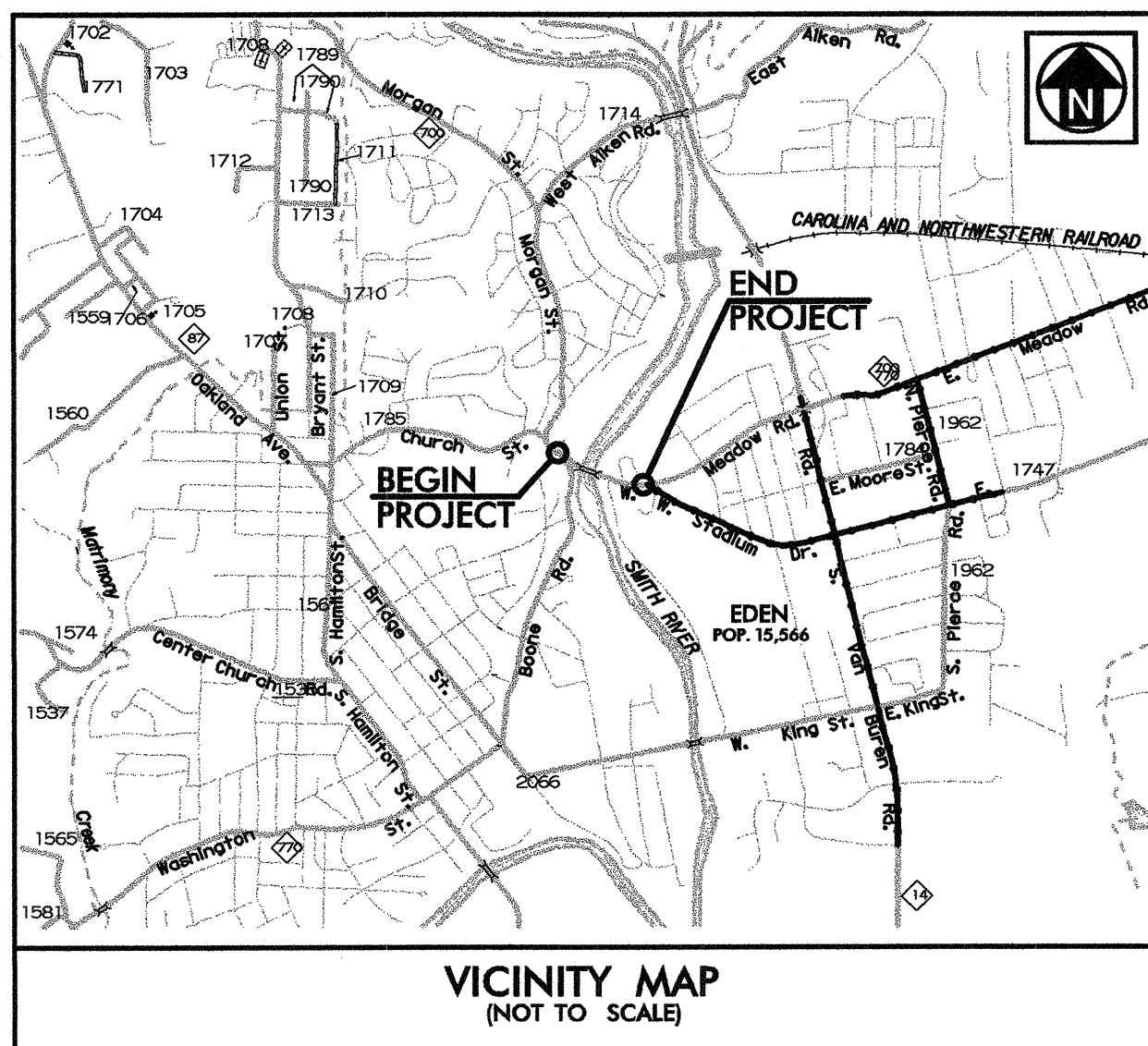


TIP: B-3509

CONTRACT: C201290

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



STATE OF NORTH CAROLINA

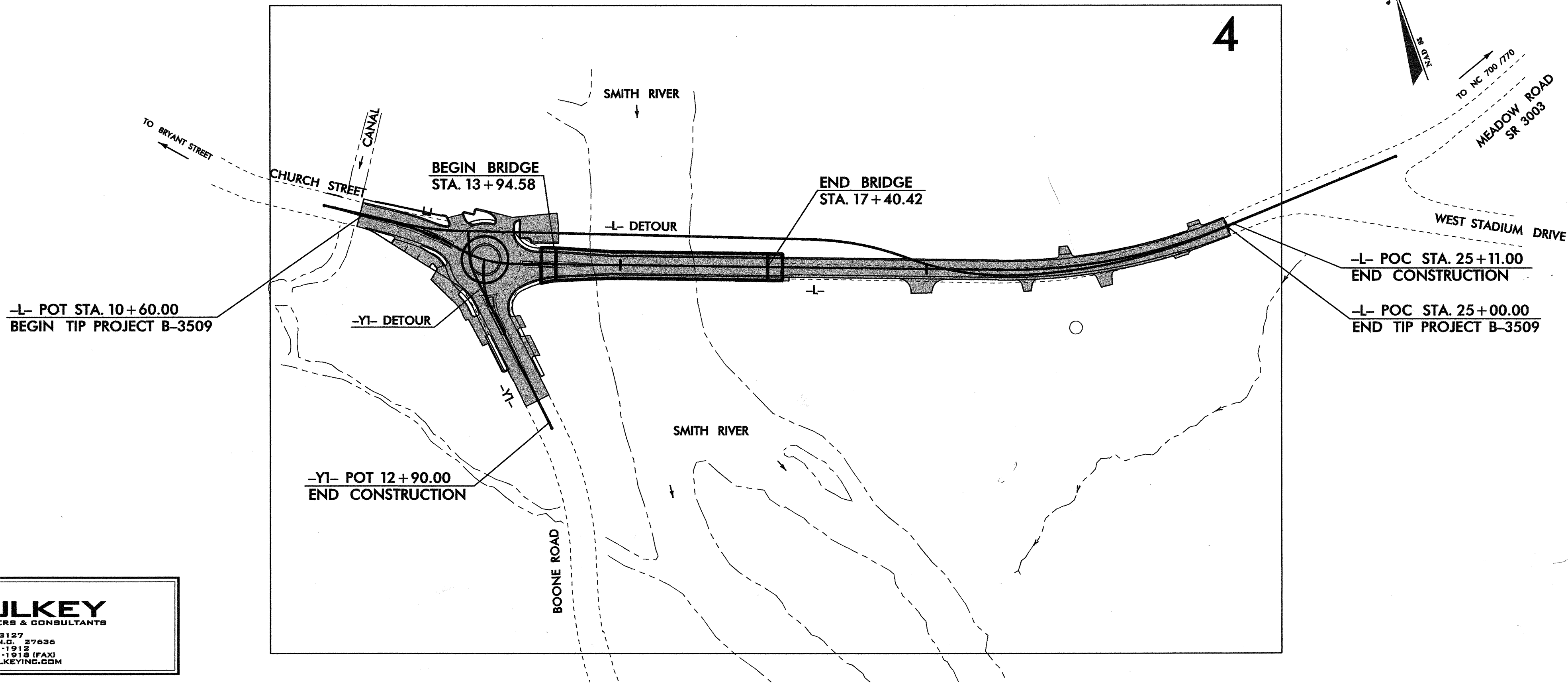
DIVISION OF HIGHWAYS

ROCKINGHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3509	1	
WBS NO.	F.A. PROJ. NO.	DESCRIPTION	
33122.1.1	BRSTP-700(1)	P.E.	
33122.2.1	BRSTP-700(1)	R/W, UTIL	
33122.3.2	BRSTP-700(2)	CONST.	

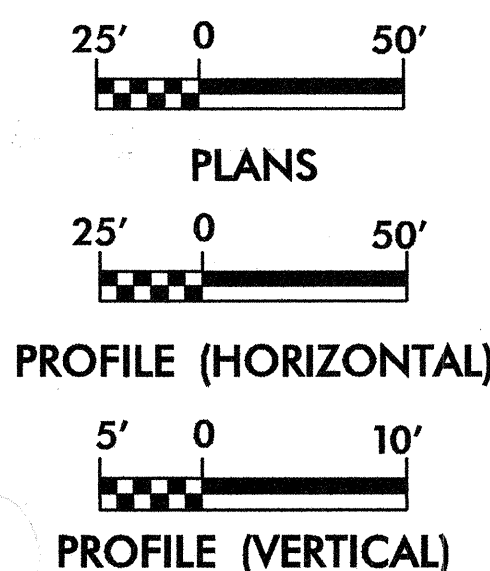
LOCATION: BRIDGE NO. 75 OVER SMITH RIVER AND APPROACHES ON SR 3003 (MEADOW ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, SIGNING, AND TEMPORARY SIGNAL



MULKEY
ENGINEERS & CONSULTANTS
PO Box 33127
RALEIGH, N.C. 27636
(919) 851-1912
(919) 851-9118 (FAX)
WWW.MULKEYINC.COM

GRAPHIC SCALE



DESIGN DATA

ADT 2005 = 13,985
ADT 2025 = 17,835
DHV = 12%
D = 60%
T = 4% *
V = 40 mph
* (Duals = 3% + TTST = 1%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3509 = 0.208 MILE
LENGTH STRUCTURES TIP PROJECT B-3509 = 0.065 MILE
TOTAL LENGTH TIP PROJECT B-3509 = 0.273 MILE

Prepared In the Office of:
Mulkey Engineers & Consultants
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2004

LETTING DATE:
MAY 16, 2006

NC DOT CONTACT: CATHY S. HOUSER, P.E.
ROADWAY DESIGN - PROJECT ENGINEER

J. R. BANKS
MULKEY E & C
PROJECT MANAGER

T. S. HAYES, PE
MULKEY E & C
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

ROADWAY DESIGN

SEAL 20737

SEAL 19563

SIGNATURE: *[Signature]* PE 1/24/06

SIGNATURE: *[Signature]* PE 2/1/06

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY ENGINEER - DESIGN

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED FOR
DIVISION ADMINISTRATOR

DATE

1/26/2006 8:07:53 AM
F:\Roadway\Proj\B3509_RDY_TSLD01

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



Index of Sheets, General Notes, and List of Standards

Index of Sheets

Sheet #	Description
1	Title Sheet
1-A	Index of Sheets, General Notes, and List of Standards
1-B	Conventional Symbols
1-C	Survey Control Sheet
2	Pavement Schedule, Wedging Detail, and Typical Sections
2-A thru 2-B	Typical Sections
2-C	Detour
2-D	Roundabout Detail
2-E thru 2-H	Reinforced Bridge Approach Fills
2-I	Driveway Turnout - Radius Type
2-J thru 2-K	Wheelchair Ramp - Curb Cut
2-L thru 2-O	Guardrail Installation Details
2-P thru 2-R	Structure Anchor Units
2-S	Crosswalk thru Monolithic Island
2-T	Special Detail of 1' - 6" Curb and Gutter
2-U	Special Detail of 2' - 6" Curb and Gutter
2-V	Detail of Concrete Bridge Sidewalk Approach
2-W	Special Detail of Concrete Steps with Rail
3	Summary of Quantities
3-A	Parcel Index Sheet
3-B	List of Pipe, Endwalls, Etc. (For Pipes 48" & Under)
3-C	Guardrail Summary, Temporary Guardrail Summary
3-D	Summary of Earthwork in Cubic Yards, Summary of Pavement Removal
4	Plan
5	Profile
TCP-1 thru TCP-14	Traffic Control Plans
PM-1 thru PM-2	Pavement Marking Plans
EC-1 thru EC-5	Erosion Control Plans
RF-1 thru RF-4	Reforestation Plan
SIGN-1 thru SIGN-5	Signing Plans
SIG-1 thru SIG-4	Signal Plans
UC-1 thru UC-5	Utility Construction Plans
UD-1 thru UD-2	Utilities By Others Plans
EW-Volume-1	Cross-Section Summary Sheet
X-1 thru X-21	Cross-Sections
S-1 thru S-52	Structure Plans
W-1 thru W-4	Wall Plans

GENERAL NOTES:

2002 SPECIFICATIONS
EFFECTIVE: 01-15-02
REVISED: 05-14-03

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 AND EARTH 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.

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS IN PLANS USING 3' RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS 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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE CENTEL, CTCO, AND DUKE

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

WHEELCHAIR RAMPS:

WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH DETAILS IN PLANS.

ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-15-02
REV.04-07-04

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
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
300.10	Driveway Pipe Construction
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	
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.04	Concrete Catch Basin with Single and Multiple Pipes - 12" thru 48" Pipe
840.05	Brick Catch Basin with Single and Multiple Pipes - 12" thru 48" Pipe
840.18	Concrete Median Drop Inlet Type 'B' - 12" thru 36" Pipe
840.27	Brick Median Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.34	Traffic Bearing Junction Box
840.35	Traffic Bearing Drop Inlet - for Cast Iron Double Frame and Grates
840.66	Drainage Structure Steps
848.01	Concrete Sidewalk
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
862.01	Guardrail Placement
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

*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-----
Curb Cut for Future Wheelchair Ramp	-----CCFR-----
Exist. Guardrail	-----
Prop. Guardrail	-----
Exist. Cable Guiderail	-----
Prop. Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	XXXXXX

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 RW Marker (Iron Pin & Cap)	-----▲-----
Prop. Right of Way Line with Proposed (Concrete or Granite) RW Marker	-----●-----
Exist. Control of Access Line	-----C-----
Prop. Control of Access Line	-----C-----
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	□
Cable TV Pedestal	□
Hydrant	⊕
Satellite Dish	⊗
Exist. Water Valve	⊗
Sewer Clean Out	⊕
Power Manhole	⊕
Telephone Booth	⊕
Water Manhole	⊕
Light Pole	⊕
H-Frame Pole	•
Power Line Tower	⊗
Pole with Base	□
Gas Valve	◇
Gas Meter	◇
Telephone Manhole	⊕
Power Transformer	⊕
Sanitary Sewer Manhole	⊕
Storm Sewer Manhole	⊕
Tank; Water, Gas, Oil	○
Water Tank With Legs	○
Traffic Signal Junction Box	⊕
Fiber Optic Splice Box	⊕
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.*)	-----PUTL-----
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	⊕
Property Corner	⊕
Property Monument	⊕
Property Number	123
Parcel Number	6
Fence Line	-----X-----
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	○ 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	-----

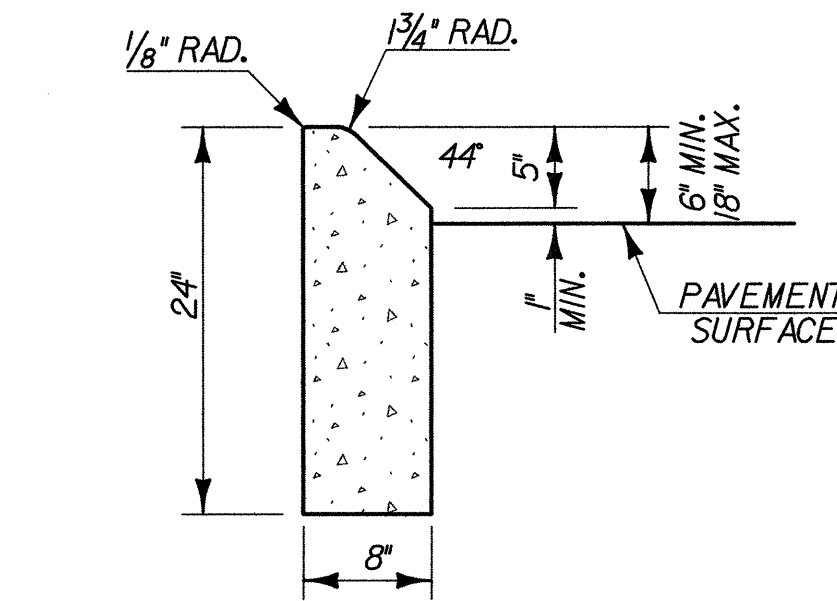
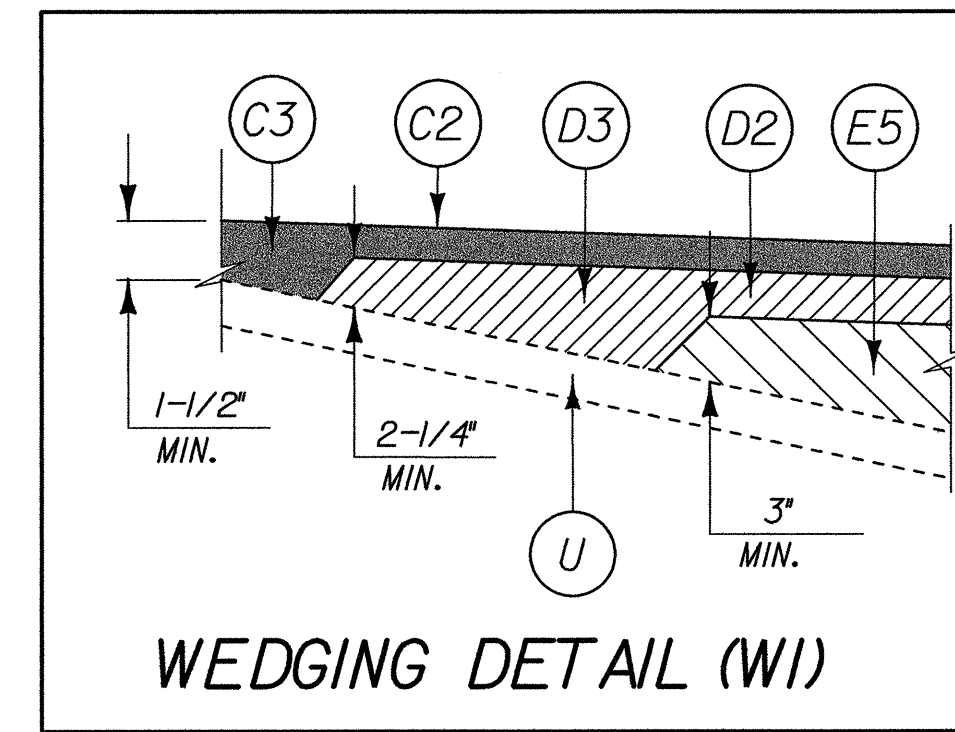
RAILROADS

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----

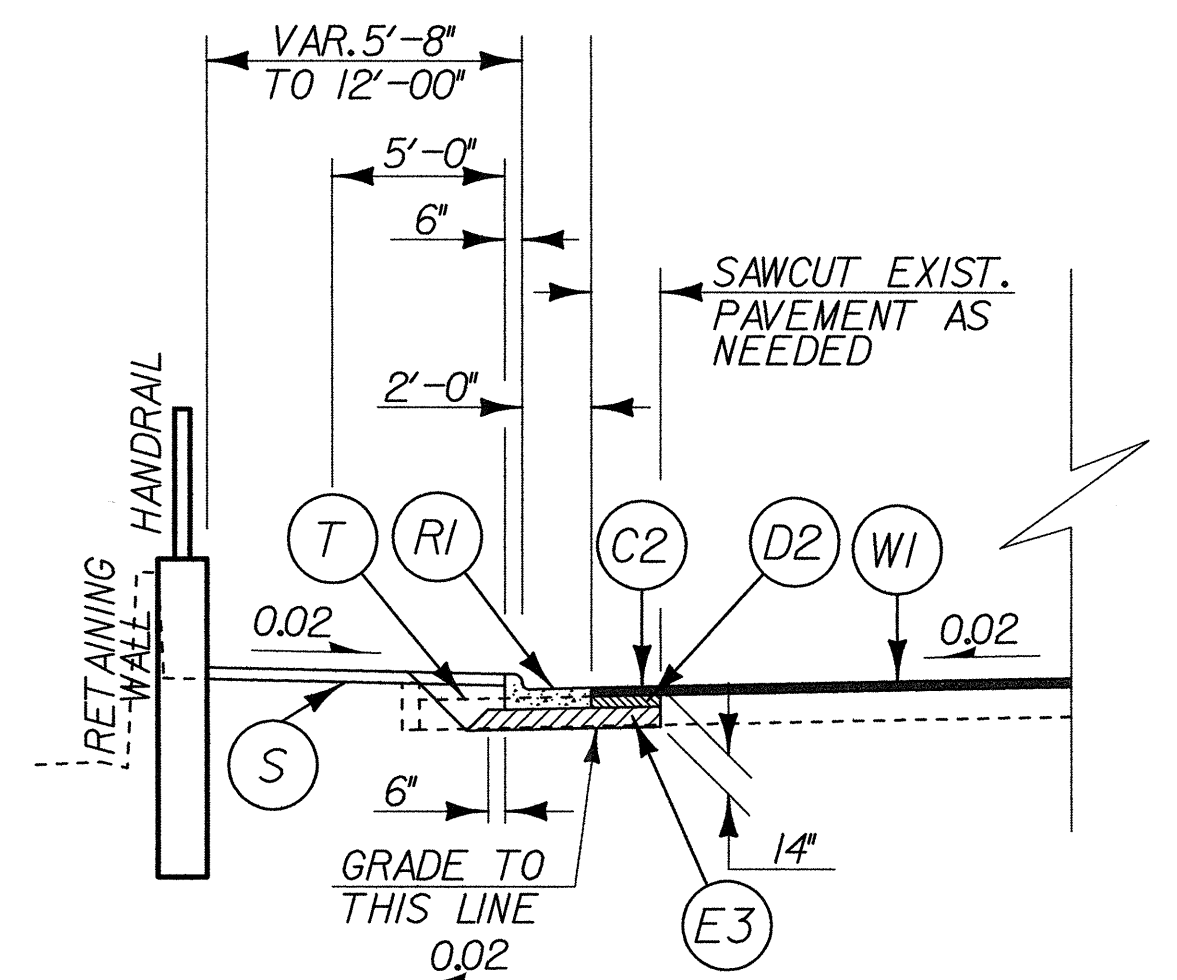
PAVEMENT SCHEDULE

A1	7" JOINTED CONCRETE PAVEMENT (TINTED AS DIRECTED BY THE ENGINEER)
C1	PROPOSED APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD
C2	PROPOSED APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF 2 LAYERS
C3	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" OR GREATER THAN 2" IN DEPTH
D1	PROPOSED APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD
D2	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD
D3	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH.
E1	PROPOSED APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD
E2	PROPOSED APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YARD
E3	PROPOSED APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YARD IN EACH OF 2 LAYERS
E4	PROPOSED APPROX. 9" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YARD IN EACH OF 2 LAYERS
E5	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	8" AGGREGATE BASE COURSE
J2	VARIABLE DEPTH AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER
R2	SPECIAL 2'-6" CONCRETE CURB AND GUTTER
R3	SPECIAL 1'-6" CONCRETE CURB
R4	SPECIAL 8" x 24" CONCRETE CURB
R5	5" MONOLITHIC CONCRETE ISLAND
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
WI	WEDGING (SEE WEDGING DETAIL)

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

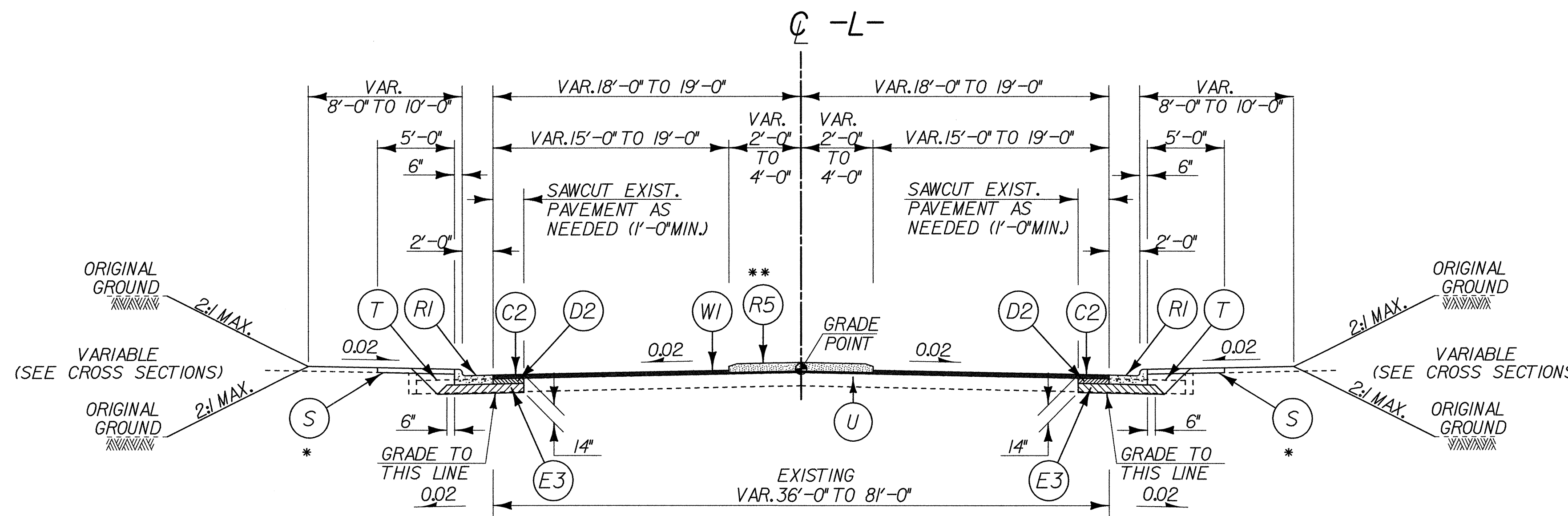


DETAIL OF SPECIAL 8" X 24" CONCRETE CURB
 (SEE PLANS FOR LOCATIONS)
 SEE RDMY, STD. DRAWING 846.01,
 SHEET 1 OF 3, FOR GENERAL NOTES



INSET NO. 1

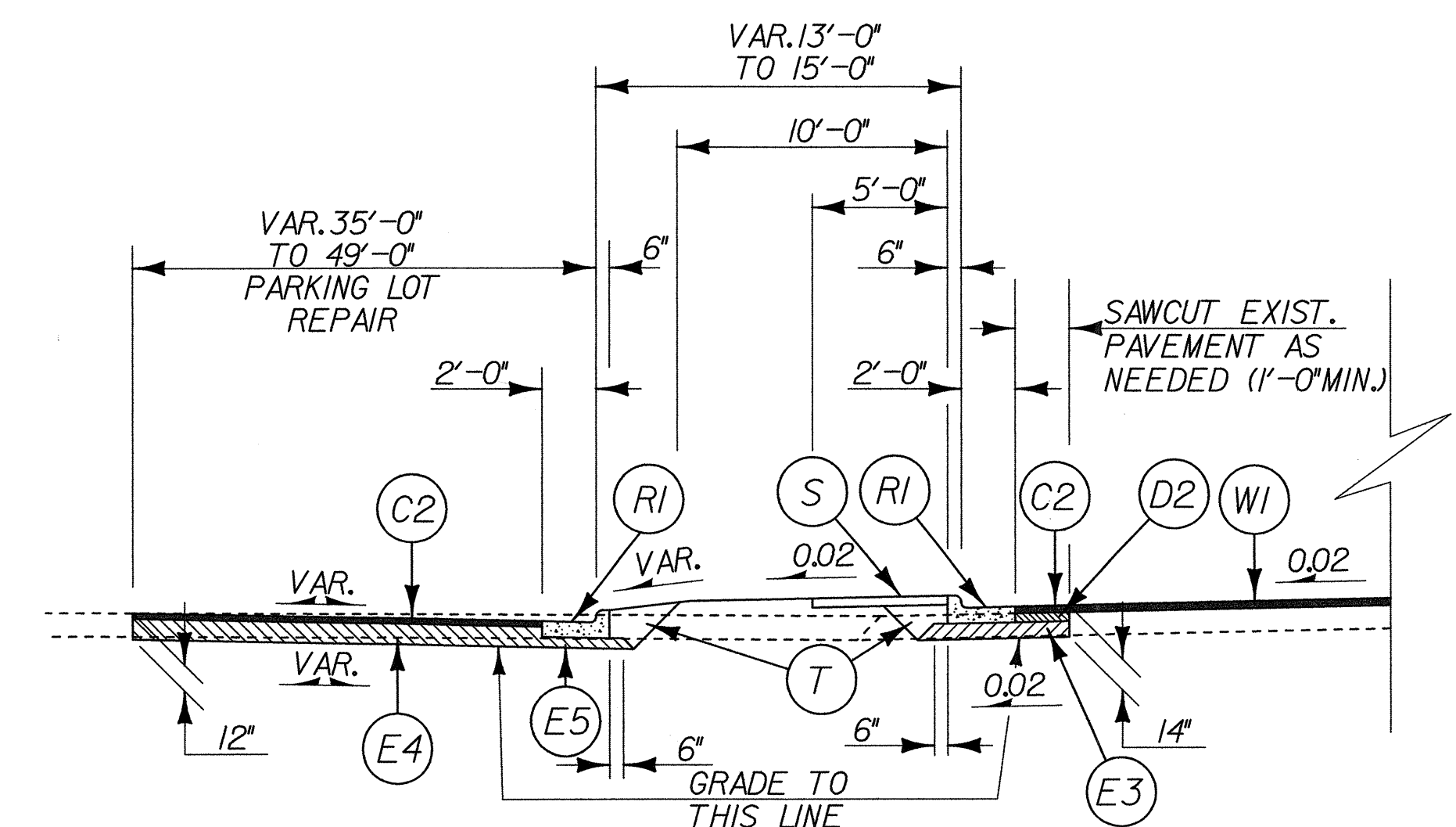
TO BE USED IN CONJUNCTION WITH
 TYPICAL SECTION NO. 1 AS FOLLOWS:
 FROM -L- STA. 10+79.50 TO -L- STA. 11+85.00 LT.



TYPICAL SECTION NO. 1

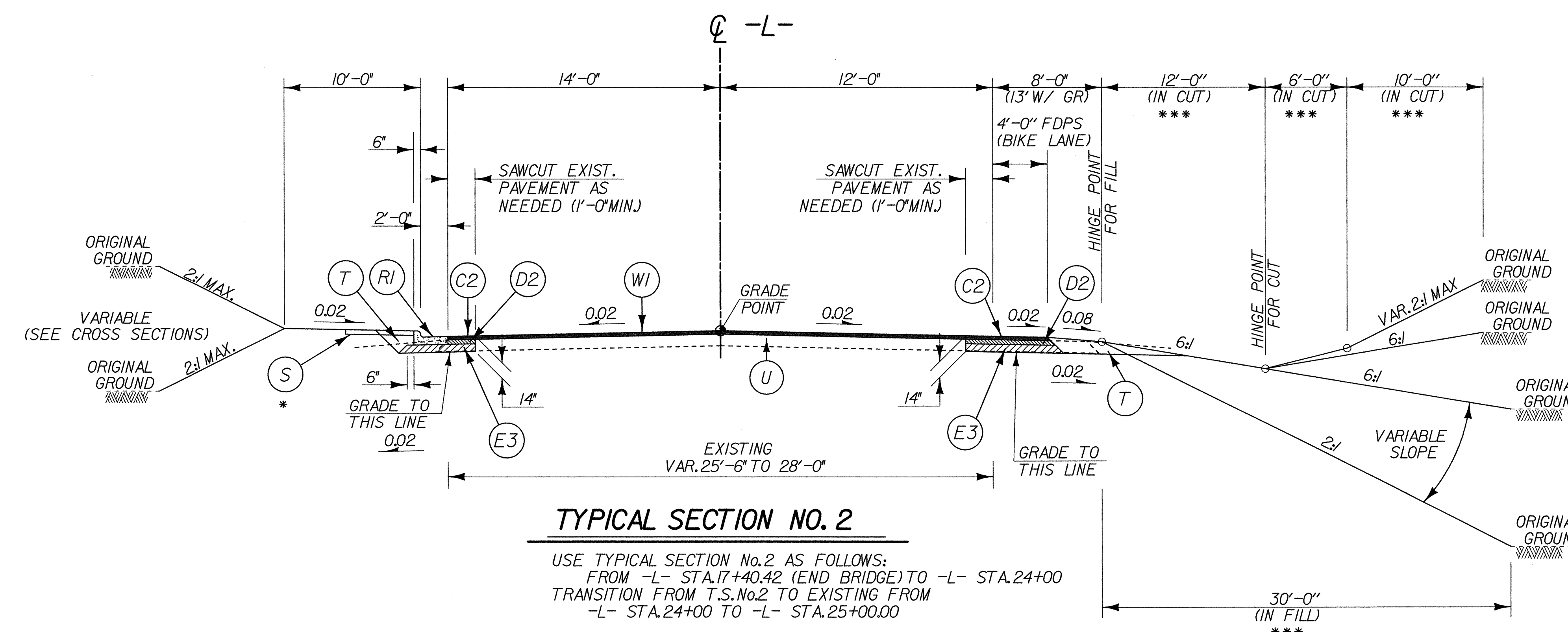
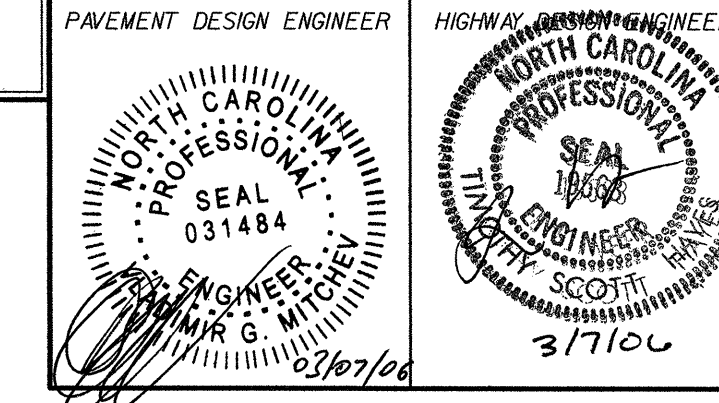
TRANSITION FROM EXISTING TO T.S. NO. 1 FROM
 -L- STA. 10+60.00 TO -L- STA. 11+00.00
 USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 FROM -L- STA. 11+00.00 TO -L- STA. 12+19.78
 FROM -L- STA. 13+36.31 TO -L- STA. 13+94.58 (BEGIN BRIDGE)

- * SIDEWALK AT LOCATIONS NOTED IN PLANS
- ** 5" MONO. CONCRETE ISLAND AT LOCATIONS NOTED IN PLANS



INSET NO. 2

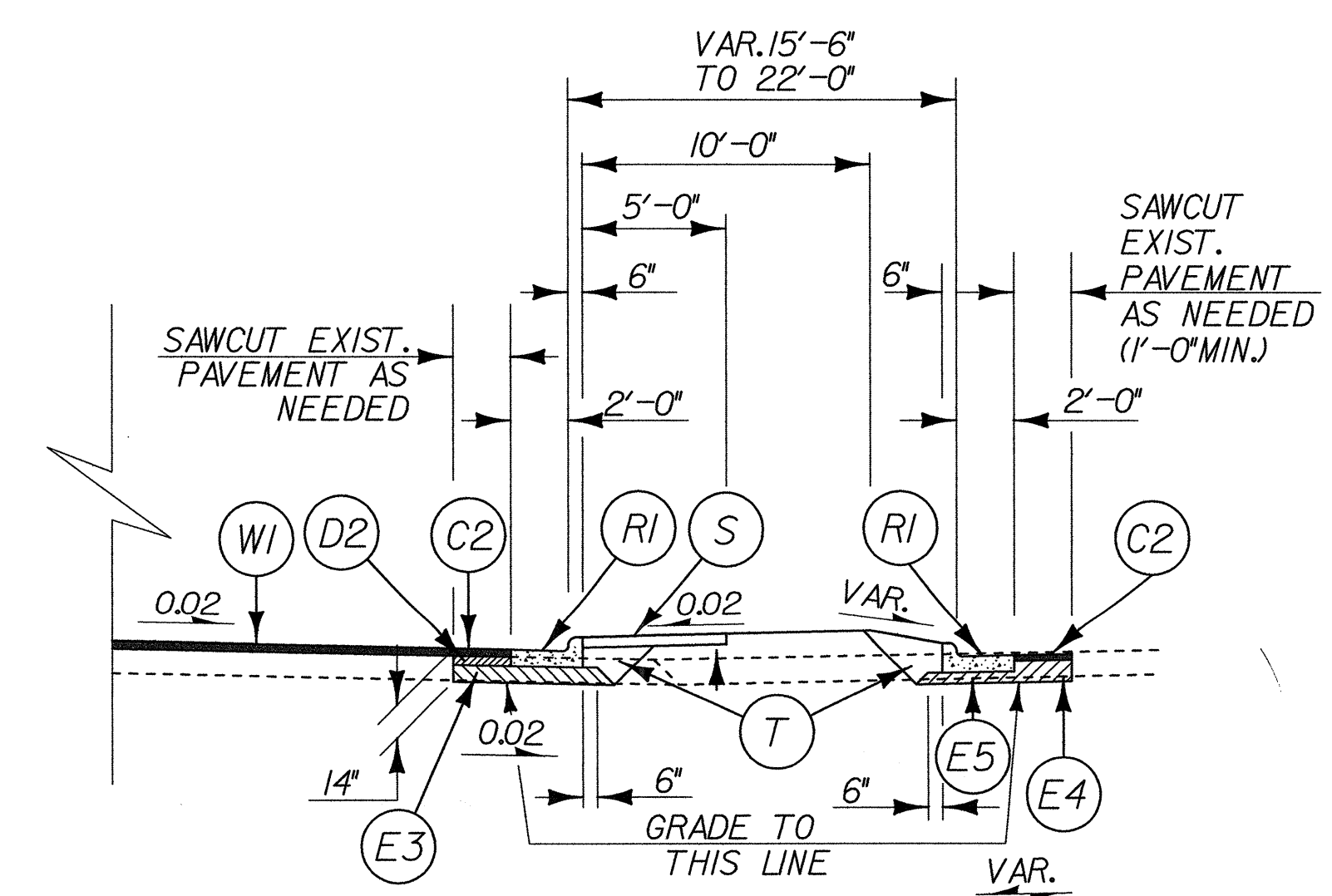
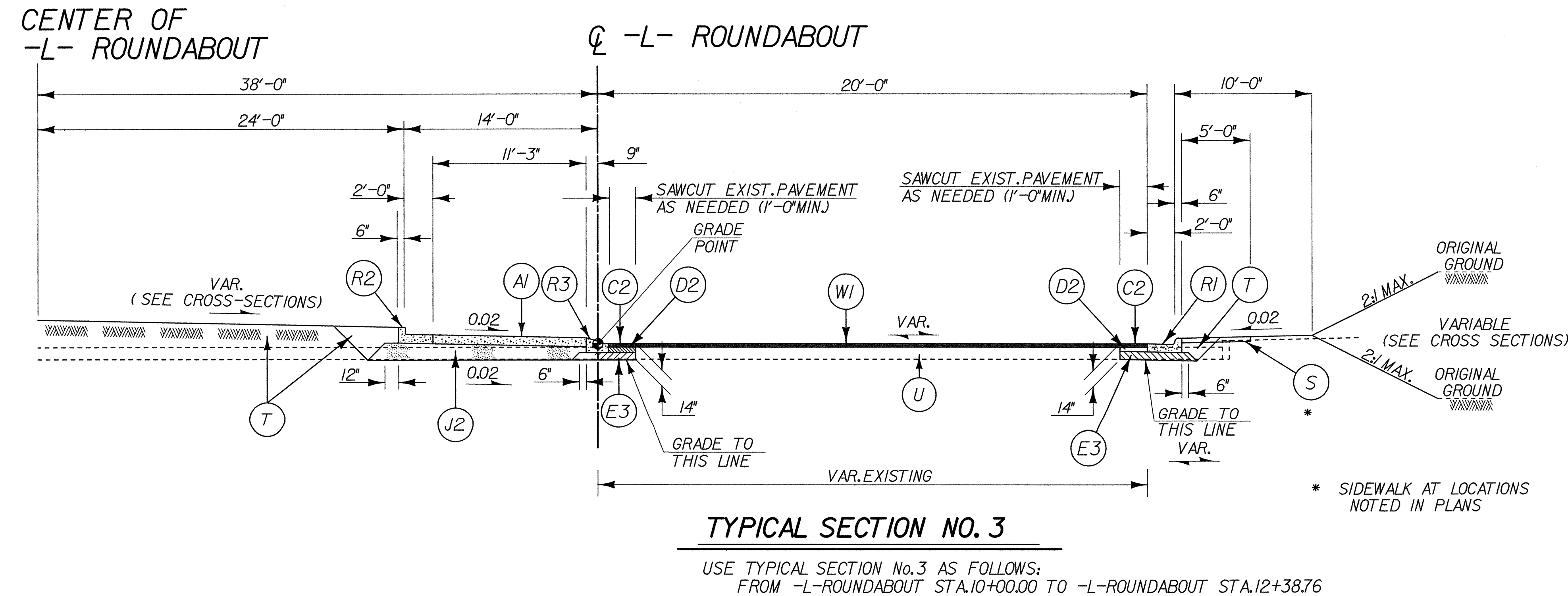
TO BE USED IN CONJUNCTION WITH
 TYPICAL SECTION NO. 1 AS FOLLOWS:
 FROM -L- STA. 13+36.31 TO -L- STA. 13+94.58 (BEGIN BRIDGE)



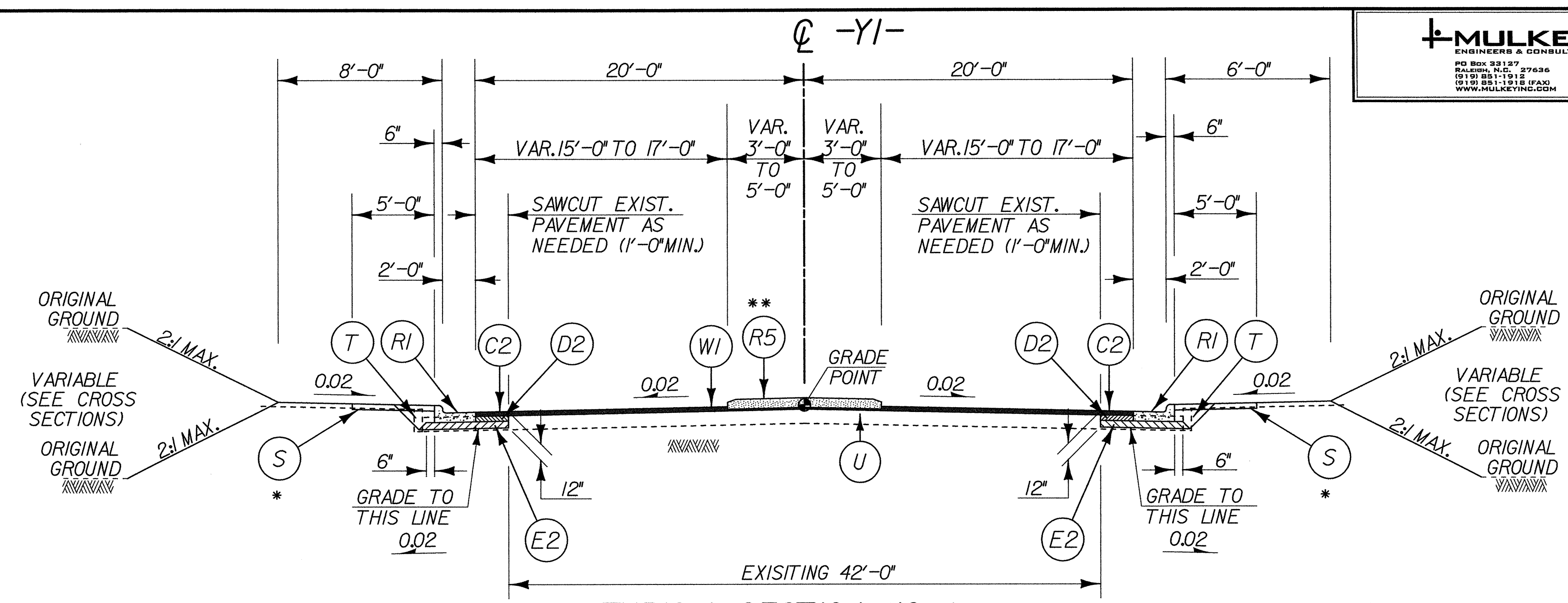
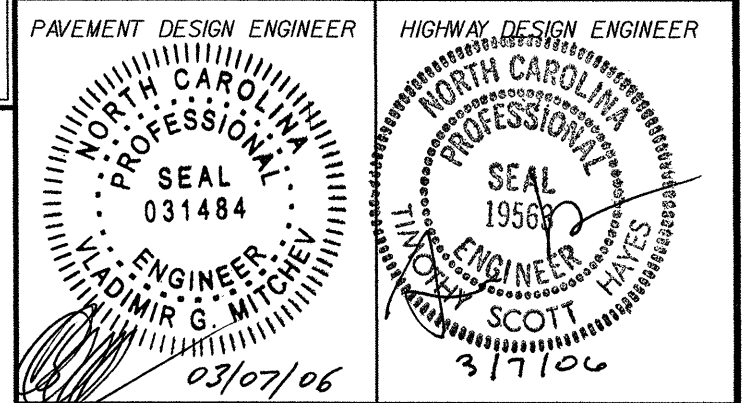
*** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

A1	7" JOINTED CONC. PAVEMENT
C1	1 1/2" S9.5C
C2	3" S9.5C
C3	VAR. DEPTH S9.5C
D1	3" 119.0C
D2	4" 119.0C
D3	VAR. DEPTH 119.0C
E1	4" B25.0C
E2	5" B25.0C
E3	7" B25.0C
E4	9" B25.0C
E5	VAR. DEPTH B25.0C
J1	8" ABC
J2	VAR. DEPTH ABC
R1	2'-6" CONC. C&G
R2	SPECIAL 2'-6" CONC. C&G
R3	SPECIAL 1'-6" CONC. CURB
R4	SPECIAL 8" x 24" CONC. CURB
R5	5" MONO. CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W1	WEDGING

NOTE:
1. SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE.
2. ALL PAVEMENT EDGES ARE 1:1 UNLESS OTHERWISE NOTED.



TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO.3 AS FOLLOWS:
FROM -L- ROUNDABOUT STA.11+82 TO -L- ROUNDABOUT STA.12+11 RT.



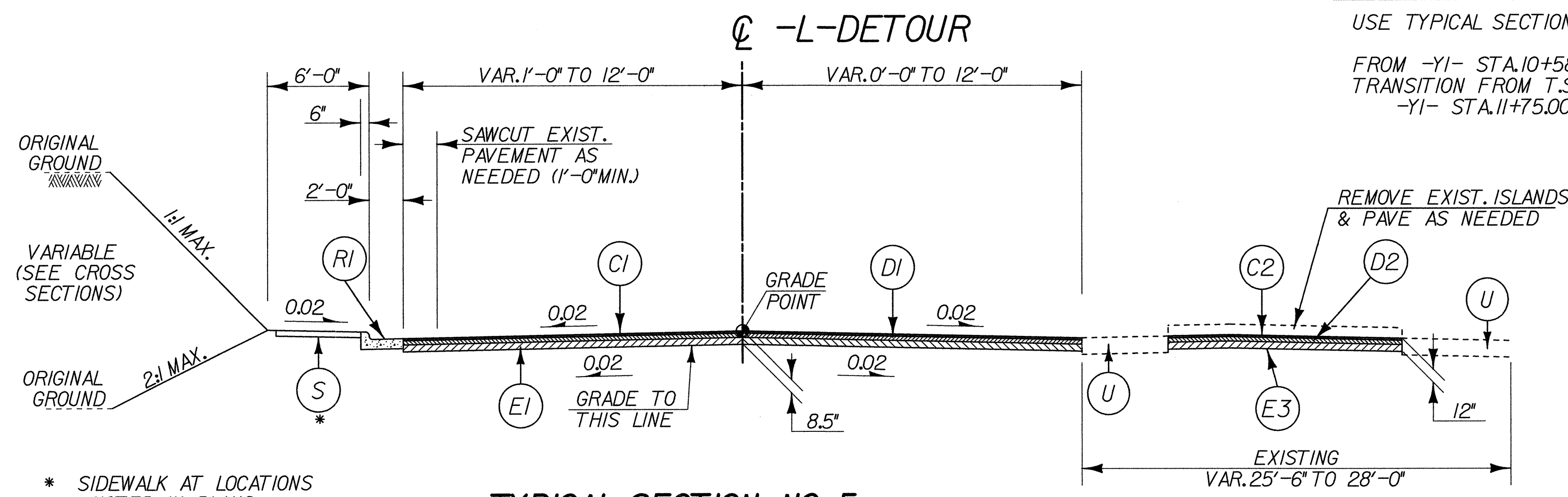
TYPICAL SECTION NO. 4

USE TYPICAL SECTION No.4 AS FOLLOWS:
FROM -Y1- STA.10+58.41 TO -Y1- STA.11+75.00
TRANSITION FROM T.S.No.3 TO EXISTING FROM
-Y1- STA.11+75.00 TO -Y1- STA.12+50.00

* SIDEWALK AT LOCATIONS NOTED IN PLANS
** 5' MONO.CONCRETE ISLAND AT LOCATIONS NOTED IN PLANS

A1	7" JOINTED CONC.PAVEMENT
C1	1 1/2" S9.5C
C2	3" S9.5C
C3	VAR.DEPTH S9.5C
D1	3" 119.0C
D2	4" 119.0C
D3	VAR.DEPTH 119.0C
E1	4" B25.0C
E2	5" B25.0C
E3	7" B25.0C
E4	9" B25.0C
E5	VAR.DEPTH B25.0C
J1	8" ABC
J2	VAR.DEPTH ABC
R1	2'-6" CONC.C&G
R2	SPECIAL 2'-6" CONC.C&G
R3	SPECIAL 1'-6" CONC.CURB
R4	SPECIAL 8" x 24" CONC.CURB
R5	5' MONO. CONC.ISLAND
S	4" CONC.SIDEWALK
T	EARTH MATERIAL
U	EXIST.PAVEMENT
W1	WEDGING

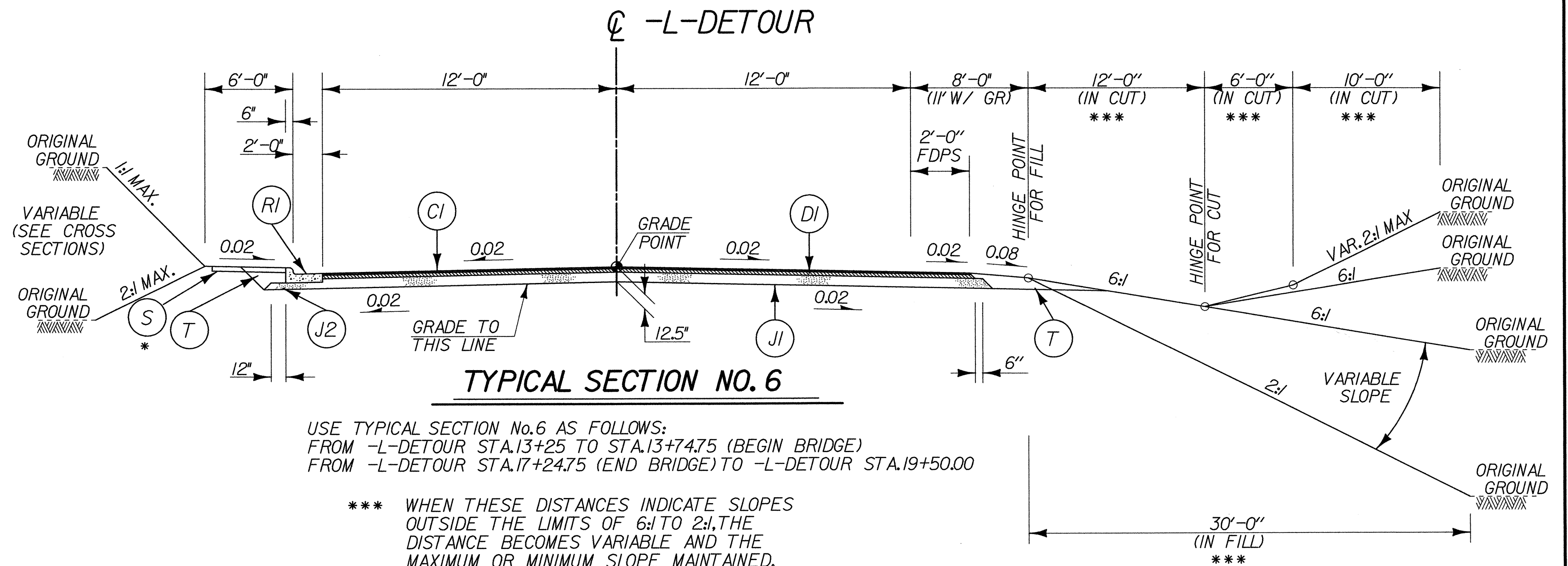
NOTE:
1. SEE SHEET 2 FOR DETAILED DESCRIPTION OF PAVEMENT SCHEDULE.
2. ALL PAVEMENT EDGES ARE 1:1 UNLESS OTHERWISE NOTED.



TYPICAL SECTION NO. 5

USE TYPICAL SECTION No.5 AS FOLLOWS:
TRANSITION FROM EXISTING TO T.S.No.5 FROM
-L-DETOUR STA.11+92.03 TO -L-DETOUR STA.12+76.63
FROM -L-DETOUR STA.12+76.63 TO -L-DETOUR STA.13+25
FROM -L-DETOUR STA.19+50 TO -L-DETOUR STA.20+00.00
TRANSITION FROM T.S.No.5 TO EXISTING FROM
-L-DETOUR STA.20+00.00 TO -L-DETOUR STA.21+41.72

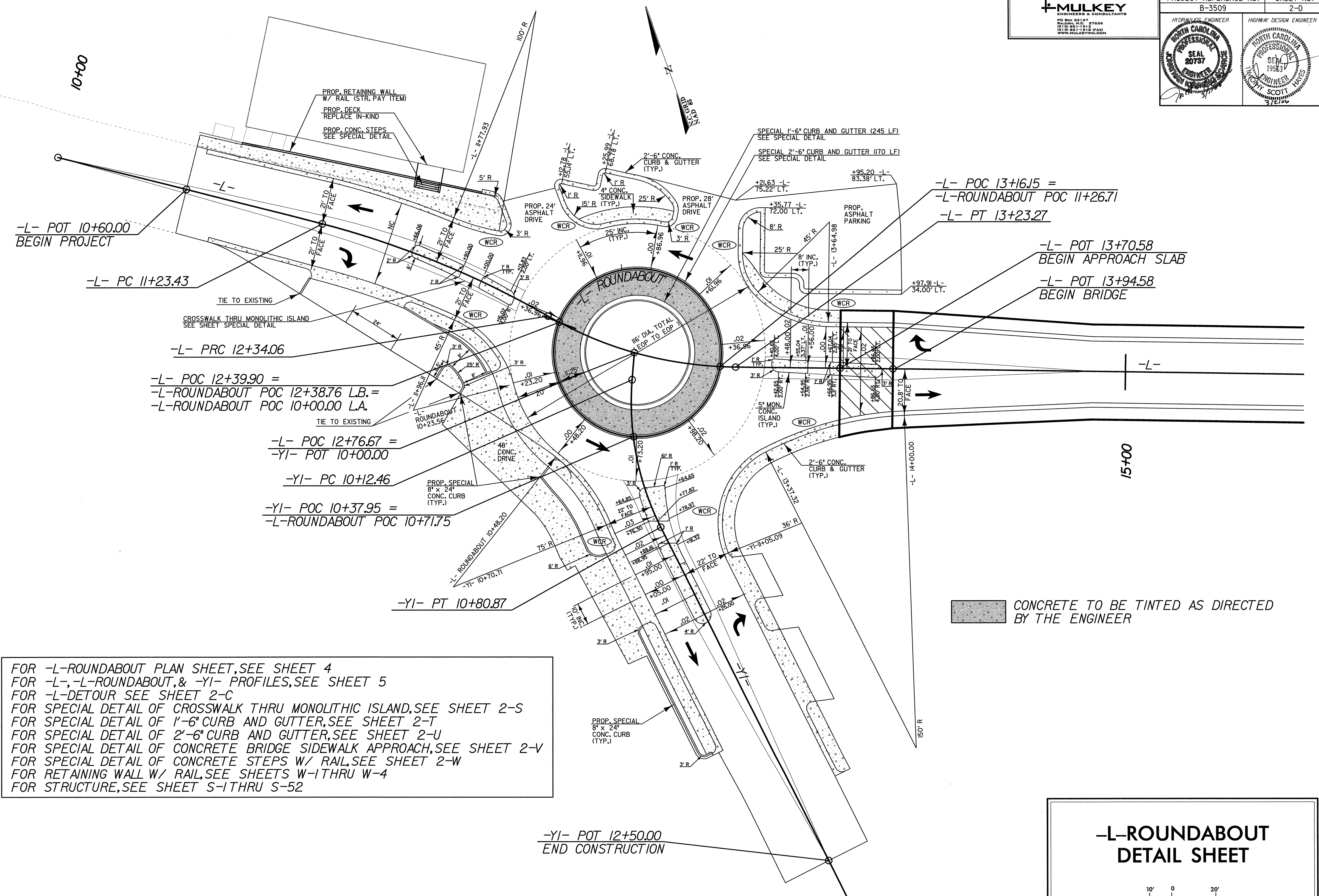
* SIDEWALK AT LOCATIONS NOTED IN PLANS



TYPICAL SECTION NO. 6

USE TYPICAL SECTION No.6 AS FOLLOWS:
FROM -L-DETOUR STA.13+25 TO STA.13+74.75 (BEGIN BRIDGE)
FROM -L-DETOUR STA.17+24.75 (END BRIDGE) TO -L-DETOUR STA.19+50.00

*** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.



FOR -L- ROUNDABOUT PLAN SHEET, SEE SHEET 4
 FOR -L-, -L- ROUNDABOUT, & -YI- PROFILES, SEE SHEET 5
 FOR -L- DETOUR SEE SHEET 2-C
 FOR SPECIAL DETAIL OF CROSSWALK THRU MONOLITHIC ISLAND, SEE SHEET 2-S
 FOR SPECIAL DETAIL OF 1'-6" CURB AND GUTTER, SEE SHEET 2-T
 FOR SPECIAL DETAIL OF 2'-6" CURB AND GUTTER, SEE SHEET 2-U
 FOR SPECIAL DETAIL OF CONCRETE BRIDGE SIDEWALK APPROACH, SEE SHEET 2-V
 FOR SPECIAL DETAIL OF CONCRETE STEPS W/ RAIL, SEE SHEET 2-W
 FOR RETAINING WALL W/ RAIL, SEE SHEETS W-1 THRU W-4
 FOR STRUCTURE, SEE SHEET S-1 THRU S-52

 CONCRETE TO BE TINTED AS DIRECTED BY THE ENGINEER

**-L- ROUNDABOUT
DETAIL SHEET**

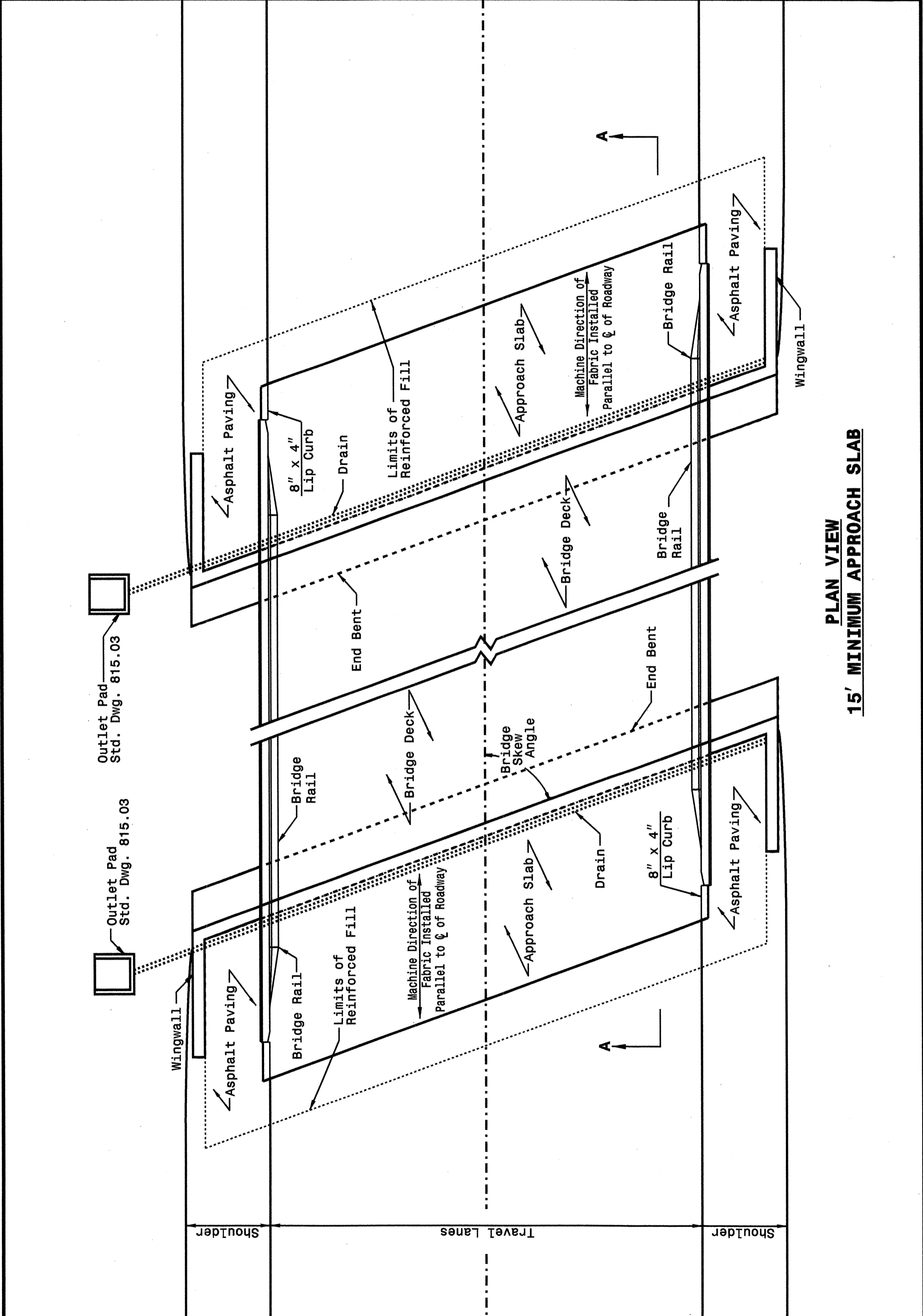
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ENGLISH DETAIL DRAWING FOR REINFORCED BRIDGE APPROACH FILLS

15' MINIMUM APPROACH SLAB

SHEET 1 OF 7 422D10



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

ENGLISH DETAIL DRAWING FOR REINFORCED BRIDGE APPROACH FILLS

15' MINIMUM APPROACH SLAB

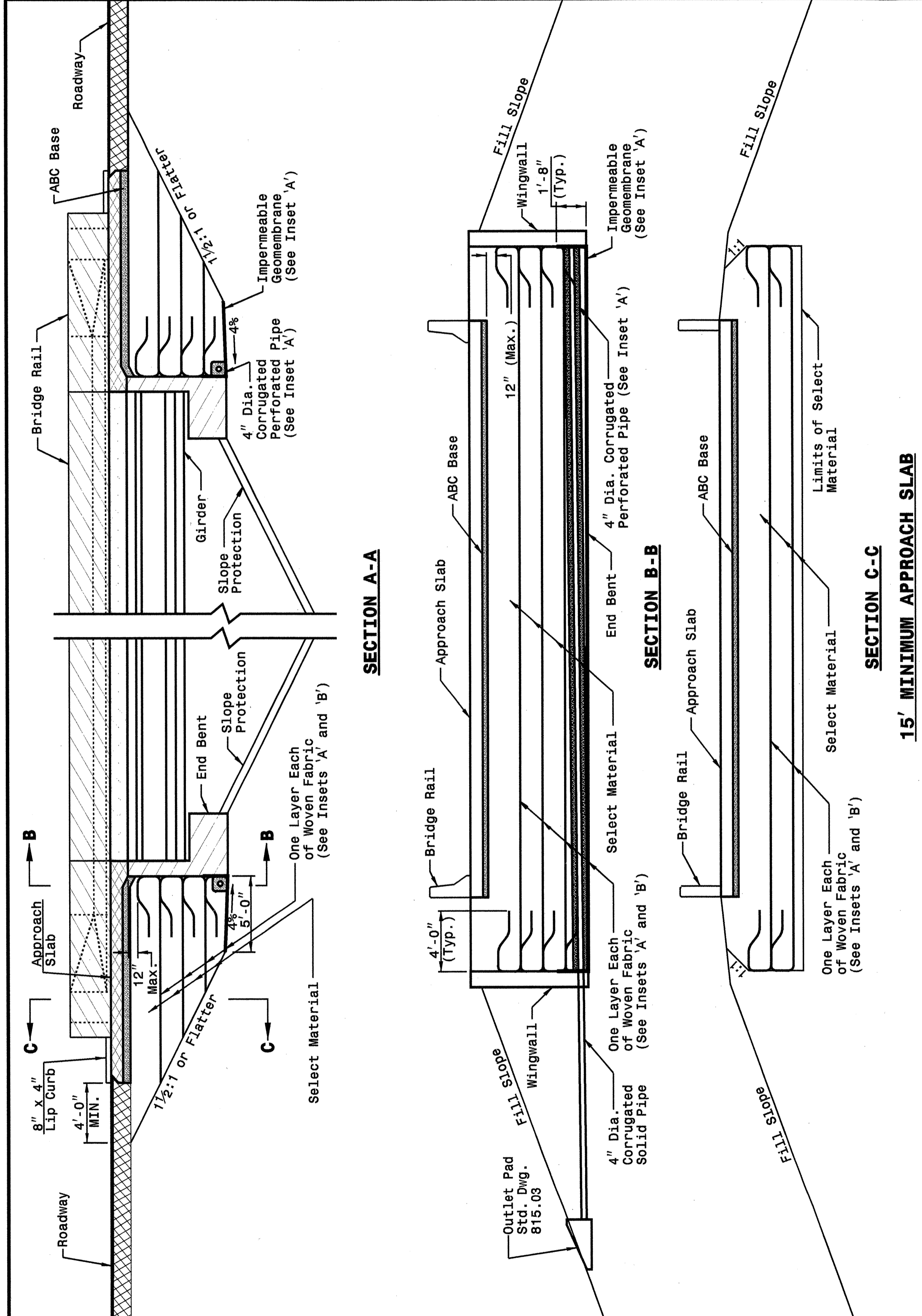
SHEET 1 OF 7 422D10

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

ENGLISH DETAIL DRAWING FOR PRESTRESSED AND PLATE GIRDER BRIDGES REINFORCED BRIDGE APPROACH FILLS

15' MINIMUM APPROACH SLAB

SHEET 2 OF 7 422D10



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

ENGLISH DETAIL DRAWING FOR PRESTRESSED AND PLATE GIRDER BRIDGES REINFORCED BRIDGE APPROACH FILLS

15' MINIMUM APPROACH SLAB

SHEET 2 OF 7 422D10

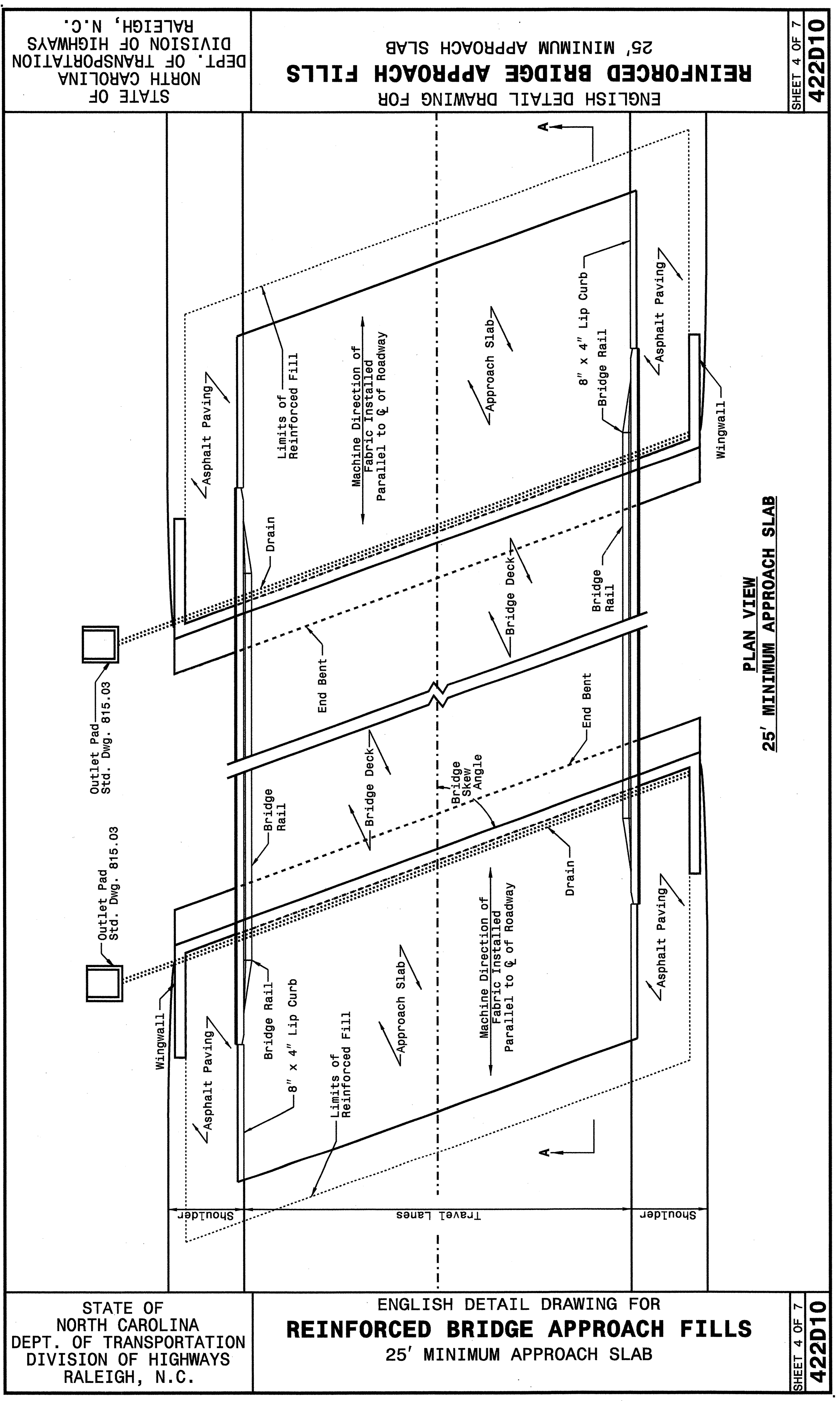
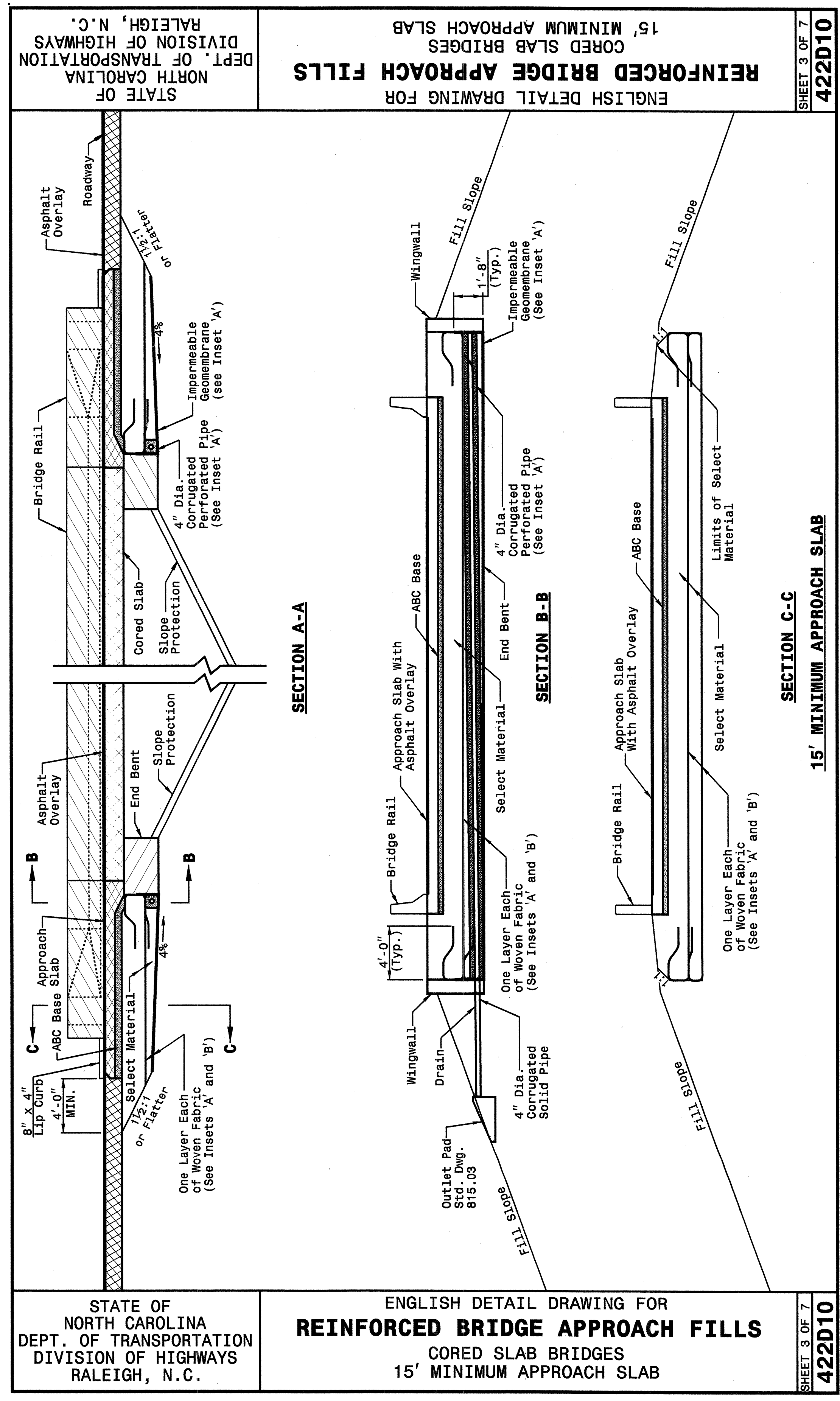


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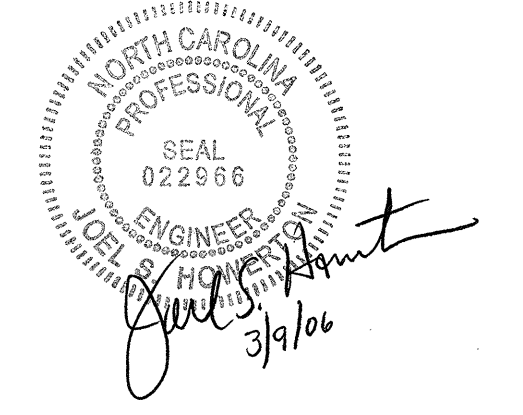
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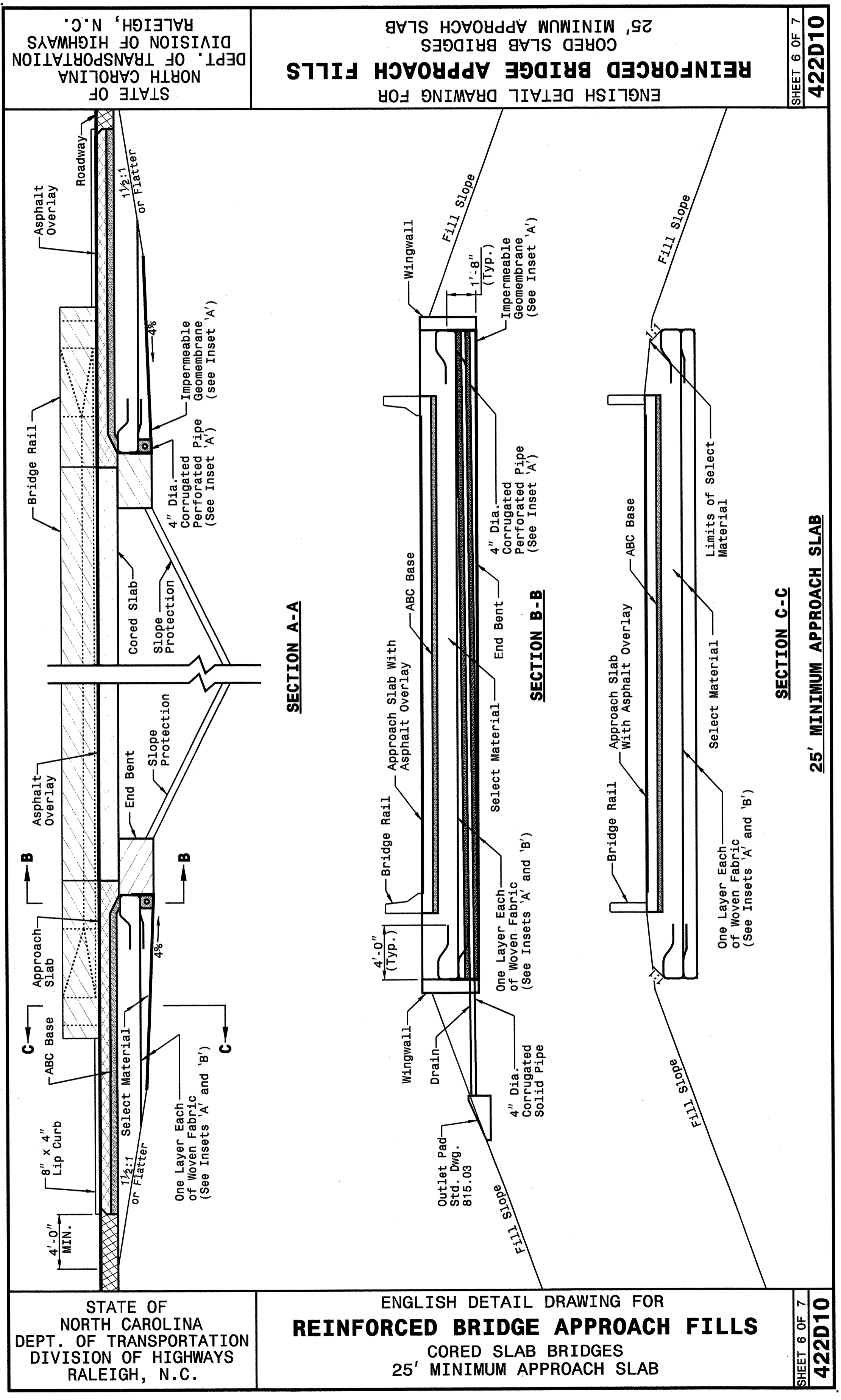
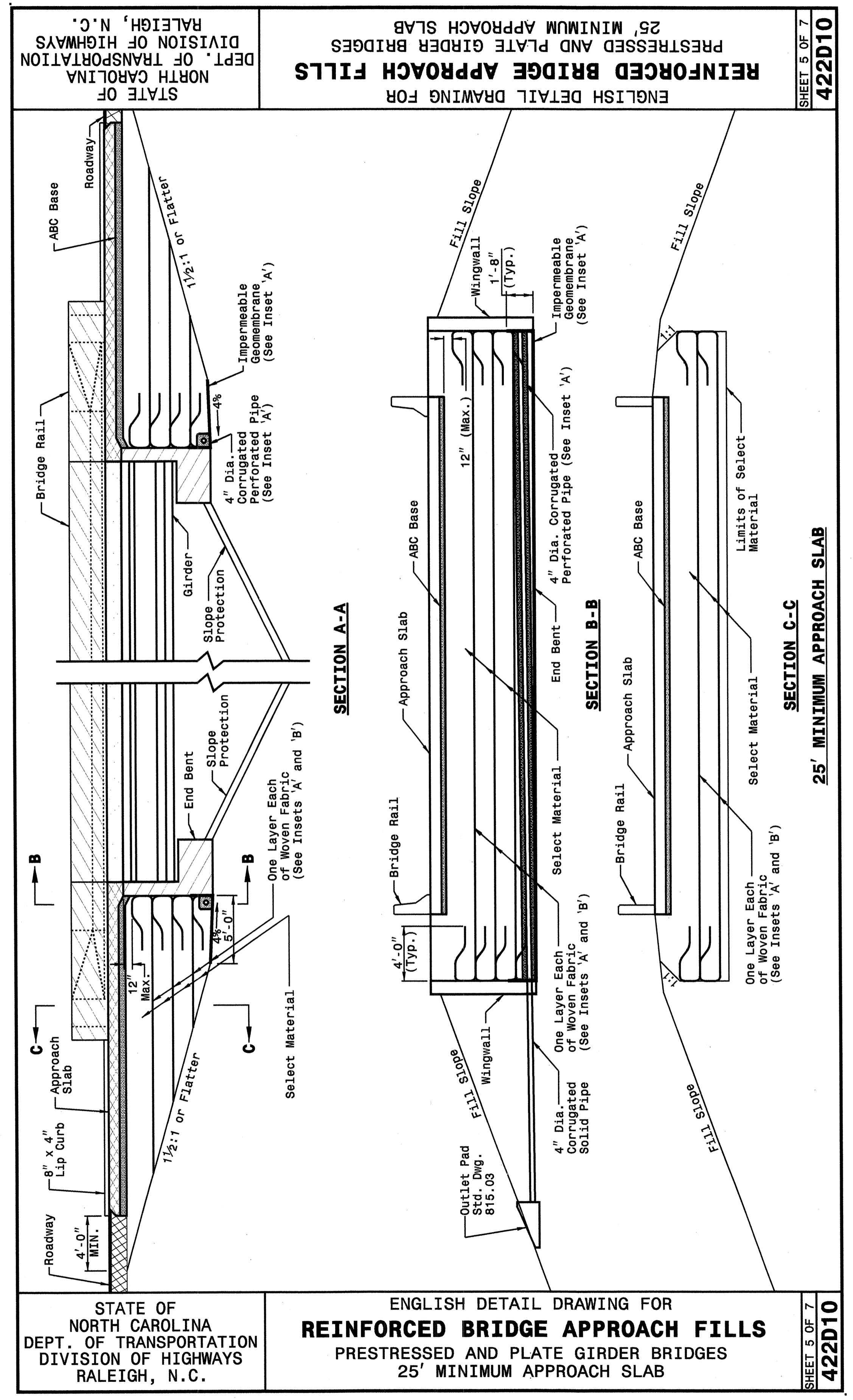


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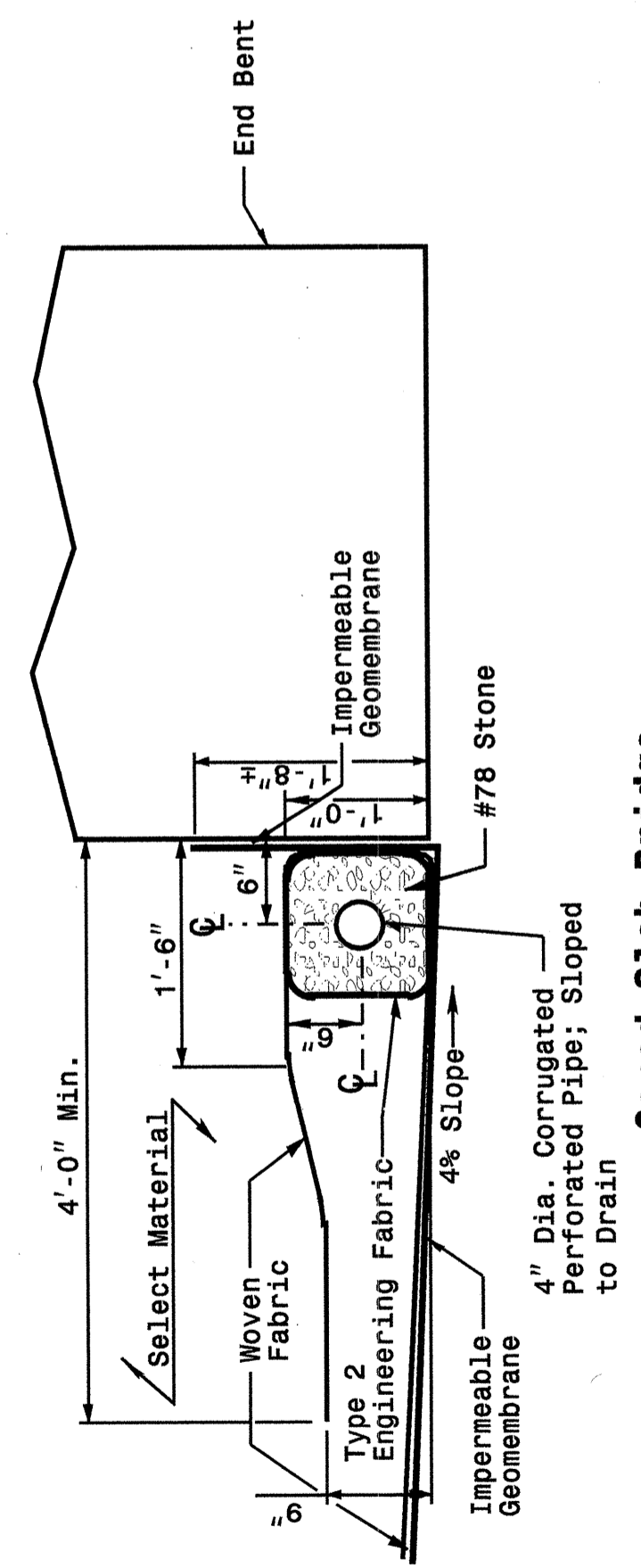
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INSETS AND CHARTS

SHEET 7 OF 7
422D10

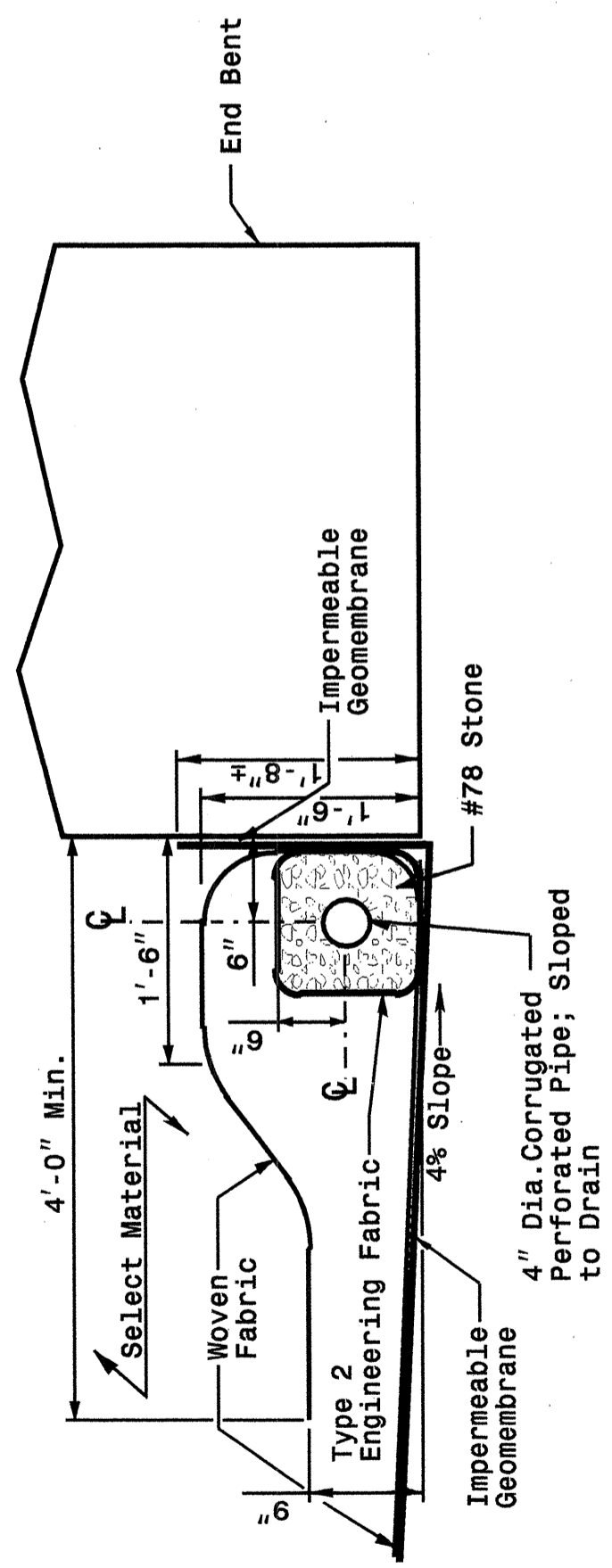
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ENGLISH DETAIL DRAWING FOR
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INSETS AND CHARTS

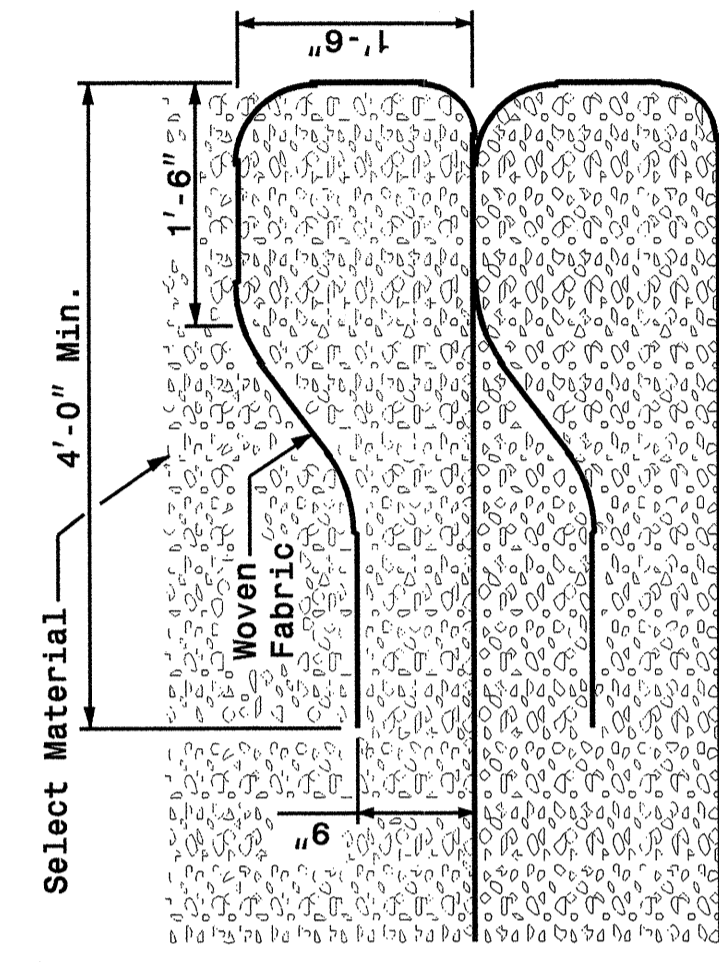
SHEET 7 OF 7
422D10



Cored Slab Bridge
Showing First Lift and Drains



Girder Bridge
Showing First Lift and Drains



Typical Fabric Lift and Wrap
Showing Second and Above Lifts

Inset 'B'

Height of Backwall	Number of Fabric Layers
4'-6" - 5'-9"	3
5'-10" - 7'-2"	4
7'-3" - 8'-8"	5
8'-9" - 10'-1"	6
10'-2" - 11'-8"	7

Note: Cored Slab Structures Require 2 Fabric Layers.

Inset 'A'

Length of Bridge End Bent Inside Wingwalls
If Bridge Skew is Less Than or Equal to 90°:
 $\frac{\text{Roadway Width} + 7'-0''}{\sin(\text{Bridge Skew Angle})} = \text{Dis. Between Wingwalls}$
If Bridge Skew is Greater Than 90°:
 $\frac{\text{Roadway Width} + 7'-0''}{\cos(\text{Bridge Skew Angle} - 90^\circ)} = \text{Dis. Between Wingwalls}$

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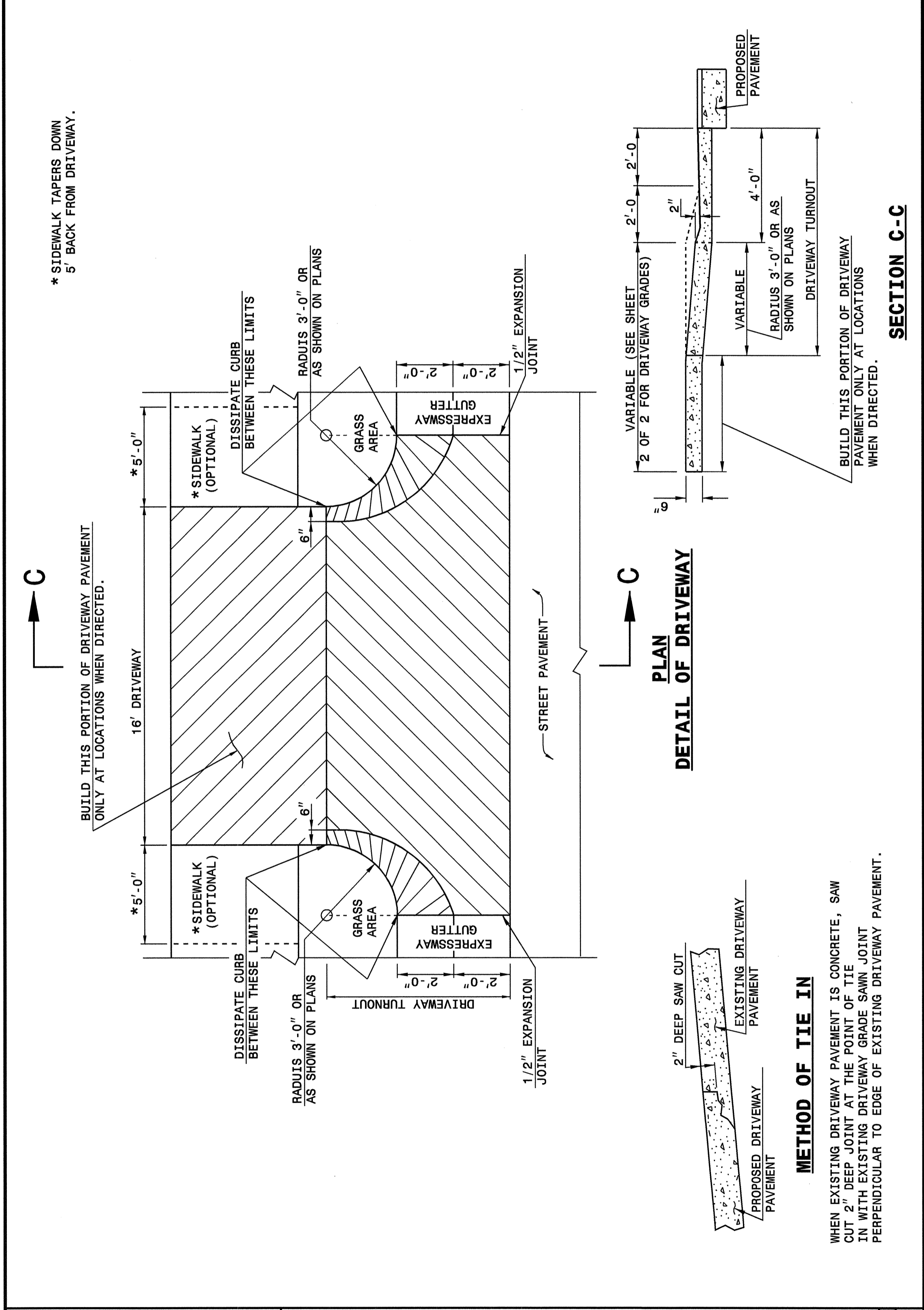
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ENGLISH DETAIL DRAWING FOR DRIVEWAY TURNOUT RADIUS TYPE FOR EXPRESSWAY GUTTER

SHEET 1 OF 2 **848D02**



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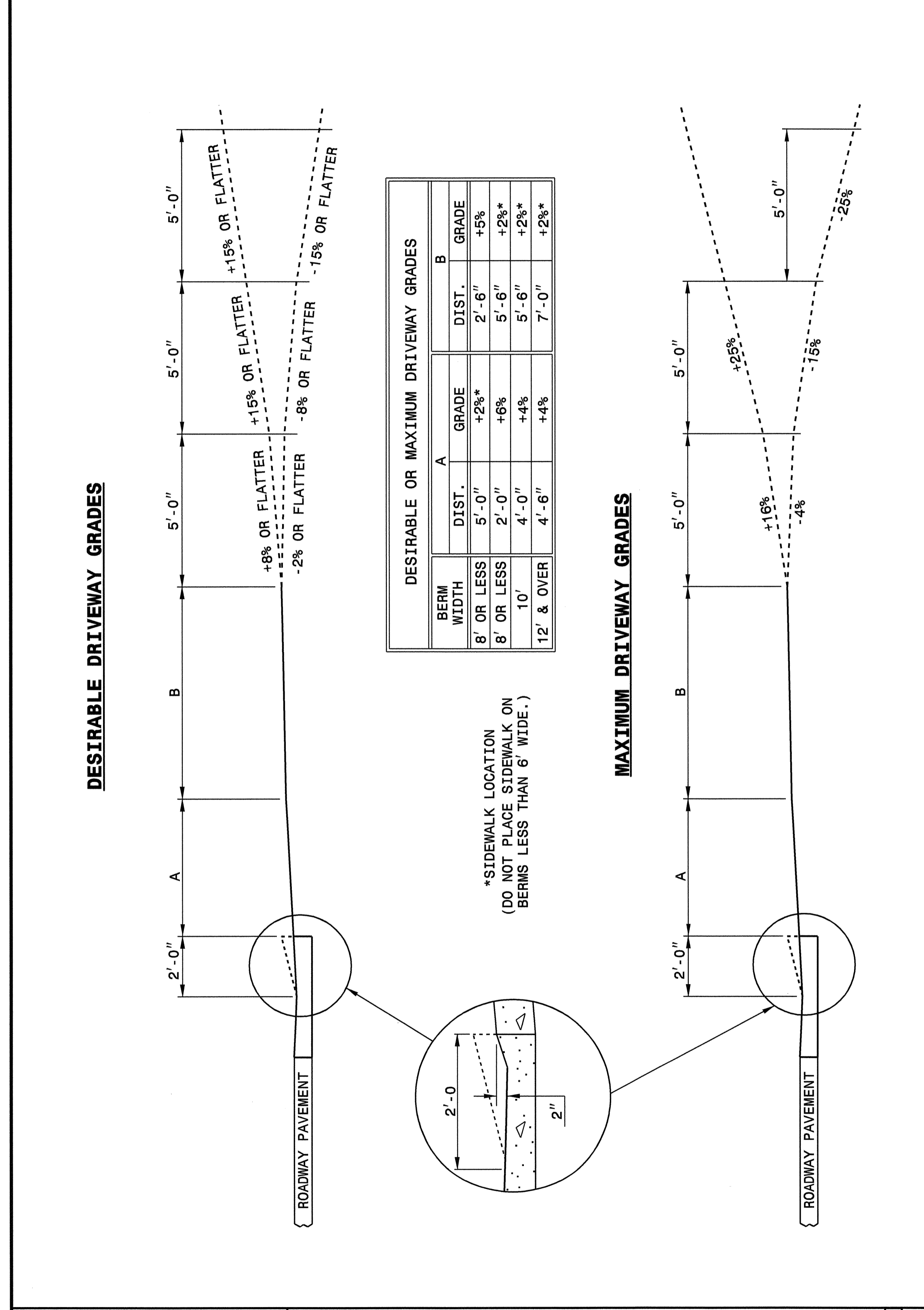
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SHEET 1 OF 2 **848D02**

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

ENGLISH DETAIL DRAWING FOR DRIVEWAY TURNOUT RADIUS TYPE FOR EXPRESSWAY GUTTER

SHEET 2 OF 2 **848D02**



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

ENGLISH DETAIL DRAWING FOR DRIVEWAY TURNOUT RADIUS TYPE FOR EXPRESSWAY GUTTER

SHEET 2 OF 2 **848D02**

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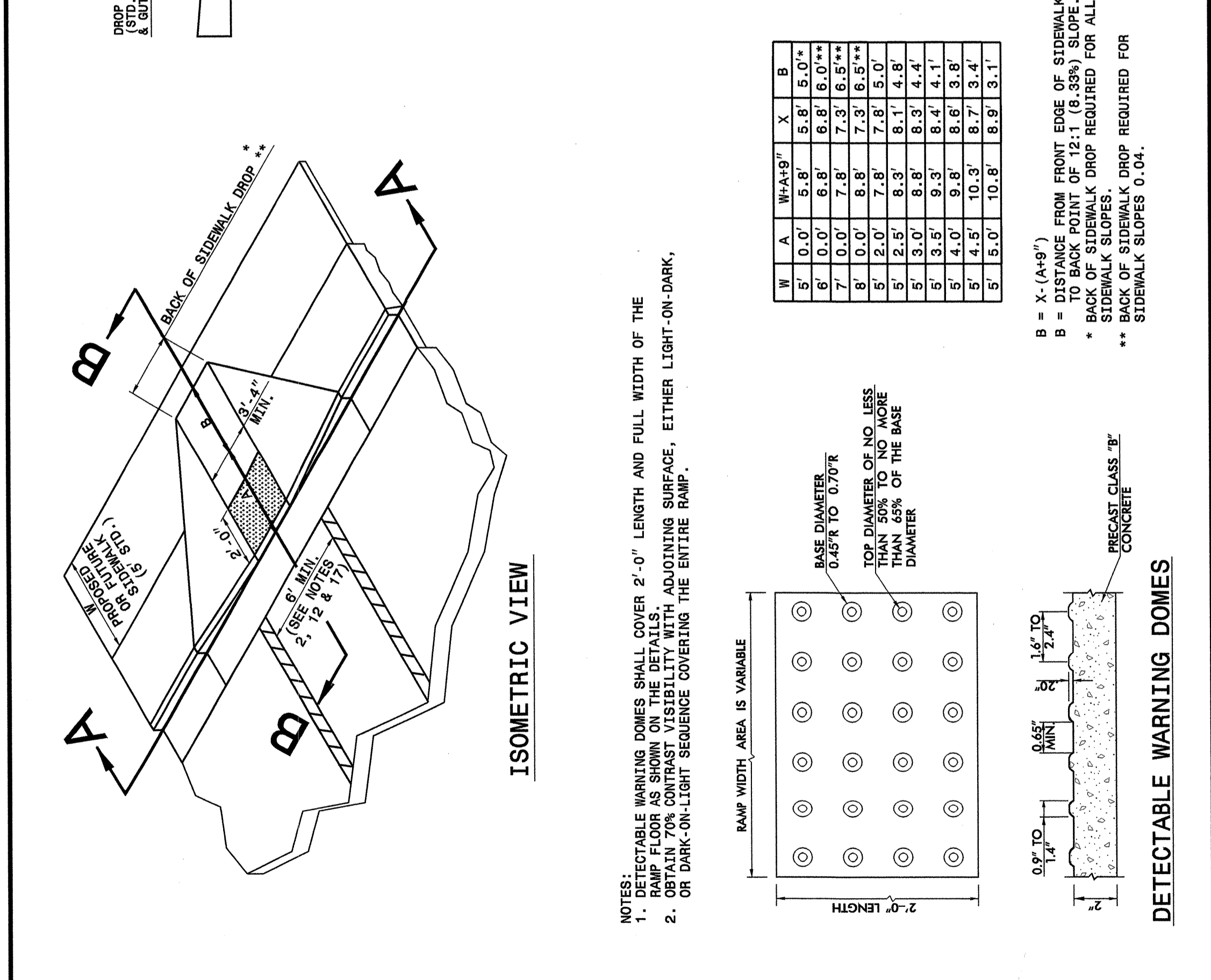
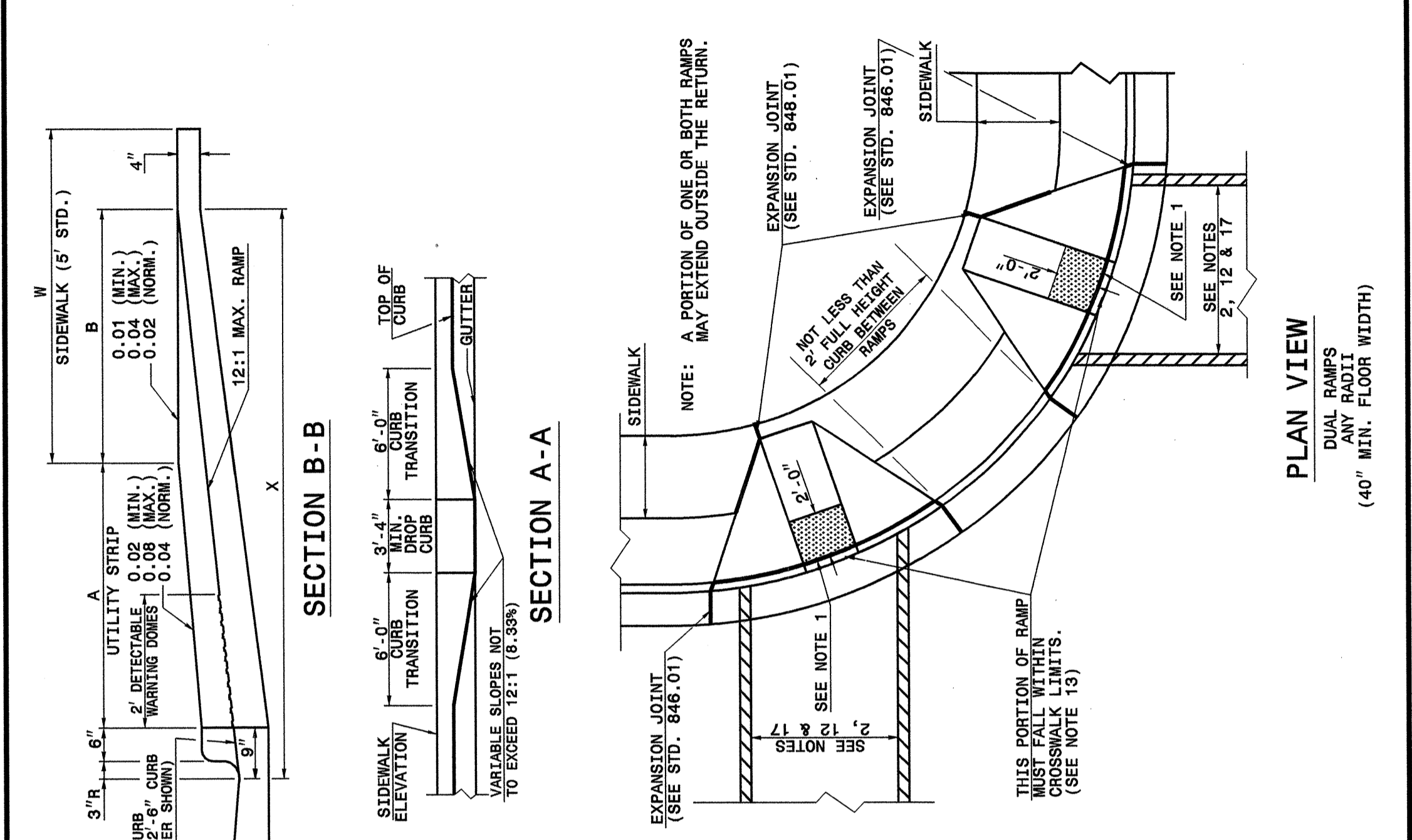
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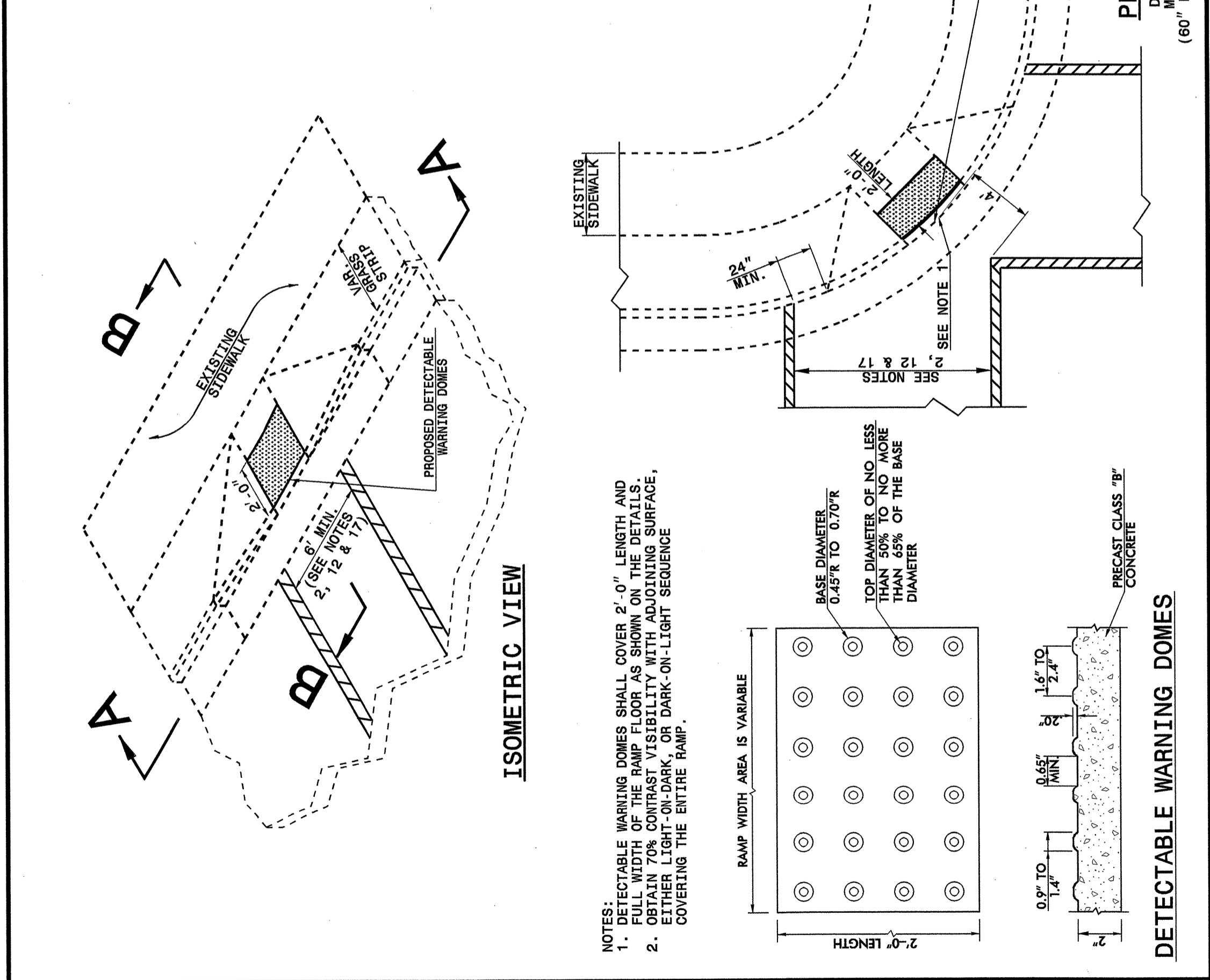
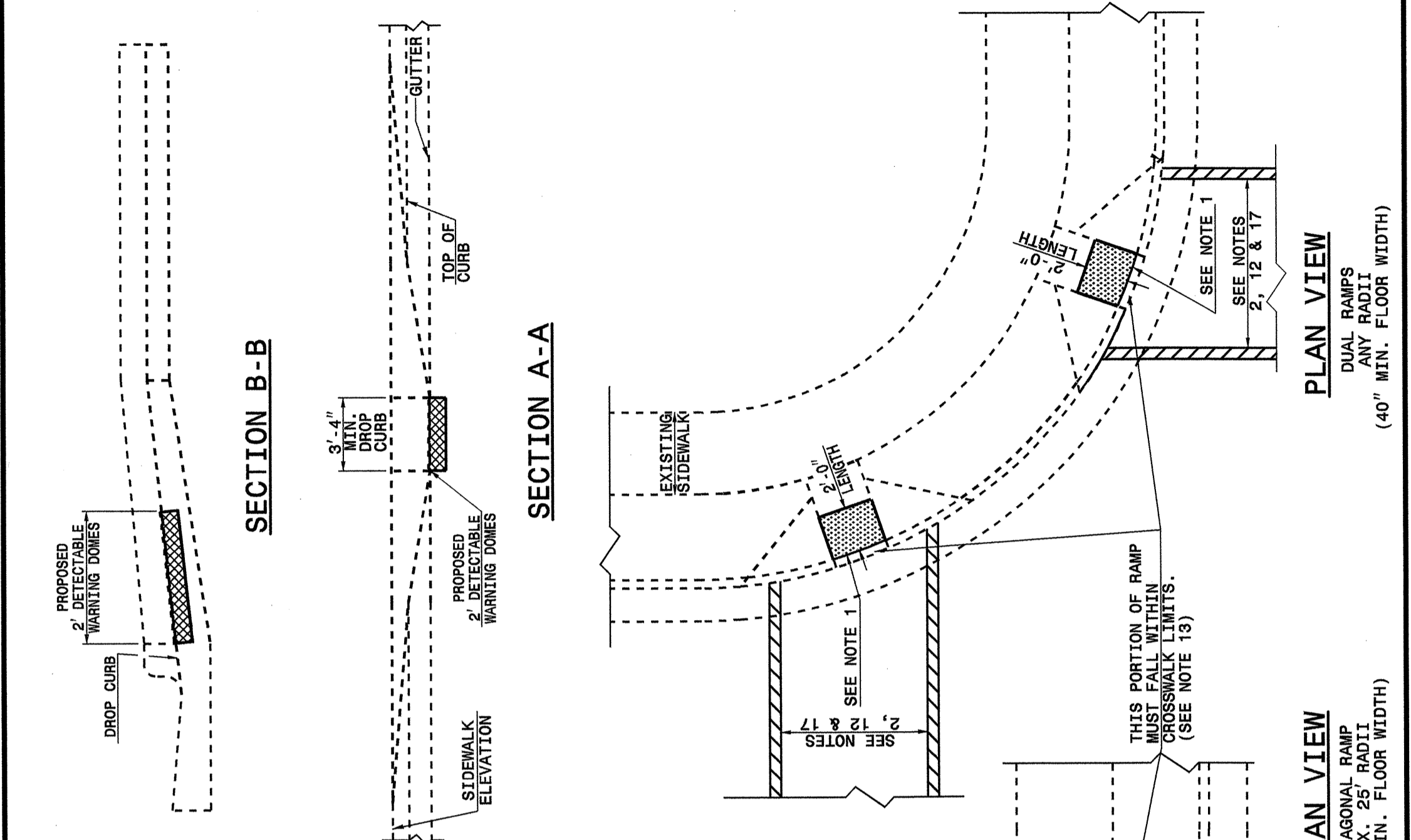
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ENGLISH DETAIL DRAWING FOR WHEELCHAIR RAMP CURB CUT SHEET 1 OF 4 848D05

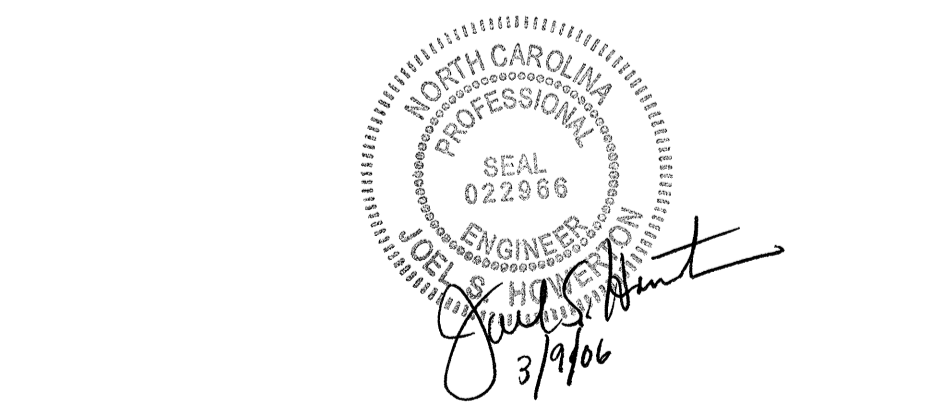
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ENGLISH DETAIL DRAWING FOR RETROFITTING DETECTABLE WARNING DOMES ONTO EXISTING WHEELCHAIR RAMP CURB CUT SHEET 2 OF 4 848D05



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. ENGLISH DETAIL DRAWING FOR RETROFITTING DETECTABLE WARNING DOMES ONTO EXISTING WHEELCHAIR RAMP CURB CUT SHEET 2 OF 4 848D05

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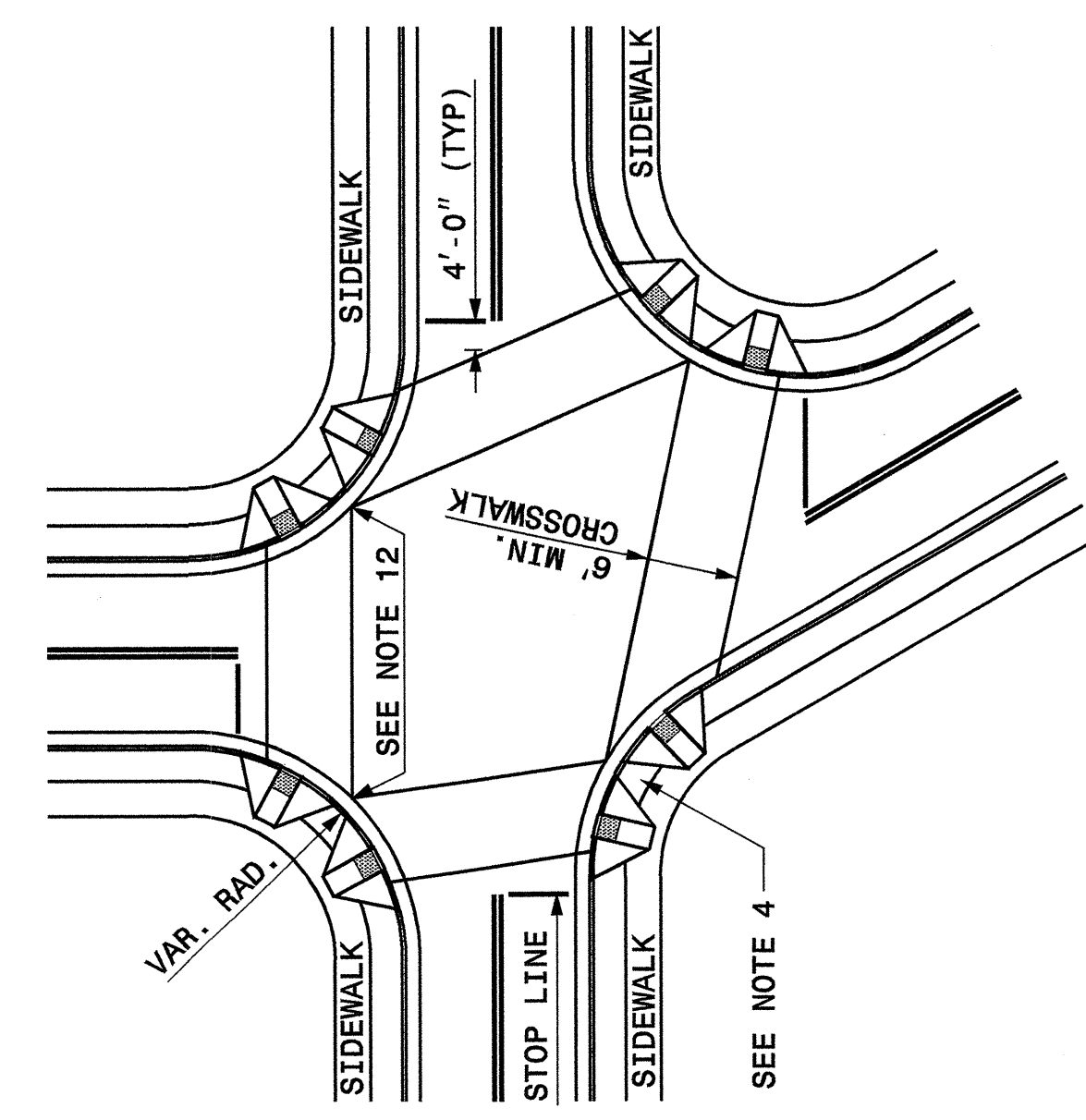
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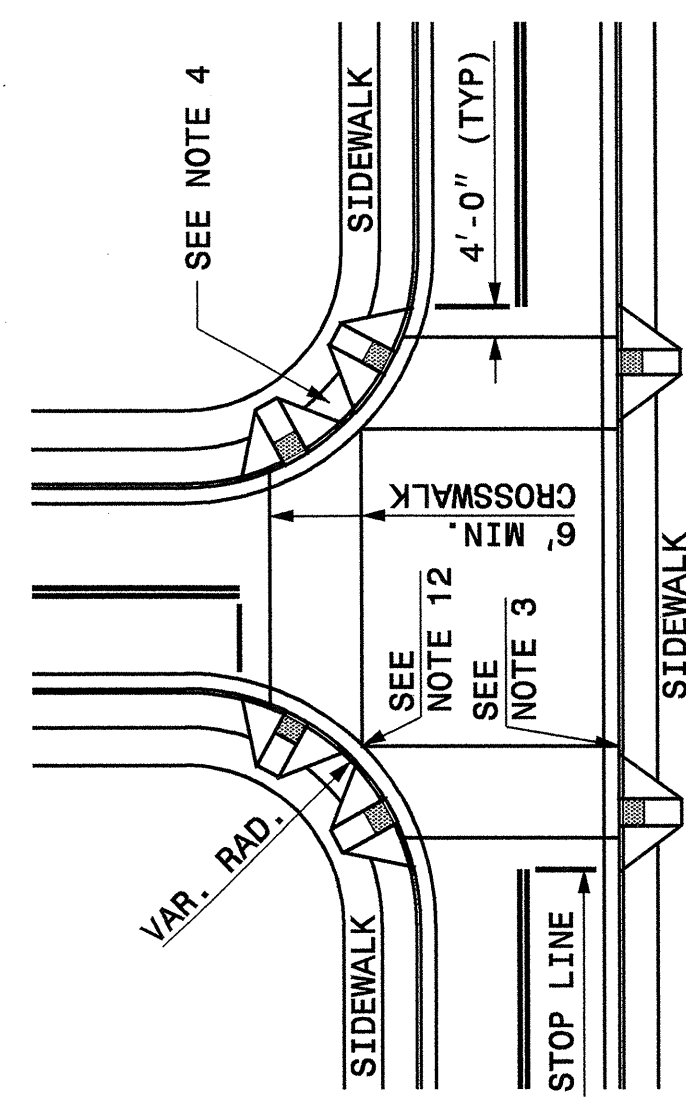
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ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
CURB CUT

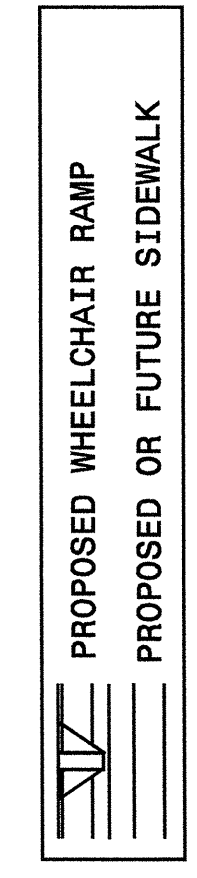
SHEET 3 OF 4
848D05



DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMP, PEDESTRIAN CROSSWALKS AND STOP LINES



DETAIL SHOWING TYPICAL LOCATION OF WHEELCHAIR RAMP, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



ALLOWABLE LOCATIONS
DUAL RAMP RADII.....ANY

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ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
CURB CUT

SHEET 3 OF 4
848D05

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ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
CURB CUT

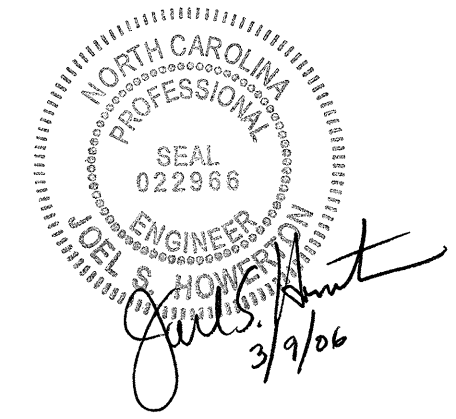
SHEET 4 OF 4
848D05

- NOTES:
- CONSTRUCT THE WALKING SURFACE WITH SLIP RESISTANCE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
 - CROSSWALK WIDTHS AND CONFIGURATION VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS.
 - NORTH CAROLINA GENERAL STATUTE 136-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW.
IN ADDITION, SECTION 228 OF THE 1973 FEDERAL AID HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.
THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES. COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.
 - PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED PLACE NOT LESS THAN 2 FEET OF FULL HEIGHT CURB BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
 - PAY FOR ALL VARIABLE DEPTH CONCRETE USED FOR CONSTRUCTION OF WHEELCHAIR RAMPS AS CONCRETE WHEELCHAIR RAMPS. (SQ. YDS.)
 - PAY FOR ALL DEPRESSED CURBS AT WHEELCHAIR RAMPS AS THE TYPE CURB AND GUTTER USED ADJACENT TO DEPRESSED CURB. (LN. FT.)
 - SUCH PRICES AND PAYMENTS IS CONSIDERED FULL COMPENSATION FOR ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO SATISFACTORILY COMPLETE THE WORK.
 - DO NOT EXCEED 0.08 (12:1) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
 - CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS.
 - USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
 - PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01.
 - PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES NO CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RADII, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 17)
 - COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
 - CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE.
 - USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEW MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY.
 - TERMINATE PARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
 - PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.

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ENGLISH DETAIL DRAWING FOR
WHEELCHAIR RAMP
CURB CUT

SHEET 4 OF 4
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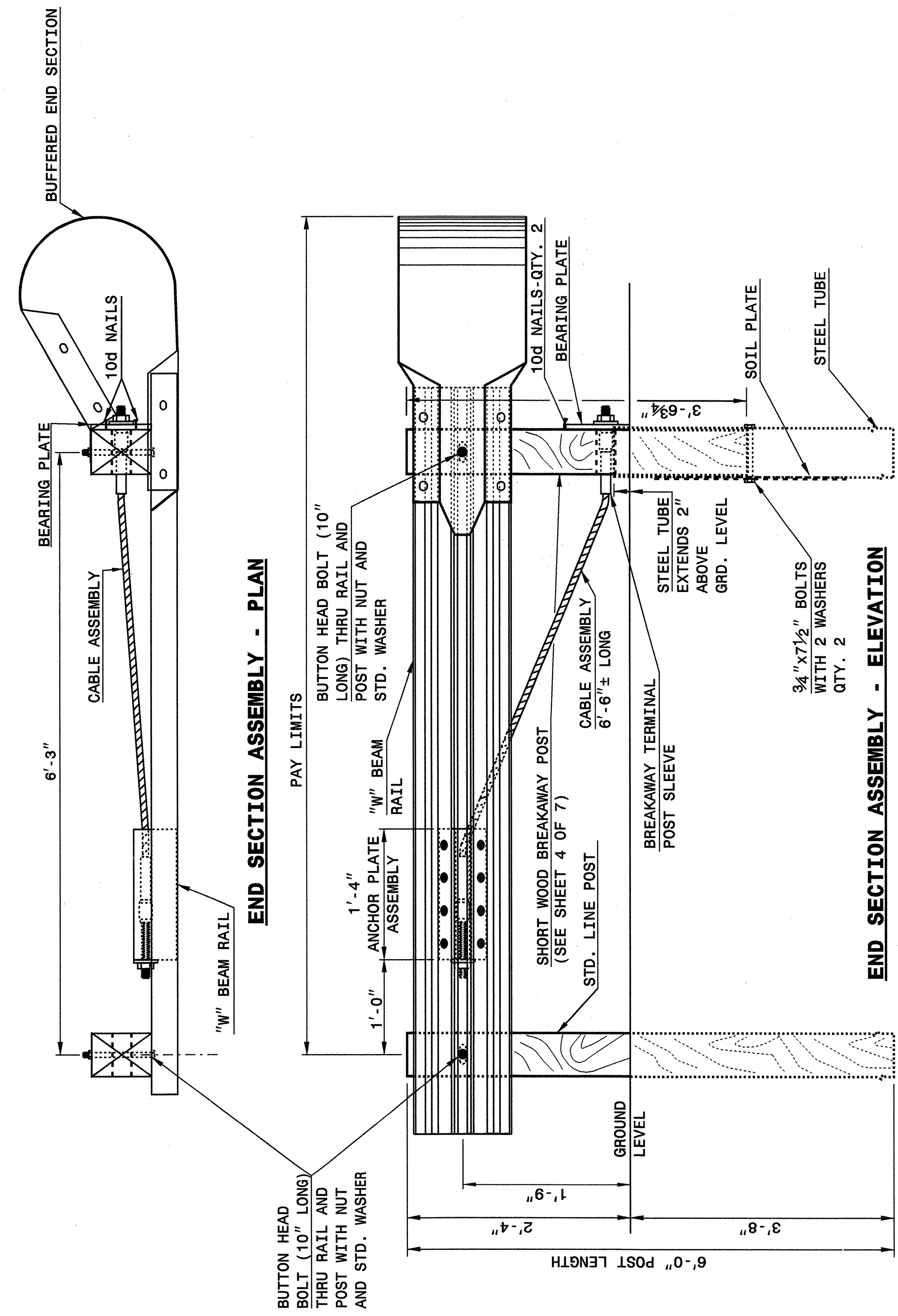
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ENGLISH DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 1 OF 7
862D02



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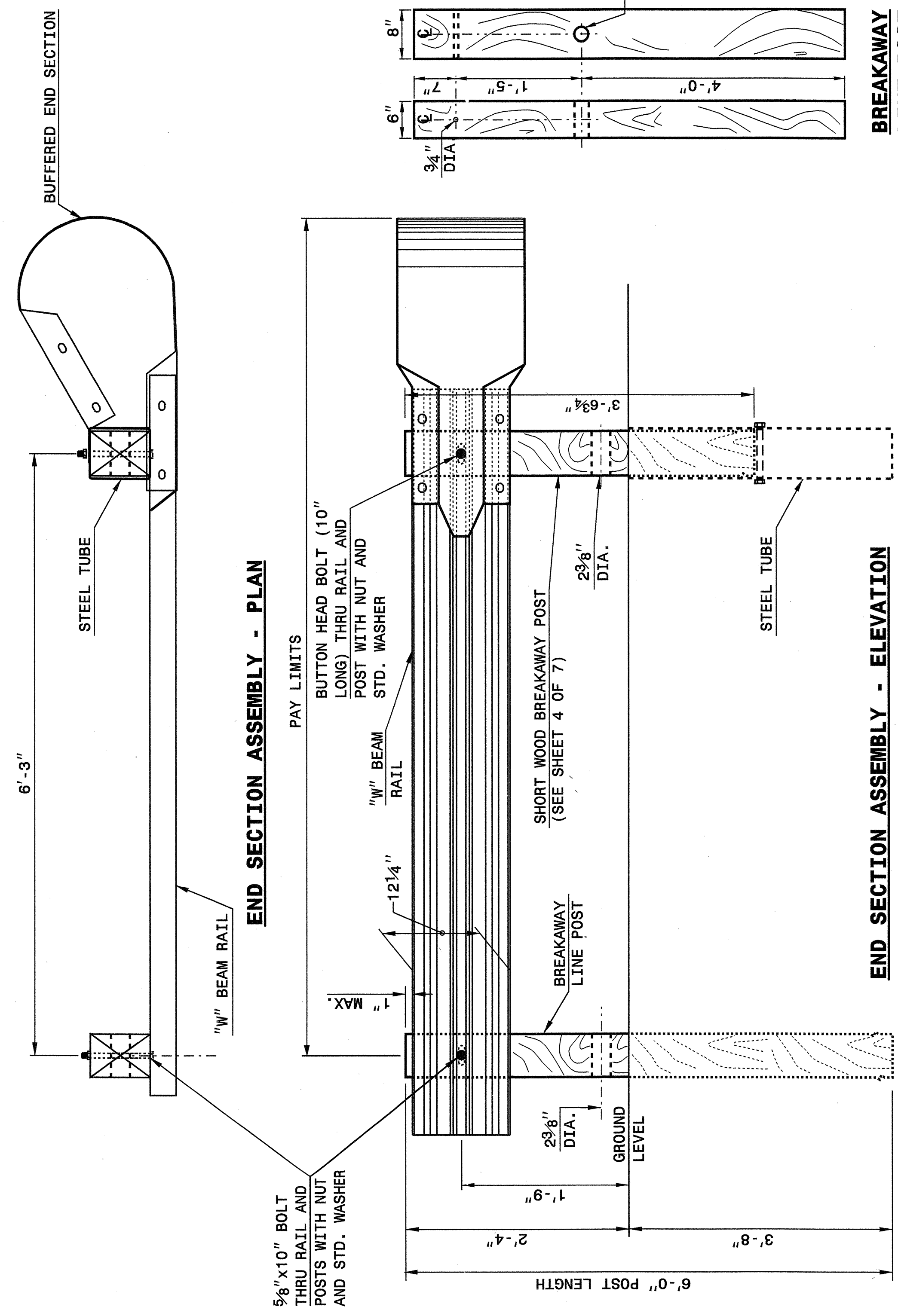
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ENGLISH DETAIL DRAWING FOR
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SHEET 2 OF 7
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ENGLISH DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 2 OF 7
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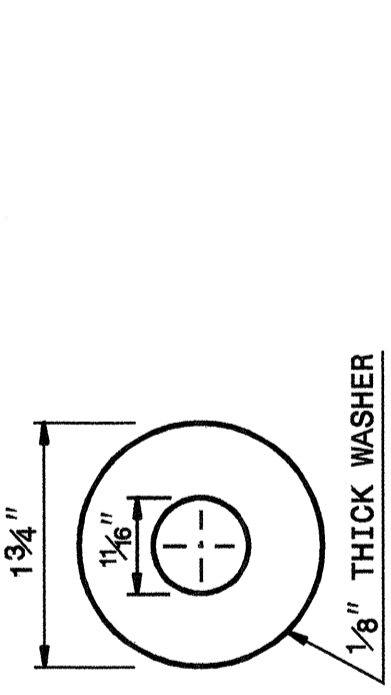
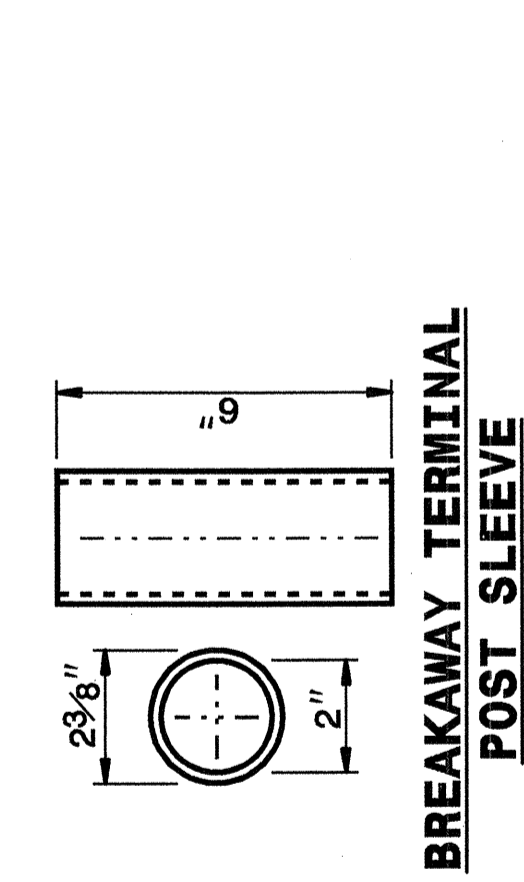
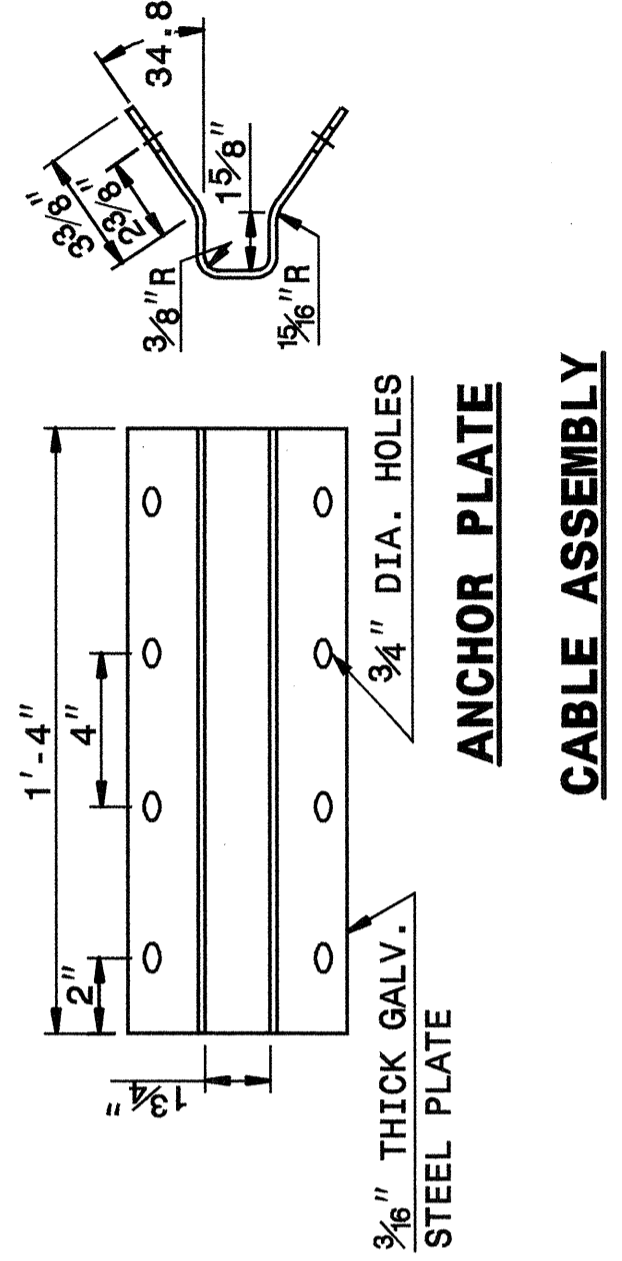
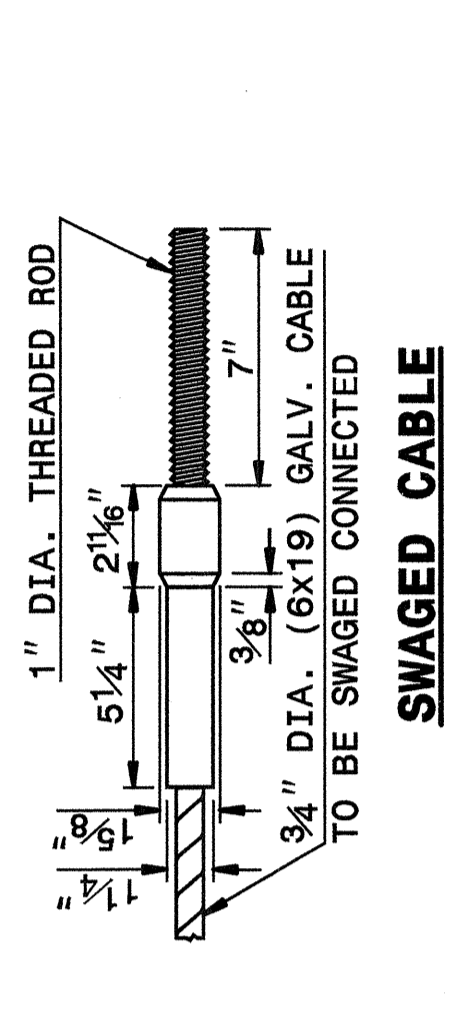
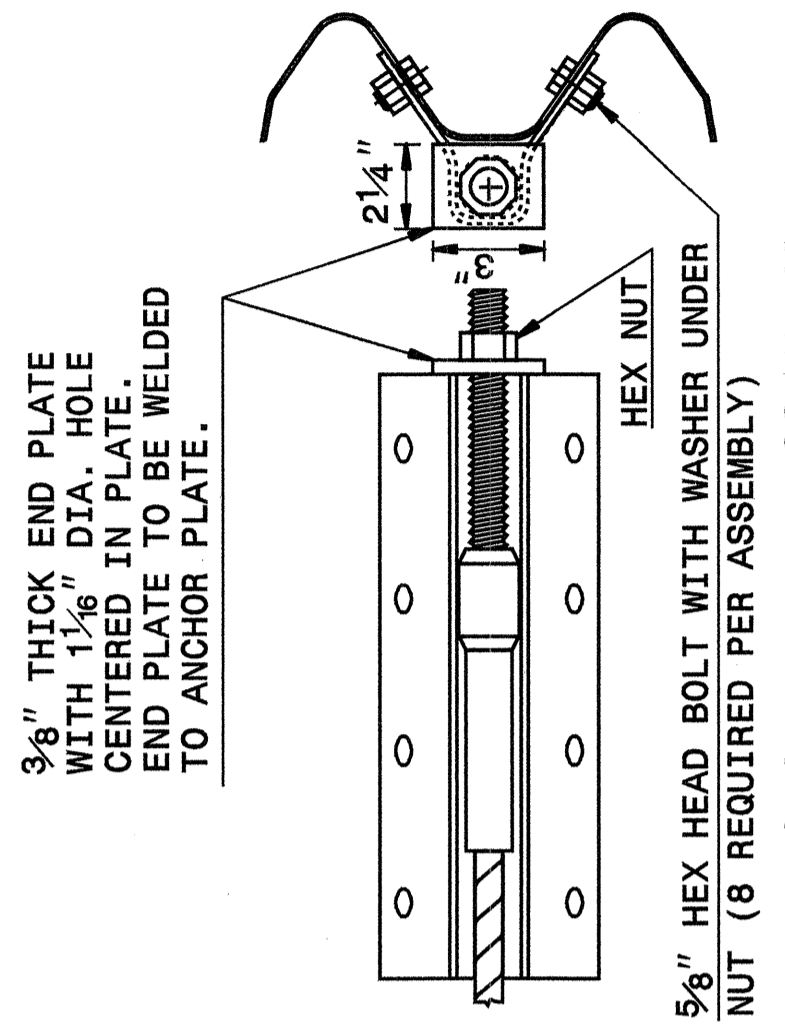
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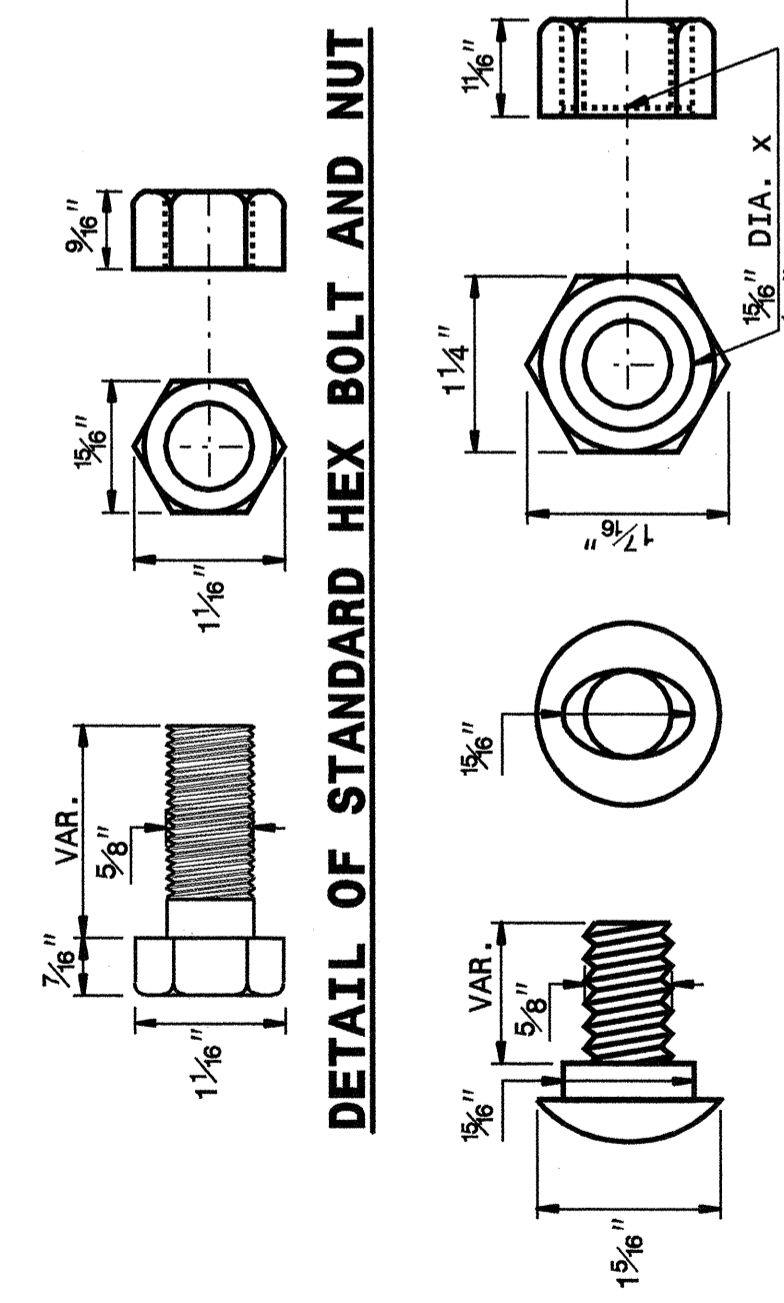
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ENGLISH DETAIL DRAWING FOR GUARDRAIL INSTALLATION

SHEET 5 OF 7 862D02



STANDARD WASHER: TYPICAL USE UNDER NUT WITH WOOD POST



DETAIL OF BUTTON HEAD BOLT AND NUT

SYSTEM PARTS

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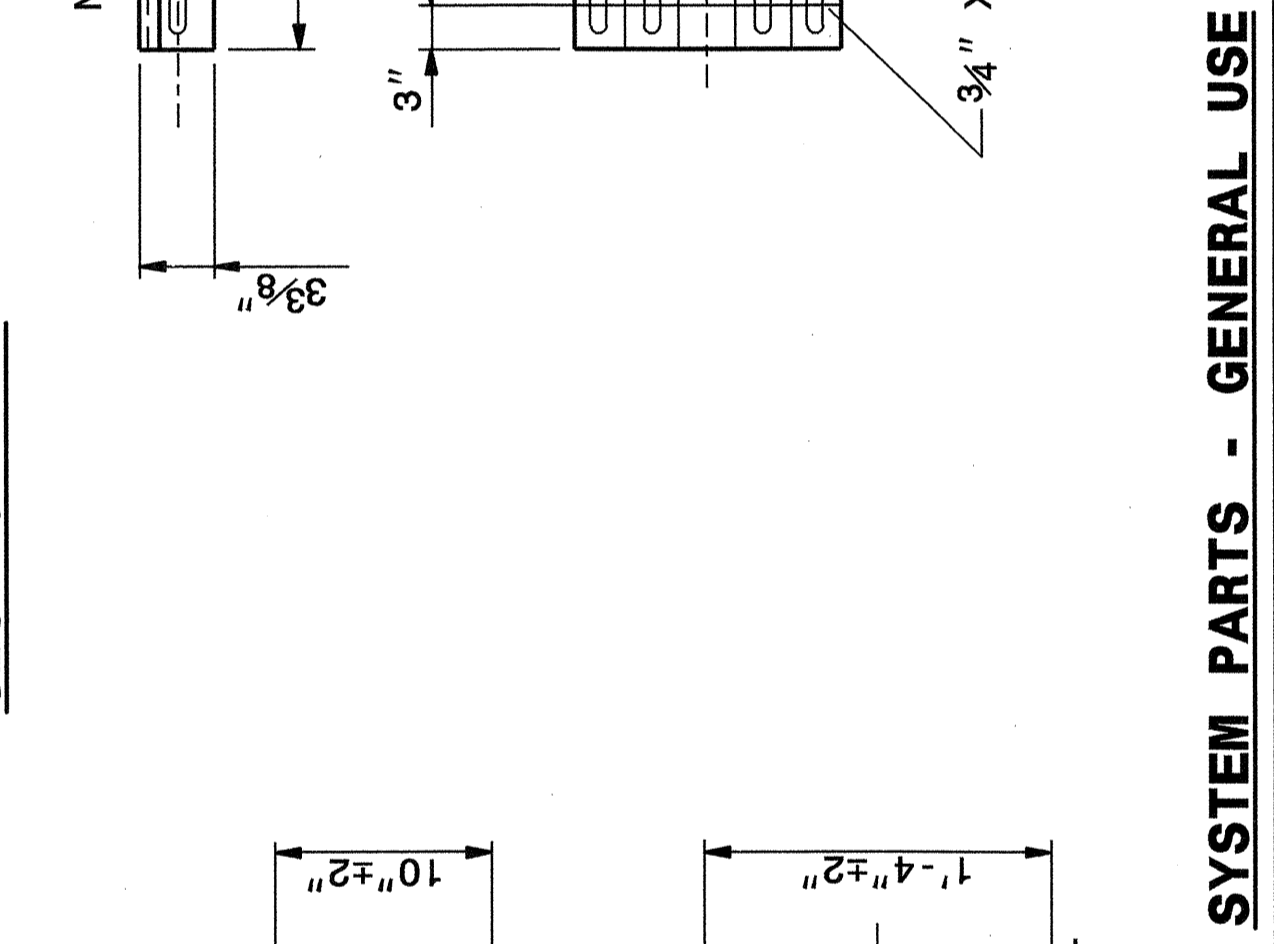
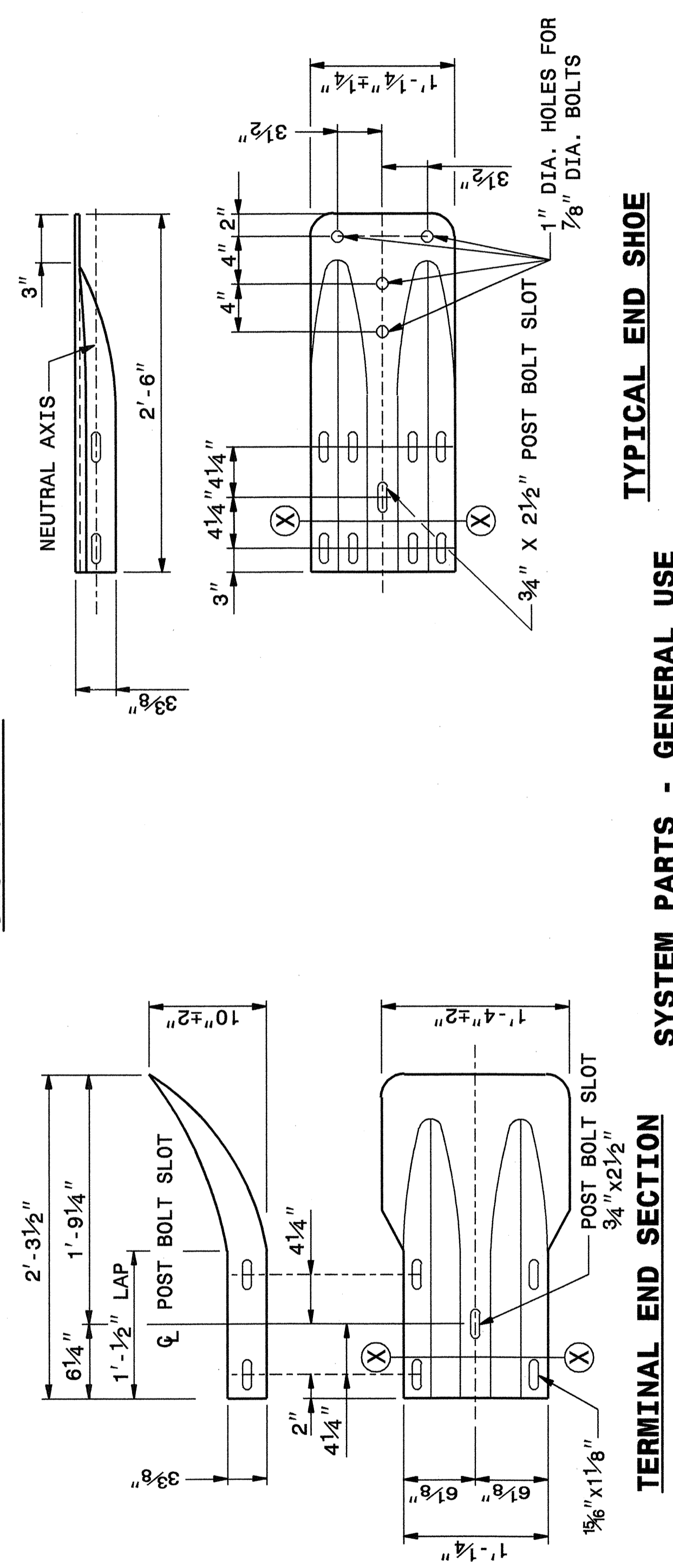
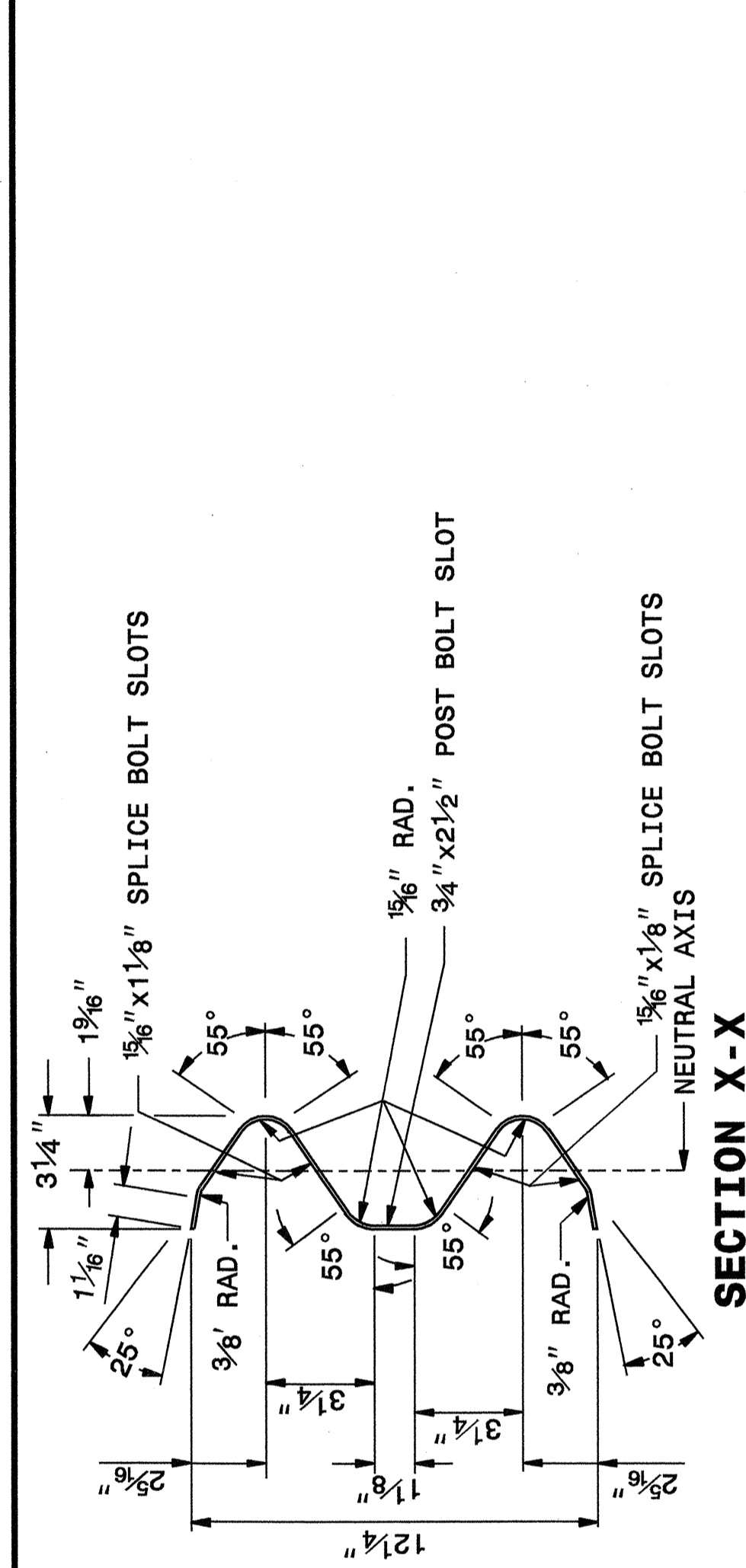
ENGLISH DETAIL DRAWING FOR GUARDRAIL INSTALLATION

SHEET 5 OF 7 862D02

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL INSTALLATION

SHEET 6 OF 7 862D02

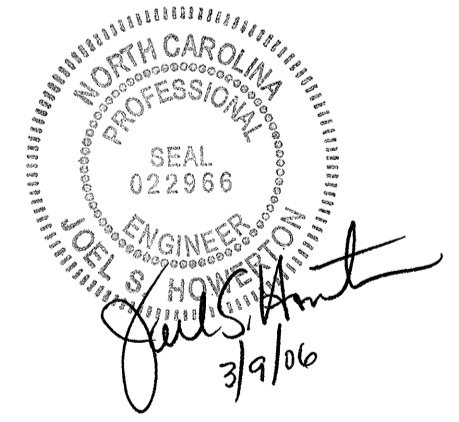


TYPICAL END SHOE

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL INSTALLATION

SHEET 6 OF 7 862D02



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

SEE PLATE FOR TITLE

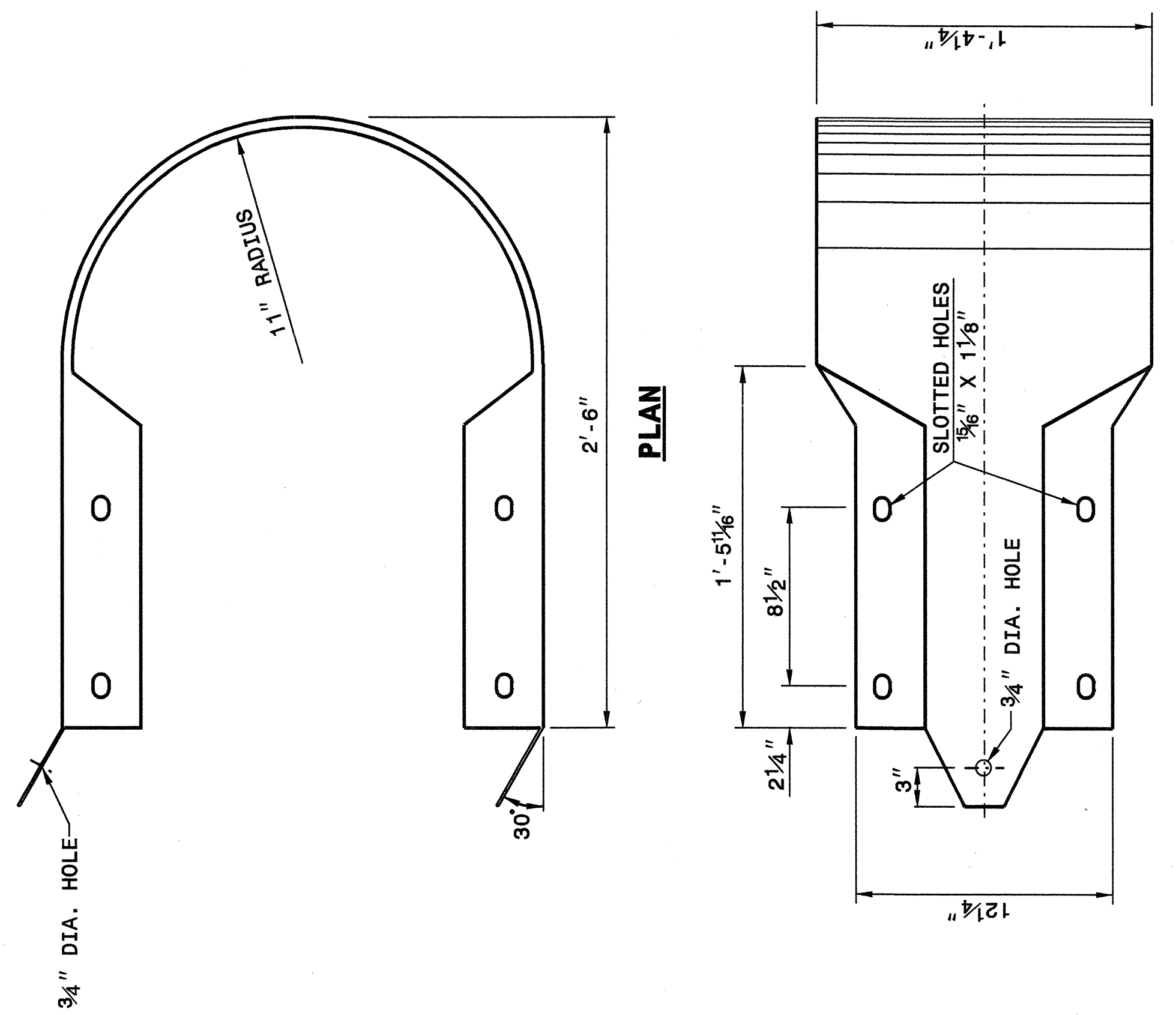
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 7 OF 7
862D02

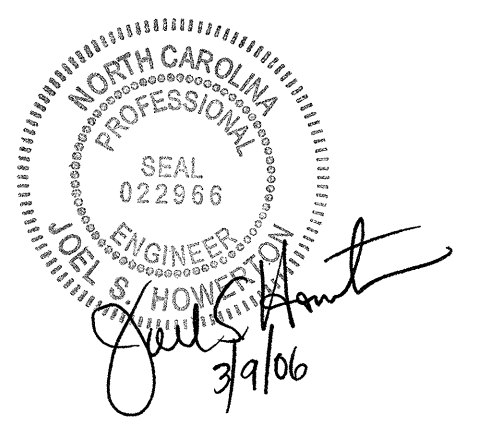


ELEVATION
BUFFERED END SECTION

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

ENGLISH 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

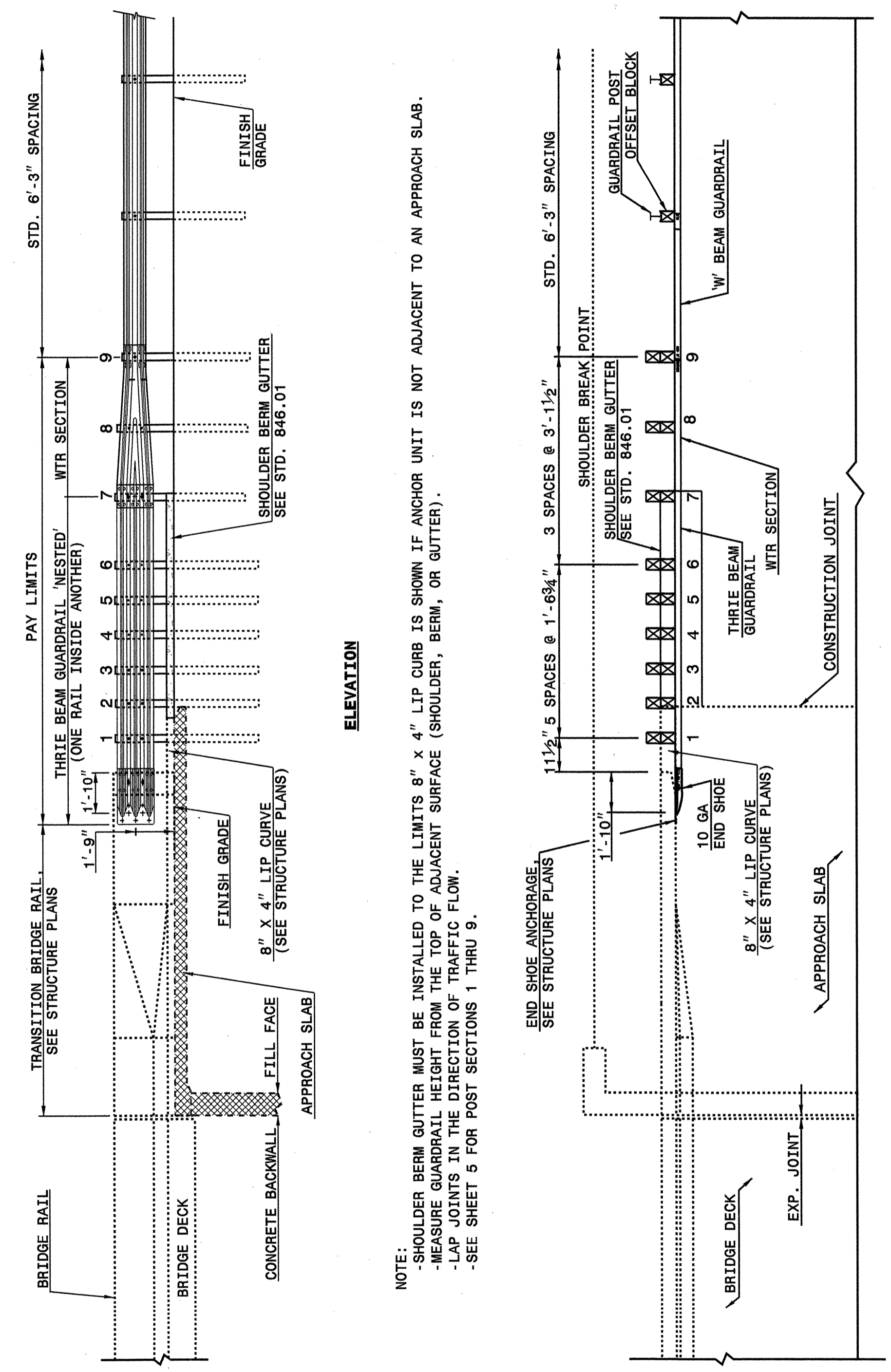
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON APPROACH SLAB (15' MINIMUM LENGTH APPROACH SLAB)

SHEET 3 OF 6
862D03



ELEVATION

NOTE:
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" X 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.

PLAN VIEW

**GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON APPROACH SLAB (15' MINIMUM LENGTH APPROACH SLAB)**

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

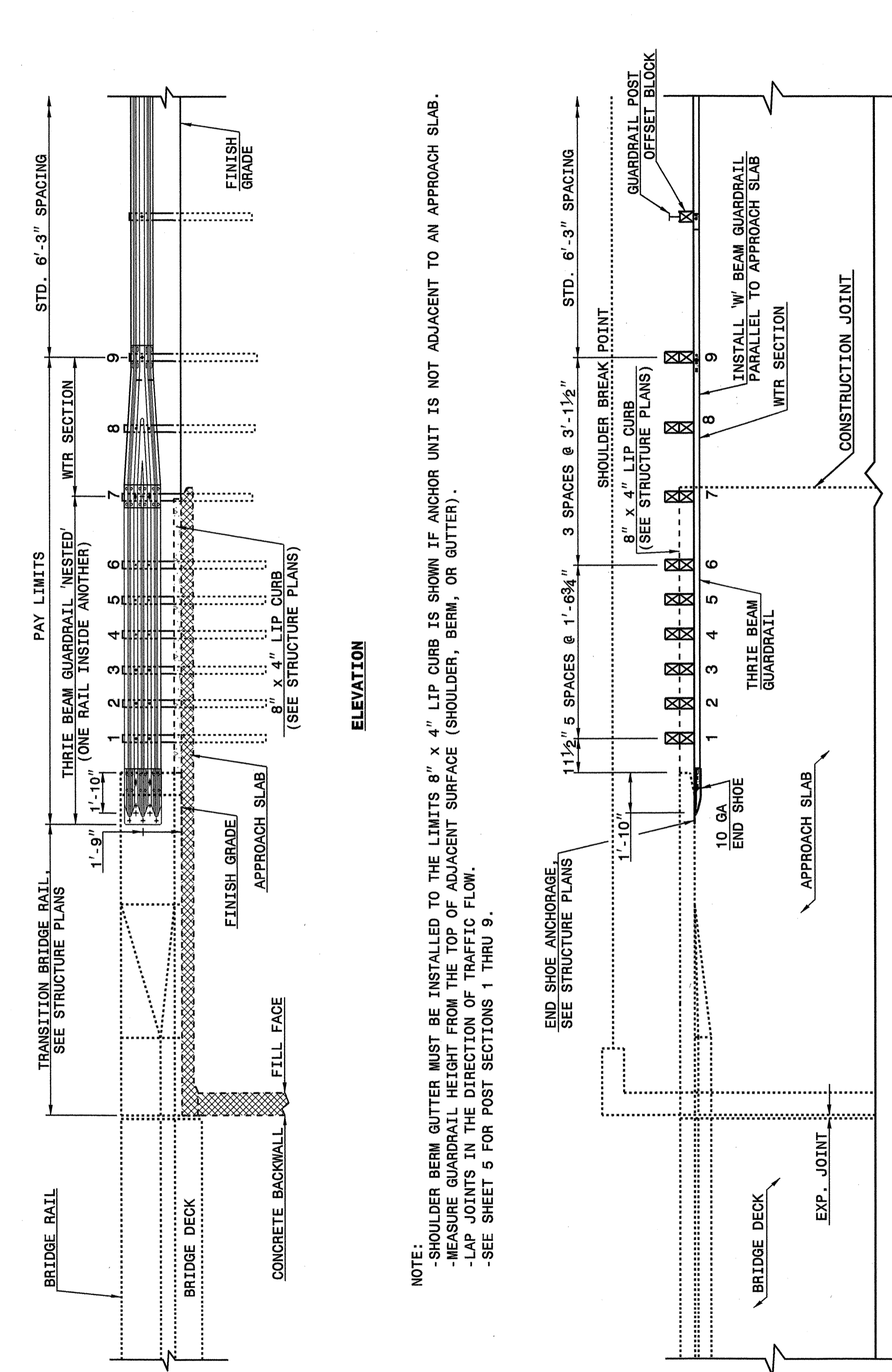
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON APPROACH SLAB (15' MINIMUM LENGTH APPROACH SLAB)

SHEET 3 OF 6
862D03

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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON APPROACH SLAB (25' MINIMUM LENGTH APPROACH SLAB)

SHEET 4 OF 6
862D03



ELEVATION

NOTE:
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" X 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 -SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.

PLAN VIEW

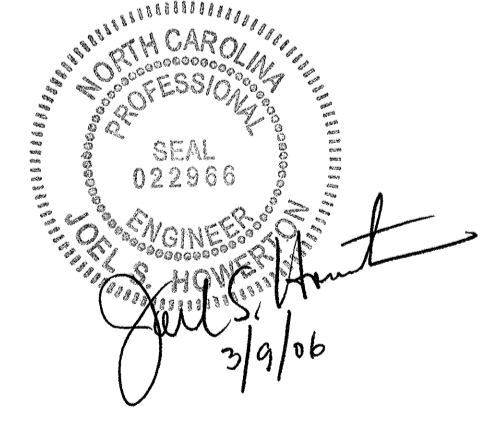
**GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON APPROACH SLAB (25' MINIMUM LENGTH APPROACH SLAB)**

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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON APPROACH SLAB (25' MINIMUM LENGTH APPROACH SLAB)

SHEET 4 OF 6
862D03

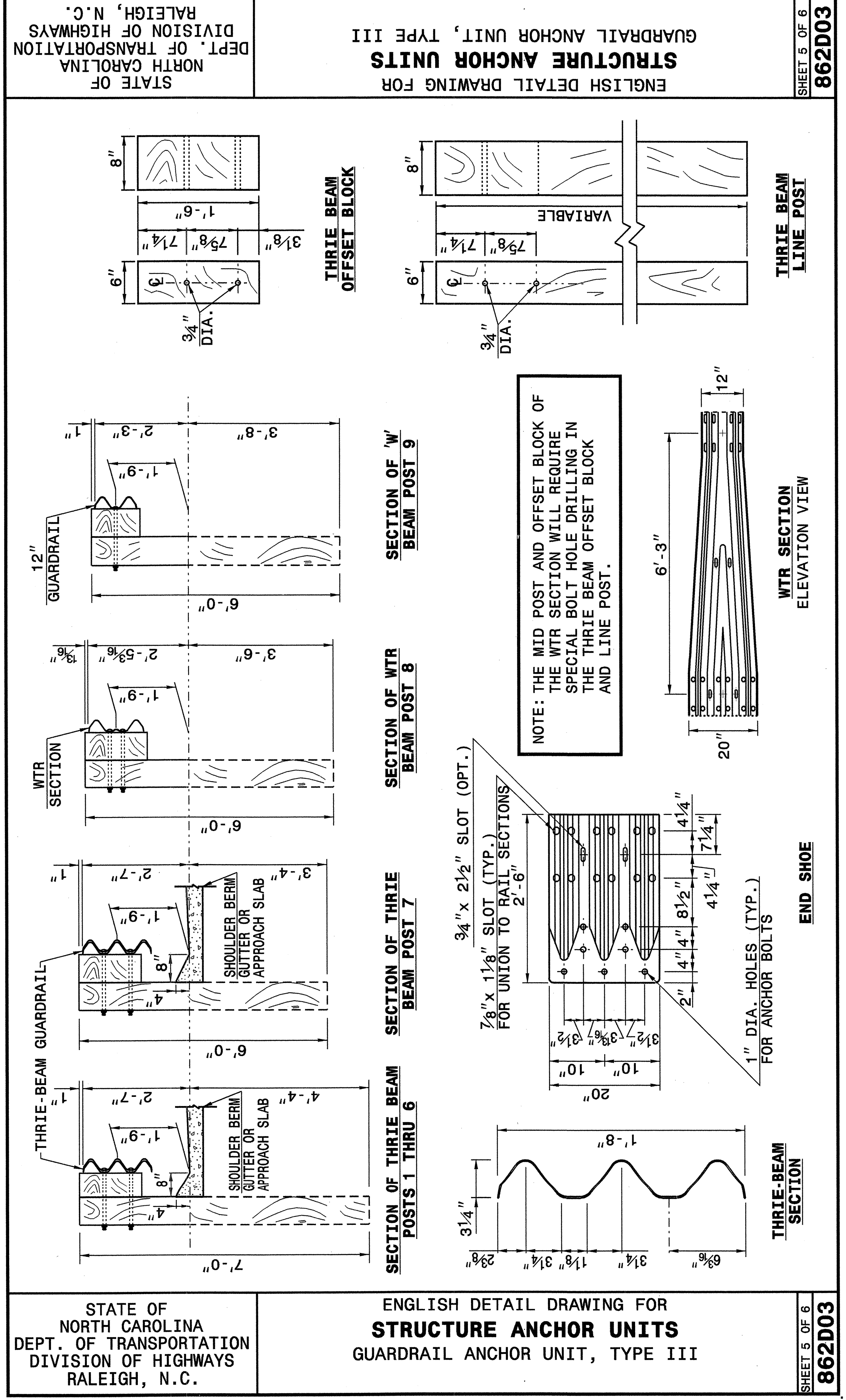
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STANDARDS AND SPECIAL DESIGN**
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SEE PLATE FOR TITLE

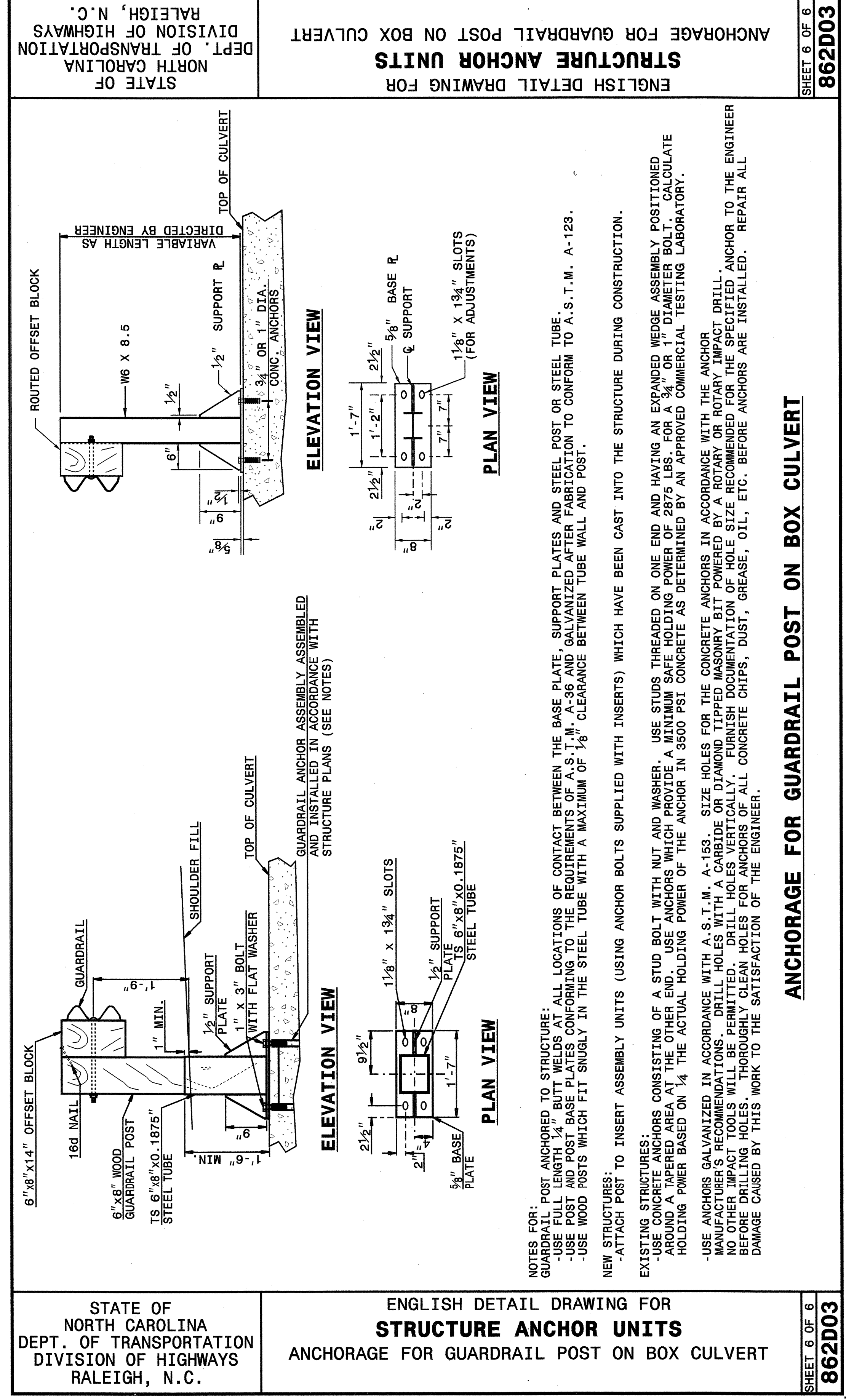
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 5 OF 6
862D03



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

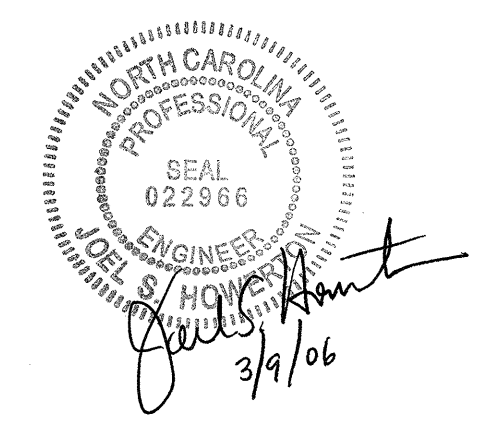
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STRUCTURE ANCHOR UNITS
ANCHORAGE FOR GUARDRAIL POST ON BOX CULVERT

SHEET 6 OF 6
862D03

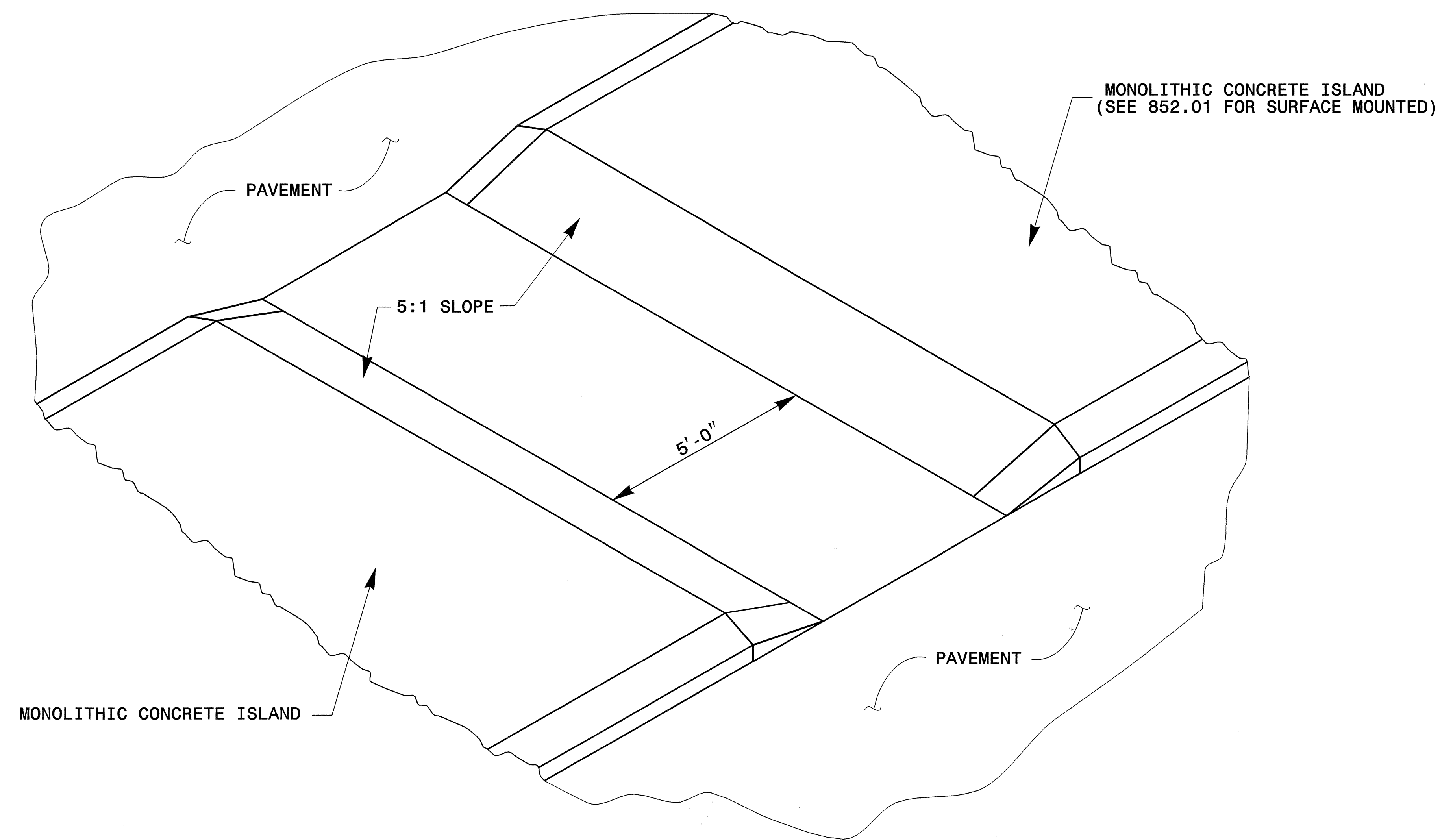
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STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

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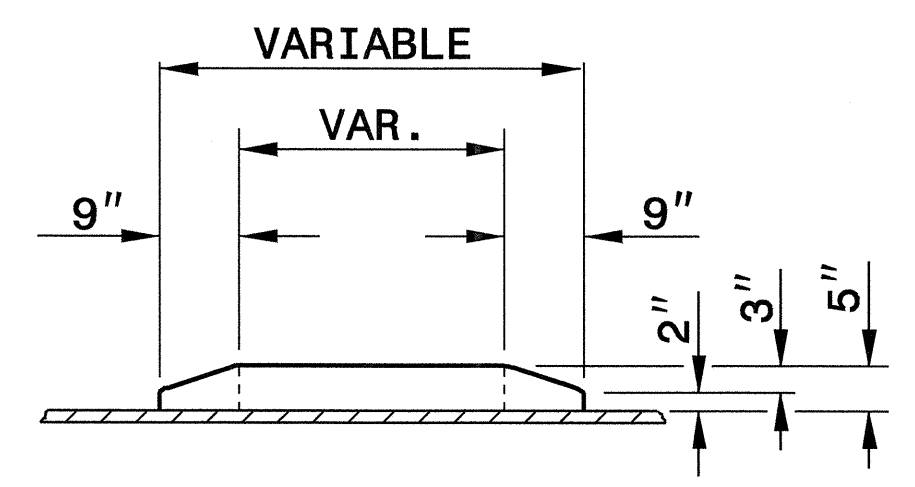
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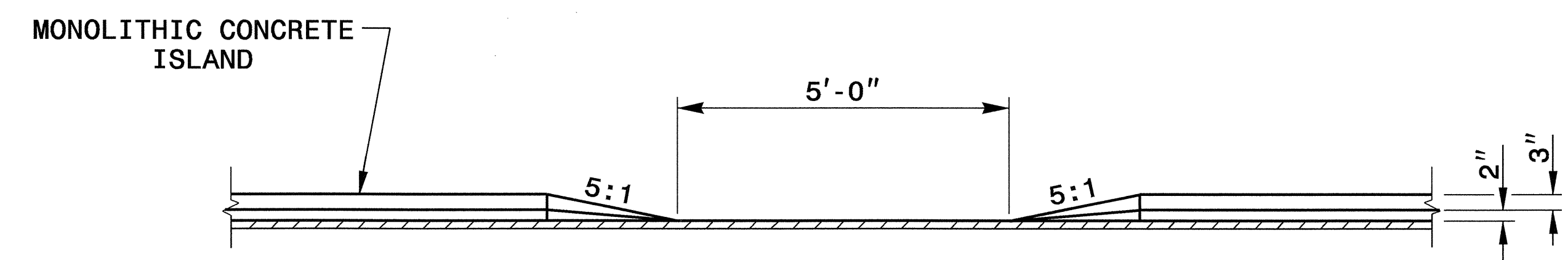
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ISOMETRIC VIEW

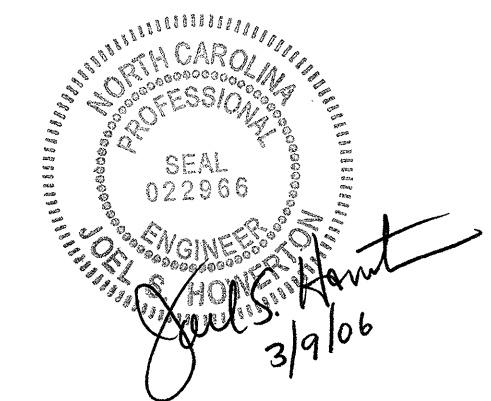


**MONOLITHIC CONCRETE ISLAND
REFER TO STD.852.01**

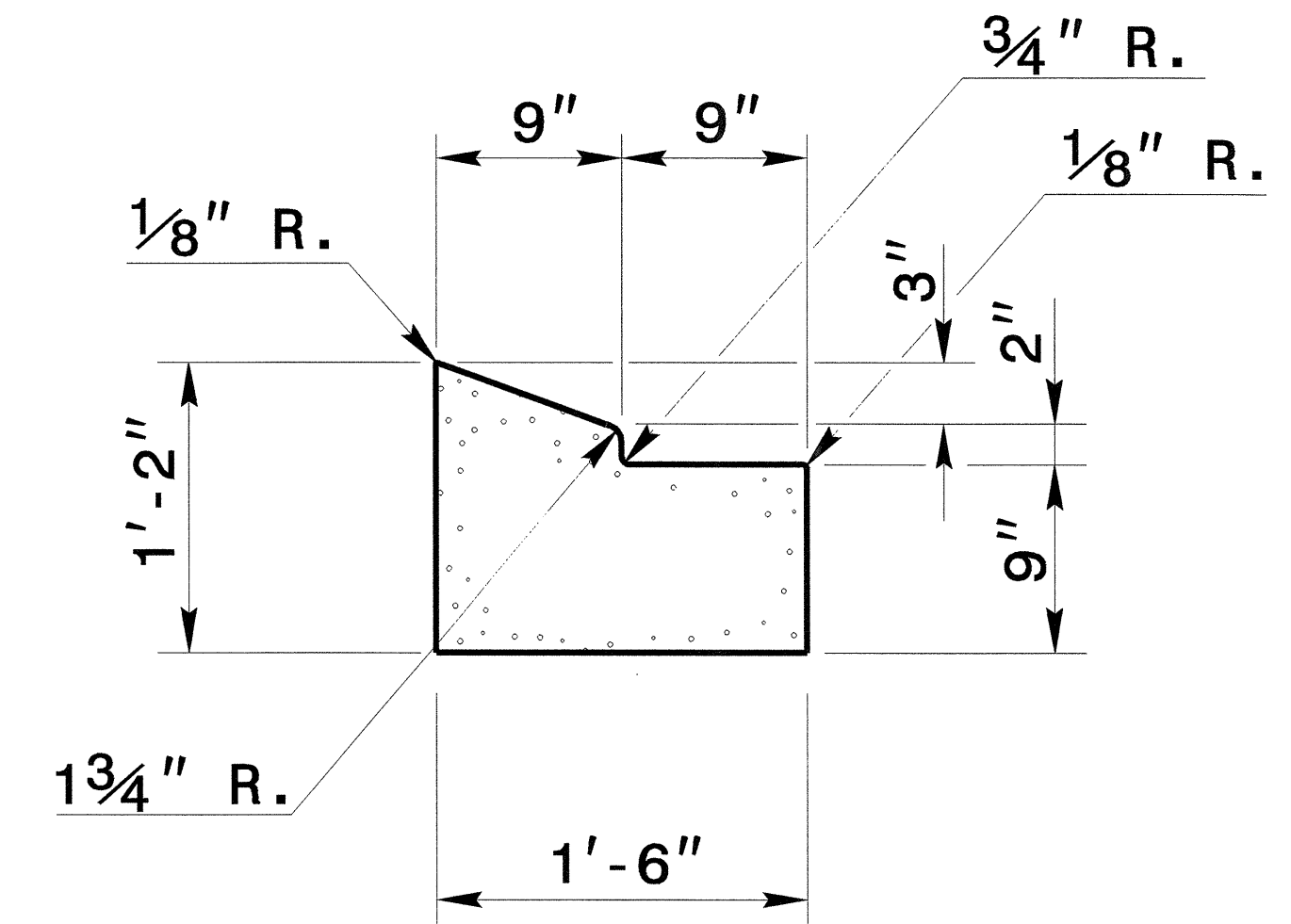
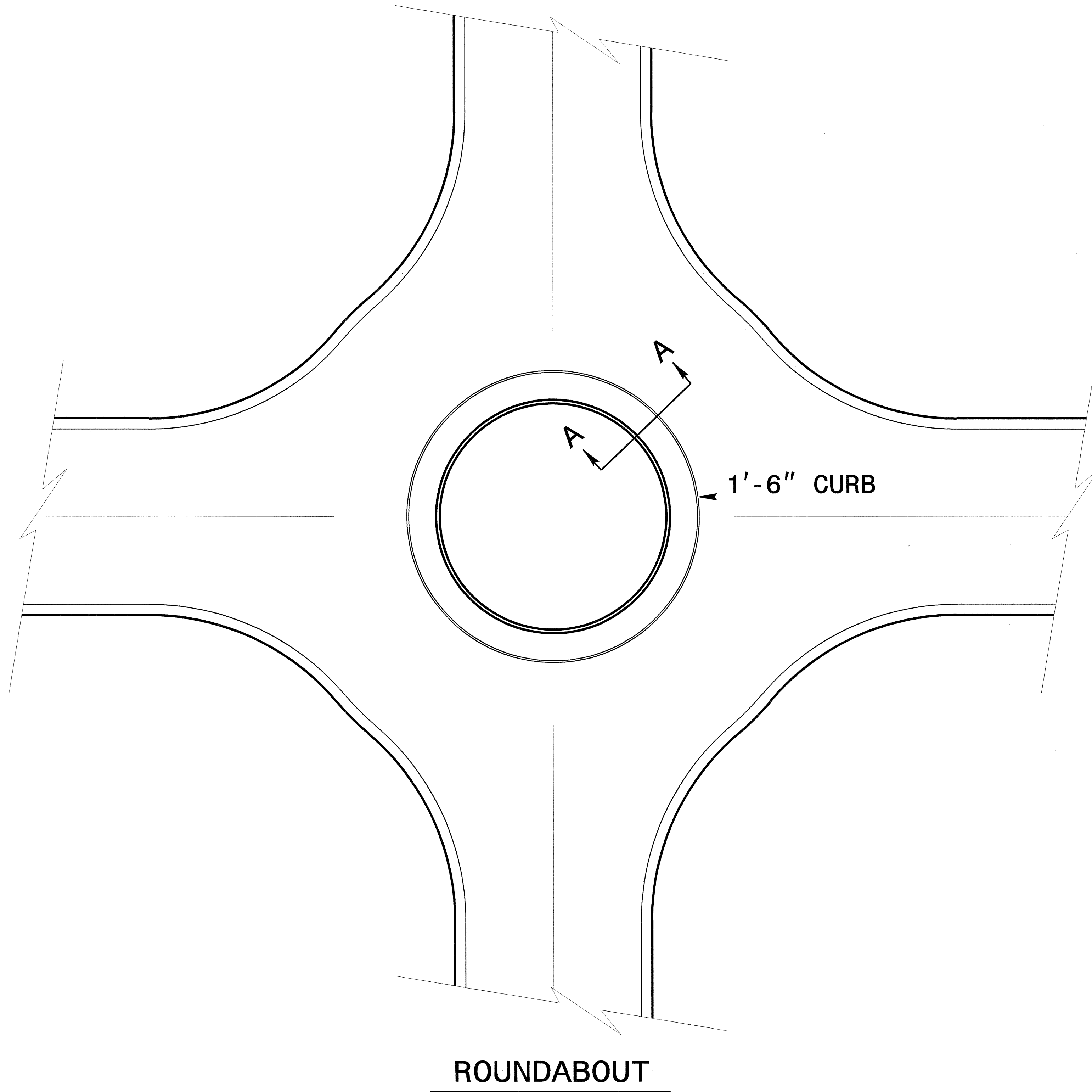


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PROJECT SERVICES UNIT	
STANDARDS AND SPECIAL DESIGN	
Office 919-250-4128	FAX 919-250-4119
CROSSWALK THRU MONOLITHIC ISLAND	
ORIGINAL BY: T. Spell	DATE: 2-5-02
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: w:details\stand\island_eng.dgn	



SECTION A-A

GENERAL NOTES:
 ALL CONCRETE CURB SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND THIS DETAIL AND THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 846 OR OTHER APPLICABLE PROVISIONS.

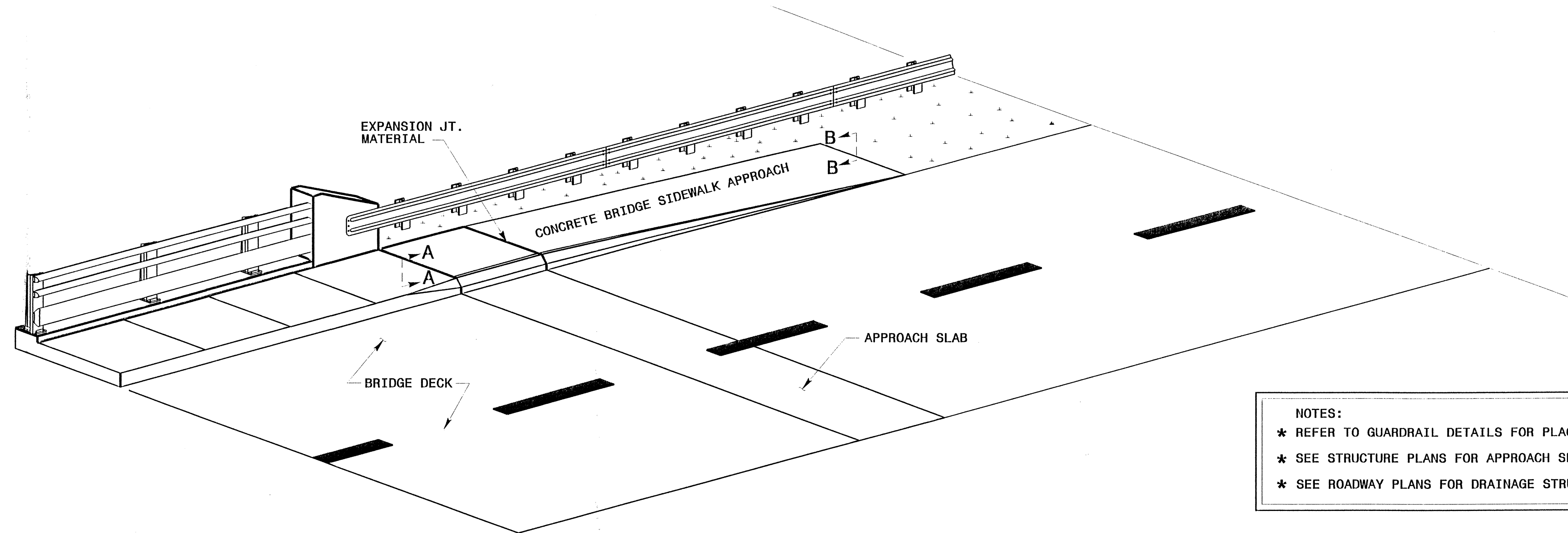


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**SPECIAL DETAIL OF
 1'-6" CURB & GUTTER**

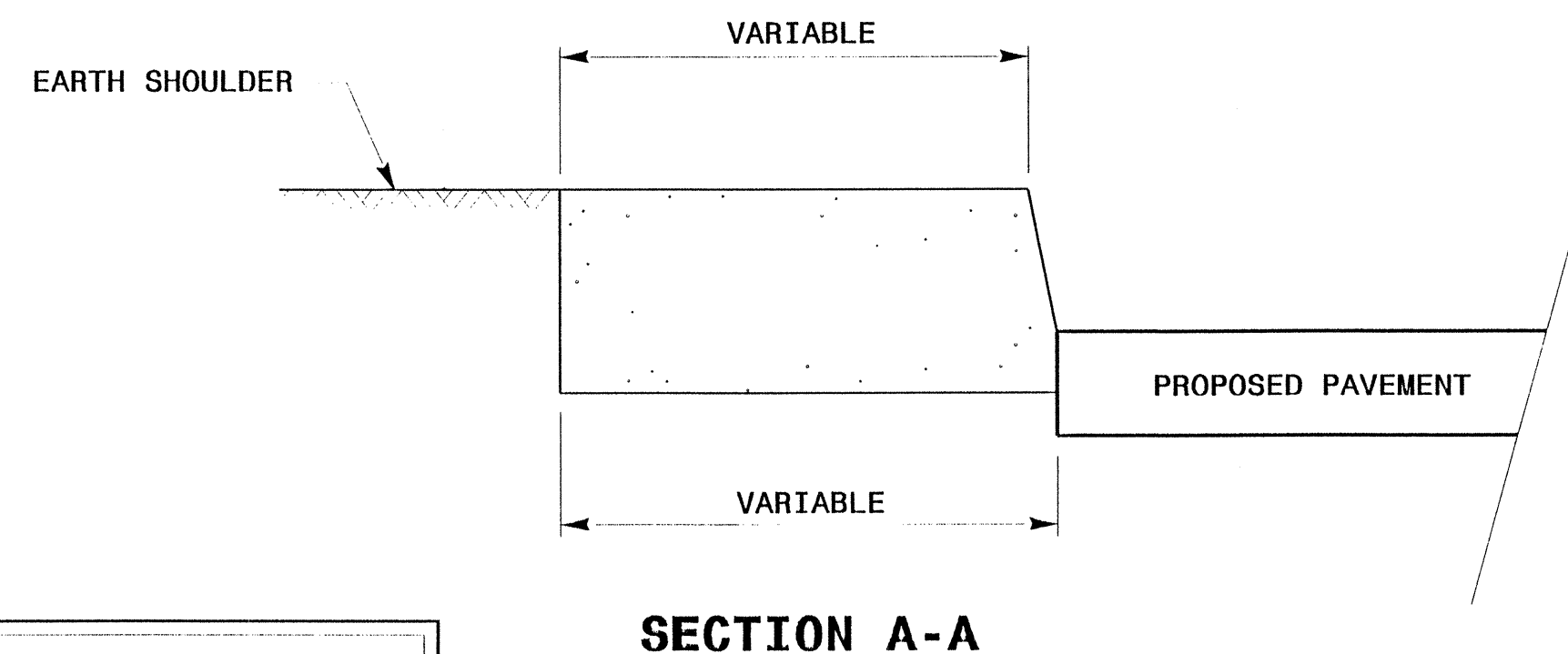
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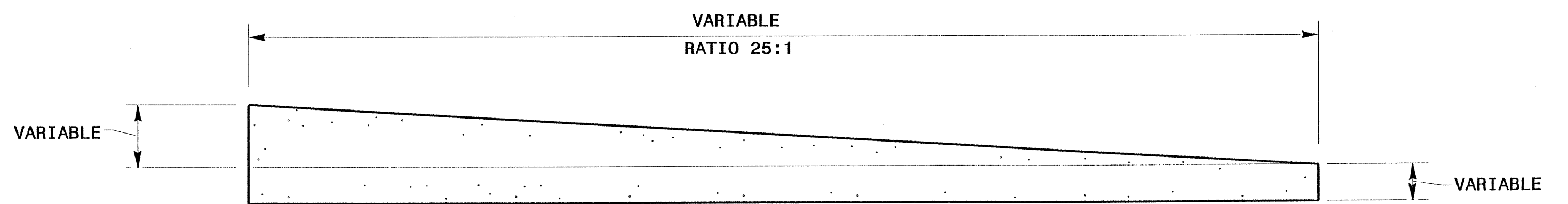


NOTES:
 * REFER TO GUARDRAIL DETAILS FOR PLACEMENT OF GUARDRAIL.
 * SEE STRUCTURE PLANS FOR APPROACH SLAB AND CURB DIMENSIONS.
 * SEE ROADWAY PLANS FOR DRAINAGE STRUCTURE LOCATION.

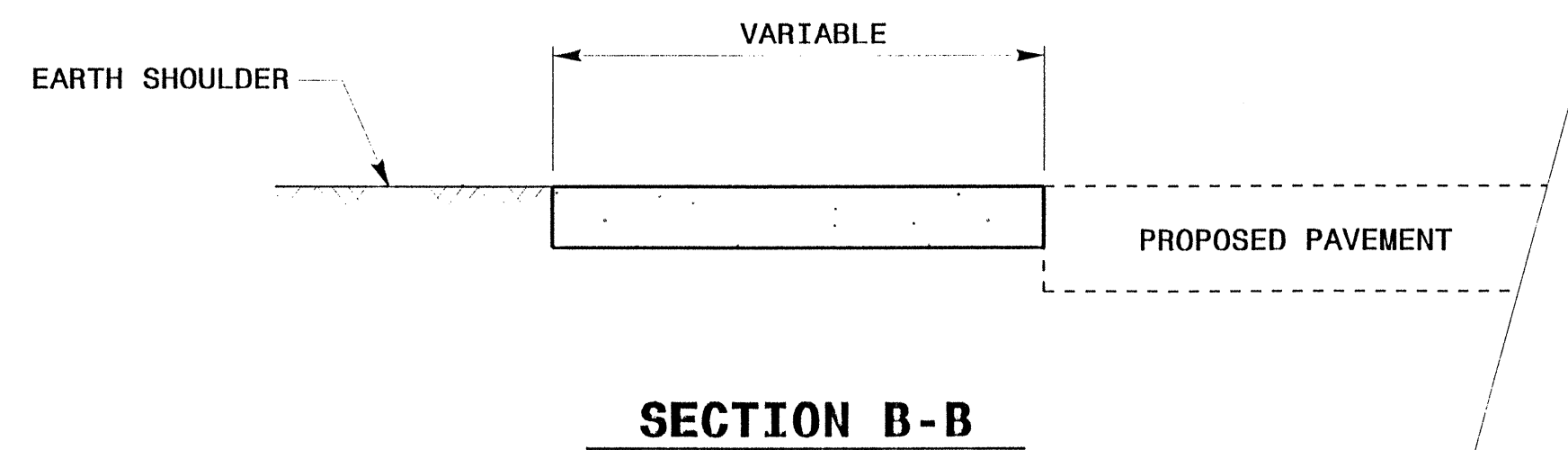
**DETAIL OF PROPOSED CONCRETE BRIDGE SIDEWALK APPROACH
 CLASS "B" CONCRETE**



NOTE:
 REFER TO ROADWAY PLAN SHEETS
 AND TYPICALS FOR SIDEWALK AND
 SHOULDER DIMENSIONS.



**SECTION VIEW OF PROPOSED BRIDGE SIDEWALK APPROACH
 CLASS "B" CONCRETE**

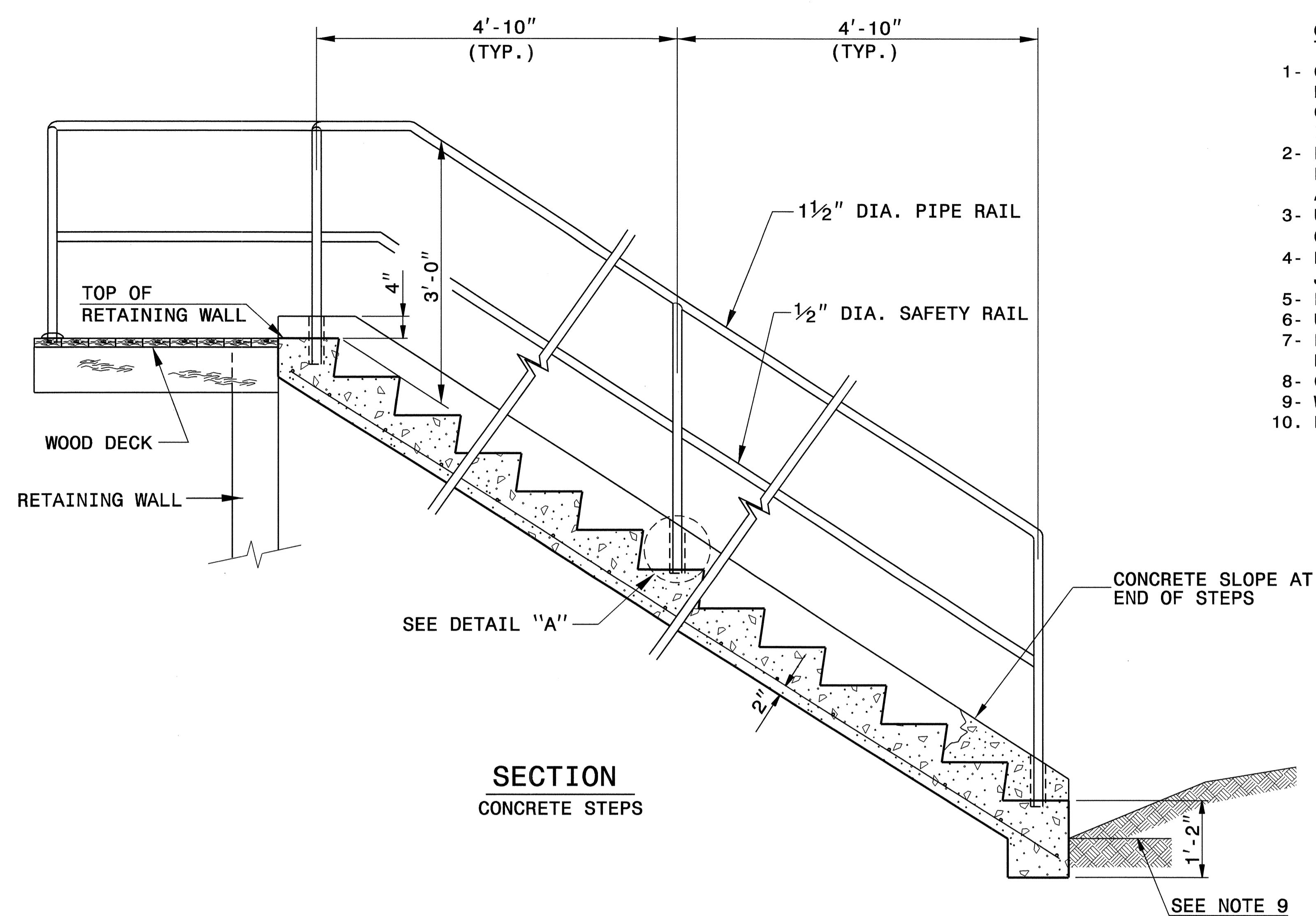


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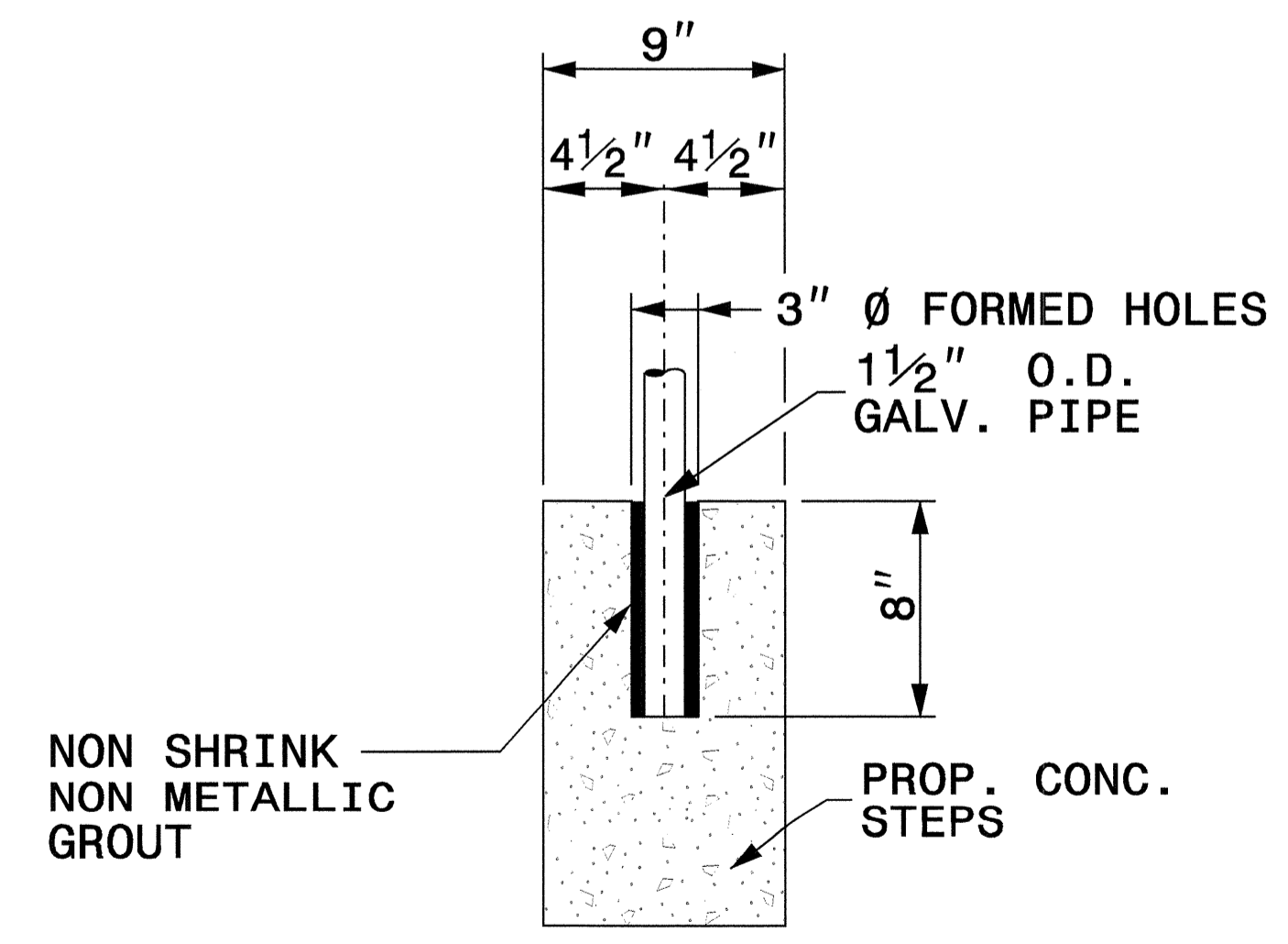
**DETAIL OF CONCRETE BRIDGE
 SIDEWALK APPROACH**

ORIGINAL BY: E.E.WARD	DATE: 11-29-04
MODIFIED BY:	DATE:
CHECKED BY: <i>[Signature]</i>	DATE: 12/14/04
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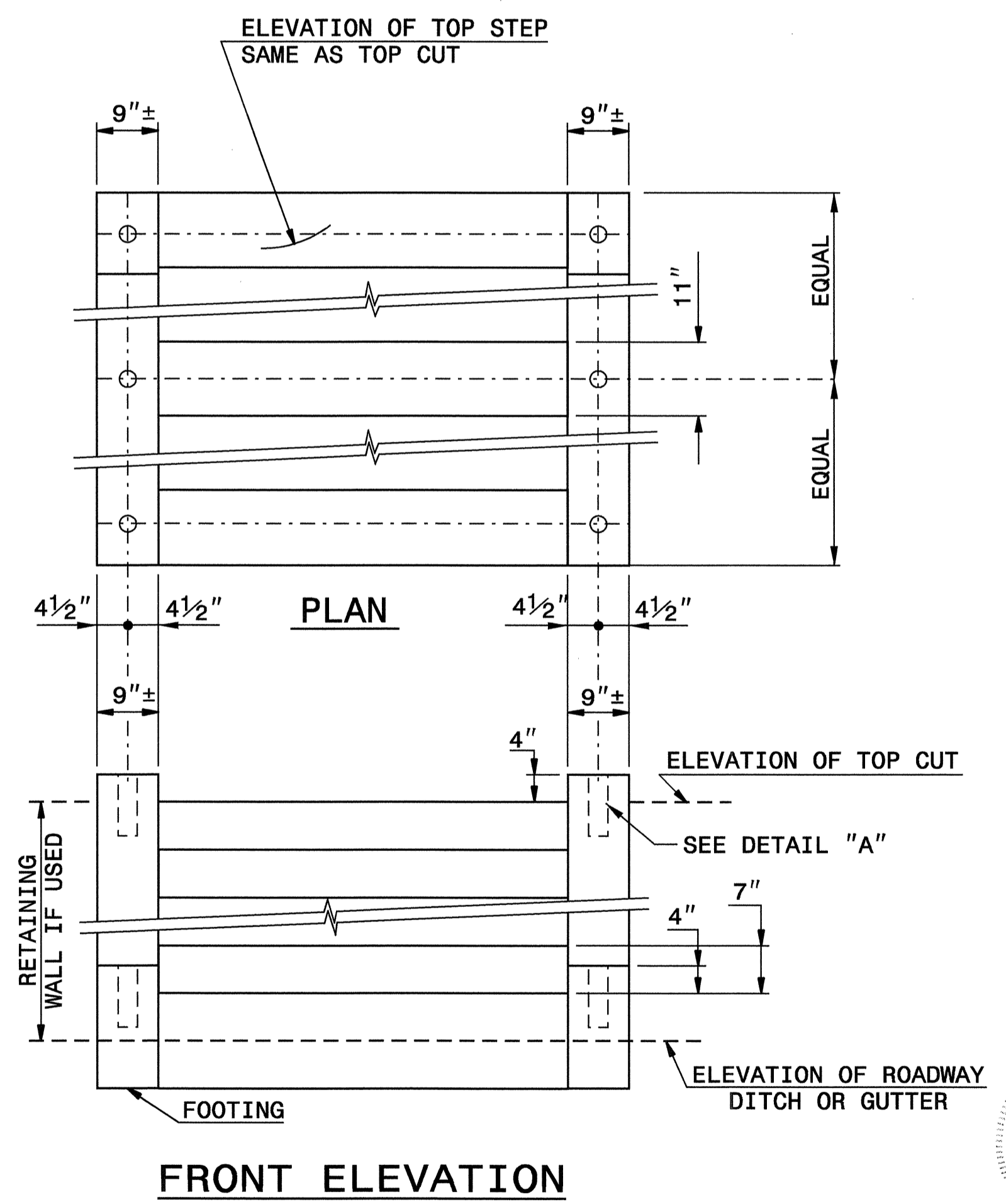
SECTION
CONCRETE STEPS



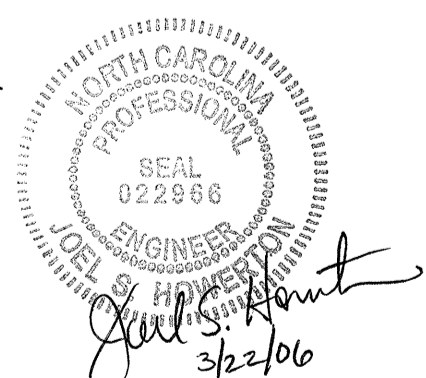
DETAIL "A"
(TYP. EACH POST)

GENERAL NOTES :

- 1- CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1 1/2" DIAMETER AS SHOWN ON DETAILS IN PLANS. IMBED PIPE RAIL 8" INTO PROPOSED STEPS WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER. GALVANIZE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD ROADWAY SPECIFICATIONS.
- 2- PRE-MEASURE AND CENTER THE PROPOSED RAILING ON TOP OF STEPS FOR POST SPACINGS. USE A ROTARY DRILL FOR DRILLING THE HOLES. NO IMPACT DRILLS ALLOWED, TO ELIMINATE ANY POSSIBILITY OF STRUCTURAL DAMAGES TO THE PROPOSED STEPS.
- 3- USE CHEMICAL ANCHORING APPLICATION WITH A MINIMUM OF 5,000 P.S.I. PULL OUT LOAD. USE CONCRETE GROUT WITH A MINIMUM OF 3,500 P.S.I. STRENGTH IN TWENTY EIGHT (28) CURING DAYS.
- 4- DESIGN IS A RECOMMENDED GUIDE TO THIS PIPE RAIL APPLICATION. FINAL ENGINEERING JUDGEMENT AT THE DISCRETION OF THE ENGINEER.
- 5- PAINT IN ACCORDANCE WITH SECTION 430 OF THE ROADWAY SPECIFICATIONS.
- 6- USE CLASS "B" CONCRETE THROUGHOUT FOR CONCRETE STEPS.
- 7- LOCATION AND QUANTIES SHOWN ARE APPROXIMATE ONLY. EXACT LOCATION AND QUANTITIES WILL BE DETERMINED BY THE ENGINEER.
- 8- CONSTRUCT TOP OF CONCRETE STEPS EVEN WITH THE TOP OF RETAINING WALL.
- 9- WHERE SIDEWALKS ARE PROPOSED OR EXISTNG. THIS IS TO BE THE TOP OF THE SIDEWALK.
10. REFER TO STANDARD NO. 844.01 FOR CONSTRUCTION OF STEPS.



FRONT ELEVATION



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PIPE HANDRAIL
FOR CONCRETE STEPS
& WOOD DECK

ORIGINAL BY: E.E.Ward DATE: _____
 MODIFIED BY: T.S.Spell DATE: Aug.3.2005
 CHECKED BY: _____ DATE: _____
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201290

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2655000000-E	852	112	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	5306000000-E	SP	100	TON	BEDDING MATERIAL, UTILITIES CLASS ***** (VI)
0000930000-E	SP	15	LF	GENERIC MISCELLANEOUS ITEM STEEL PIPE HANDRAIL FOR CONCRETE STEPS & DECK	3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	5312000000-E	1505	200	TON	SELECT BACKFILL MATERIAL, UTILITIES CLASS **** (II)
0000950000-E	SP	84	SF	GENERIC MISCELLANEOUS ITEM WOOD LANDING DECK	3380000000-E	862	150	LF	TEMPORARY STEEL BM GUARDRAIL	5318000000-E	1505	100	TON	PAVEMENT REPAIR FOR UTILITY WORK
0008000000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING	3387000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (III)	5348000000-E	1510	28	LF	*** DI WATER PIPE, PC ***** (3", PC 350)
0022000000-E	225	8,675	CY	UNCLASSIFIED EXCAVATION	3389100000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY	5360000000-E	1510	60	LF	6" DI WATER PIPE, PC 350
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (15+67.50)	3420000000-E	SP	225	LF	GENERIC GUARDRAIL ITEM STEEL BM GUARDRAIL (WEATHERING STEEL WITH WOOD POST)	5402000000-E	1510	8,804	LB	DI RESTRAINED JOINT WATER PIPE FITTINGS, 250# MIN WP
0057000000-E	226	500	CY	UNDERCUT EXCAVATION	3435000000-N	SP	2	EA	GENERIC GUARDRAIL ITEM GUARDRAIL ANCHOR UNITS, TYPE 350 (WEATHERING STEEL)	5420000000-E	1510	24	LF	1" COPPER WATER PIPE, TYPE K
0063000000-N	SP	Lump Sum		GRADING	3435000000-N	SP	2	EA	GENERIC GUARDRAIL ITEM GUARDRAIL ANCHOR UNITS, TYPE III (WEATHERING STEEL)	5480000000-E	1510	419	LB	DUCTILE IRON WATER PIPE FITTINGS, 250# MIN WP
0080000000-E	SP	250	TON	CLASS IV SUBGRADE STABILIZATION	3649000000-E	876	297	TON	PLAIN RIP RAP, CLASS B	5516000000-E	1510	1	EA	1" CORPORATION STOP
0141000000-E	240	595	LF	BERM DITCH CONSTRUCTION	3656000000-E	876	1,370	SY	FILTER FABRIC FOR DRAINAGE	5530000000-E	1510	1	EA	*** CURB STOP (1")
0195000000-E	265	250	CY	SELECT GRANULAR MATERIAL	3656000000-E	876	1,370	SY	FILTER FABRIC FOR DRAINAGE	5534000000-E	1510	4	EA	*** GATE VALVE & VALVE BOX, *****WP (16", 200#)
0196000000-E	270	250	SY	FABRIC FOR SOIL STABILIZATION	4025000000-E	901	36.6	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (D)	5540000000-E	1510	4	EA	6" GATE VALVE & VALVE BOX, 200# WP
0318000000-E	300	160	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	4025000000-E	901	189.6	SF	CONTRACTOR FURNISHED, TYPE *** SIGN (E)	5546000000-E	1510	3	EA	8" GATE VALVE & VALVE BOX, *****WP (200#)
0343000000-E	310	56	LF	15" SIDE DRAIN PIPE	4072000000-E	903	594	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	5612000000-E	1510	2	EA	*** TRANSITION COUPLING, ***** (14", DI TO CI WATER)
0366000000-E	310	884	LF	15" RC PIPE CULVERTS, CLASS III	4096000000-N	904	4	EA	SIGN ERECTION, TYPE D	5672000000-N	1510	1	EA	RELOCATE EXISTING FIRE HYDRANT
0372000000-E	310	260	LF	18" RC PIPE CULVERTS, CLASS III	4102000000-N	904	38	EA	SIGN ERECTION, TYPE E	5690000000-E	1520	50	LF	*** PVC SEWER PIPE, SDR ** (4", 35)
0378000000-E	310	48	LF	24" RC PIPE CULVERTS, CLASS III	4129000000-N	906	3	EA	RELOCATE SIGN, TYPE ***** (E)	5726000000-E	1520	487	LF	8" DI SEWER PIPE, PC 350
0588000000-E	310	68	LF	18" CS PIPE CULVERTS, 0.064" THICK	4155000000-N	907	11	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	5744000000-E	1520	149	LF	18" DI SEWER PIPE, PC ***** (350)
0636000000-E	310	2	EA	*** CS PIPE ELBOWS, ***** THICK (18", 0.064")	4192000000-N	907	2	EA	DISPOSAL OF SUPPORT, U-CHANNEL	5768000000-N	1520	5	EA	SANITARY SEWER CLEAN-OUT
0708000000-E	310	52	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	4412000000-E	SP	228	SF	WORK ZONE SIGNS (STATIONARY)	5775000000-E	1525	1	EA	4" DIA PRECAST CONC SEWER MANHOLE 0-6' DEPTH
0714000000-E	310	84	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	4412000000-E	SP	246	SF	WORK ZONE SIGNS (PORTABLE)	5776000000-E	1525	1	EA	5" DIA PRECAST CONC SEWER MANHOLE 0-6' DEPTH
0806000000-E	310	6	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	4420000000-N	1120	3	EA	WORK ZONE SIGNS (BARRICADE MOUNTED)					
0807000000-E	310	2	EA	18" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	4430000000-N	1130	105	EA	CHANGEABLE MESSAGE SIGN	5780000000-E	1525	14	LF	PRECAST CONC MANHOLE WALL, " DIA, OVER 6' HT (4')
0995000000-E	340	256	LF	PIPE REMOVAL	4435000000-N	1135	43	EA	DRUMS	5780000000-E	1525	1	LF	PRECAST CONC MANHOLE WALL, " DIA, OVER 6' HT (5')
1121000000-E	520	750	TON	AGGREGATE BASE COURSE	4446100000-E	SP	204	LF	CONES	5798000000-E	1530	450	LF	FILL OR REMOVE ABANDONED *** PIPE, ***** (14", CI WATER)
1220000000-E	545	500	TON	INCIDENTAL STONE BASE	4455000000-N	1150	180	MD	BARRICADES (TYPE III)	5798000000-E	1530	510	LF	FILL OR REMOVE ABANDONED *** PIPE, ***** (8", TC SEWER)
1491000000-E	610	1,200	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C	4455000000-N	1150	180	MD	FLAGGER	5804000000-E	1530	350	LF	FILL OR REMOVE ABANDONED 12" PIPE, ***** (CI WATER)
1503000000-E	610	910	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0C	4470000000-N	1160	1	EA	TEMPORARY CRASH CUSHIONS	5816000000-N	1530	2	EA	BREAK DOWN, PLUG, & FILL ABANDONED UTILITY MANHOLE
1523000000-E	610	1,475	TON	ASPHALT CONC SURFACE COURSE, TYPE 59.5C	4475000000-N	1165	1	EA	RESET TEMPORARY CRASH CUSHIONS	5820000000-N	SP	2	EA	GENERIC UTILITY ITEM 1" WATER METER
1560000000-E	620	95	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	4475000000-N	1165	1	EA	TRUCK MOUNTED IMPACT ATTENUATOR (45 MPH)	5820000000-N	SP	14	EA	GENERIC UTILITY ITEM 3" RESTRAINED RETAINER GLAND
1565000000-E	620	90	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-22	4485000000-E	1170	150	LF	PORTABLE CONCRETE BARRIER	5820000000-N	SP	7	EA	GENERIC UTILITY ITEM 6" RESTRAINED RETAINER GLAND
1693000000-E	654	125	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	4490000000-E	1170	284	LF	PORTABLE CONCRETE BARRIER (ANCHORED)	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM BREAK DOWN, PLUG, & FILL ABANDONED METER VAULT
1869000000-E	710	535	SY	***** PORT CEM CONC PAVEMENT, MISCELLANEOUS (WITHOUT DOWELS) (7')	4500000000-E	1170	100	LF	RESET PORTABLE CONCRETE BARRIER	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM MANHOLE VENT PIPE
2286000000-N	840	19	EA	MASONRY DRAINAGE STRUCTURES	4507000000-E	SP	280	LF	WATER FILLED BARRIER	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM REMOVE AND STOCKPILE EXISTING WATER METER
2367000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.29	4650000000-N	1251	125	EA	TEMPORARY RAISED PAVEMENT MARKERS	5820000000-N	SP	3	EA	GENERIC UTILITY ITEM WATER TIGHT MANHOLE RING & COVER
2374000000-N	840	12	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	4810000000-E	1205	23,548	LF	PAINT PAVEMENT MARKING LINES (4")	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM 16" DI RESTRAINED JOINT WATER PIPE, PC 350
2374000000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	4820000000-E	1205	1,506	LF	PAINT PAVEMENT MARKING LINES (8")	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM 6" DI RESTRAINED JOINT WATER PIPE, PC 350
2521000000-E	844	2	CY	CONCRETE STEPS	4835000000-E	1205	712	LF	PAINT PAVEMENT MARKING LINES (24")	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM 8" DI RESTRAINED JOINT WATER PIPE, PC 350
2535000000-E	846	220	LF	***X *** CONCRETE CURB (8" X 24")	4845000000-N	1205	52	EA	PAINT PAVEMENT MARKING SYMBOL	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM 8" DI RESTRAINED JOINT WATER PIPE, PC 350
2542000000-E	846	245	LF	1'-6" CONCRETE CURB & GUTTER	4847000000-E	SP	4,657	LF	POLYUREA PAVEMENT MARKING LINES (4")	5820000000-N	SP	1	EA	GENERIC UTILITY ITEM REMOVE, STOCKPILE, AND RELOCATE EXISTING FIRE HYDRANT
2549000000-E	846	2,315	LF	2'-6" CONCRETE CURB & GUTTER	4847100000-E	SP	108	LF	POLYUREA PAVEMENT MARKING LINES (8")	5820000000-N	SP	3	EA	GENERIC UTILITY ITEM WATER TIGHT MANHOLE RING & COVER
2591000000-E	848	470	SY	4" CONCRETE SIDEWALK	4847220000-N	SP	19	EA	POLYUREA PAVEMENT MARKING SYMBOL	5880000000-E	SP	990	LF	GENERIC UTILITY ITEM 16" DI RESTRAINED JOINT WATER PIPE, PC 350
2598000000-E	848	55	SY	CONCRETE WHEELCHAIR RAMPS	4900000000-N	1252	50	EA	PERMANENT RAISED PAVEMENT MARKERS	5888000000-E	SP	45	LF	GENERIC UTILITY ITEM 6" DI RESTRAINED JOINT WATER PIPE, PC 350
2612000000-E	848	315	SY	6" CONCRETE DRIVEWAY	5300000000-E	1505	200	TON	FOUNDATION CONDITIONING MATERIAL, UTILITIES CLASS ***** (VI)	5888000000-E	SP	58	LF	GENERIC UTILITY ITEM 8" DI RESTRAINED JOINT WATER PIPE, PC 350
2619000000-E	850	22	SY	4" CONCRETE PAVED DITCH										

STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
600000000-E	1605	800	LF	TEMPORARY SILT FENCE
600600000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	230	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	450	TON	SEDIMENT CONTROL STONE
601500000-E	1615	1.5	ACR	TEMPORARY MULCHING
601800000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
602900000-E	SP	250	LF	SAFETY FENCE
603000000-E	1630	945	CY	SILT EXCAVATION
603600000-E	1631	650	SY	MATTING FOR EROSION CONTROL
603800000-E	SP	3,000	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	600	LF	1/4" HARDWARE CLOTH
607000000-N	SP	9	EA	SPECIAL STILLING BASINS
608400000-E	1660	1.5	ACR	SEEDING & MULCHING
608700000-E	1660	1	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
610500000-E	1664	2	M/G	WATER
610800000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
611400000-N	SP	1	HR	SPECIALIZED HAND MOWING
612300000-E	1670	0.25	ACR	REFORESTATION
613200000-N	SP	8	EA	GENERIC EROSION CONTROL ITEM RESPONSE FOR EROSION CONTROL
613500000-E	SP	0.6	ACR	GENERIC EROSION CONTROL ITEM WEEPING LOVEGRASS SEEDING
624500000-N	1670	10	EA	CERCIS CANADENSIS, REDBUD, 'FOREST PANSY'

ItemNumber	Sec #	Quantity	Unit	Description
638500000-N	1670	29	EA	ILEX VERTICILLATA, WINTERBERRY 'WINTER RED' (10% TO BE APOLLO)*
649000000-N	1670	230	EA	MYRICA CERIFERA, WAX MYRTLE,
664000000-N	1670	51	EA	GENERIC PLANTING ITEM HAMAMALIS MOLLIS CHINESE WITCH HAZEL
664000000-N	1670	7	EA	GENERIC PLANTING ITEM HAMAMALIS VERNALIS VERNAL WITCH HAZEL
664000000-N	1670	38	EA	GENERIC PLANTING ITEM PINUS NIGRA AUSTRIAN PINE
664000000-N	1670	53	EA	GENERIC PLANTING ITEM RHUS AROMATICA FRAGRANT SUMAC
664000000-N	1670	11	EA	GENERIC PLANTING ITEM RHUS AROMATICA FRAGRANT SUMAC (18"-24")
664000000-N	1670	32	EA	GENERIC PLANTING ITEM VIBURNUM PLICATUM TOMENTOSUM 'MARIESH' MARIESH DOUBLEFILE VIBURNUM
664000000-N	1670	10	EA	GENERIC PLANTING ITEM VIBURNUM PLICATUM TOMENTOSUM 'MARIESH' MARIESH DOUBLEFILE VIBURNUM (24"-30")
665000000-E	1670	10	CY	MULCH FOR PLANTING (DOUBLE SHREDDED HARDWOOD)
665500000-E	1670	2	M/G	WATER FOR PLANTING
669000000-E	SP	700	LF	GENERIC PLANTING ITEM TREE PROTECTION FENCE
706000000-E	1705	860	LF	SIGNAL CABLE
712000000-E	1705	6	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
714400000-E	1705	2	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
726400000-E	1710	490	LF	MESSENGER CABLE (3/8")
728800000-E	1715	30	LF	TRENCHING (PAVED)
730000000-E	1715	155	LF	TRENCHING (UNPAVED)
736000000-N	1720	4	EA	WOOD POLE

ItemNumber	Sec #	Quantity	Unit	Description
737200000-N	1721	8	EA	GUY ASSEMBLY
740800000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
742000000-E	1722	4	EA	2" RISER WITH WEATHERHEAD
744400000-E	1725	740	LF	INDUCTIVE LOOP SAWCUT
745600000-E	1726	1,250	LF	LEAD-IN CABLE
763600000-N	1745	1	EA	SIGN FOR SIGNALS
768400000-N	1750	1	EA	SIGNAL CABINET FOUNDATION
775600000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
778000000-N	SP	4	EA	DETECTOR CARD (TYPE 2070L)
798000000-N	SP	1	EA	GENERIC SIGNAL ITEM CABINET BASE EXTENDER

COMPUTED BY: J.B. DATE: 01/03
 CHECKED BY: B.E. DATE: 01/03



GUARDRAIL SUMMARY

"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.

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 (WEATHERED)	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	TYPE III (WEATHERED)	GRAU-350 (WEATHERED)	CAT-1	AT-1	EA	G	NG				
-L-	17+52.42	19+27.42	LT	175.00'				17+40.00	5.00'	10.00'	81.25'		1.625'			1	1									WEATHERED STEEL - TIE TO PROPOSED BRIDGE RAIL
-L-	17+52.42	19+27.42	RT	175.00'				17+40.00	5.00'	13.00'		118.75'		2.375'			1	1								WEATHERED STEEL - TIE TO PROPOSED BRIDGE RAIL
			SUB-TOTAL	350.00'																						
				GRAU-350 (WEATHERED) - 2 @ 50.00' EA.	-100.00'																					
				TYPE III (WEATHERED) - 2 @ 18.75' EA.	-37.50'																					
			TOTAL	212.50'																						
			SAY	225.00'																						

ADDITIONAL GUARDRAIL POST = 5 EA.

TEMPORARY GUARDRAIL SUMMARY

"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.

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS					TEMPORARY 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	XI MOD	TYPE III	GRAU-350	CAT-1	AT-1	GRAU-350	TYPE III	AT-1	EA	G	NG			
-LDET-	12+99.75	13+74.75	LT	75.00'				13+74.75	5.00'	11.00'	6.25'		0.125'															
-LDET-	17+24.75	18+99.75	LT	175.00'				17+24.75	5.00'	11.00'			2.125'															
-LDET-	13+06.00	13+74.75	RT	68.75'				13+06.00	5.00'	11.00'																		
-LDET-	17+24.75	17+99.75	RT	75.00'				17+24.75	5.00'	11.00'			0.125'															
			SUB-TOTAL	393.75'																								
				GRAU-350 - 4 @ 50.00' EA.	-200.00'																							
				TYPE-III- 4 @ 18.75' EA.	-75.00'																							
			TOTAL	118.75'																								
			SAY	150.00'																								

SUMMARY OF EARTHWORK IN CUBIC YARDS

SURVEY LINE	STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT + %	BORROW	WASTE
-L-	10+60.00	12+19.78	106		60	0	46
-L-CIRCLE	10+00.00	12+38.76	24		814	790	0
-L-	13+36.31	13+94.58	7		33	26	0
BRIDGE							
-L-	17+65.00	25+00.00	1,592		220	0	1,372
-YI-	10+58.41	12+50.00	22		89	67	0
-L DETOUR-	12+00.00	21+50.00	7,007		173	0	6,834
SUBTOTAL			8,758		1,389	884	8,252
EST LOSS DUE TO CLEARING AND GRUBBING			-340				-340
EARTH WASTE TO REPLACE BORROW						-884	-884
SUBTOTAL			8,418		1,389	0	7,028
DETOUR REMOVAL					4,304	4,304	
SUBTOTAL			8,418		4,304	4,304	7,028
PROJECT TOTALS			8,418		5,693	4,304	7,028
EST. 5% FOR REPLACING TOP SOIL ON BORROW PIT						215	
GRAND TOTAL			8,418			4,519	7,028
SAY			8,675			4,800	7,050

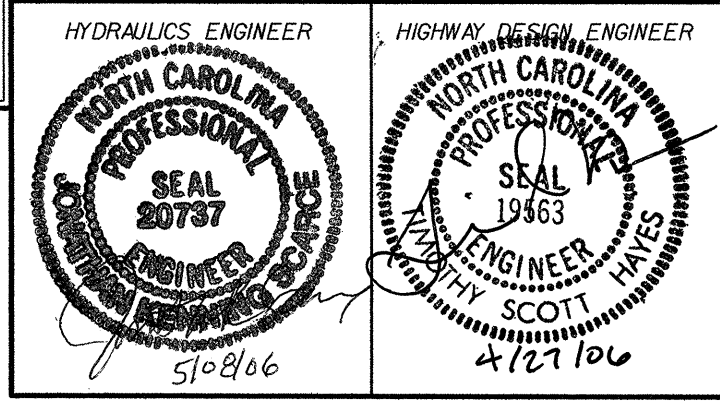
-L- PAVEMENT STRUCTURE VOLUME = 306 CY

APPROXIMATE QUANTITIES ONLY. BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SUMMARY OF PAVEMENT REMOVAL IN SQUARE YARDS

LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE BREAK-UP
-L- STA. 13+83.00 TO 14+01.00	96.14			
-L- STA. 17+40.00 TO 17+65.00	119.44			
-L DET- STA. 11+92.00 TO 13+74.75	641.67			
-L DET- STA. 17+24.25 TO 19+00.00		546.78		
-L DET- STA. 19+00.00 TO 19+97.47	115.97			
TOTAL	973.22	546.78		
SAY	1,005	565		

APPROXIMATE QUANTITIES ONLY. SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".



DITCH DETAIL 'A'
1/4" DITCH W/ CLASS 'B' RIP RAP
(NOT TO SCALE)

LINE	STA. TO STA.	D.D.E. (CU. YDS.)	RIP RAP (TONS)	FILTER FABRIC (SQ. YDS.)
-L-DET	16+70 - 17+25 LT.	480	20	58

NOTE: ALL ROCK EXCAVATION SHALL BE DONE BY NON-EXPLOSIVE METHODS. NO BLASTING SHALL BE ALLOWED.

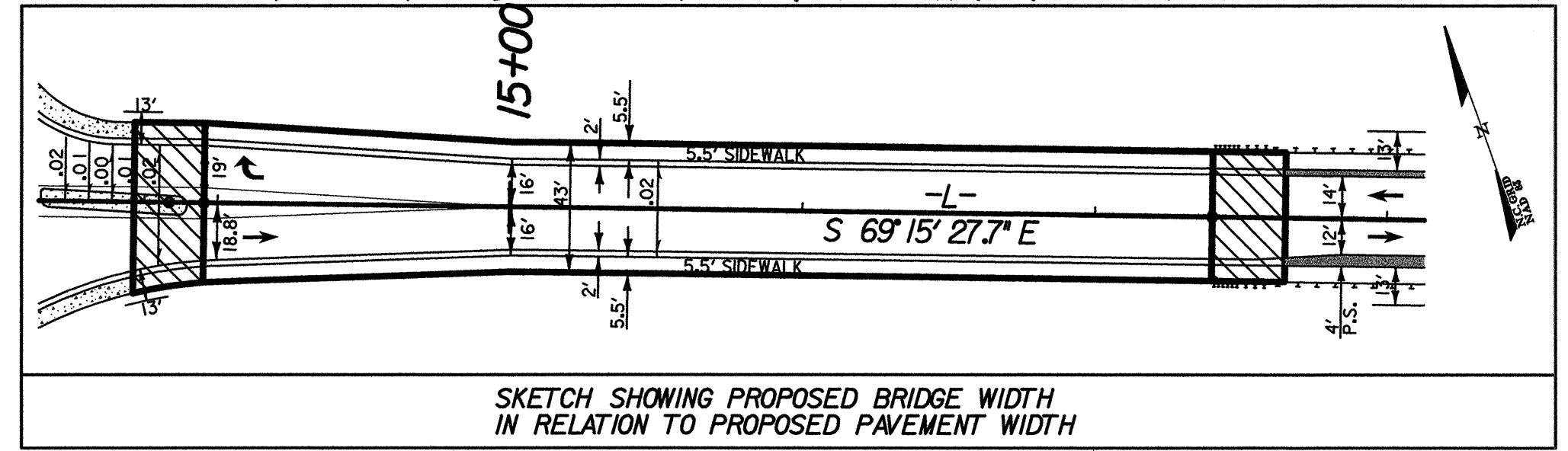
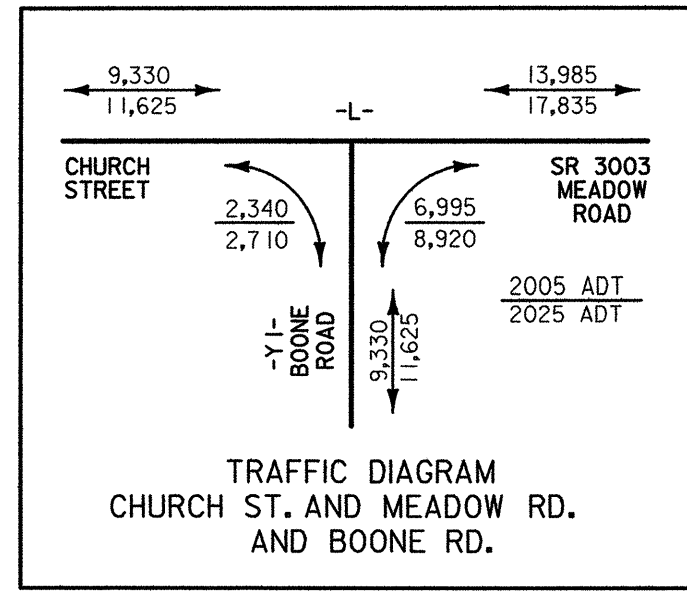
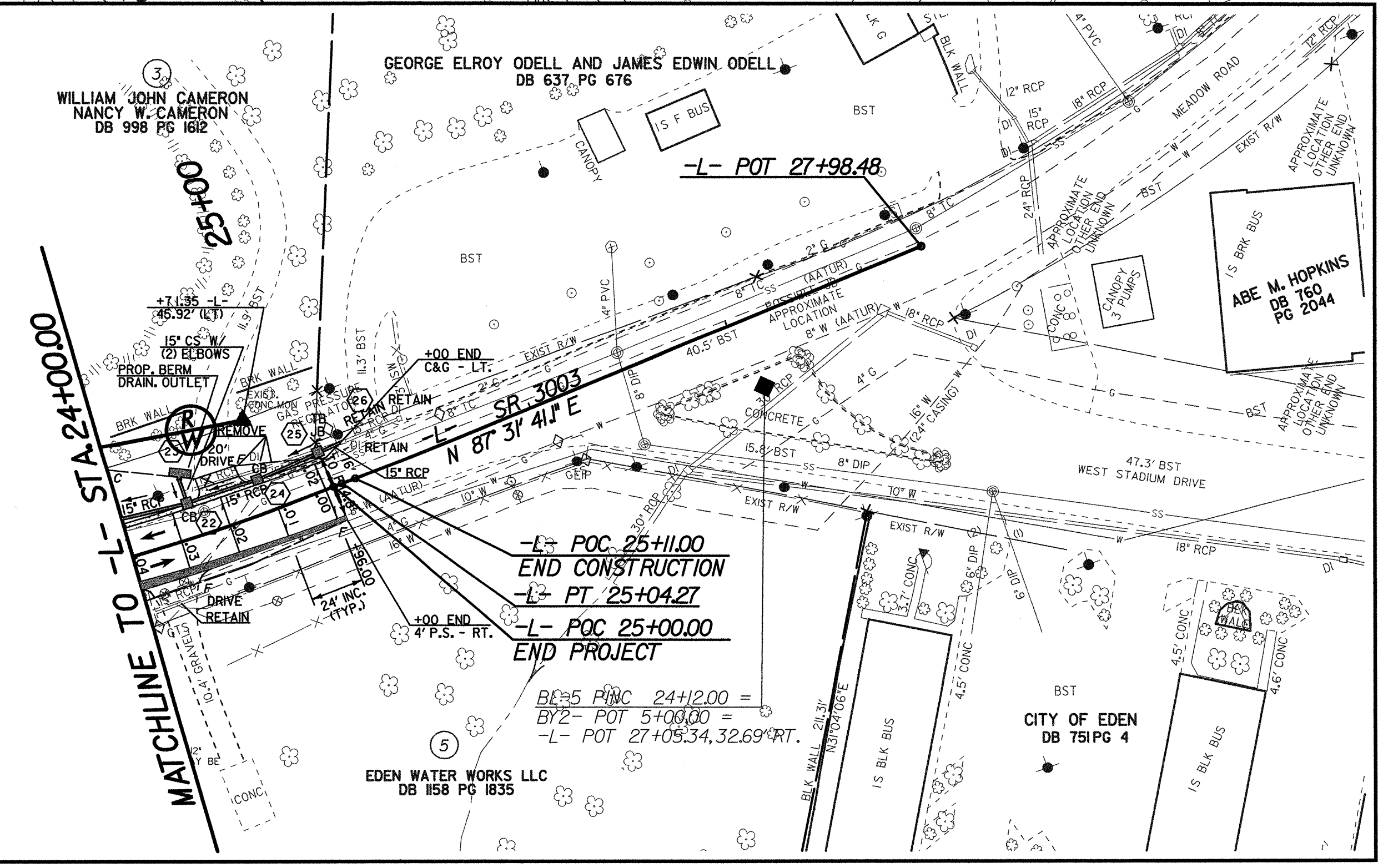
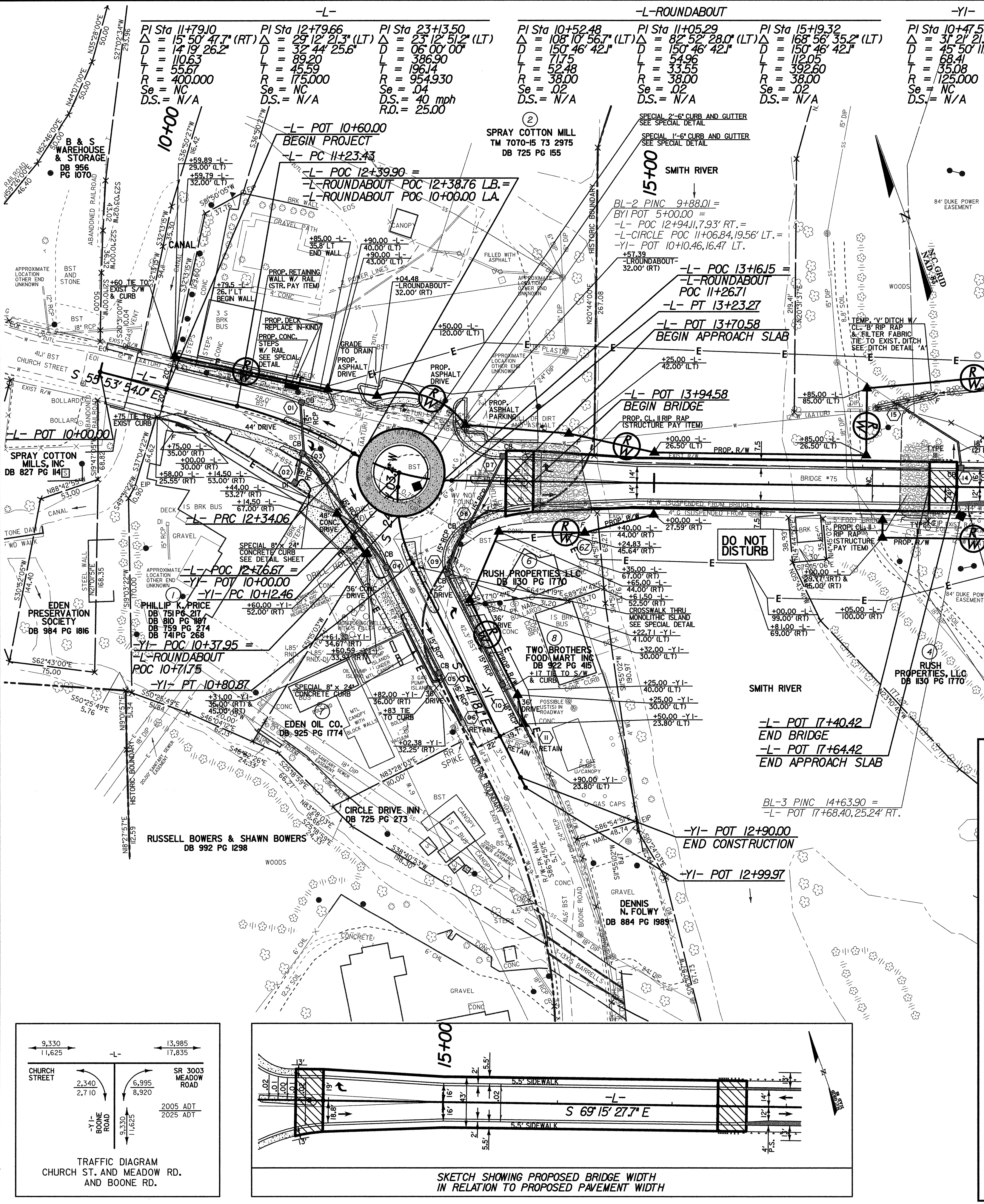
NOTE: PERMANENT SOIL REINFORCEMENT MAT SHALL BE PLACED ON THE SLOPE BETWEEN -L- STA.1800+ TO -L- STA.2400+.

DITCH DETAIL 'B'
BERM DITCH W/ CLASS 'B' RIP RAP
(NOT TO SCALE)

LINE	STA. TO STA.	RIP RAP (TONS)	FILTER FABRIC (SQ. YDS.)
-L-DET	17+25 - 19+50 LT.	108	291
-L-	19+96 - 21+80 LT.	97	265
-L-	22+54 - 24+00 LT.	70	189

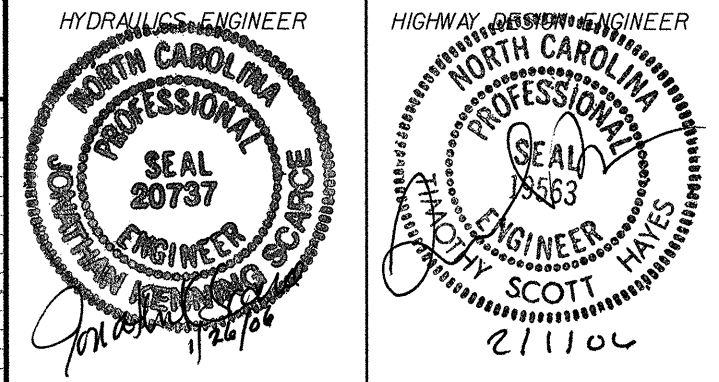
NOTE: 6" DIAMETER PVC DECK DRAINS ARE RECOMMENDED 12" ON CENTER FROM -L- STA.18+32 TO -L- STA.14+00 LT. & RT. A CLOSED SYSTEM WILL BE REQUIRED FROM -L- STA.13+93 TO -L- STA.16+32 LT. & RT. WITH INLETS 12" ON CENTER.

FOR -L- L-ROUNDABOUT & -YI- PROFILES, SEE SHEET 5 FOR -L- ROUNDABOUT DETAIL SHEET, SEE SHEET 2-D FOR -L- DETOUR SEE SHEET 2-C FOR SPECIAL DETAIL OF CROSSWALK THRU MONOLITHIC ISLAND, SEE SHEET 2-S FOR SPECIAL DETAIL OF 1'-6" CURB AND GUTTER, SEE SHEET 2-U FOR SPECIAL DETAIL OF 2'-6" CURB AND GUTTER, SEE SHEET 2-V FOR SPECIAL DETAIL OF CONCRETE BRIDGE SIDEWALK APPROACH, SEE SHEET 2-W FOR SPECIAL DETAIL OF CONCRETE STEPS W/ RAIL, SEE SHEET 2-W FOR RETAINING WALL W/ RAIL, SEE SHEETS W-1 THRU W-4 FOR STRUCTURE, SEE SHEET S-1 THRU S-2



REVISIONS

4/27/2006 TH465 AM
F:\Roadway\Proj\B3509.RDY_FSH04.DGN



TBM #2 -L- STA.14+36.83, 48.70' RT.
RAILROAD SPIKE IN BASE OF 18" DOUBLE ELM
ELEV. = 522.00

-L- STA. 15+67.5	
DRAINAGE AREA	538 SQ. MILES
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	69000 CFS
DESIGN H.W. ELEV.	524.6'
Q 100 DISCHARGE	80000 CFS
Q 100 H.W. ELEV.	526.6'
OVERTOPPING FREQUENCY	50+ YR
OVERTOPPING DISCHARGE	73700 CFS
OVERTOPPING ELEV.	525.2'

PI STA 20+00.00
EI = 547.53
VC = 400.00
K = 238
D.S. = 80 mph

CL -L- STA. 15+67.5
SKEW = 90'
ELEV. = 532.65'
1@90', 3@85, 54' PRESTRESSED GIRDERS

