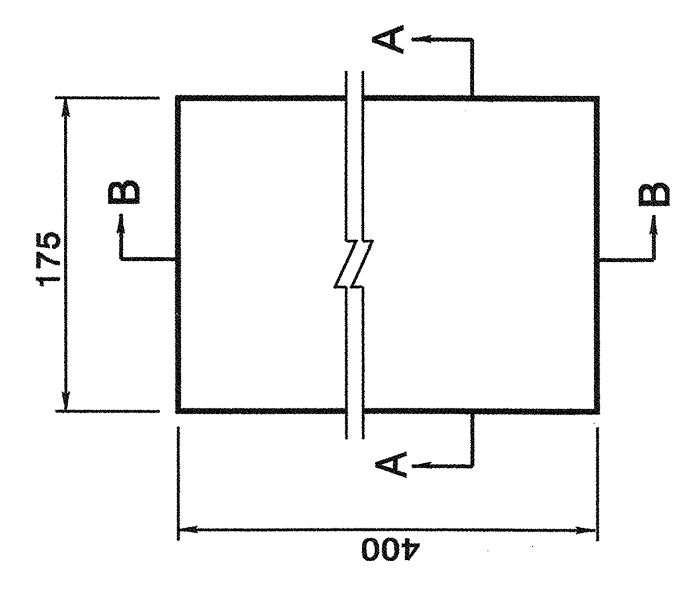
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 MODIFIED BY: E.E. WARD DATE: 04-07-03  
 CHECKED BY: *[Signature]* DATE: 10/22/04  
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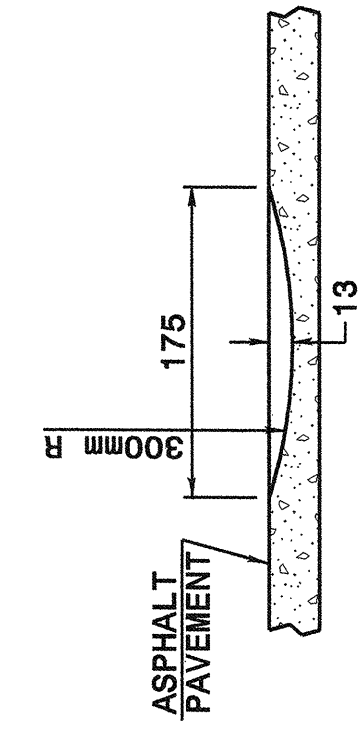
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

MILLER RUMBLE STRIPS ASPHALT SHOULDERS METRIC DETAIL DRAWING FOR

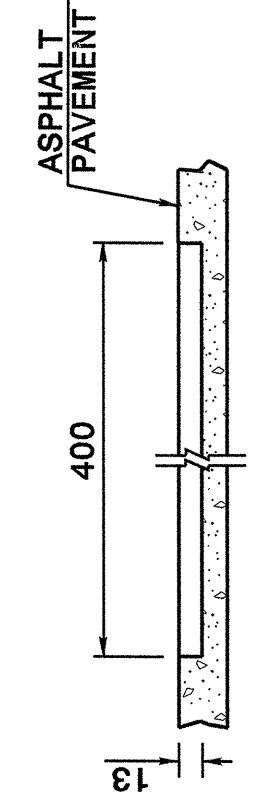
SHEET 1 OF 2 665D01



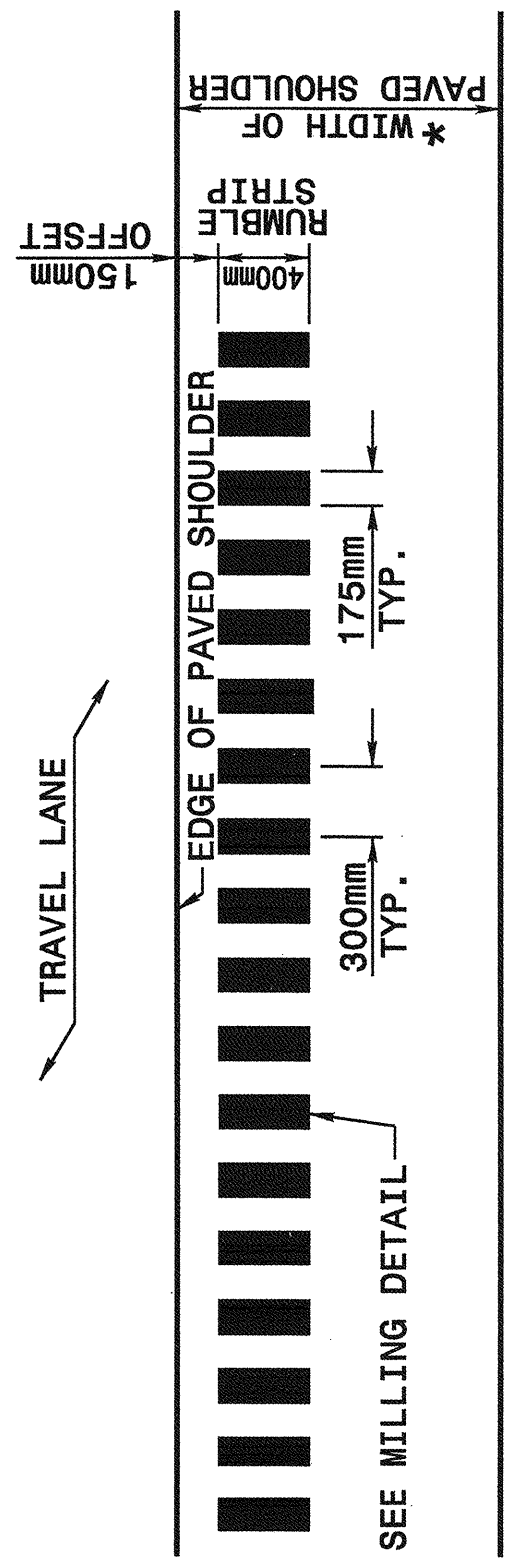
PLAN VIEW MILLING DETAIL



SECTION A-A

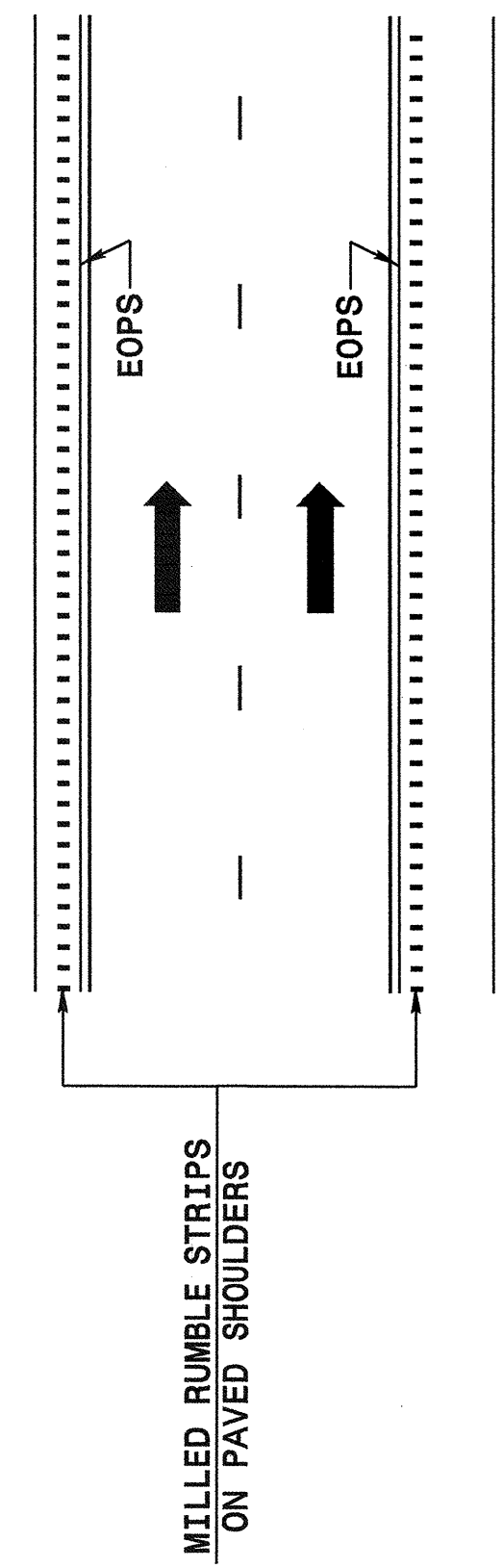


SECTION B-B



PLAN VIEW PAVED SHOULDER

\* FOR WIDTHS SEE TYPICAL SECTIONS AND PLAN SHEETS



LANE TREATMENT

Note: This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

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

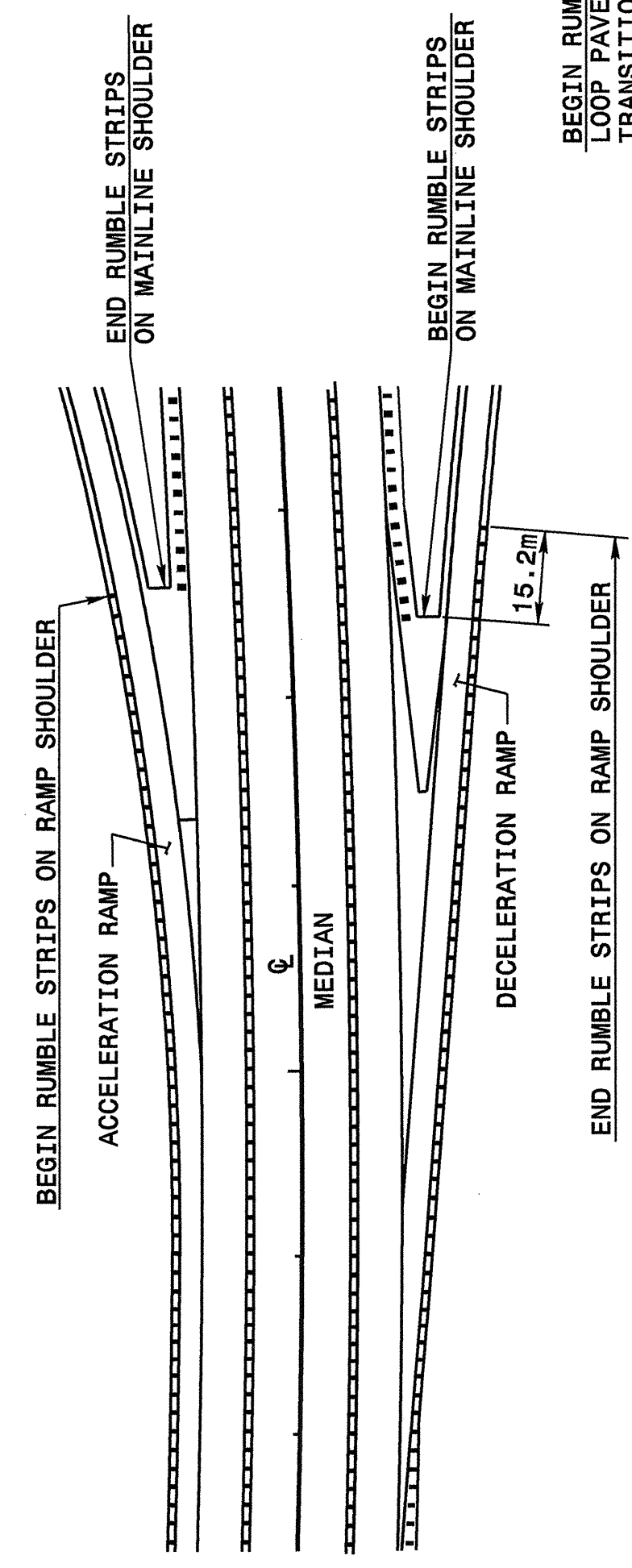
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SHEET 1 OF 2 665D01

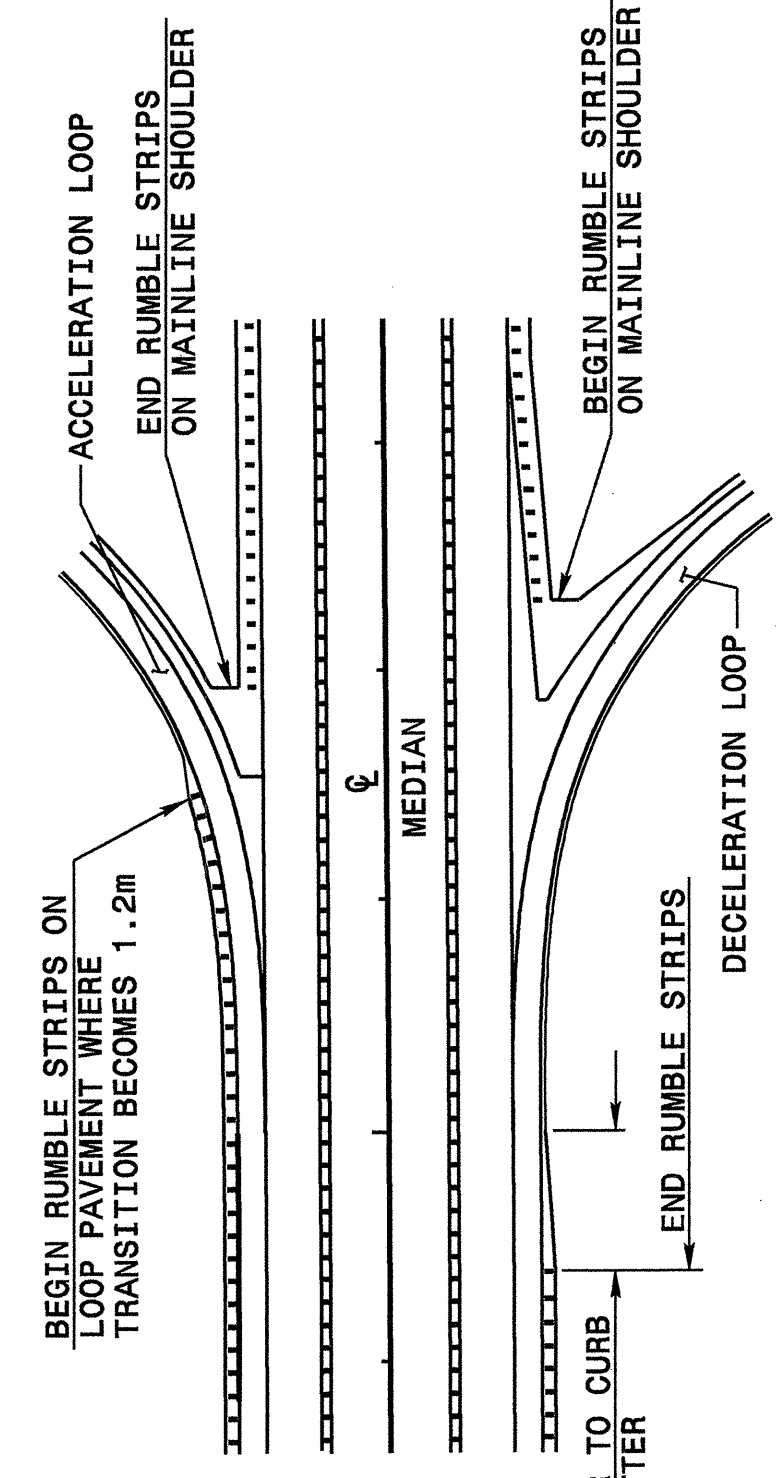
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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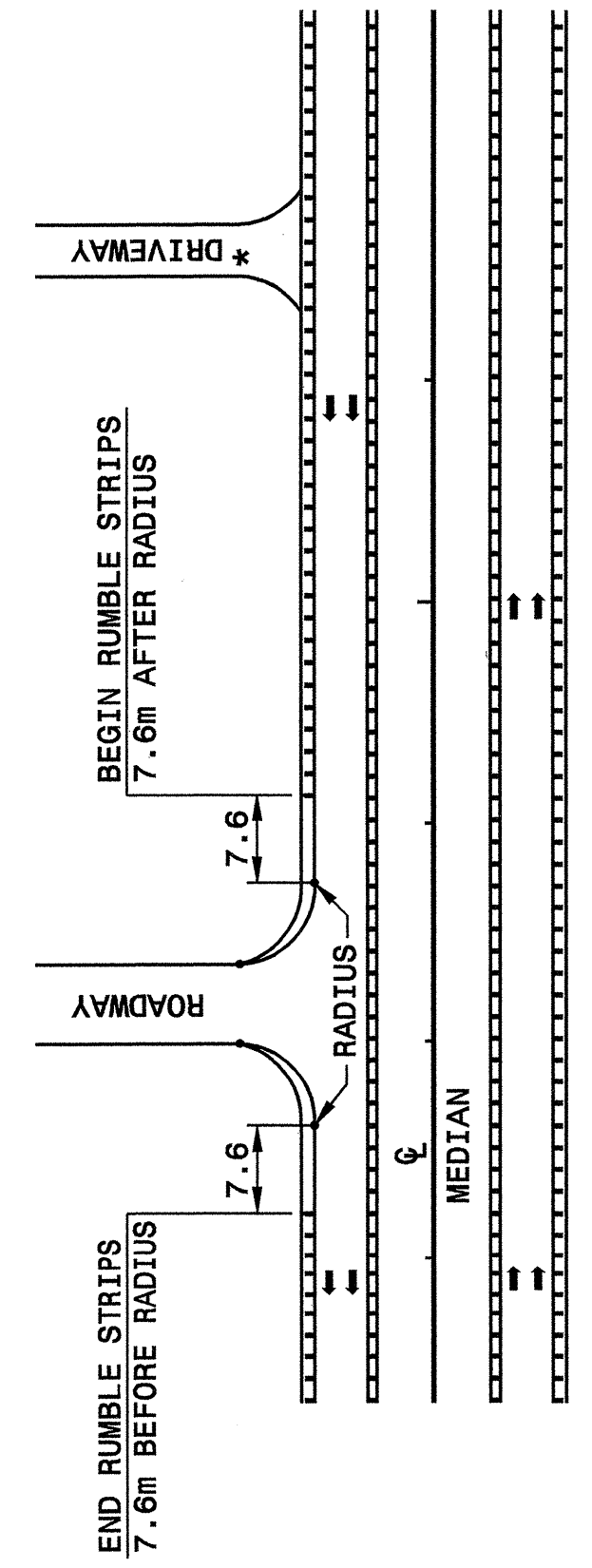
SHEET 2 OF 2 665D01



TREATMENT AT RAMP TERMINALS



TREATMENT AT LOOP TERMINALS



TREATMENT AT INTERSECTIONS (ROADWAY OR DRIVEWAY)

Note: This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

\* TERMINATE AT DRIVEWAYS AS DIRECTED BY THE ENGINEER.

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

MILLER RUMBLE STRIPS ASPHALT SHOULDERS METRIC DETAIL DRAWING FOR

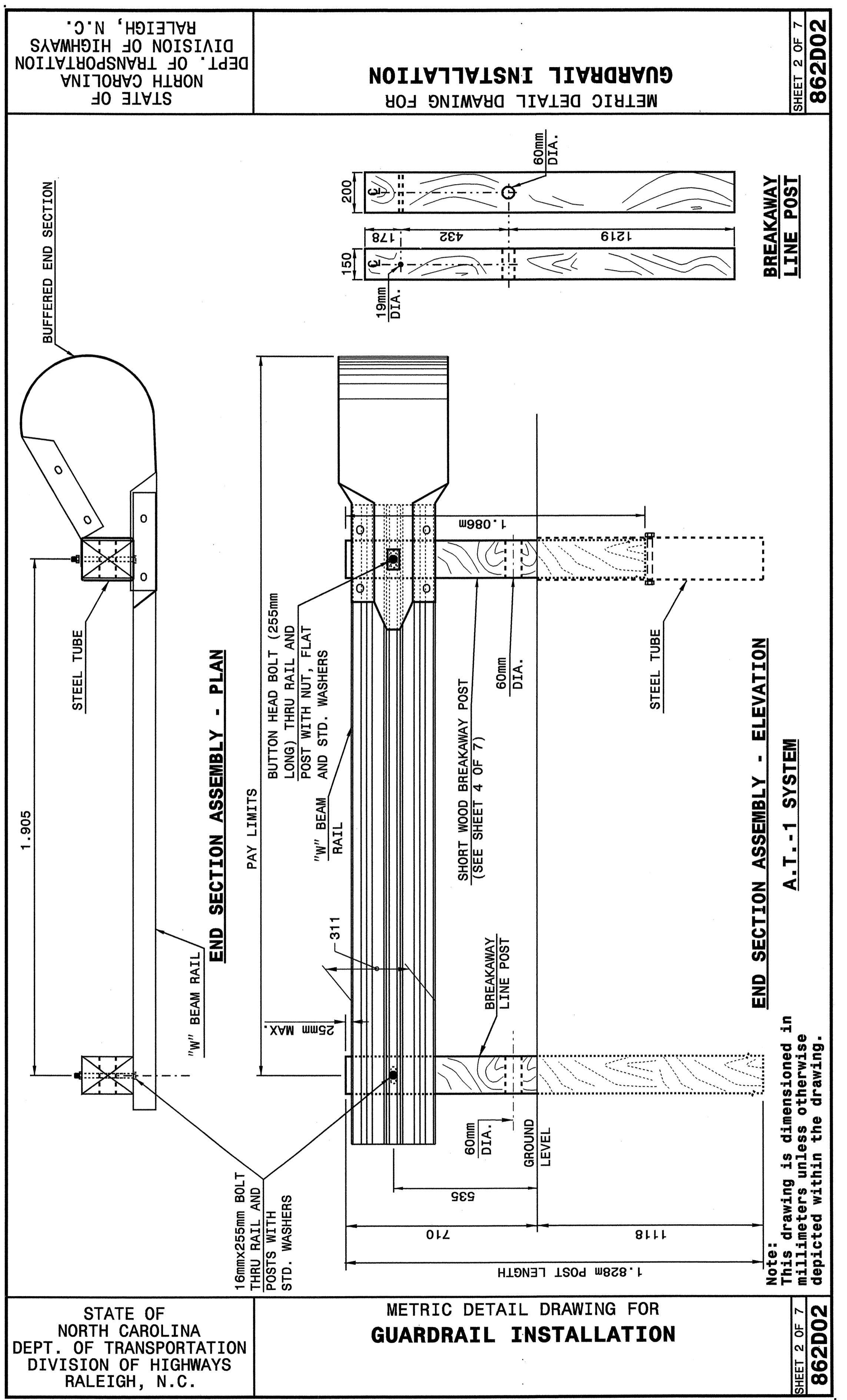
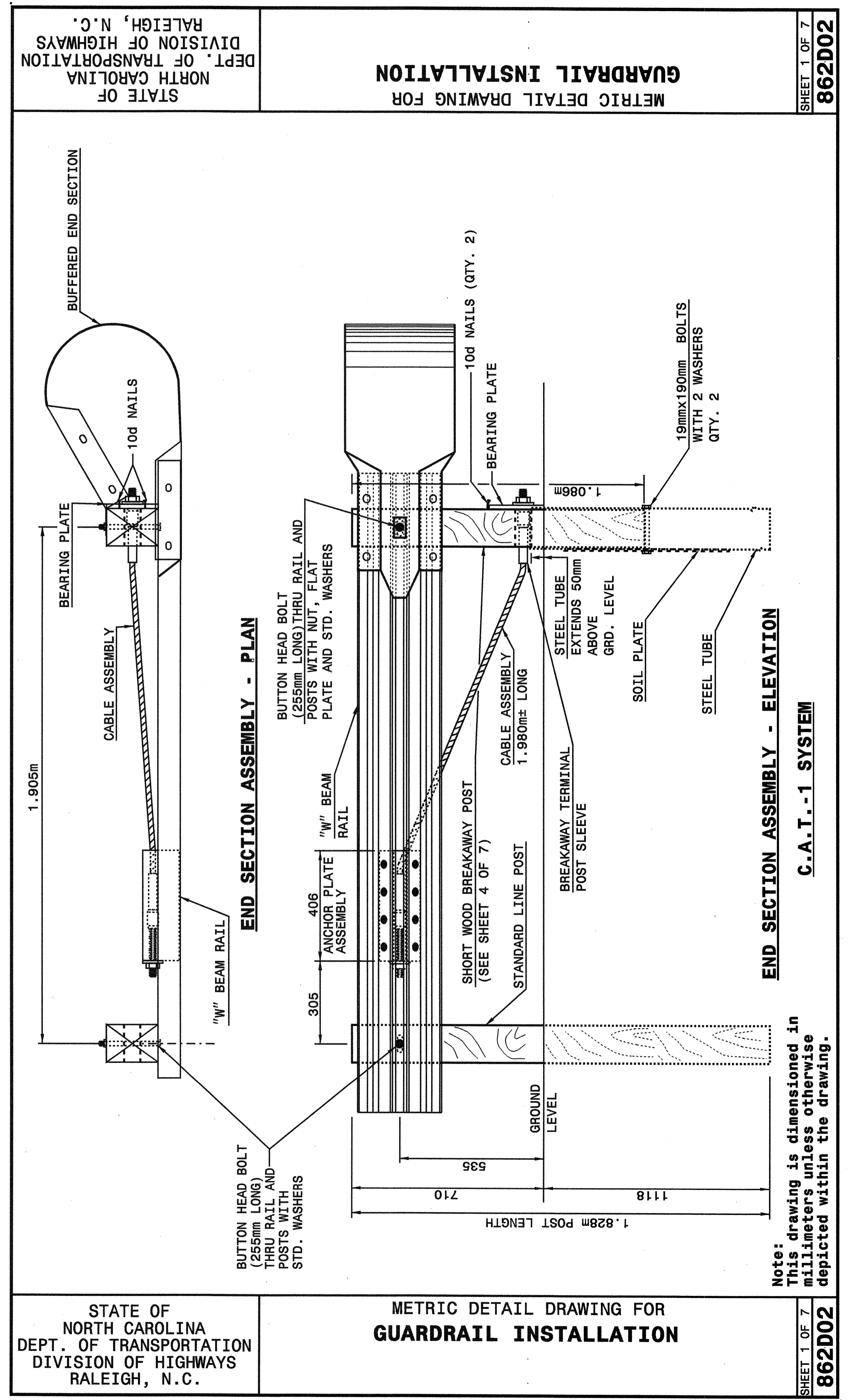
SHEET 2 OF 2 665D01

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

SEE PLATE FOR TITLE

ORIGINAL BY: 2002 STANDARDS DATE: 01-15-02  
 MODIFIED BY: E.E. WARD DATE: 09-16-04  
 CHECKED BY: [Signature] DATE: 11/2/04  
 FILE SPEC.: sds/02stdstodetails/metric/665d01.dgn

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21-0C-T-2004 1265  
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erickward AT 08/21/2004



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

**SEE PLATE FOR TITLE**

ORIGINAL BY: 2002 STD.862.02 DATE:  
MODIFIED BY: E.E. WARD DATE: 02-09-03  
CHECKED BY: Joe S. Ward DATE: 10/22/04  
FILE SPEC.: J:\stds\02\stds\metric\86202\862d02m.dgn



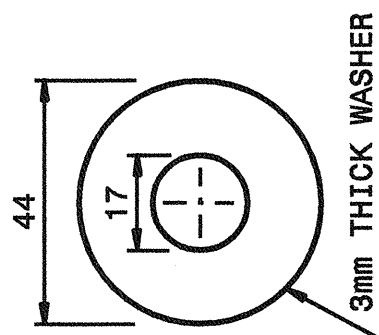
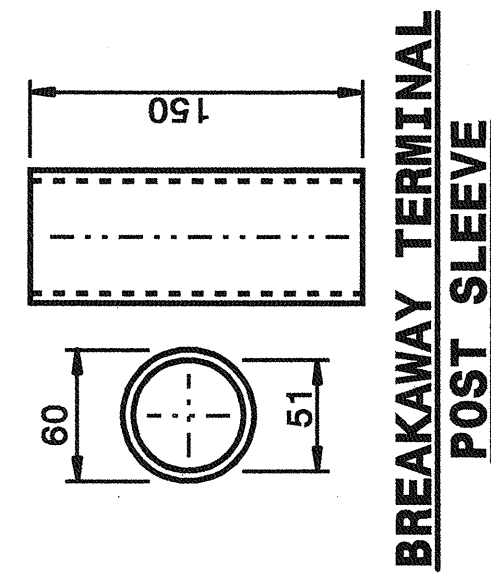


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STATE OF  
 NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

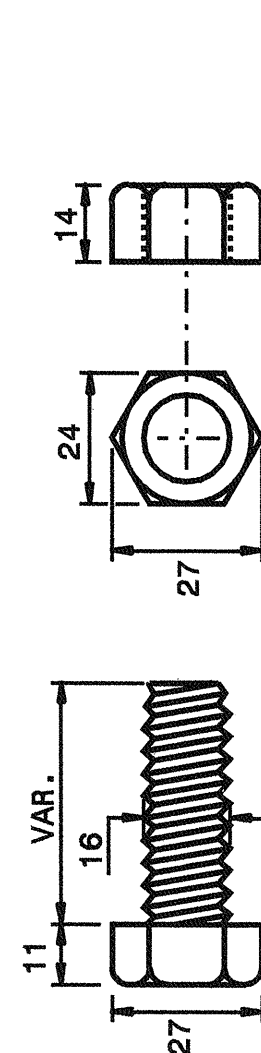
METRIC DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 5 OF 7  
**862D02**

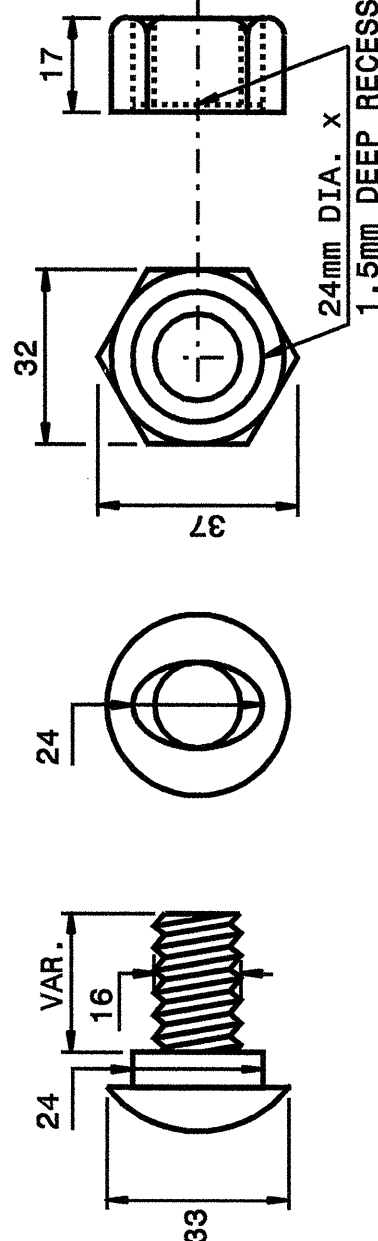


**DETAIL OF STANDARD WASHER**

STANDARD WASHER: TYPICAL USE UNDER NUT WITH WOOD POST

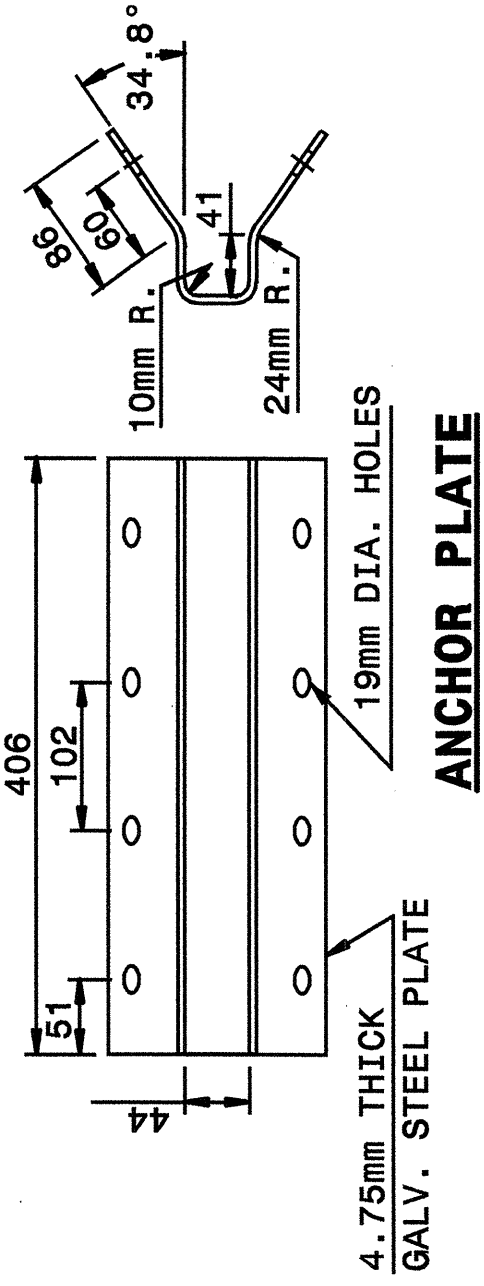
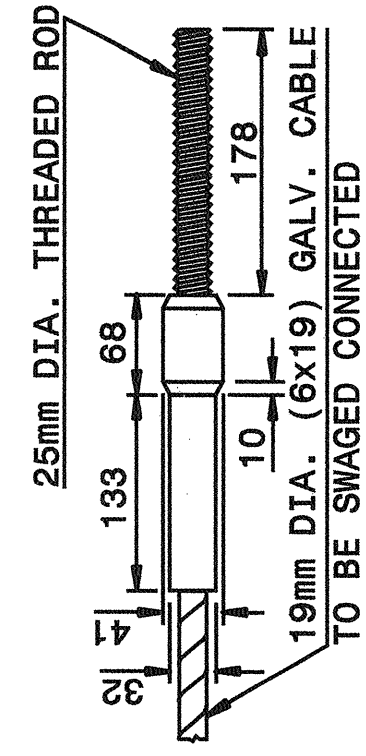
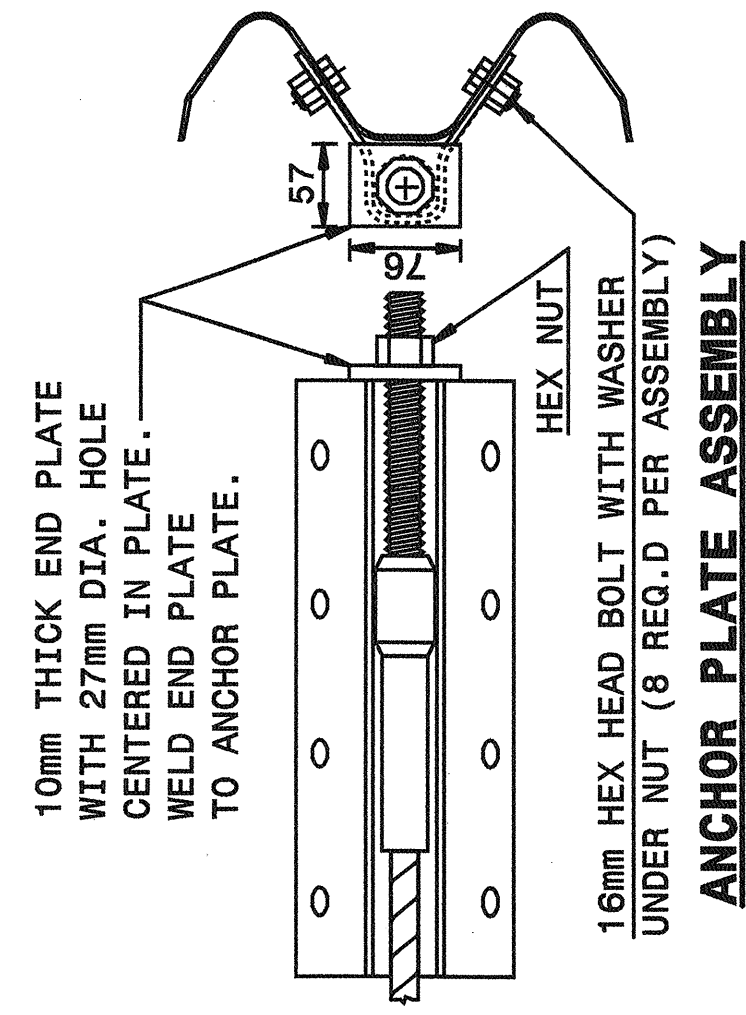


**DETAIL OF STANDARD HEX BOLT AND NUT**



Note:  
 This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

**SYSTEM PARTS**



METRIC DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

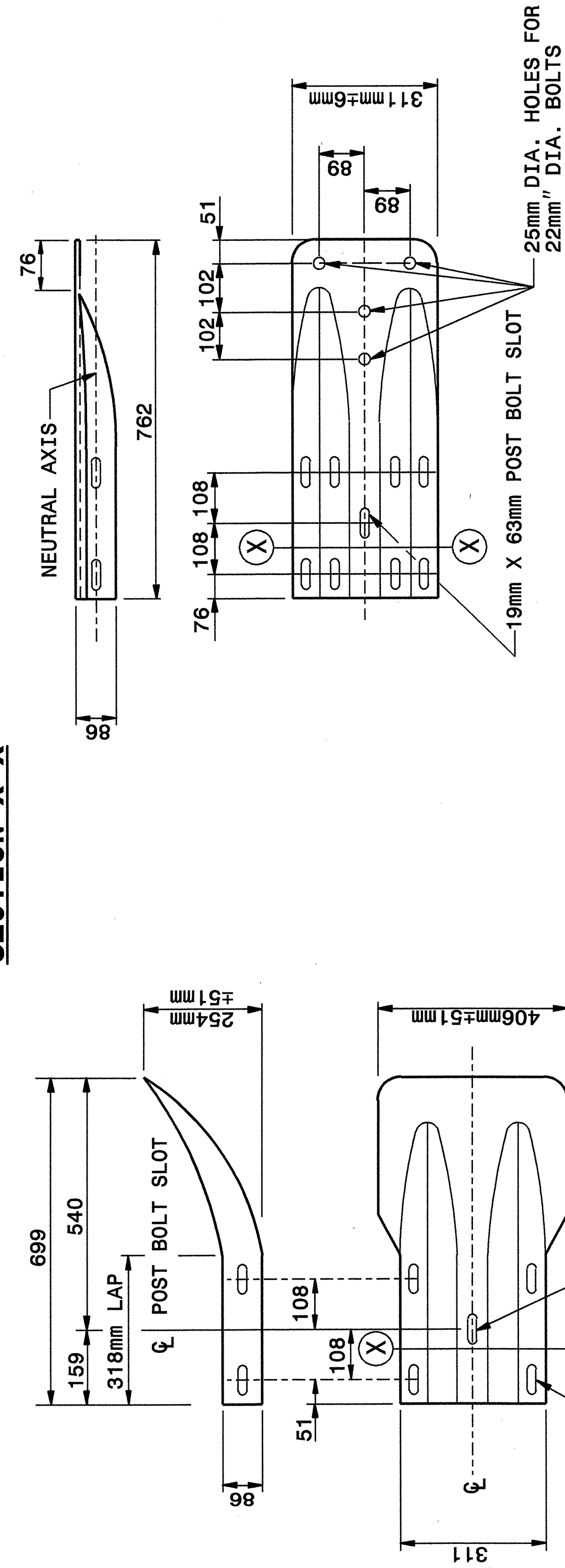
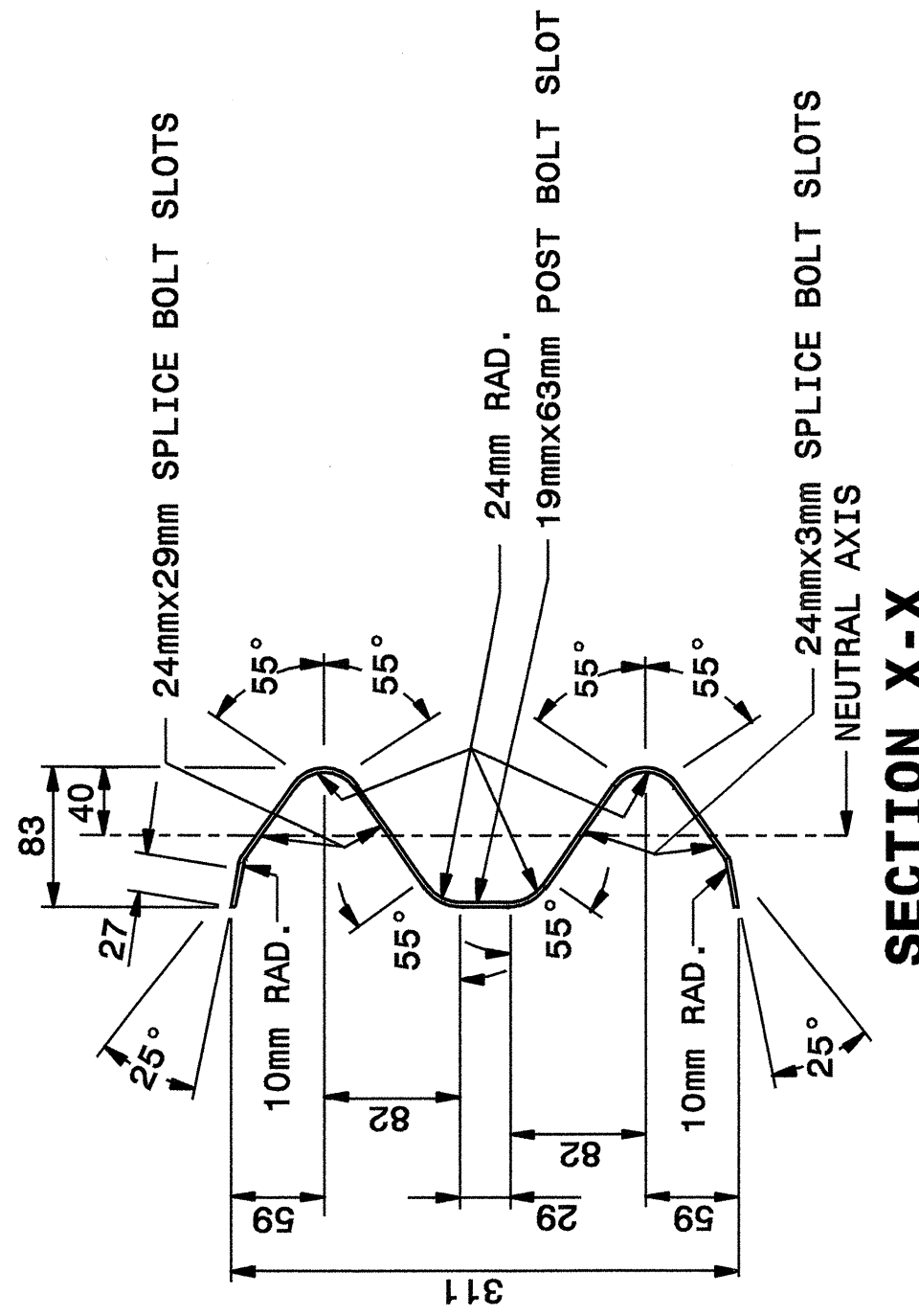
SHEET 5 OF 7  
**862D02**

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

METRIC DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 6 OF 7  
**862D02**



Note:  
 This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

**SYSTEM PARTS - GENERAL USE**

METRIC DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

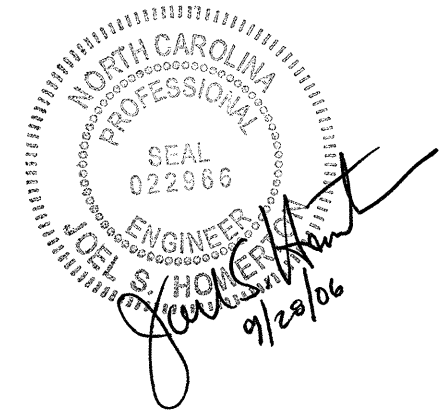
SHEET 6 OF 7  
**862D02**

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

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

**SEE PLATE FOR TITLE**

ORIGINAL BY: 2002 STD.862.02 DATE:  
 MODIFIED BY: E.E. WARD DATE: 02-09-03  
 CHECKED BY: Eric Ward DATE: 10/22/04  
 FILE SPEC.: /usr/stds/02todetail/metric/86202/862d02m.dgn

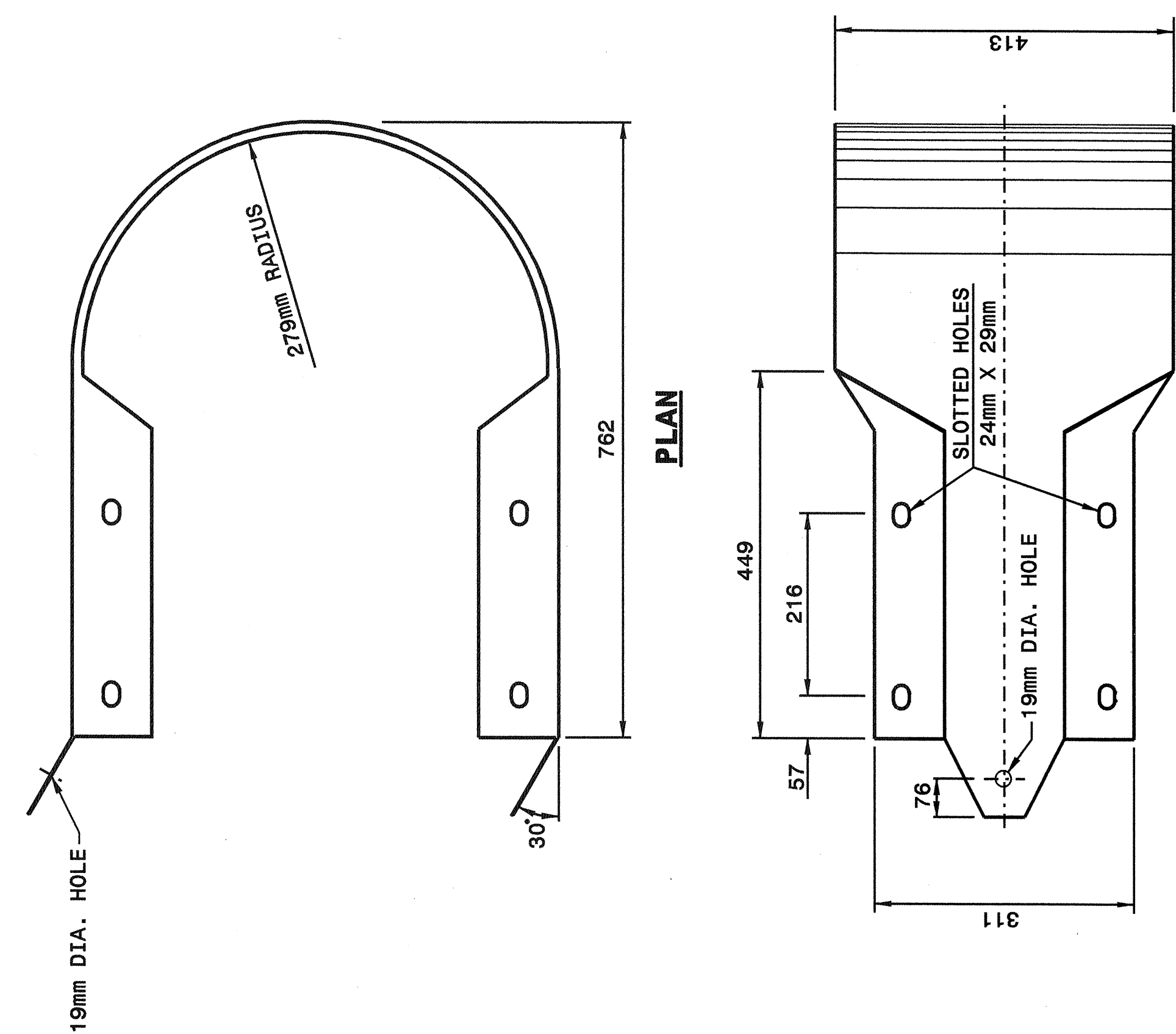




STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
RALEIGH, N.C.

METRIC DETAIL DRAWING FOR  
GUARDRAIL INSTALLATION

SHEET 7 OF 7  
862D02



ELEVATION  
BUFFERED END SECTION

Note:  
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millimeters unless otherwise  
depicted within the drawing.

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

METRIC DETAIL DRAWING FOR  
GUARDRAIL INSTALLATION

SHEET 7 OF 7  
862D02

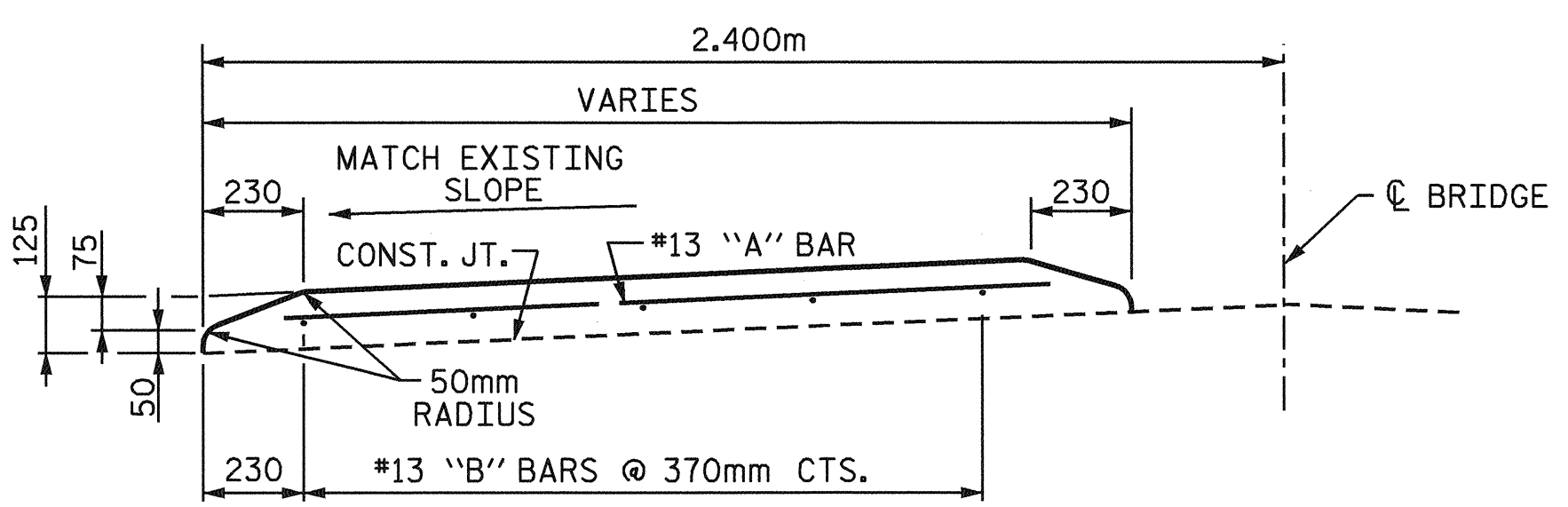
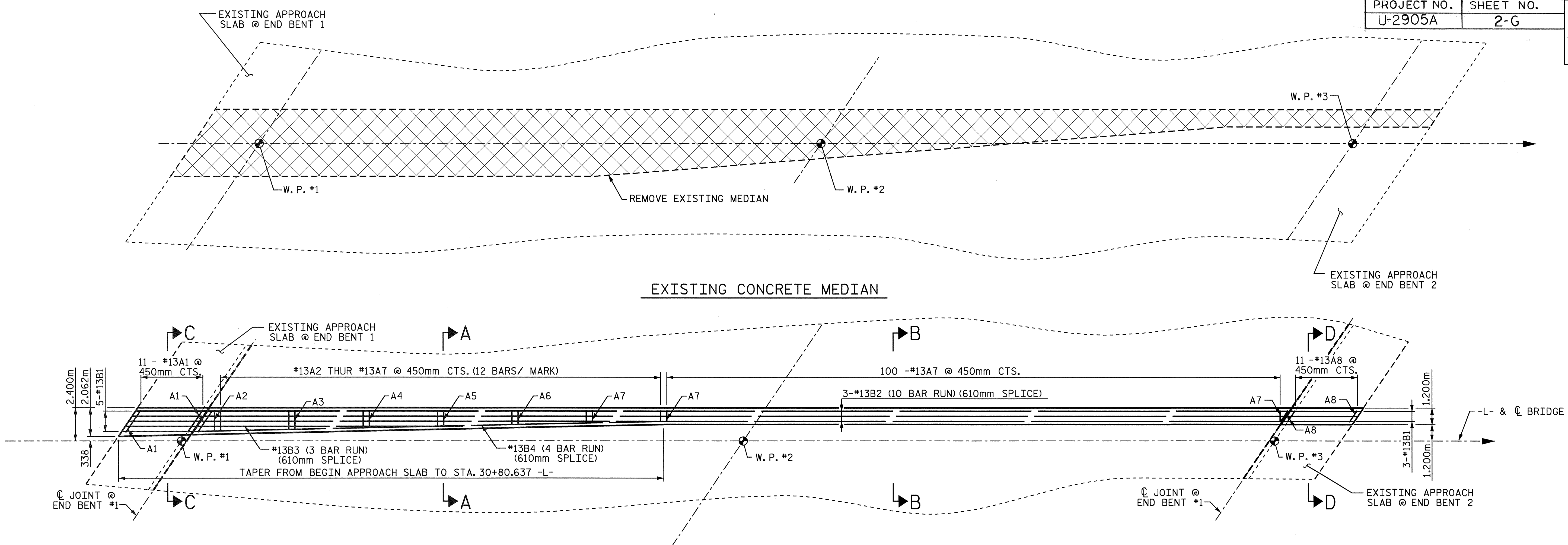
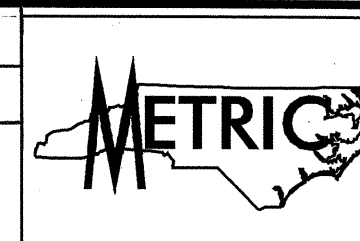


PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN  
Office 919-250-4128 FAX 919-250-4119

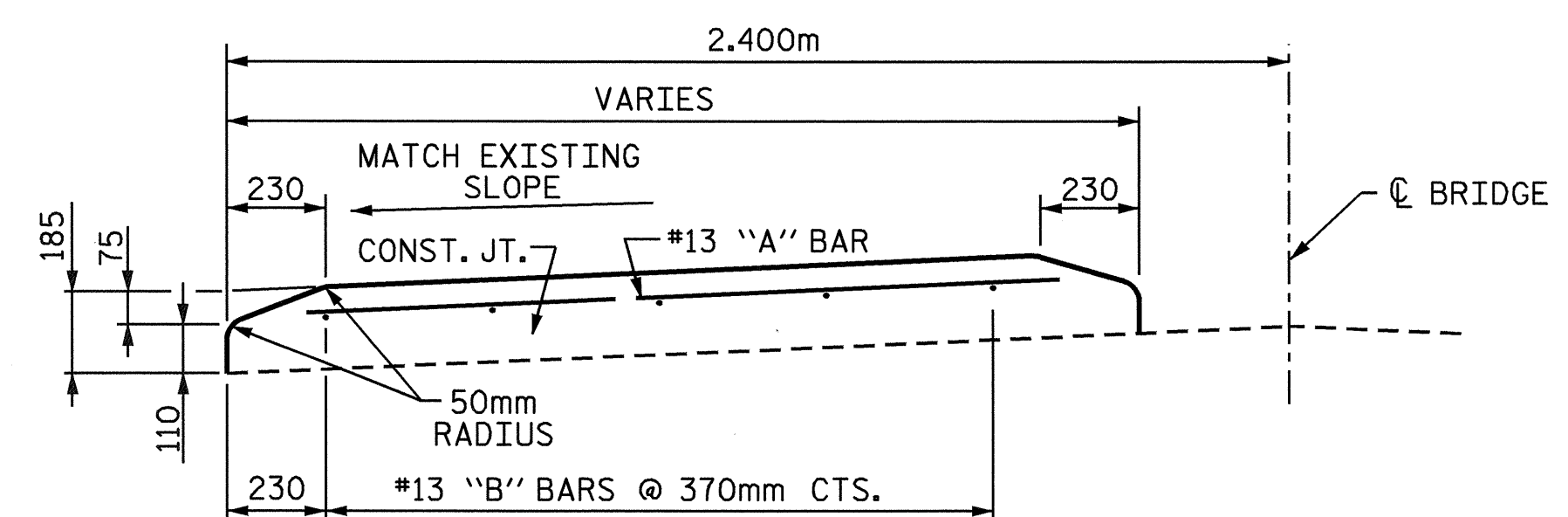
SEE PLATE FOR TITLE

ORIGINAL BY: 2002 STD.862.02 DATE:  
MODIFIED BY: E.E. WARD DATE: 02-09-03  
CHECKED BY: *Joel S. Hunt* DATE: 10/22/04  
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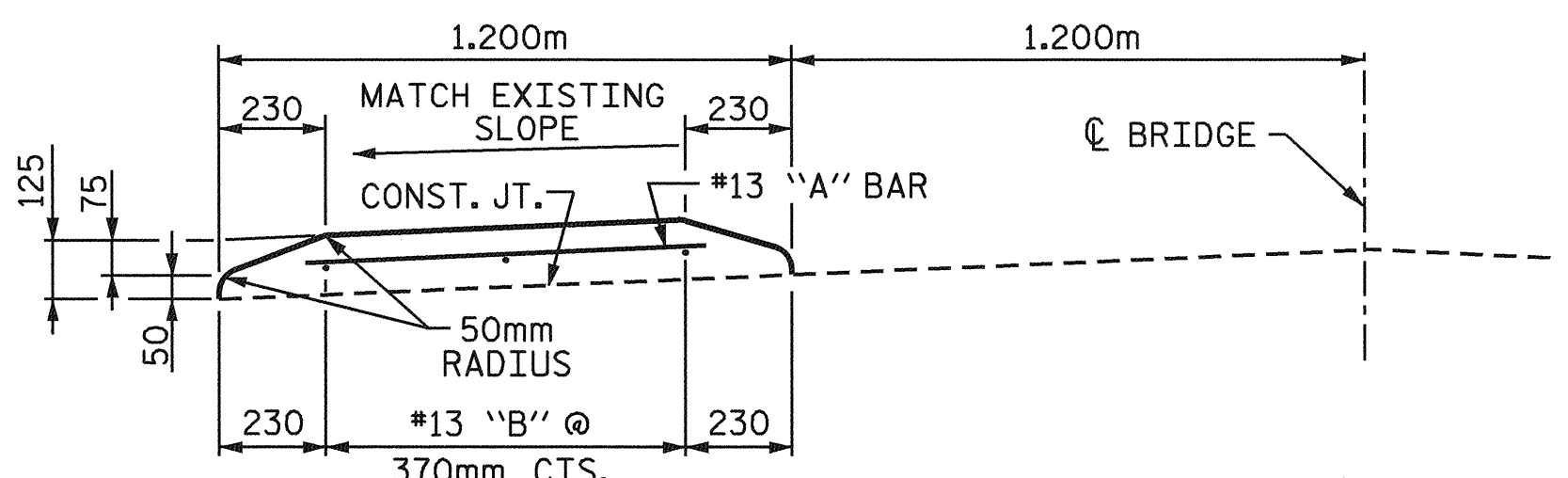
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AT 05212260



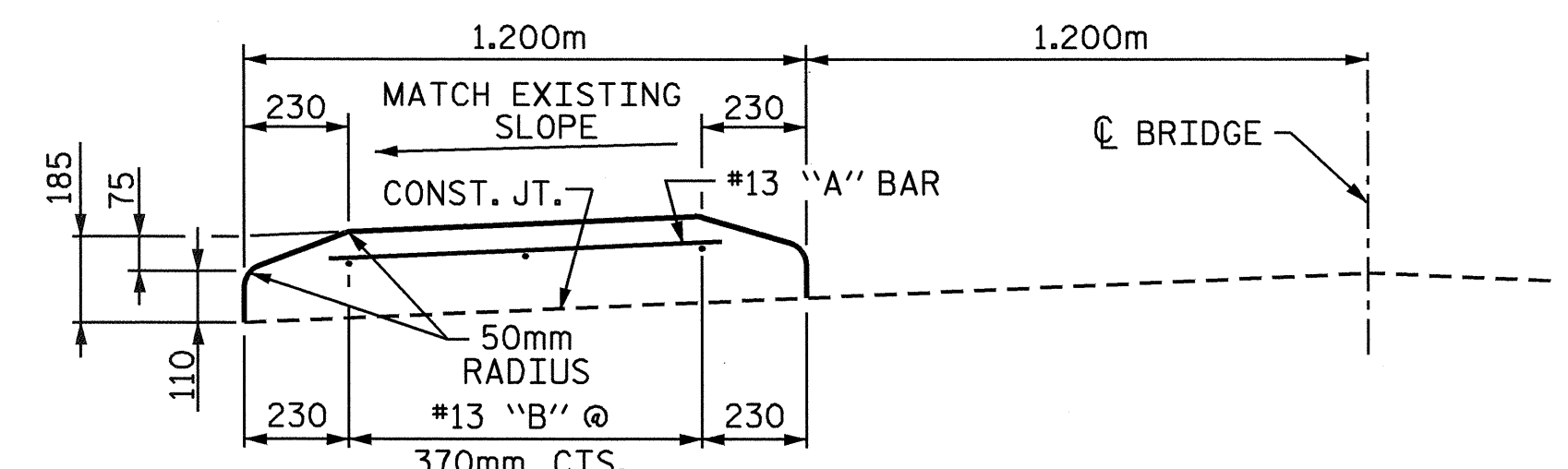
SECTION A-A



SECTION C-C



SECTION B-B



SECTION D-D

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	12	13	STR	1900	23
A2	13	13	STR	1440	19
A3	12	13	STR	1320	16
A4	12	13	STR	1200	14
A5	12	13	STR	1080	13
A6	12	13	STR	960	11
A7	112	13	STR	840	94
A8	12	13	STR	1020	12
B1	8	13	STR	5040	40
B2	30	13	STR	8400	250
B3	3	13	STR	6840	20
B4	4	13	STR	8980	36
TOTAL REINFORCING STEEL				548	kgs.

ASPHALT ON APPROACH SLABS IN THE AREA OF THE PROPOSED CONCRETE MEDIAN SHALL BE COMPLETELY REMOVED

ALL REINFORCING STEEL SHALL BE EPOXY COATED

CLASS AA CONCRETE	15.4m <sup>3</sup>
AREA 125mm MONO. CONC. ISLAND	123.4m <sup>2</sup>

PROJECT NO. U-2905A  
ALAMANCE COUNTY

STATION:



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**125mm MONOLITHIC CONCRETE ISLAND**

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY: K. D. LAYNE DATE: 7/26/06  
CHECKED BY: B. C. HUNT DATE: 7/27/06



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

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

METRIC DETAIL DRAWING FOR  
DROP INLET INSTALLATION IN  
EXPRESSWAY GUTTER

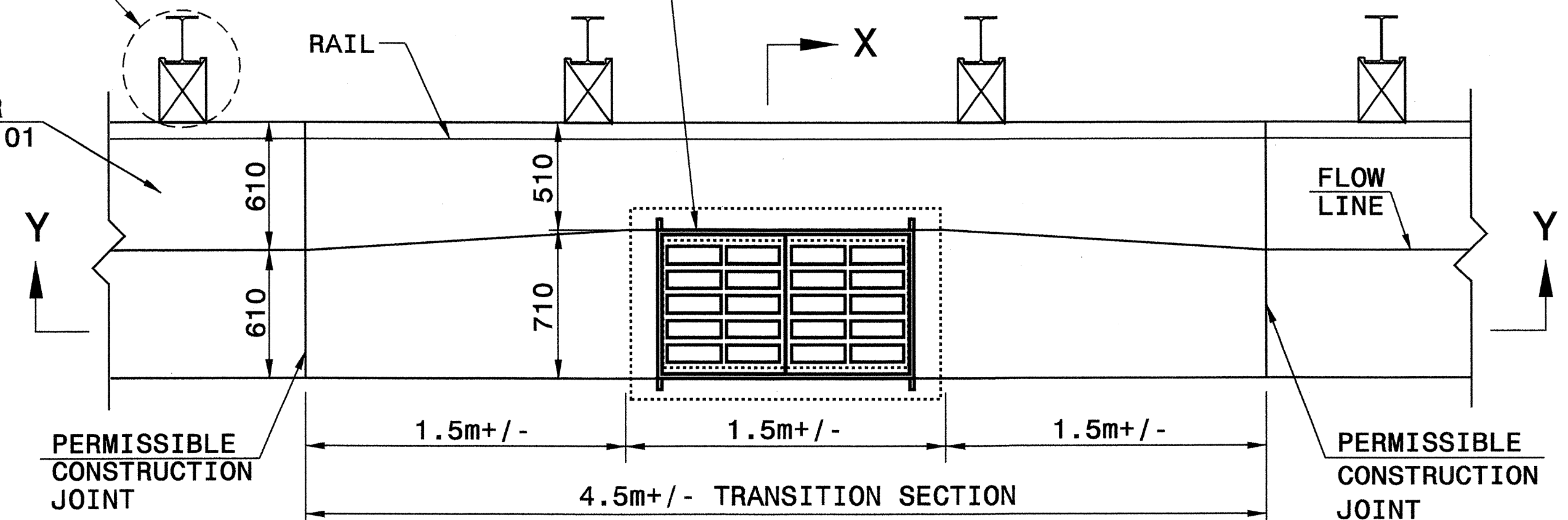
METRIC DETAIL DRAWING FOR  
DROP INLET INSTALLATION IN  
EXPRESSWAY GUTTER

GENERAL NOTES:  
-PAY FOR TRANSITION SECTION AS  
CONCRETE EXPRESSWAY GUTTER.  
-GUARDRAIL OPTIONAL

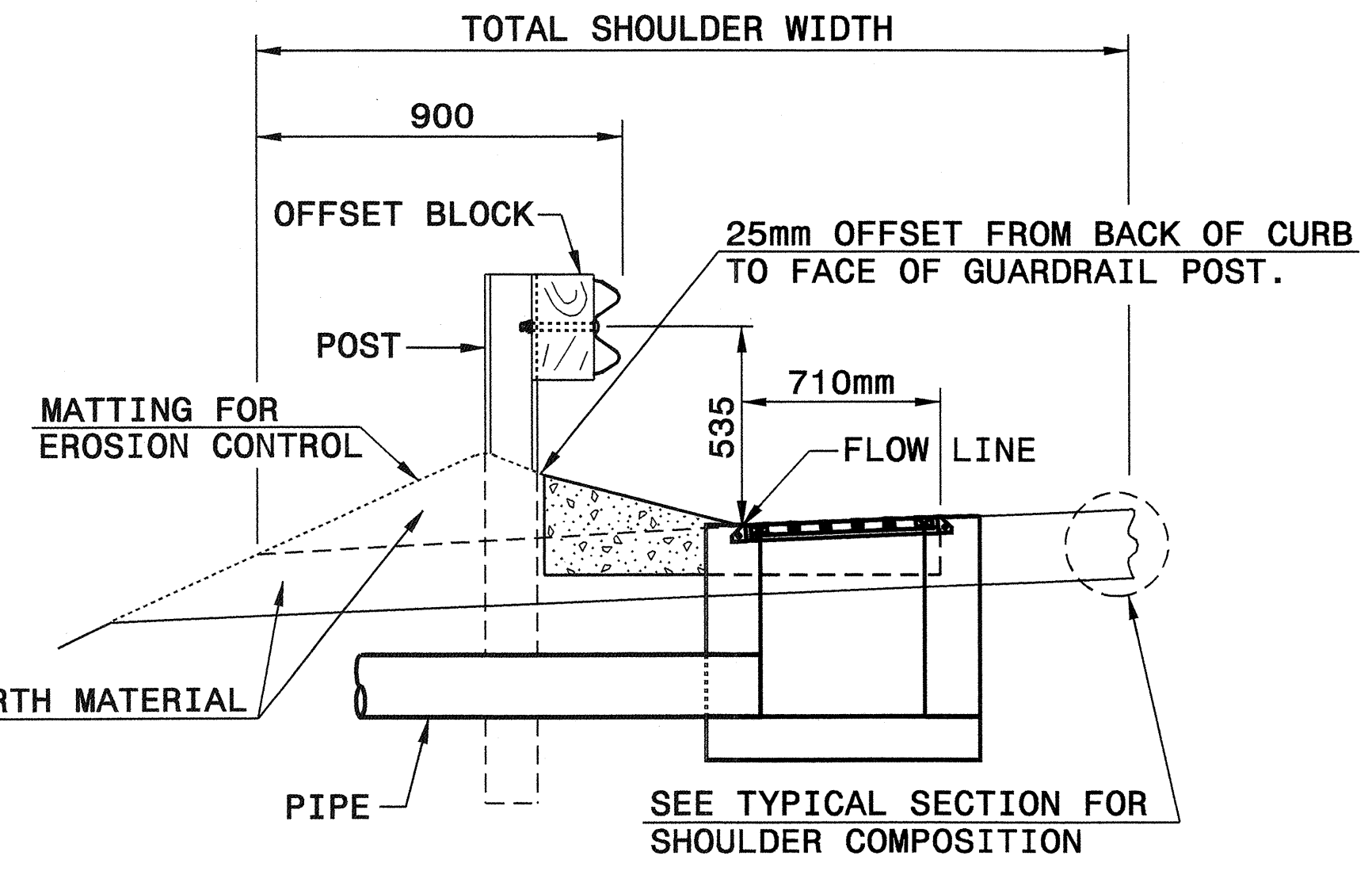
SEE STD. 862D02 FOR  
GUARDRAIL POST AND  
OFFSET BLOCKS

EXPRESSWAY GUTTER  
SEE STANDARD 846.01

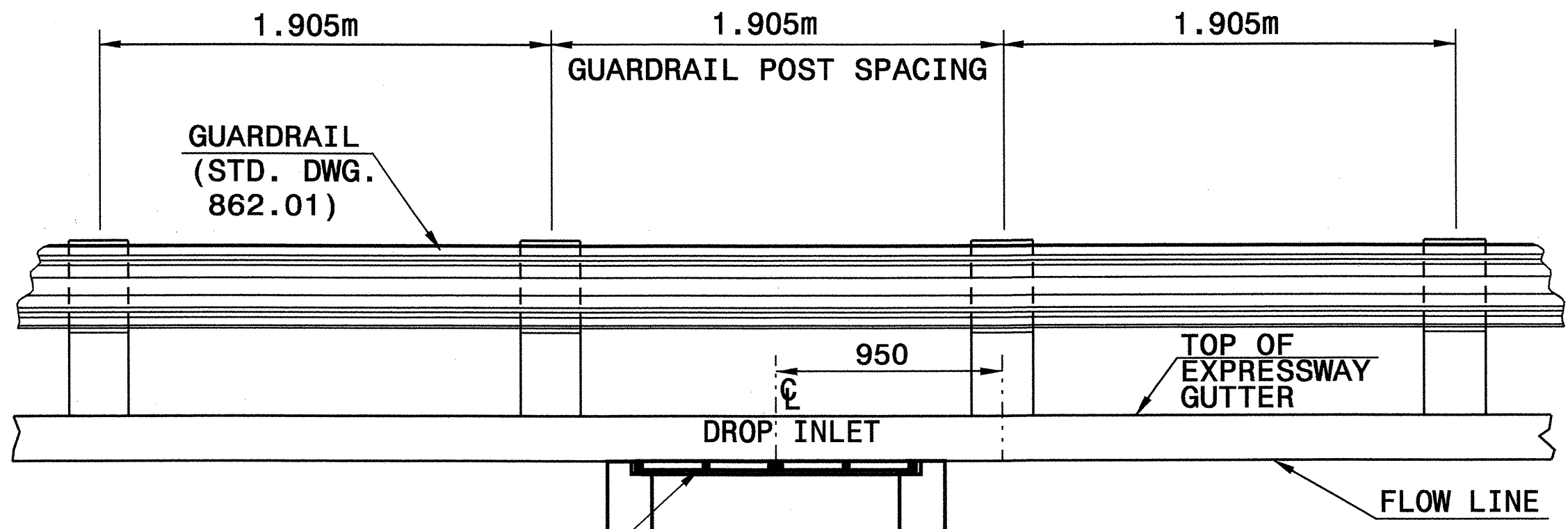
FRAME, GRATE AND DROP INLET (PLACE AND  
SEAL 13mm EXPANSION JOINT AROUND FRAME)



PLAN



SECTION X-X



SECTION Y-Y

SEE STD.'S 840.20, 840.29 AND  
840.37 FOR FRAME AND GRATE AS  
INDICATED BY THE ROADWAY PLANS.

SEE STD.'S 840.17, 840.18, 840.19,  
840.26, 840.27, 840.28, 840.35 AND  
840.36 FOR DROP INLETS AS INDICATED  
BY THE ROADWAY PLANS. BUILD DROP  
INLETS WITHOUT APRON.

Note:  
This drawing is dimensioned in  
millimeters unless otherwise  
depicted within the drawing.

**DROP INLET INSTALLATION IN EXPRESSWAY GUTTER**

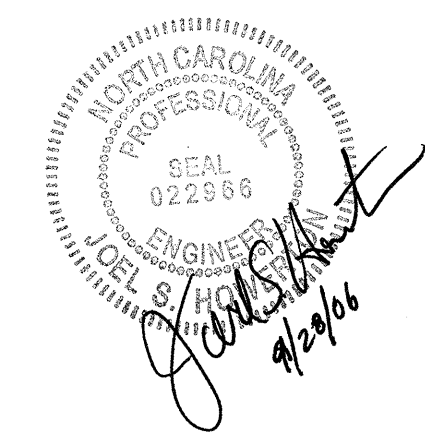
SHEET 1 OF 1  
**846D02**

SHEET 1 OF 1  
**846D02**

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

**SEE PLATE FOR TITLE**

ORIGINAL BY: 2002 STANDARDS DATE: 01-15-02  
 MODIFIED BY: E.E. WARD DATE: 04-07-04  
 CHECKED BY: [Signature] DATE: 7-12-04  
 FILE SPEC.: stds/02stdstodetails/metric/846d02m.dgn

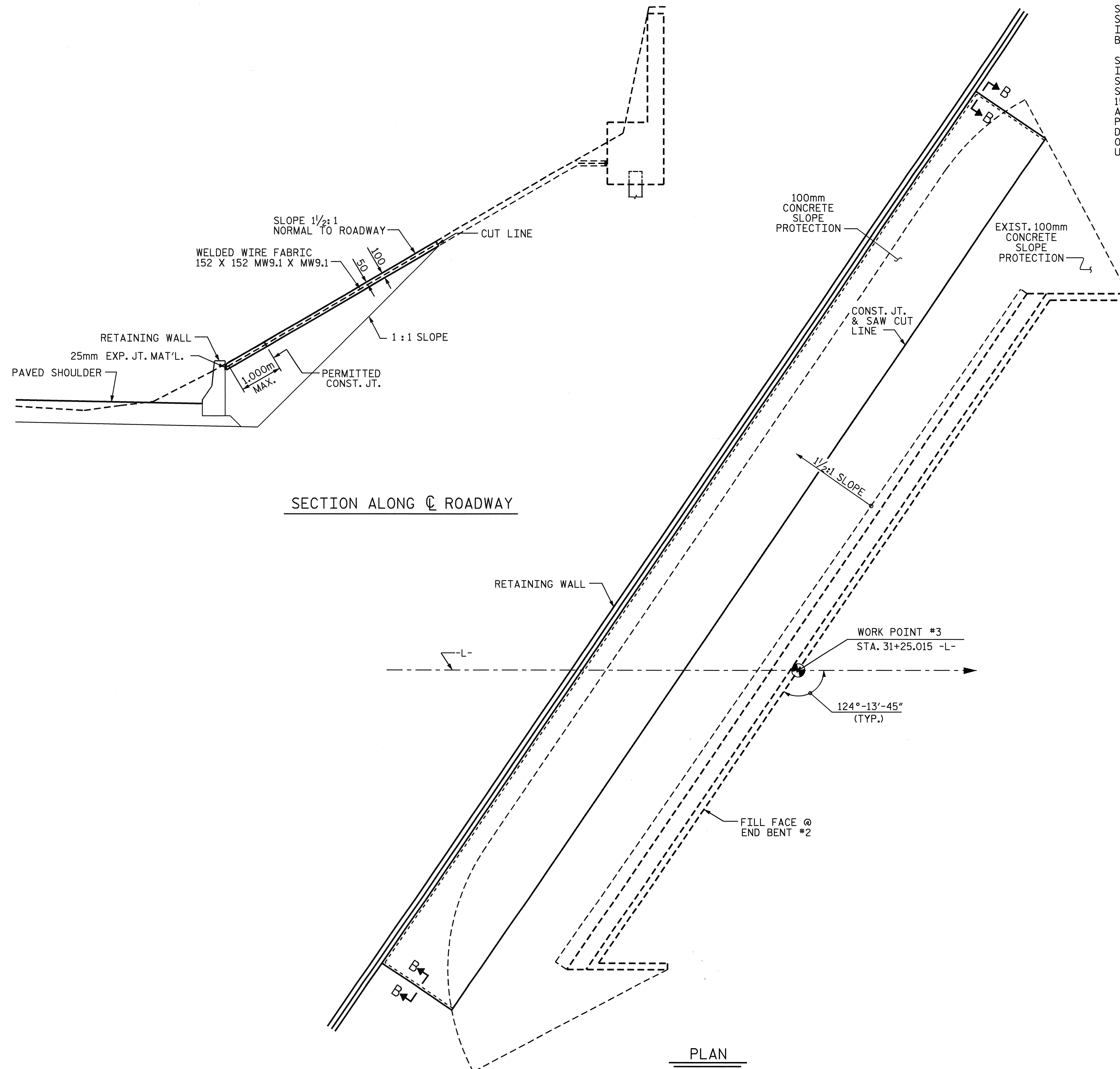


07 APR 2004 16:55  
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AT 10:22:26  
ericward

**GENERAL NOTES**

SLOPE PROTECTION SHALL BE PLACED UNDER THE ENDS OF THE BRIDGE AS SHOWN IN THE DETAILS. STRAIGHT EDGING WILL NOT BE REQUIRED UNLESS, IN THE OPINION OF THE ENGINEER, VISUAL INSPECTION INDICATES A NEED FOR IT. METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

SLOPE PROTECTION SHALL CONSIST OF 100mm POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 152 X 152 - W9.1 X W9.1, 1520mm WIDE. SLOPE PROTECTION SHALL BE POURED IN 1520mm STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 600mm LONG #13 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 450mm MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 1220mm AND 1520mm STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 152mm. THE COST OF THE WELDED WIRE FABRIC AND #13 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE METER FOR SLOPE PROTECTION.



BRIDGE @	100 mm SLOPE PROTECTION (SQUARE METERS)	* WELDED WIRE FABRIC 1520mm WIDE (APPROX. METERS)
STA. 30+86.415 -L-		
@ END BENT 2	190	139

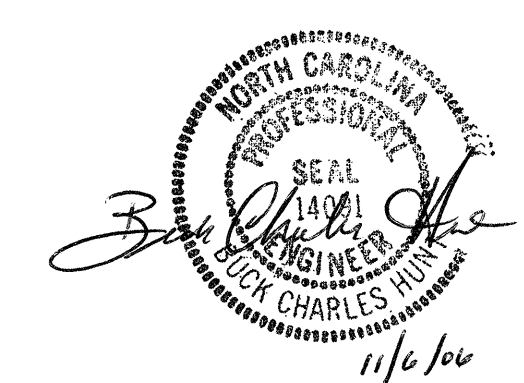
\* QUANTITY SHOWN IS BASED ON 1520mm POURS.

PROJECT NO. U-2905  
ALAMANCE COUNTY  
 STATION: 30+86.415 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SLOPE PROTECTION DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			
2			4			



DRAWN BY: K. D. LAYNE DATE: 11/06  
 CHECKED BY: B. C. HUNT DATE: 11/06

COMPUTED BY:  
CHECKED BY: \_

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201545

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS



PROJECT REFERENCE NO. U-2905A  
SHEET NO. 3

SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0022000000-M	225	10,200	M3	UNCLASSIFIED EXCAVATION
0050000000-M	226	0.4	HA	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-M	226	200	M3	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0080000000-M	SP	75	MTN	CLASS IV SUBGRADE STABILIZATION
0134000000-M	240	550	M3	DRAINAGE DITCH EXCAVATION
0195000000-M	265	100	M3	SELECT GRANULAR MATERIAL
0196000000-M	270	100	M2	FABRIC FOR SOIL STABILIZATION
0318000000-M	300	70	MTN	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0366000000-M	310	136.8	M	375MM RC PIPE CULVERTS, CLASS III
0372000000-M	310	51.6	M	450MM RC PIPE CULVERTS, CLASS III
0378000000-M	310	16.8	M	600MM RC PIPE CULVERTS, CLASS III
1004000000-M	462	190	M2	GENERIC GRADING ITEM 100MM SLOPE PROTECTION
1110000000-M	510	50	MTN	STABILIZER AGGREGATE
1220000000-M	545	100	MTN	INCIDENTAL STONE BASE
1491000000-M	610	2,140	MTN	ASPHALT CONC BASE COURSE, TYPE B25.0C
1503000000-M	610	1,032	MTN	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0C
1523000000-M	610	800	MTN	ASPHALT CONC SURFACE COURSE, TYPE 89.5C
1560000000-M	620	141	MTN	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1565000000-M	620	48	MTN	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22
1840000000-M	665	270	M	MILLED RUMBLE STRIPS
2022000000-M	815	83	M3	SUBDRAIN EXCAVATION
2033000000-M	815	63	M3	SUBDRAIN FINE AGGREGATE
2044000000-M	815	150	M	150MM PERFORATED SUBDRAIN PIPE
2055000000-M	815	15	EA	150MM SUBDRAIN PIPE WYES, TEES, & ELBOWS
2077000000-M	815	2	M	150MM OUTLET PIPE (SUBDRAINS)
2132000000-N	816	1	EA	CONCRETE PAD FOR SHOULDER DRAIN PIPE OUTLET
2253000000-M	840	1	M3	PIPE COLLARS
2286000000-N	840	8	EA	MASONRY DRAINAGE STRUCTURES
2364200000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.20
2365000000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.22
2374000000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	1	EA	FRAME WITH COVER, STD 840.54
2542000000-M	846	155	M	450MM CONCRETE CURB & GUTTER
2549000000-M	846	380	M	750MM CONCRETE CURB & GUTTER
2577000000-M	846	110	M	CONCRETE EXPRESSWAY GUTTER
2655000000-M	852	15	M2	125MM MONOLITHIC CONCRETE ISLANDS (KEYED IN)
2703000000-M	854	40	M	CONCRETE BARRIER, TYPE ***** (T2)
2738000000-M	SP	125	M2	GENERIC PAVING ITEM 125MM MONOLITHIC CONC ISLAND, (REINFORCED SURFACE MOUNT)
3060000000-M	862	163.83	M	STEEL BM GUARDRAIL, DOUBLE FACED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	2	EA	GUARDRAIL ANCHOR UNITS, TYPE 350

ItemNumber	Sec #	Quantity	Unit	Description
3317000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3360000000-M	863	150	M	REMOVE EXISTING GUARDRAIL
3649000000-M	876	85	MTN	PLAIN RIP RAP, CLASS B
3656000000-M	876	300	M2	FILTER FABRIC FOR DRAINAGE
4054000000-M	902	1	M3	PLAIN CONCRETE SIGN FOOTINGS
4060000000-M	903	123	KG	SUPPORTS, BREAKAWAY STEEL BEAM
4072000000-M	903	75	M	SUPPORTS, 4.5KG STEEL U-CHANNEL
4096000000-N	904	3	EA	SIGN ERECTION, TYPE D
4102000000-N	904	3	EA	SIGN ERECTION, TYPE E
4108000000-N	904	4	EA	SIGN ERECTION, TYPE F
4110000000-N	904	1	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
4155000000-N	907	3	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4412000000-M	SP	43	M2	WORK ZONE SIGNS (STATIONARY)
4412100000-M	SP	33	M2	WORK ZONE SIGNS (PORTABLE)
4412200000-M	SP	1	M2	WORK ZONE SIGNS (BARRICADE MOUNTED)
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C
4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
4430000000-N	1130	90	EA	DRUMS
4446100000-M	SP	4	M	BARRICADES (TYPE III)
4460000000-N	1155	4	EA	WARNING LIGHTS (TYPE B)
4465000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS
4480000000-N	1165	3	EA	TRUCK MOUNTED IMPACT ATTENUATOR (60 MPH)
4485000000-M	1170	311	M	PORTABLE CONCRETE BARRIER
4495000000-M	1170	101	M	PORTABLE CONCRETE BARRIER (DRAINAGE)
4510000000-N	SP	24	HR	POLICE

ItemNumber	Sec #	Quantity	Unit	Description
4685000000-M	1205	462	M	THERMOPLASTIC PAVEMENT MARKING LINES (100MM, 2.3MM)
4686000000-M	1205	121	M	THERMOPLASTIC PAVEMENT MARKING LINES (100MM, 3.1MM)
4695000000-M	1205	200	M	THERMOPLASTIC PAVEMENT MARKING LINES (200MM, 2.3MM)
4710000000-M	1205	8	M	THERMOPLASTIC PAVEMENT MARKING LINES (600MM, 3.1MM)
4725000000-M	1205	8	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (2.3MM)
4770000000-M	1205	36	M	COLD APPLIED PLASTIC PAVEMENT MARKING LINES (100MM)
4805000000-N	1205	1	EA	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL
4810000000-M	1205	100	M	PAINT PAVEMENT MARKING LINES (100MM)
4820000000-M	1205	100	M	PAINT PAVEMENT MARKING LINES (200MM)
4850000000-M	1205	171	M	REMOVAL OF PAVEMENT MARKING LINES (100MM)
4870000000-M	1205	12	M	REMOVAL OF PAVEMENT MARKING LINES (600MM)
4875000000-N	1205	7	EA	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS
4900000000-N	1252	2	EA	PERMANENT RAISED PAVEMENT MARKERS
4905000000-N	1253	61	EA	SNOWFLOWABLE PAVEMENT MARKERS
4935000000-N	1267	15	EA	FLEXIBLE DELINEATORS (CRYSTAL)
4940000000-N	1267	22	EA	FLEXIBLE DELINEATORS (YELLOW)
5155000000-M	1409	11.2	M	ELECTRICAL DUCT, TYPE BD, SIZE ****
5220000000-M	1410	195	M	***#2 W/G FEEDER CIRCUIT IN SIZE *** CONDUIT (2, TS-1.5)
5240000000-N	1411	3	EA	ELECTRICAL JUNCTION BOXES ***** (PC 18)
5255000000-N	1413	Lump Sum		PORTABLE LIGHTING
5262000000-M	SP	5.4	M3	GENERIC LIGHTING ITEM HIGH MOUNT FOUNDATIONS
5270000000-N	SP	1	EA	GENERIC LIGHTING ITEM RELOCATE HIGH MOUNT STANDARD
6000000000-M	1605	160	M	TEMPORARY SILT FENCE
6006000000-M	1610	165	MTN	STONE FOR EROSION CONTROL, CLASS A
6009000000-M	1610	105	MTN	STONE FOR EROSION CONTROL, CLASS B
6012000000-M	1610	150	MTN	SEDIMENT CONTROL STONE
6015000000-M	1615	2	HA	TEMPORARY MULCHING
6018000000-M	1620	100	KG	SEED FOR TEMPORARY SEEDING
6021000000-M	1620	0.75	MTN	FERTILIZER FOR TEMPORARY SEEDING
6030000000-M	1630	475	M3	SILT EXCAVATION
6036000000-M	1631	1,030	M2	MATTING FOR EROSION CONTROL
6042000000-M	1632	16	M	6.4MM HARDWARE CLOTH
6084000000-M	1660	2	HA	SEEDING & MULCHING
6087000000-M	1660	1.5	HA	MOWING
6090000000-M	1661	25	KG	SEED FOR REPAIR SEEDING
6093000000-M	1661	0.25	MTN	FERTILIZER FOR REPAIR SEEDING
6096000000-M	1662	75	KG	SEED FOR SUPPLEMENTAL SEEDING
6108000000-M	1665	3.25	MTN	FERTILIZER TOPDRESSING
6114000000-N	SP	2	HR	SPECIALIZED HAND MOWING
6132000000-N	SP	8	EA	GENERIC EROSION CONTROL ITEM RESPONSE FOR EROSION CONTROL
7288000000-M	1715	13	M	TRENCHING (PAVED)
7300000000-M	1715	101	M	TRENCHING (UNPAVED)
7324000000-N	1716	2	EA	JUNCTION BOX (STANDARD SIZE)
7444000000-M	1725	77	M	INDUCTIVE LOOP SAWCUT
7456000000-M	1726	207	M	LEAD-IN CABLE
7636000000-N	1745	1	EA	SIGN FOR SIGNALS

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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**SUMMARY OF PAVEMENT REMOVAL** ★  
 IN SQUARE METERS

**SUMMARY OF EARTHWORK** ★  
 IN CUBIC METERS

SURVEY LINE	LOCATION	QUANTITY
-L- STA. 31+48.010 TO 32+35.331	RT	254.453 SM
-Y5- STA. 18+62.000 TO 21+93.000	RT	1091.307 SM
-RPC- STA. 13+80.000 TO 1490.000	LT	132.000 SM
<b>GRAND TOTAL:</b>		<b>1477.760</b>
<b>SAY:</b>		<b>1480 SM</b>

LOCATION	UNCL. EXCAVATION	EMBT + %	BORROW	WASTE
-L- STA. 29+20.000 TO 30+40.000	143	0	0	143
-L- STA. 31+40.000 TO 33+20.000	521	180	0	341
-LPC- STA. 10+60.000 TO 10+95.330	144	908	779	15
-LPC- STA. 12+17.490 TO 13+06.580	4849	11	0	4838
-RPC- STA. 13+60.000 TO 15+00.000	1544	371	0	1173
-Y5- STA. 18+40.000 TO 19+40.000	641	42	0	599
-Y5- STA. 19+40.000 TO 22+00.000	2333	512	0	1821
<b>PROJECT SUBTOTAL:</b>	<b>10175</b>	<b>2024</b>	<b>779</b>	<b>8930</b>
<b>WASTE IN LIEU OF BORROW</b>			<b>-779</b>	<b>-779</b>
<b>GRAND TOTAL:</b>	<b>10175</b>	<b>2024</b>	<b>0</b>	<b>8151</b>
<b>SAY:</b>	<b>10,200</b>		<b>0</b>	

PAVEMENT STRUCTURE VOLUME: 2,784 CUBIC METERS  
 DRAINAGE DITCH EXCAVATION: 550 CUBIC METERS  
 UNDERCUT EXCAVATION: 200 CUBIC METERS  
 SHOULDER BORROW: 565 CUBIC METERS

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

"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			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS					IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350	CAT-1	B-77	EA	G	NG						
-LPC-	10+68.760	12+36.530	LT	17.145		163.087	RAMP C		3.600	4.600	15.240															
-Y5-	19+09.733	19+30.993	RT	20.955			RCB		3.600	4.600	15.240		0.3													
<b>SUBTOTAL:</b>				<b>38.100</b>		<b>163.087</b>											<b>2</b>	<b>1</b>	<b>1</b>							
LESS ANCHOR DEDUCTIONS:																										
GRAU-350 2@15.240m = 30.480																										
CAT-1 1@1.905m = 1.905																										
B-77 1@5.715m = 5.715																										
<b>ANCHOR TOTALS: = 38.100</b>																										
						<b>ADDITIONAL GUARDRAIL POSTS = 5 EA.</b>																				
<b>GRAND TOTALS:</b>				<b>0</b>		<b>163.087</b>																				
<b>SAY:</b>						<b>163.830</b>																				

**GUARDRAIL REMOVAL**

-Y5-	20+63.933	21+98.000	RT																							134	
<b>GRAND TOTALS:</b>																											134
<b>SAY:</b>																											150

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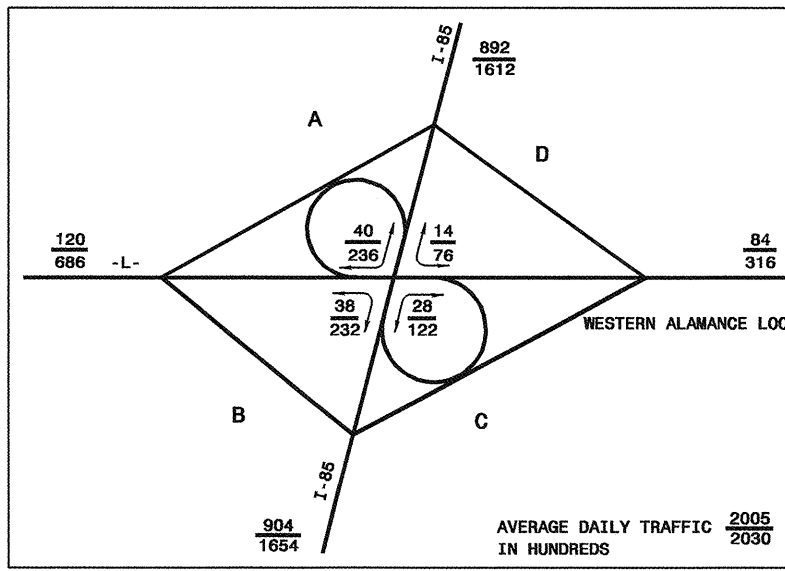
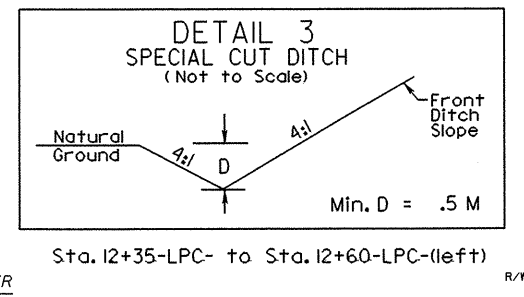
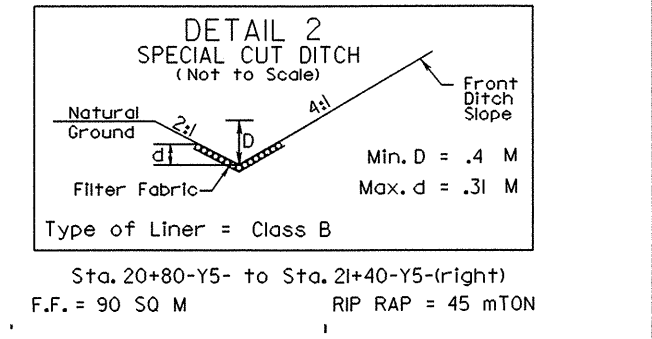
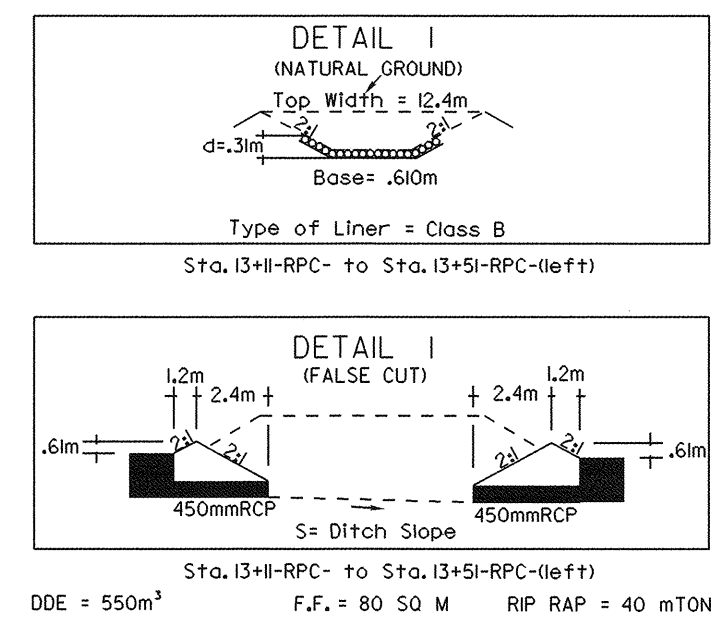
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U-2905A

**SHEET NO.**  
4

**U-2905 R/W SHEET NO.**  
10

**ROADWAY DESIGN ENGINEER**  
NORTH CAROLINA PROFESSIONAL SEAL  
28012  
KEVIN E. MOORE  
9/26/06

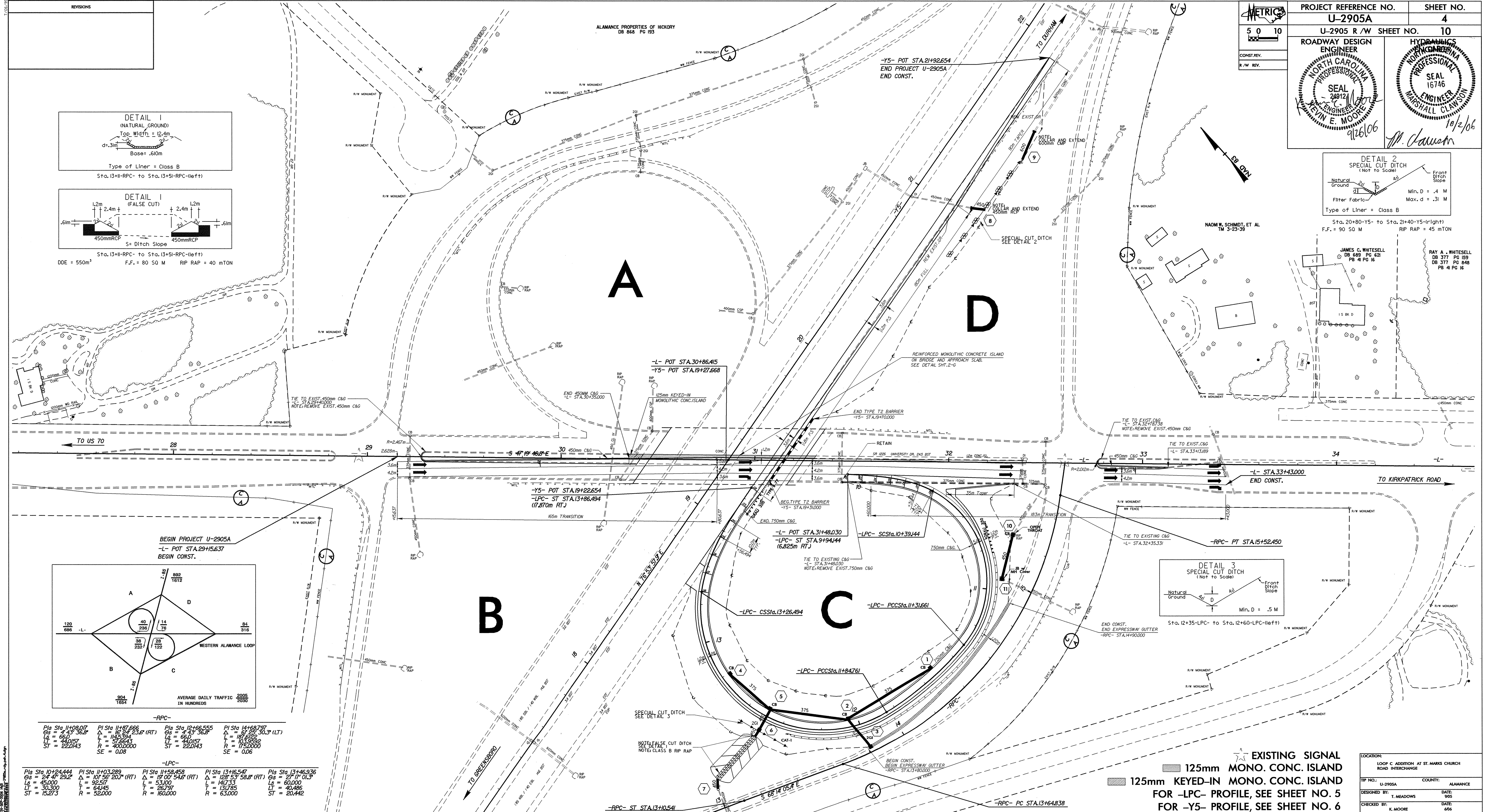
**HYDRAULICS ENGINEER**  
NORTH CAROLINA PROFESSIONAL SEAL  
16746  
M. Dawson  
10/2/06



-RPC-			
PI Sta 11+08.07	PI Sta 11+87.66	PI Sta 12+66.55	PI Sta 14+68.71
CS = 43°36.8'	Δ = 15°34'23.8" (RT)	CS = 43°36.8'	Δ = 81°25'30.3" (LT)
L = 66.0	L = 114.594	L = 66.0	L = 187.612
LT = 440.97	T = 57.693	LT = 440.97	T = 103.532
ST = 22.043	R = 40.0000	ST = 22.043	R = 175.000
	SE = 0.08		SE = 0.06

-LPC-			
PI Sta 10+24.44	PI Sta 11+03.289	PI Sta 11+58.458	PI Sta 13+16.547
CS = 24°47'29.2"	Δ = 101°58'20.7" (RT)	Δ = 19°00'54.6" (RT)	Δ = 128°53'58.8" (RT)
L = 45.000	L = 92.57	L = 53.000	L = 112.133
LT = 30.300	T = 64.145	T = 26.797	T = 131.785
ST = 15.273	R = 52.000	R = 180.000	R = 63.000
			ST = 20.442



**EXISTING SIGNAL**

125mm MONO. CONC. ISLAND

125mm KEYED-IN MONO. CONC. ISLAND

FOR -LPC- PROFILE, SEE SHEET NO. 5

FOR -Y5- PROFILE, SEE SHEET NO. 6

**LOCATION:**  
LOOP C ADDITION AT ST. MARKS CHURCH ROAD INTERCHANGE

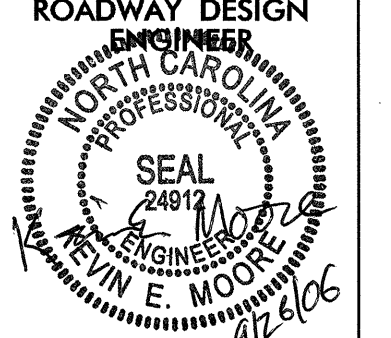
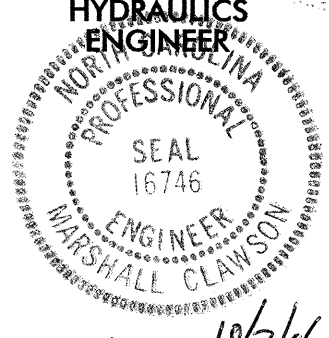
**TIP NO.:** U-2905A    **COUNTY:** ALAMANCE

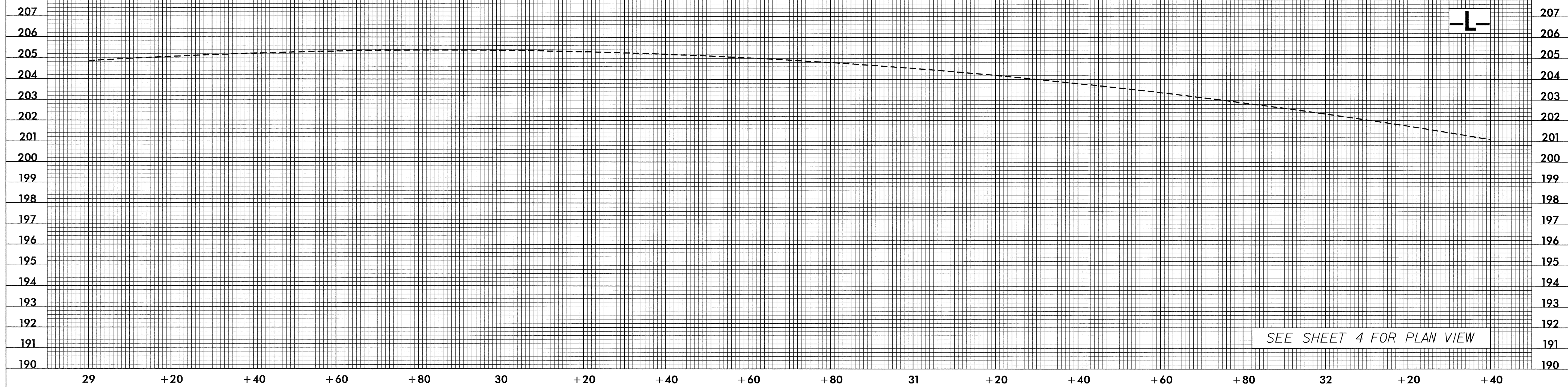
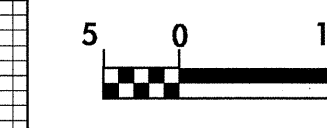
**DESIGNED BY:** T. MEADOWS    **DATE:** 9/05

**CHECKED BY:** K. MOORE    **DATE:** 6/06

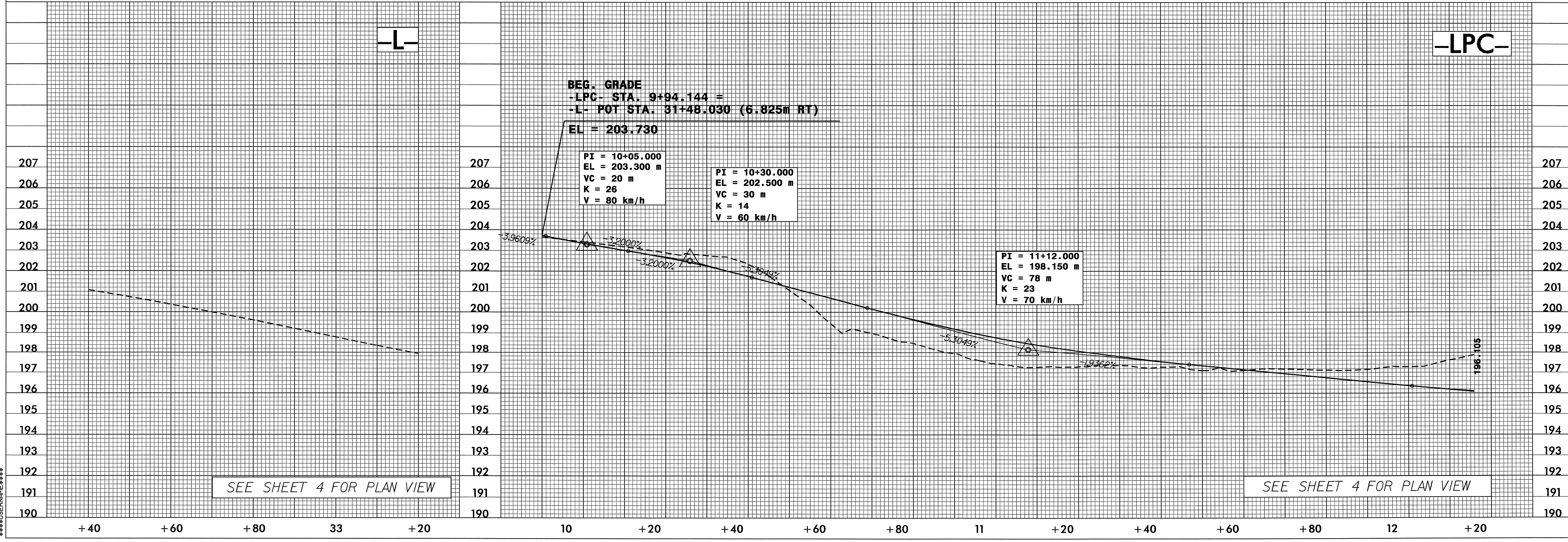
6/09/09



PROJECT REFERENCE NO. <b>U-2905A</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
CONST.REV.	
R / W REV.	



SEE SHEET 4 FOR PLAN VIEW



SEE SHEET 4 FOR PLAN VIEW

SEE SHEET 4 FOR PLAN VIEW

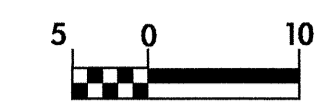
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6/09/09



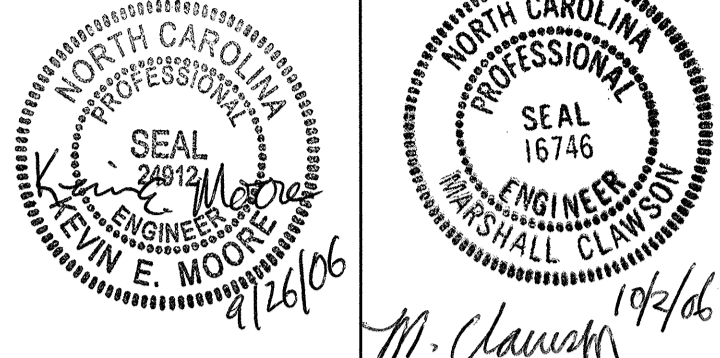
PROJECT REFERENCE NO. U-2905A SHEET NO. 6

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER



CONST. REV.

R / W REV.

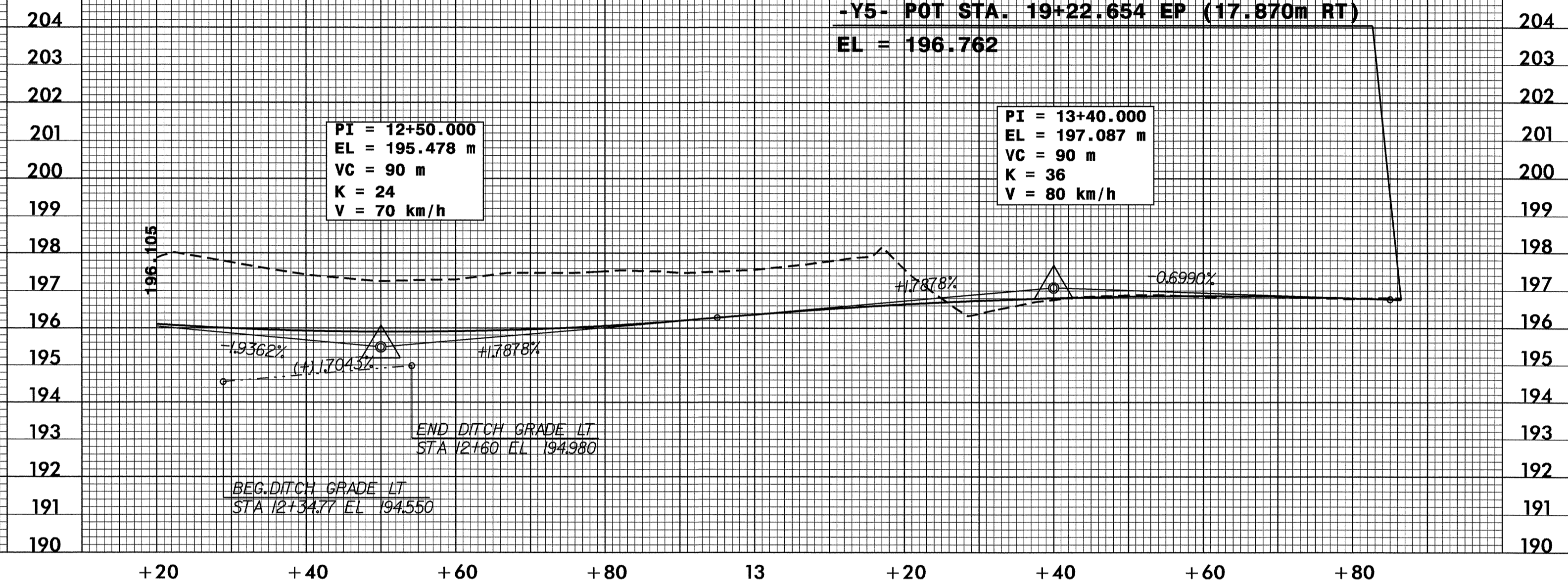


**-LPC-**

END GRADE  
-LPC- STA. 13+86.494 =  
-Y5- POT STA. 19+22.654 EP (17.870m RT)  
EL = 196.762

PI = 12+50.000  
EL = 195.478 m  
VC = 90 m  
K = 24  
V = 70 km/h

PI = 13+40.000  
EL = 197.087 m  
VC = 90 m  
K = 36  
V = 80 km/h



**-Y5-**  
OFF 23.233 RT.

**-Y5-**

-Y5- STA. 21+02.654  
END FULL LANE WIDENING  
BEGIN TAPER

BEG. TYPE T2 BARRIER  
Y5 - STA. 19+31.000  
TOP ELEV. 197.494  
23.690m Ft.

END TYPE T2 BARRIER  
Y5 - STA. 19+70.000  
TOP ELEV. 197.346  
23.690m Ft.

-Y5- STA. 19+22.654  
BEGIN WIDENING OF  
-LPC- ACCELERATION LANE

BEG. DITCH GRADE RT  
STA 20+80 EL 193.500

END DITCH GRADE RT  
STA 21+40 EL 191.850

SEE SHEET 4 FOR PLAN VIEW

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