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

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

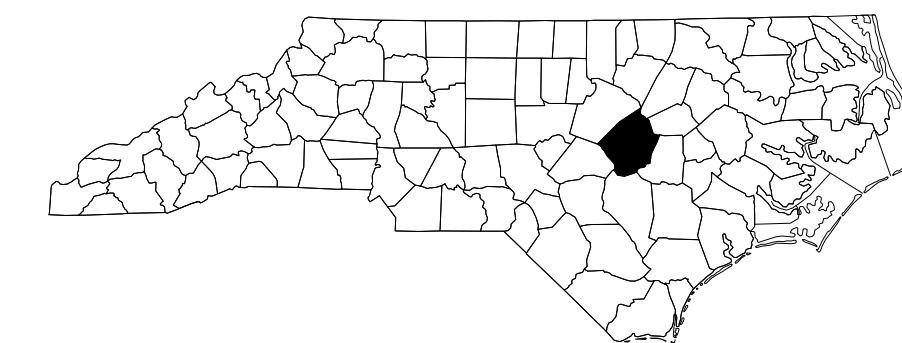
## JOHNSTON COUNTY

**LOCATION: NC 42 FROM EAST OF SR 1902 (GLEN LAUREL RD) TO SR 1003 (BUFFALO RD). WIDEN TO MULTI-LANES**

**TYPE OF WORK: DRAINAGE, PAVING, GRADING, STRUCTURES & SIGNALS**

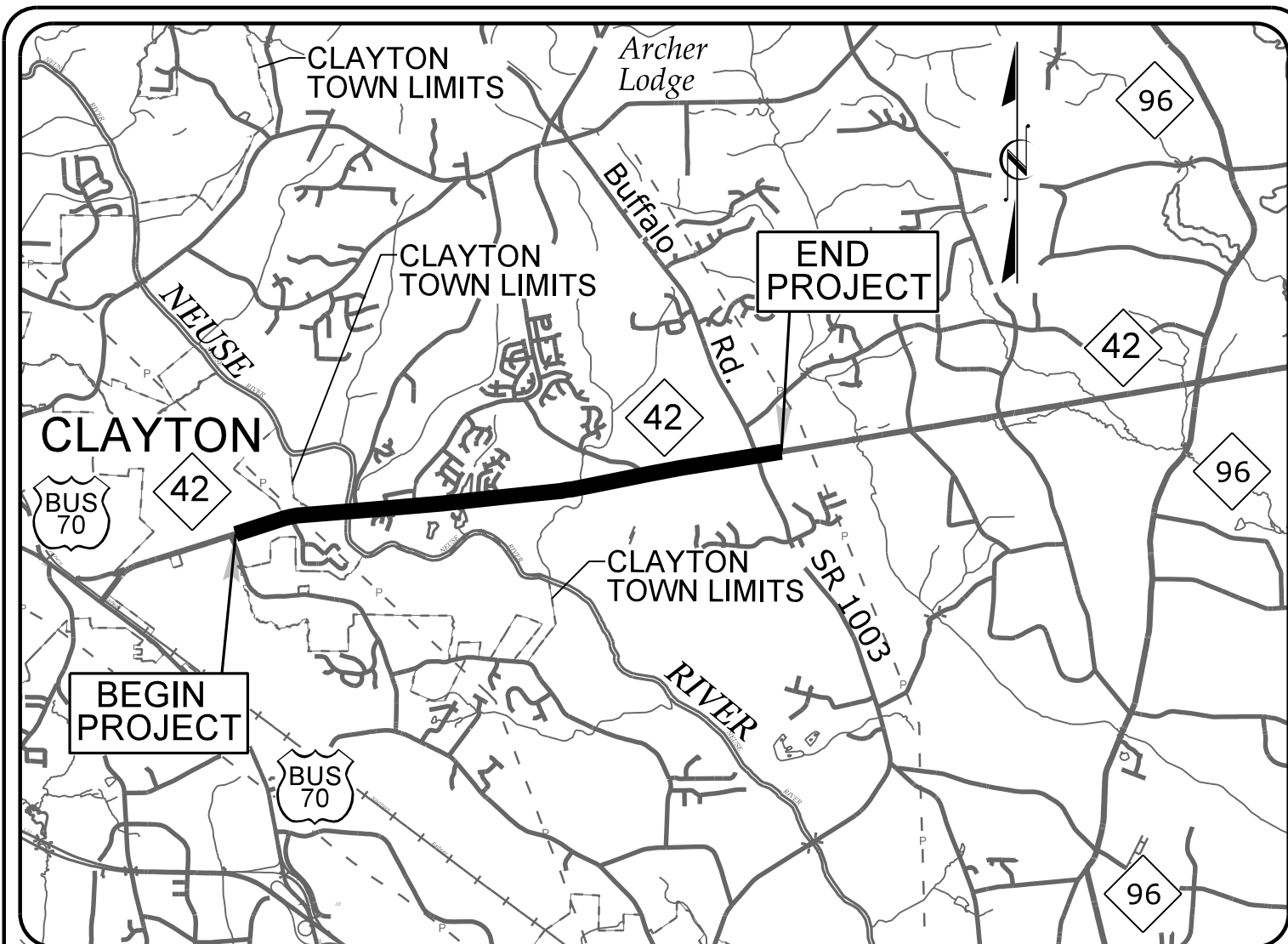
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3825B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34552.1.FR3	STP-0042(58)	P.E.	
34552.2.4		RW	
34552.2.5		UTL.	
34552.3.5		CONST.	

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UNLESS ALL SIGNATURES COMPLETED**

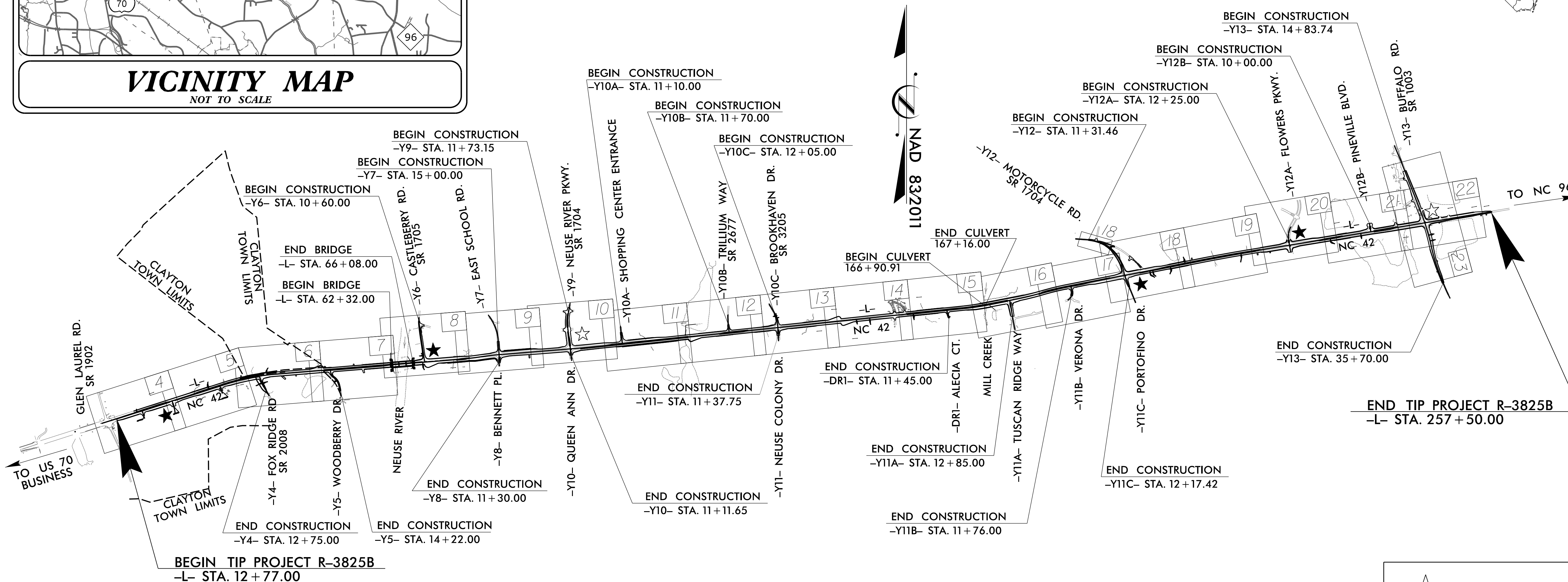


**TIP PROJECT: R-3825B**

**CONTRACT: C204108**

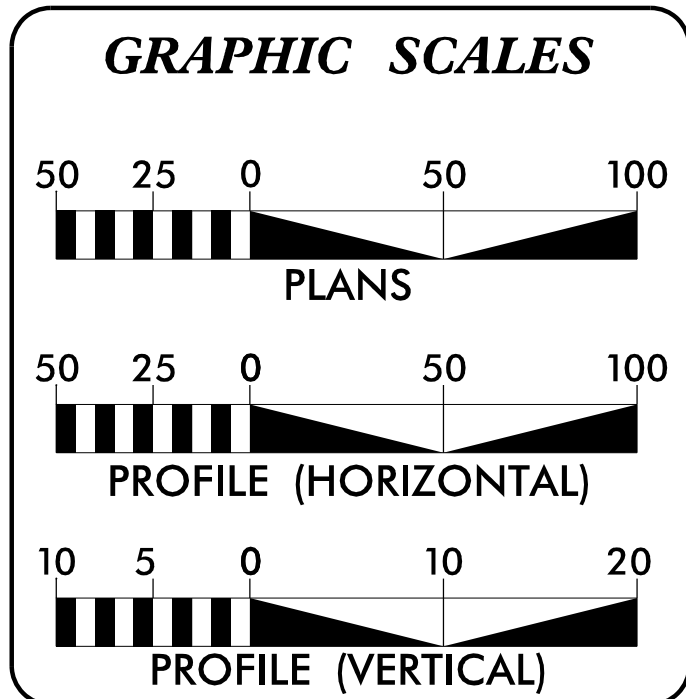


**VICINITY MAP**  
NOT TO SCALE



**THERE IS NO CONTROL OF ACCESS ON THIS PROJECT  
EXCEPT AS SHOWN ON PLANS**

☆ EXISTING SIGNAL  
★ PROPOSED SIGNAL



**DESIGN DATA**

ADT 2018 =	21,200
ADT 2040 =	37,400
K =	10%
D =	55%
T =	5% *
V =	60 MPH

\* (TTST 1% + DUAL 4%)  
FUNC. CLASS = RURAL MAJOR COLLECTOR REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT R-3825B =	4.564 MILES
LENGTH STRUCTURE TIP PROJECT R-3825B =	0.071 MILES
TOTAL LENGTH OF TIP PROJECT R-3825B =	4.635 MILES

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
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NC LICENSE # C-2249

2018 STANDARD SPECIFICATIONS  
**RIGHT OF WAY DATE: SEPTEMBER 8, 2016**

LETTING DATE:  
**SEPTEMBER 18, 2018**

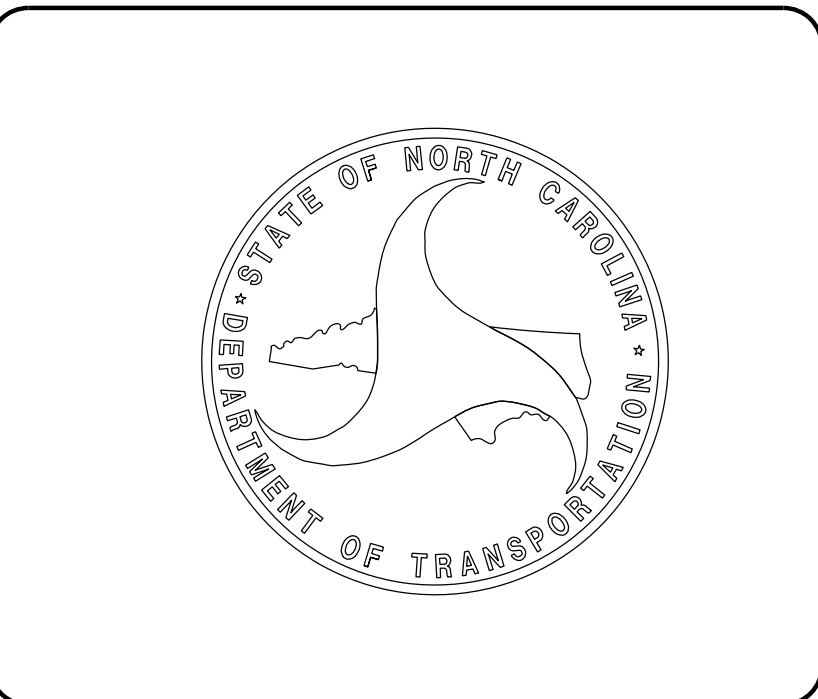
<b>ED EDENS, P.E.</b> PROJECT ENGINEER
<b>KEVIN VAN METRE, P.E.</b> PROJECT DESIGN ENGINEER
<b>GARY R. LOVERING, P.E.</b> PROJECT ENGINEER NCDOT ROADWAY DESIGN

**HYDRAULIC ENGINEER**

Professional Engineer Seal: **MEME D. BUSCENI**, No. 037863, State of North Carolina, License No. 037863, Exp. 12/31/2020

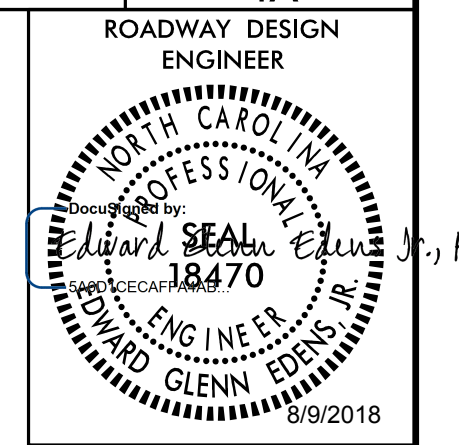
Professional Engineer Seal: **EDWARD D. BUSEAR**, No. 18470, State of North Carolina, License No. 18470, Exp. 12/31/2020

SIGNATURE: **MEME D. BUSCENI**, P.E., 8/20/2018  
SIGNATURE: **EDWARD D. BUSEAR**, P.E., 8/20/2018



# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

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UNLESS ALL SIGNATURES COMPLETED



SHEET NUMBER	INDEX OF SHEETS
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1B	CONVENTIONAL SYMBOLS
1C-1 THRU 1C-2	SURVEY CONTROL SHEETS
2A-1 THRU 2A-8	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1 THRU 2B-3	TEMPORARY PAVEMENT DETAIL
2B-4 THRU 2B-6	CONCRETE ISLAND DETAILS
2C-1	2'-9" CONCRETE CURB AND GUTTER
2C-2	2GI IN CONCRETE ISLAND PLACEMENT DETAIL
2C-3	GUARDRAIL STRUCTURE ANCHOR UNITS
2C-4	GUARDRAIL INSTALLATION
2C-5	STRUCTURE 723: CONCRETE MEDIAN DROP INLET TYPE 'A'
2C-6	STRUCTURE 908: TRAFFIC BEARING GRATED INLET
2C-7	STRUCTURE 1339 & 1340: SPECIAL JUNCTION BOX W/SLAB LID
2C-8	TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE
2C-9	CONCRETE ENDWALL FOR TRIPLE AND QUADRUPLE PIPE CULVERTS
2C-10	PIPE COLLAR DETAIL
2C-11	1'-6" TO 2'-9" CURB AND GUTTER TRANSITION SECTION
2C-12	COAL COMBUSTION PRODUCT PLACEMENT
2C-13	CURB RAMP DETAIL - DIRECTIONAL RAMPS
2C-14	CURB RAMP DETAIL - BLENDED TRANSITION
2C-15	CURB RAMP DETAIL - AT DRIVEWAY OPENINGS
2C-16	CURB RAMP DETAIL - MEDIAN OR TURN LANE ISLANDS
2C-17	CURB RAMP DETAIL - PARALLEL RAMPS
2C-18	CURB RAMP DETAIL - SHARED LANDING
2G-1	ROCK EMBANKMENTS DETAILS
2G-2	GEOTEXTILE FOR EMBANKMENT STABILIZATION DETAILS
2G-3	STANDARD FOR TEMPORARY SHORING
2G-4	STANDARD FOR TEMPORARY WALL SHEET 1 OF 3
2G-5	STANDARD FOR TEMPORARY WALL SHEET 2 OF 3
2G-6	STANDARD FOR TEMPORARY WALL SHEET 3 OF 3
2H-1	STOCKPILE CONTAINMENT DETAIL
2N-1 THRU 2N-3	NOISE WALL ENVELOPES
3B-1 THRU 3B-2	ROADWAY SUMMARIES (EARTHWORK, GUARDRAIL, ETC.)
3D-1 THRU 3D-19	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEETS
4 THRU 23	PLAN SHEETS
24 THRU 41	PROFILE SHEETS
TMP-1 THRU TMP-82	TRANSPORTATION MANAGMENT PLANS
PMP-1 THRU PMP-21	PAVEMENT MARKING PLANS
EC-1 THRU EC-43	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 THRU SIGN-13	SIGNING PLANS
SIG-1 THRU SIG-18.4	SIGNAL PLANS
SIG-M1 THRU SIG-M8	METAL POLE STANDARD DRAWINGS
SIG-SP1 THRU SIG-SP10	STANDARD DRAWINGS FOR METAL STRAIN POLES
SCP-1 THRU SCP-26	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-23	UTILITY CONSTRUCTION PLANS
UC-1Q THRU UC-22Q	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-21	UTILITY BY OTHERS PLANS
X-0	CROSS-SECTION INDEX
X-1A THRU X-1E	CROSS-SECTION SUMMARY
X-2 THRU X-130	CROSS-SECTIONS

GENERAL NOTES: 2018 SPECIFICATIONS EFFECTIVE: 01-16-2018  
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 AND STD. NO. 225.05 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN IN THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

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

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

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.

SUBSURFACE DRAINS:  
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:  
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADIUS OR RADIUS AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:  
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADIUS NOTED ON PLANS.

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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

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

UTILITIES:  
UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY  
AT&T TRANSMISSION, CONTERRA, CENTURYLINK, CHARTER,  
PIEDMONT NATURAL GAS, AQUA OF NC, JOHNSTON COUNTY,  
AND TOWN OF CLAYTON  
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 CONTRACT.

CURB RAMPS  
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 AND/OR 848.06. AND/OR DETAILS IN THE PLANS

2018 ROADWAY ENGLISH STANDARD DRAWINGS  
EFF. 01-16-2018  
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 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
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
240.01	Guide for Berm Ditch Construction
275.01	Rock Plating
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.03	Cross Pipe End Section - Precast Concrete Section for 18" to 30" Pipe
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.03	Reinforced Bridge Approach Fills - Type A Alternate Approach Fill for Integral Abutment
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	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
806.03	Concrete Contol of Access Marker
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.21	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.33	Reinforced Concrete Endwall - for Single 66" Pipe 90 Skew
838.39	Reinforced Concrete Endwall - for Single 72" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.51	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.63	Reinforced Brick Endwall - for Single 66" Pipe 90 Skew
838.69	Reinforced Brick Endwall - for Single 72" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing 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	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
850.11	Guide for Berm Drainage Outlet - 24" and 30" Pipe
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation (Special Detail for Sheet 6 of 8)
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

*Note: Not to Scale*

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

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Computed Property Corner	-----x
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	---WLB---
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Existing Historic Property Boundary	---HPB---
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	☠-S-☠
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	☠-W-☠
Contaminated Site: Known or Potential	☠?

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○ W
Small Mine	⌘
Foundation	▭
Area Outline	▭
Cemetery	⊕
Building	▭
School	▭
Church	▭
Dam	▭

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	----->
Spring	○
Wetland	⌵
Proposed Lateral, Tail, Head Ditch	▭
False Sump	▽

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Exist Permanent Easment Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊕
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	○ R W
New Right of Way Line with Pin and Cap	○ R W ▲
New Right of Way Line with Concrete or Granite R/W Marker	○ R W ●
New Control of Access Line with Concrete C/A Marker	○ C A
Existing Control of Access	○ C A
New Control of Access	○ C A
Existing Easement Line	---E---
New Temporary Construction Easement	---E---
New Temporary Drainage Easement	---TDE---
New Permanent Drainage Easement	---PDE---
New Permanent Drainage / Utility Easement	---DUE---
New Permanent Utility Easement	---PUE---
New Temporary Utility Easement	---TUE---
New Aerial Utility Easement	---AUE---

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	○ CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	▨

### VEGETATION:

Single Tree	☼
Single Shrub	☼

Hedge	-----
Woods Line	-----
Orchard	☼ ☼ ☼ ☼
Vineyard	▭ Vineyard

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	▭ CONC
Bridge Wing Wall, Head Wall and End Wall	▭ CONC WW
MINOR:	
Head and End Wall	▭ CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○ S
Storm Sewer	-----

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊕
Power Transformer	⊕
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	-----P-----
U/G Power Line LOS C (S.U.E.*)	-----P-----
U/G Power Line LOS D (S.U.E.*)	-----P-----

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	○
U/G Telephone Cable LOS B (S.U.E.*)	-----T-----
U/G Telephone Cable LOS C (S.U.E.*)	-----T-----
U/G Telephone Cable LOS D (S.U.E.*)	-----T-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----TC-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----TC-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----TC-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----TF-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----TF-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----TF-----

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----W-----
U/G Water Line LOS C (S.U.E.*)	-----W-----
U/G Water Line LOS D (S.U.E.*)	-----W-----
Above Ground Water Line	-----A/G Water-----

### TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	⊕
U/G TV Cable LOS B (S.U.E.*)	-----TV-----
U/G TV Cable LOS C (S.U.E.*)	-----TV-----
U/G TV Cable LOS D (S.U.E.*)	-----TV-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----TV FO-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----TV FO-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----TV FO-----

### GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	-----G-----
U/G Gas Line LOS C (S.U.E.*)	-----G-----
U/G Gas Line LOS D (S.U.E.*)	-----G-----
Above Ground Gas Line	-----A/G Gas-----

### SANITARY SEWER:

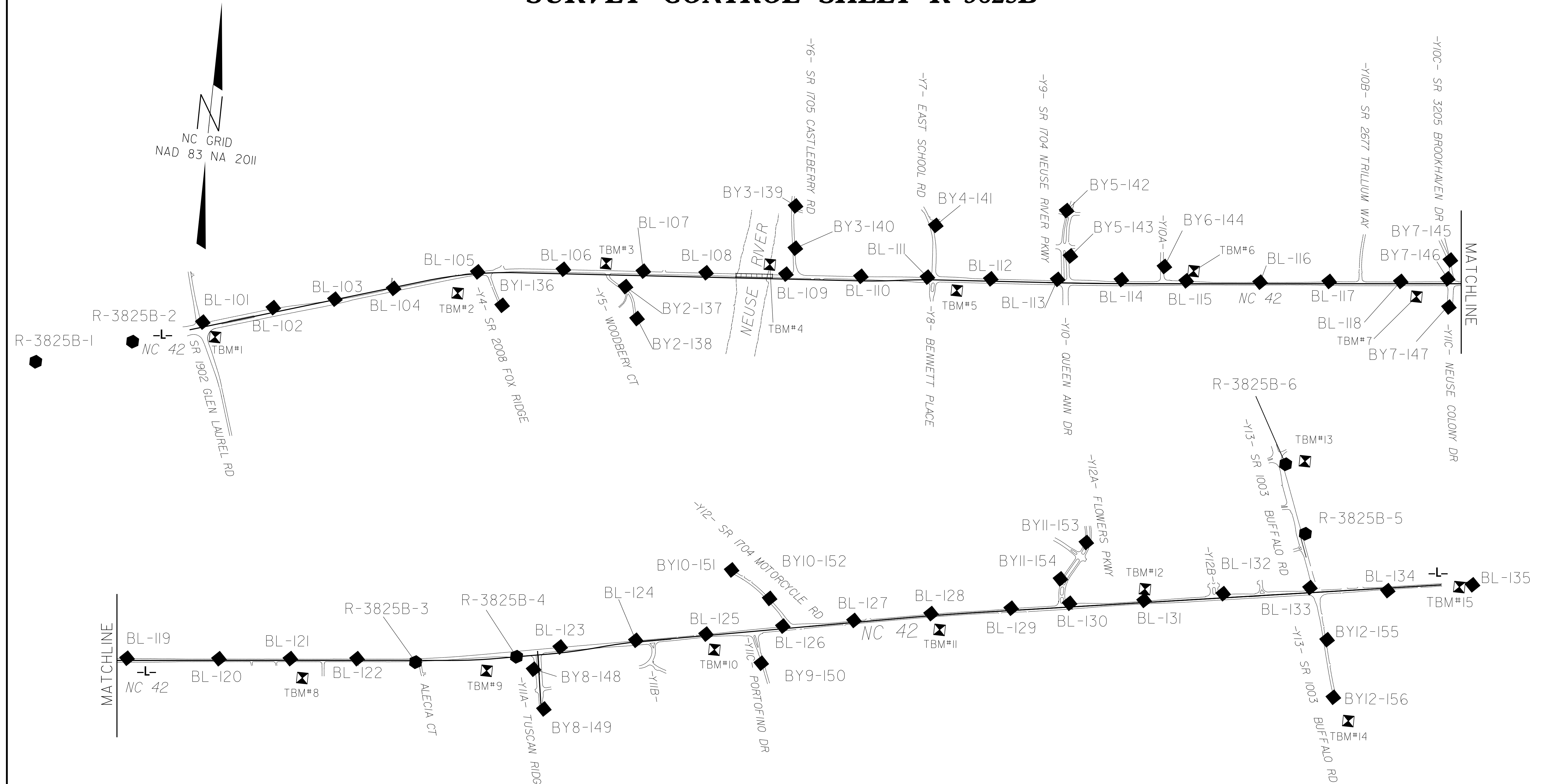
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----SS-----
Above Ground Sanitary Sewer	-----A/G Sanitary Sewer-----
SS Forced Main Line LOS B (S.U.E.*)	-----FSS-----
SS Forced Main Line LOS C (S.U.E.*)	-----FSS-----
SS Forced Main Line LOS D (S.U.E.*)	-----FSS-----

### MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line LOS B (S.U.E.*)	-----TUTL-----
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	⊕ UST
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
R-3825B	1C-1
Location and Surveys	

# SURVEY CONTROL SHEET R-3825B



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R3825B-3"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF  
 NORTHING: 691930.052(±) EASTING: 2186093.940(±)  
 ELEVATION: 327.29(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999889085

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R3825B-3" TO -L- STATION 10+00 IS  
 S82°24'03.79"W 14938.3489

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

- NOTES:**
1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 R3825B\_LS\_CONTROL.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ◆ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

R:\2018\ncdot\surveys\3825b\ls\_1c1.dgn

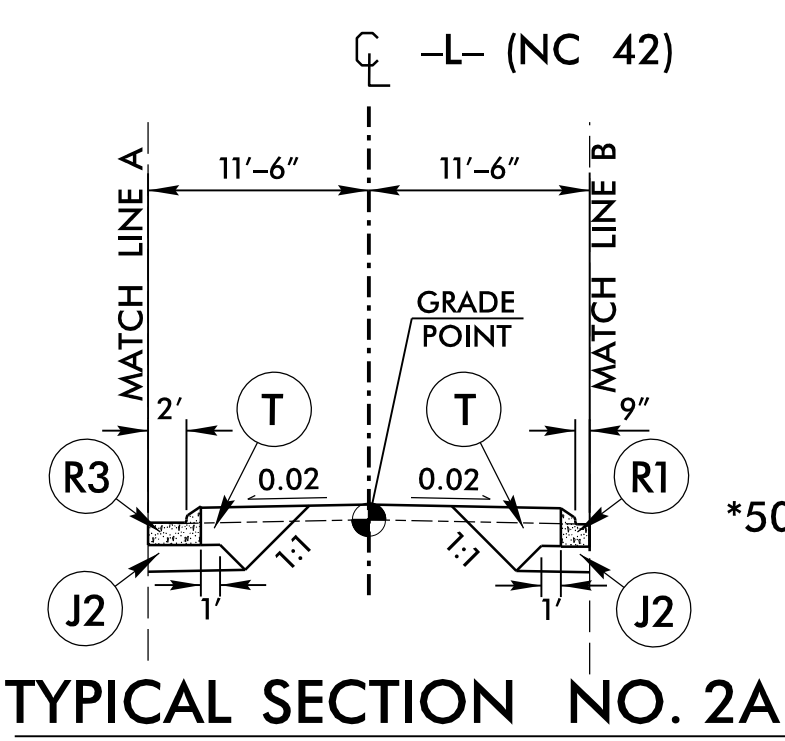
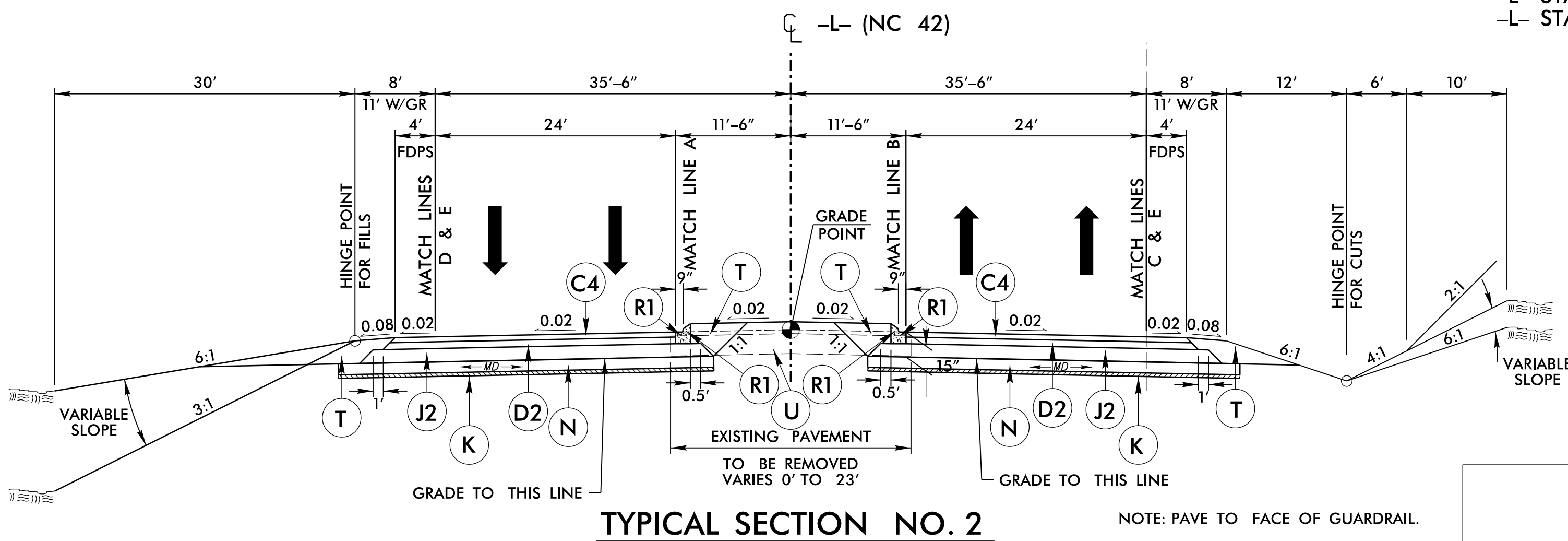
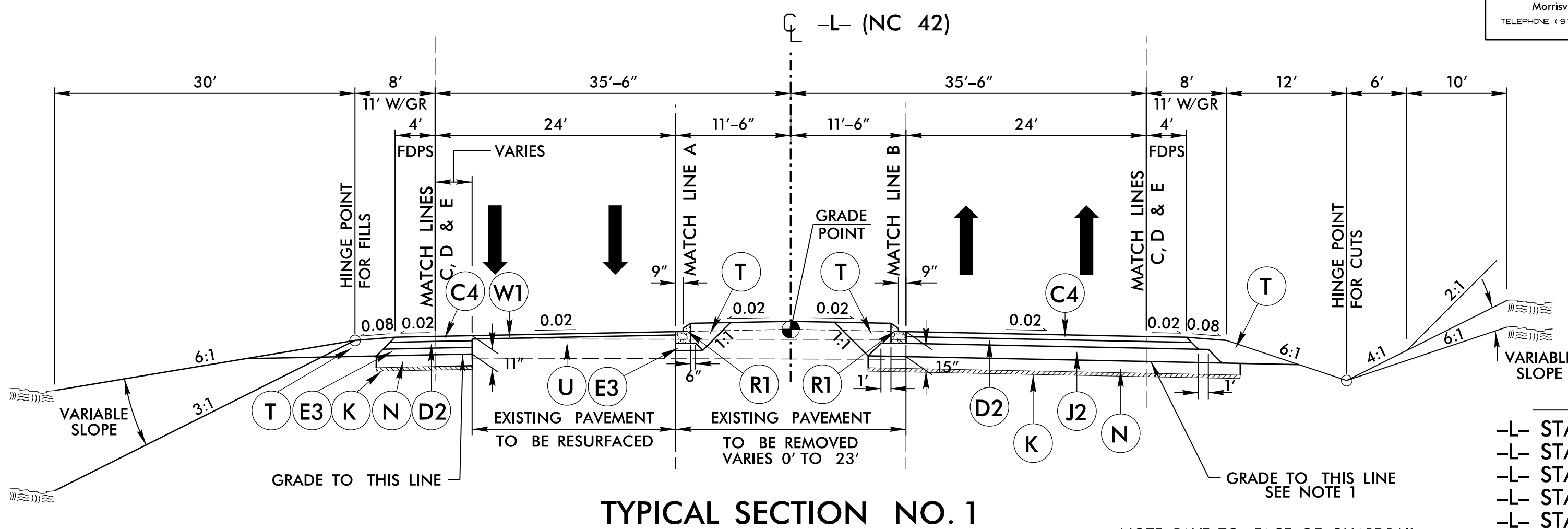
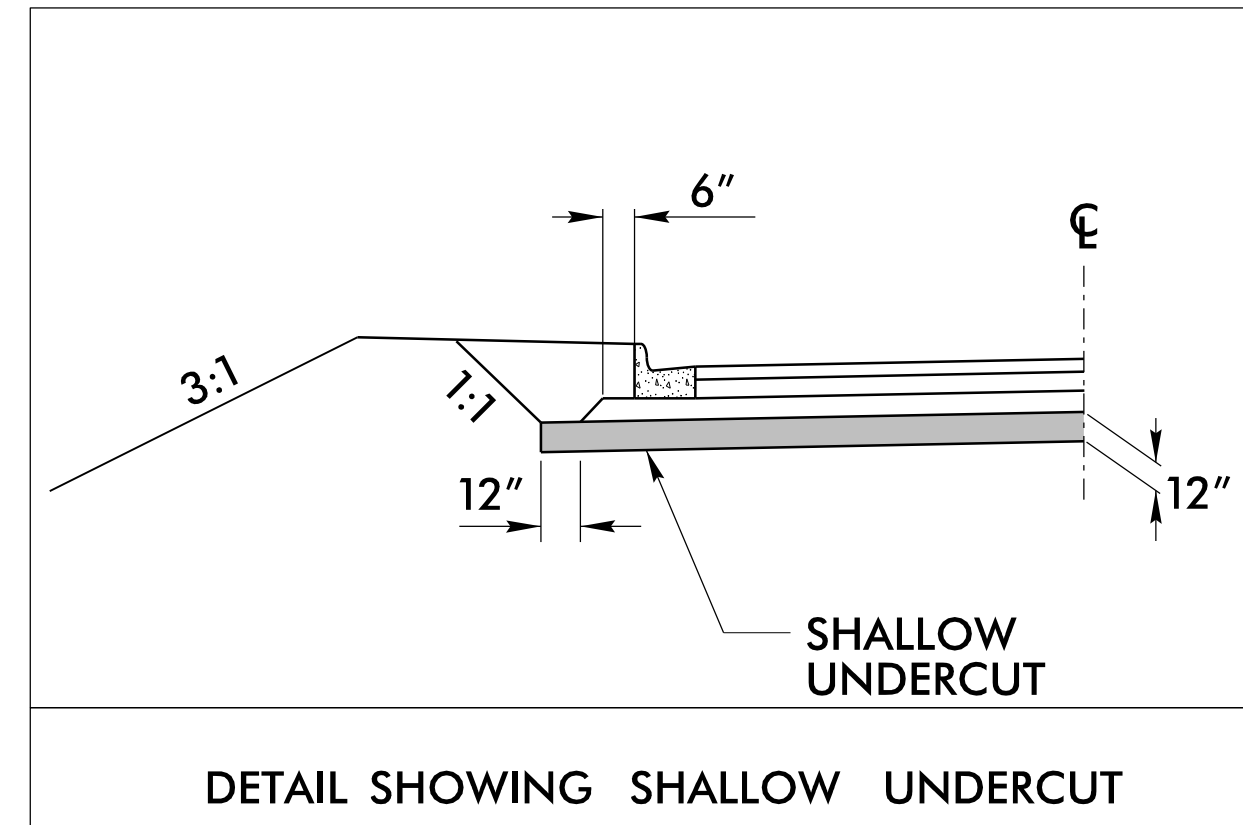


8/17/99

**PAVEMENT SCHEDULE  
FINAL PAVEMENT DESIGN**

C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E4	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE.
J2	PROP. 8" AGGREGATE BASE COURSE.
K	BASE TO BE TREATED WITH LIME (METHOD-SLURRY) TO A DEPTH OF 8" AT A RATE OF 20 LBS. PER SQ. YD. AS DIRECTED BY THE ENGINEER. OR BASE TO BE TREATED WITH CEMENT TO A DEPTH OF 7" AT A RATE OF 55 LBS. PER SQ. YD. AS DIRECTED BY THE ENGINEER.
N	GEOTEXTILE FOR PAVEMENT STABILIZATION
P	PRIME COAT AT RATE OF .35 GAL PER SQ. YARD
R1	1'-6" CONCRETE CURB AND GUTTER.
R2	2'-6" CONCRETE CURB AND GUTTER.
R3	2'-9" CONCRETE CURB AND GUTTER. SEE DETAIL, THIS SHEET.
R4	EXPRESSWAY GUTTER.
R5	SHOULDER BERM GUTTER.
R6	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING NO. 1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING NO. 2)

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

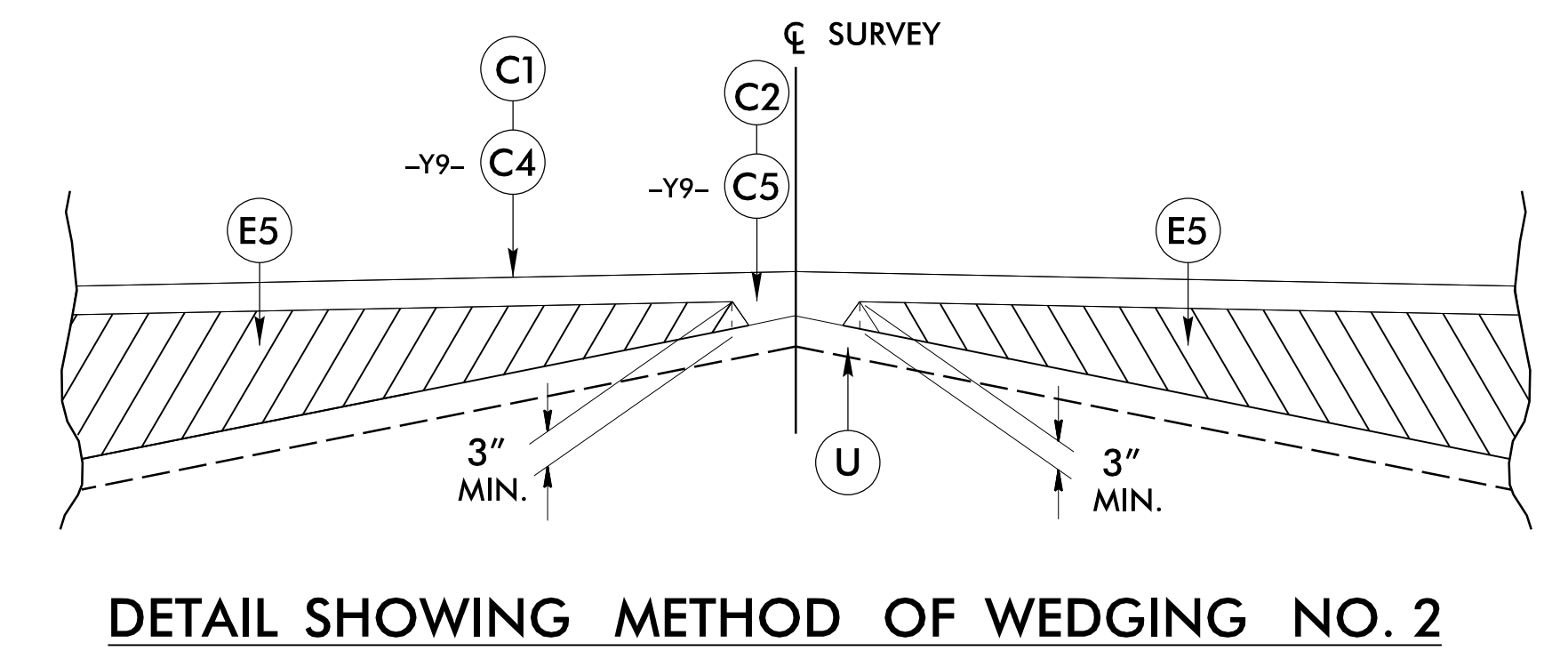
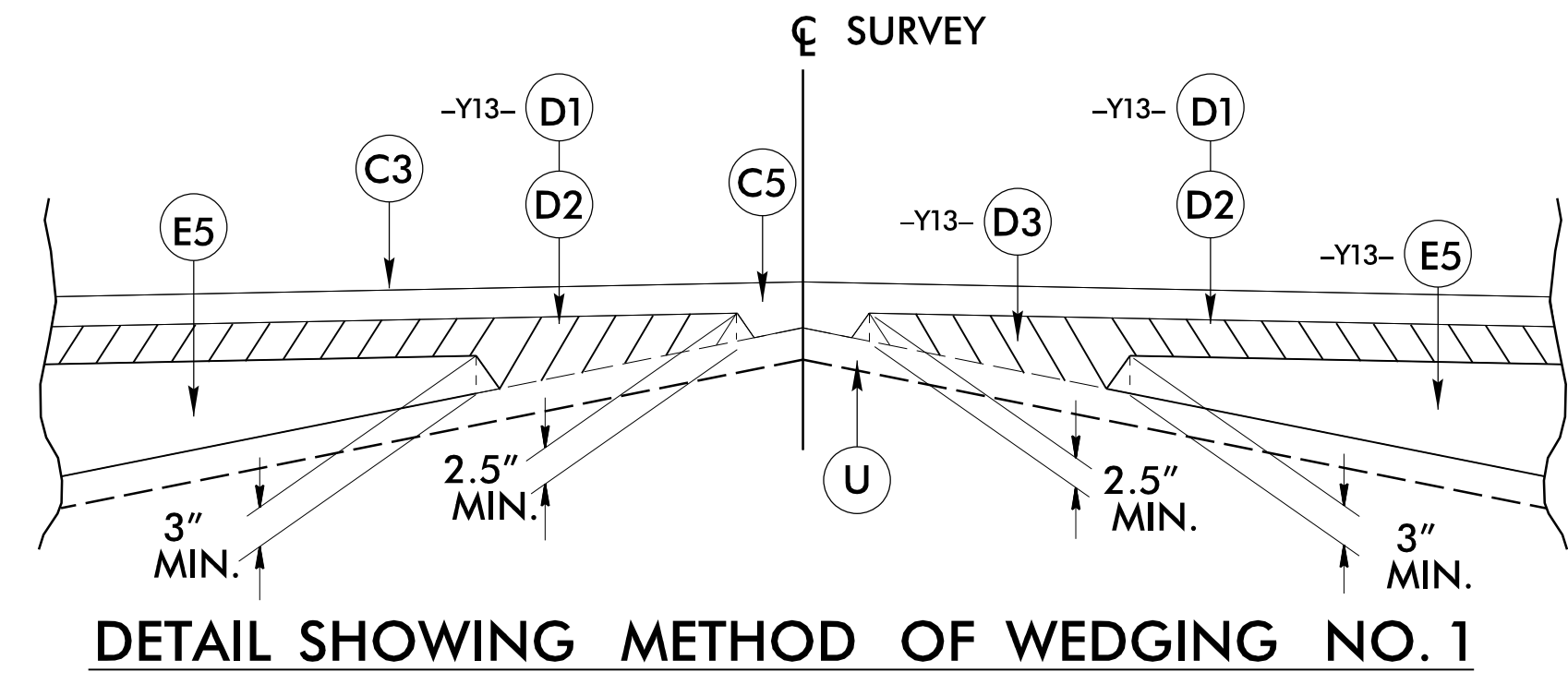


USE TYPICAL SECTION NO. 2A IN CONJUNCTION WITH TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:

- L- STA. 32+20.26 TO STA. 38+37.76 LT\*
- L- STA. 74+14.22 TO STA. 75+63.04 RT\*
- L- STA. 162+90.63 TO STA. 167+94.19 RT\*
- L- STA. 177+60.00 TO STA. 182+97.18 LT\*

\*50' TRANSITION BETWEEN 1'-6" CURB AND 2'-9" CURB & GUTTER

- L- STA. 31+70.26 LT
- L- STA. 38+37.76 LT
- L- STA. 73+64.22 RT
- L- STA. 75+63.04 RT
- L- STA. 162+40.63 RT
- L- STA. 167+94.19 RT
- L- STA. 177+10.00 LT
- L- STA. 182+97.18 LT



Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE: (919) 461-1100 FAX: (919) 461-1415  
NO. LICENSE: C-22843

PROJECT REFERENCE NO.  
R-3825B

SHEET NO.  
2A-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER  
SEAN J. WILSON  
Professional Engineer  
No. License: 022806  
Effective Date: 07/2018

PAVEMENT DESIGN ENGINEER  
CLARK S. MORRISON  
Professional Engineer  
No. License: 022806  
Effective Date: 07/2018

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

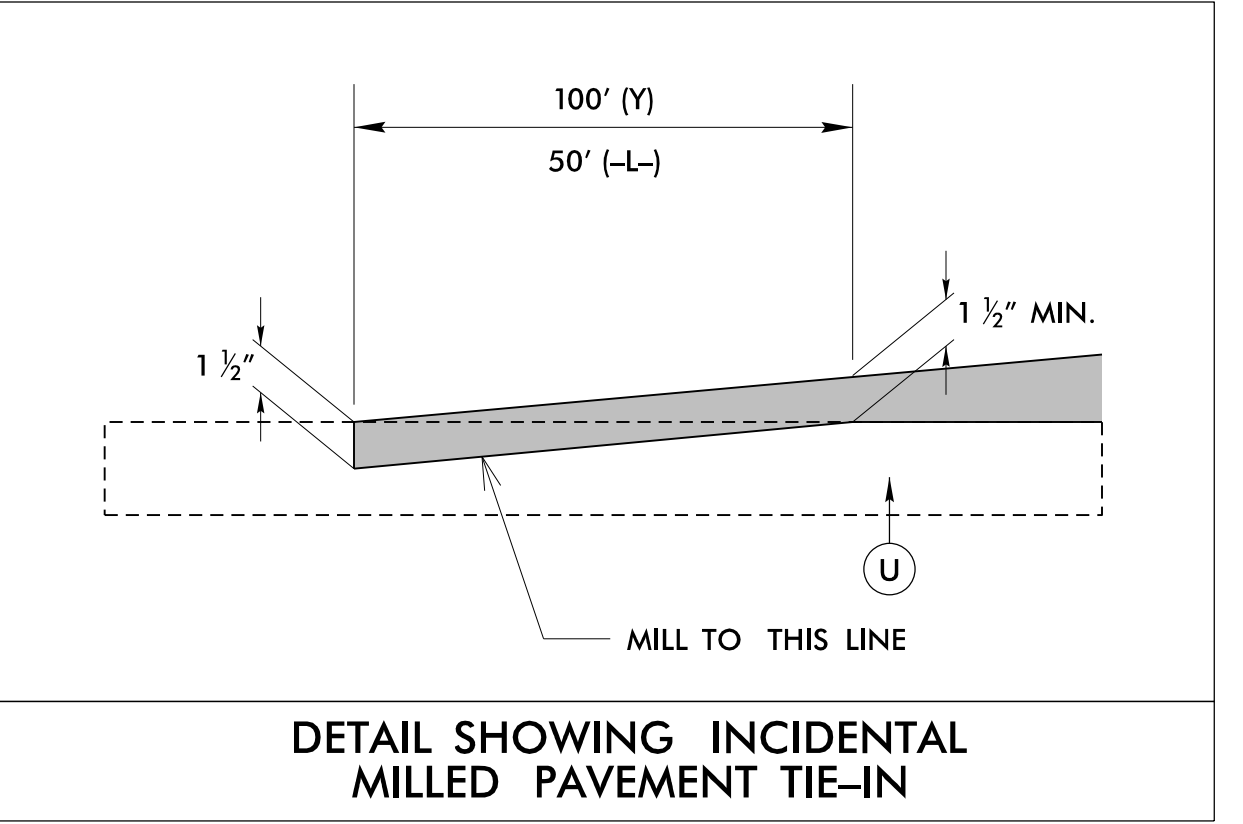
USE TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATION:

- L- STA. 12+77.00 TO STA. 16+50.00 MILL & RESURFACE
- L- STA. 16+50.00 TO STA. 23+50.50 RESURF. LT & RT
- L- STA. 26+00.50 TO STA. 38+87.76 RESURF. LT & RT
- L- STA. 50+30.17 TO STA. 62+07.50 RESURF. LT
- L- STA. 73+64.22 TO STA. 76.32.36 RESURF. LT
- L- STA. 95+55.70 TO STA. 107+83.69 RESURF. LT & RT
- L- STA. 120+10.11 TO STA. 125+25.01 RESURF. LT & RT
- L- STA. 153+22.00 TO STA. 171+16.31 RESURF. LT & RT
- L- STA. 176+62.24 TO STA. 189+58.30 RESURF. LT & RT
- L- STA. 194+80.16 TO STA. 199+60.16 RESURF. LT & RT
- L- STA. 214+42.08 TO STA. 216+29.03 RESURF. LT & RT

NOTE 1: SEE TYPICAL SECTION NO. 3A & 3B FOR PAVEMENT STABILIZATION LOCATIONS.

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATION:

- L- STA. 107+87.06 TO STA. 114+65.11
- L- STA. 199+60.16 TO STA. 214+42.08



REVISIONS

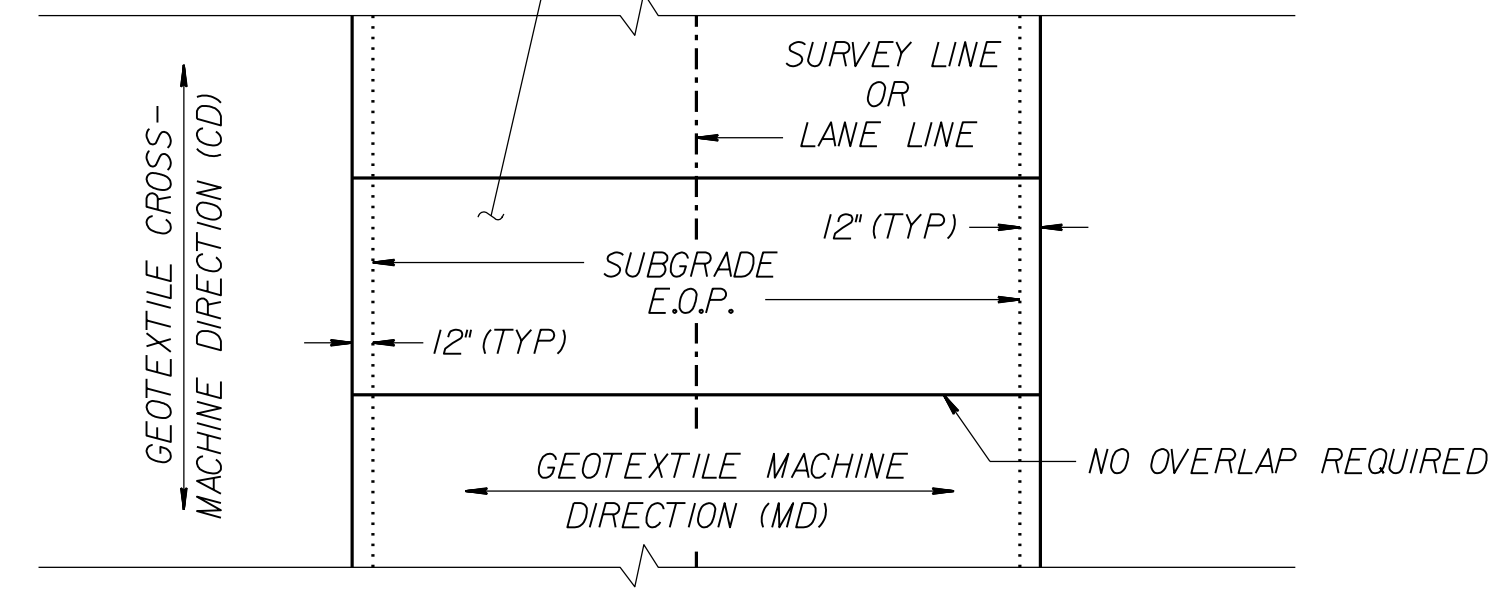
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tjpb

8/17/19

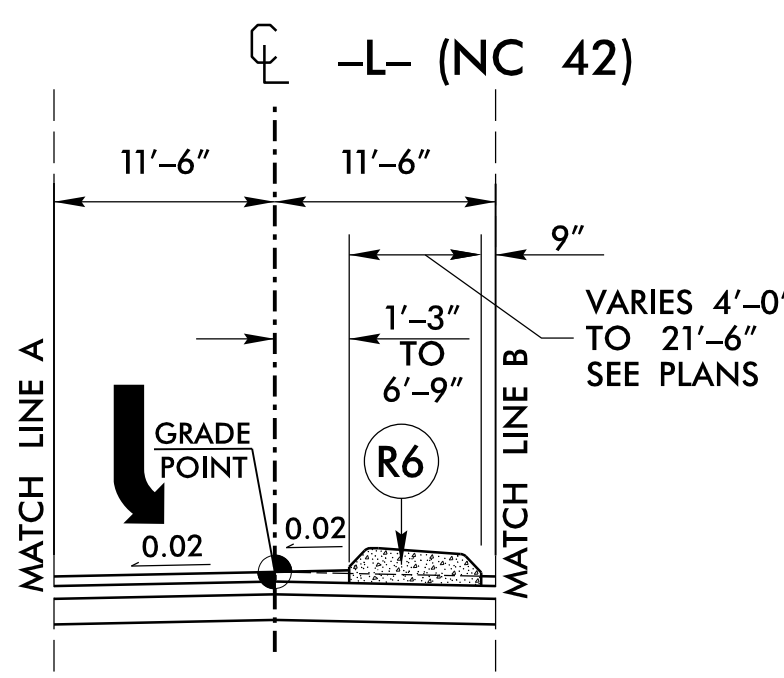
**PAVEMENT SCHEDULE  
FINAL PAVEMENT DESIGN**

C1	2½" S9.5B
C2	VAR. S9.5B
C3	1½" S9.5C
C4	3" S9.5C
C5	VAR. S9.5C
D1	2½" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4½" B25.0C
E2	5" B25.0C
E3	4" B25.0C
E4	5½" B25.0C
E5	VAR. B25.0C
J1	6" ABC
J2	8" ABC
K	K LIME OR CEMENT
N	GEOTEXTILE PVMT. STAB.
P	PRIME COAT
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
R6	5" CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL No. 1
W2	WEDGING DETAIL No. 2

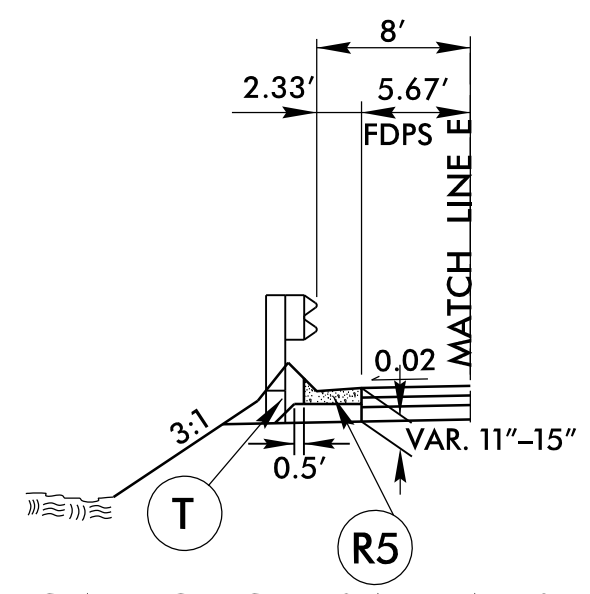
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE  
TRENCH SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



**GEOTEXTILE FOR PAVEMENT STABILIZATION PLACEMENT  
(PLAN VIEW)  
(100% COVERAGE REQUIRED)**



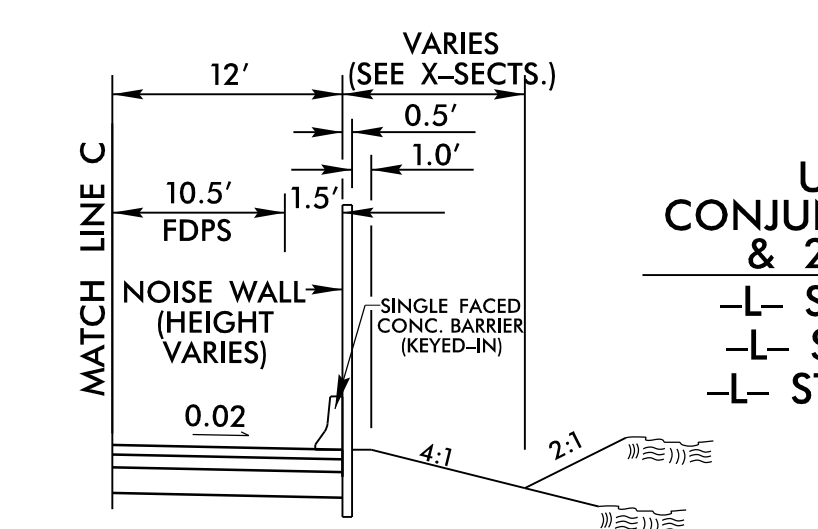
**TYPICAL SECTION NO. 2B**



**TYPICAL SECTION NO. 2E**

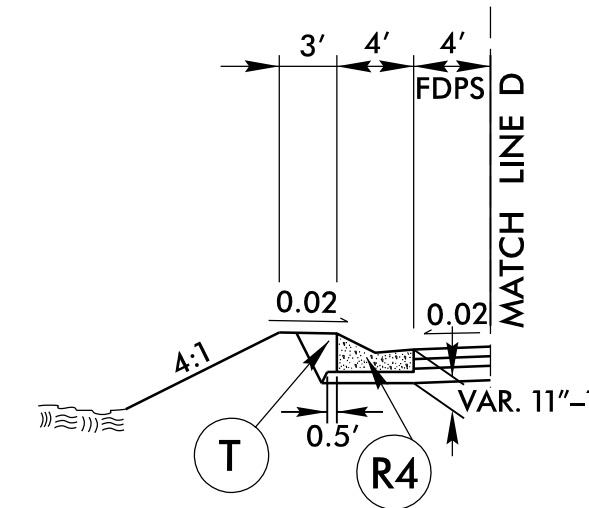
USE TYPICAL SECTION NO. 2E IN CONJUNCTION WITH TYPICAL SECTION NO. 1, 2 & 8 AT THE FOLLOWING LOCATIONS:  
 -L- STA. 26+78.00 TO STA. 29+46.00 LT.  
 -L- STA. 48+77.00 TO STA. 50+98.00 LT.  
 -L- STA. 57+26.25 TO STA. 62+07.50 LT.  
 -L- STA. 57+08.25 TO STA. 62+07.50 RT.  
 -L- STA. 66+32.50 TO STA. 67+38.75 RT.  
 -L- STA. 66+32.50 TO STA. 67+42.00 LT.  
 -L- STA. 104+01.91 TO STA. 107+85.00 LT.  
 -L- STA. 112+97.00 TO STA. 115+10.00 RT.  
 -L- STA. 127+05.00 TO STA. 129+98.00 RT.  
 -L- STA. 127+96.00 TO STA. 129+53.00 LT.  
 -L- STA. 133+35.00 TO STA. 137+03.00 RT.  
 -L- STA. 135+12.00 TO STA. 138+05.00 LT.  
 -L- STA. 154+75.00 TO STA. 158+68.00 RT.  
 -L- STA. 155+12.00 TO STA. 159+05.00 LT.  
 -L- STA. 166+30.00 TO STA. 173+34.00 LT.  
 -L- STA. 193+01.04 TO STA. 194+00.00 LT.  
 -L- STA. 200+70.00 TO STA. 203+38.00 RT.  
 -L- STA. 200+22.00 TO STA. 202+65.00 LT.  
 -Y12- STA. 17+02.23 TO STA. 20+46.28 RT.

USE TYPICAL SECTION NO. 2B IN CONJUNCTION WITH TYPICAL SECTION NO. 1, & 2 AT THE FOLLOWING LOCATIONS:  
 -L- STA. 23+50.50 TO STA. 26+00.50  
 -L- STA. 38+87.76 TO STA. 50+30.17  
 -L- STA. 62+07.50 TO STA. 62+32.00  
 -L- STA. 66+08.00 TO STA. 73+64.22  
 -L- STA. 76+32.36 TO STA. 95+55.70  
 -L- STA. 114+65.11 TO STA. 120+10.11  
 -L- STA. 125+25.01 TO STA. 153+22.00  
 -L- STA. 171+16.31 TO STA. 176+62.24  
 -L- STA. 189+58.30 TO STA. 194+80.16



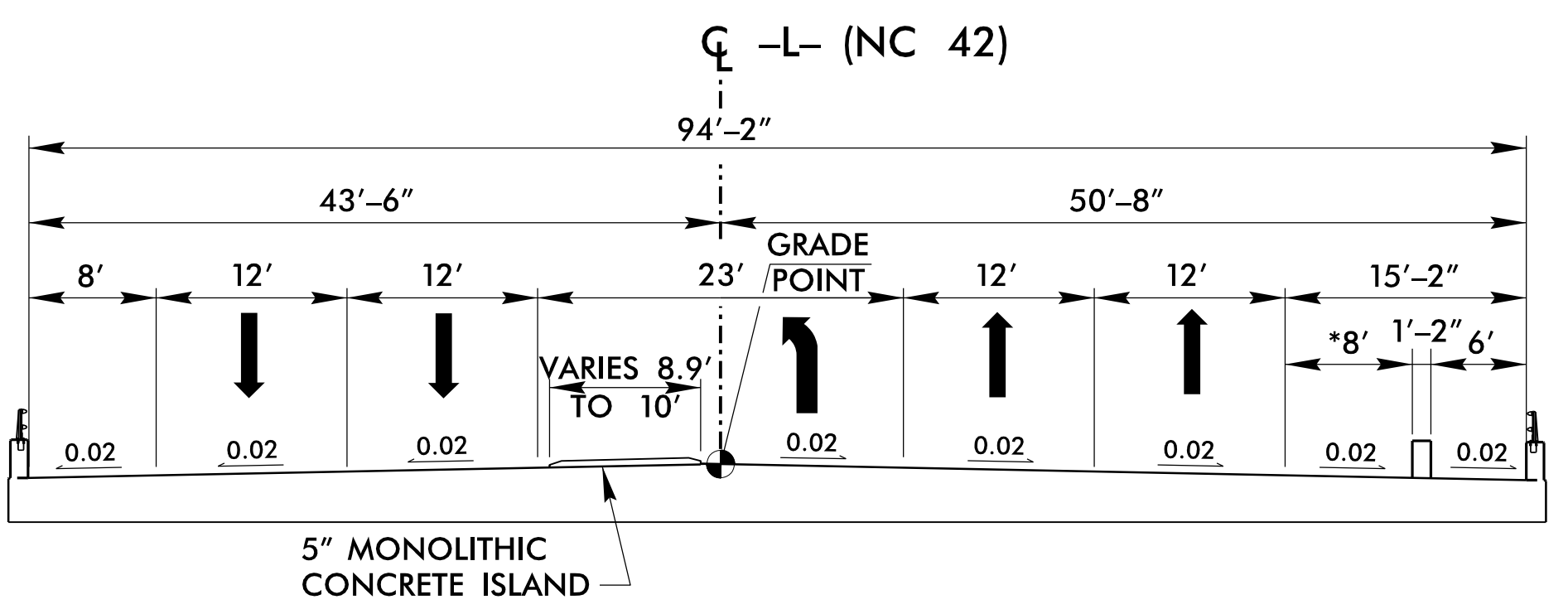
**TYPICAL SECTION NO. 2C**

USE TYPICAL SECTION NO. 2C IN CONJUNCTION WITH TYPICAL SECTION NO. 1 & 2 AT THE FOLLOWING LOCATIONS:  
 -L- STA. 72+09.00 TO STA. 80+75.52 RT.  
 -L- STA. 82+15.00 TO STA. 86+95.00 LT.  
 -L- STA. 102+88.25 TO STA. 112+78.25 RT.



**TYPICAL SECTION NO. 2D**

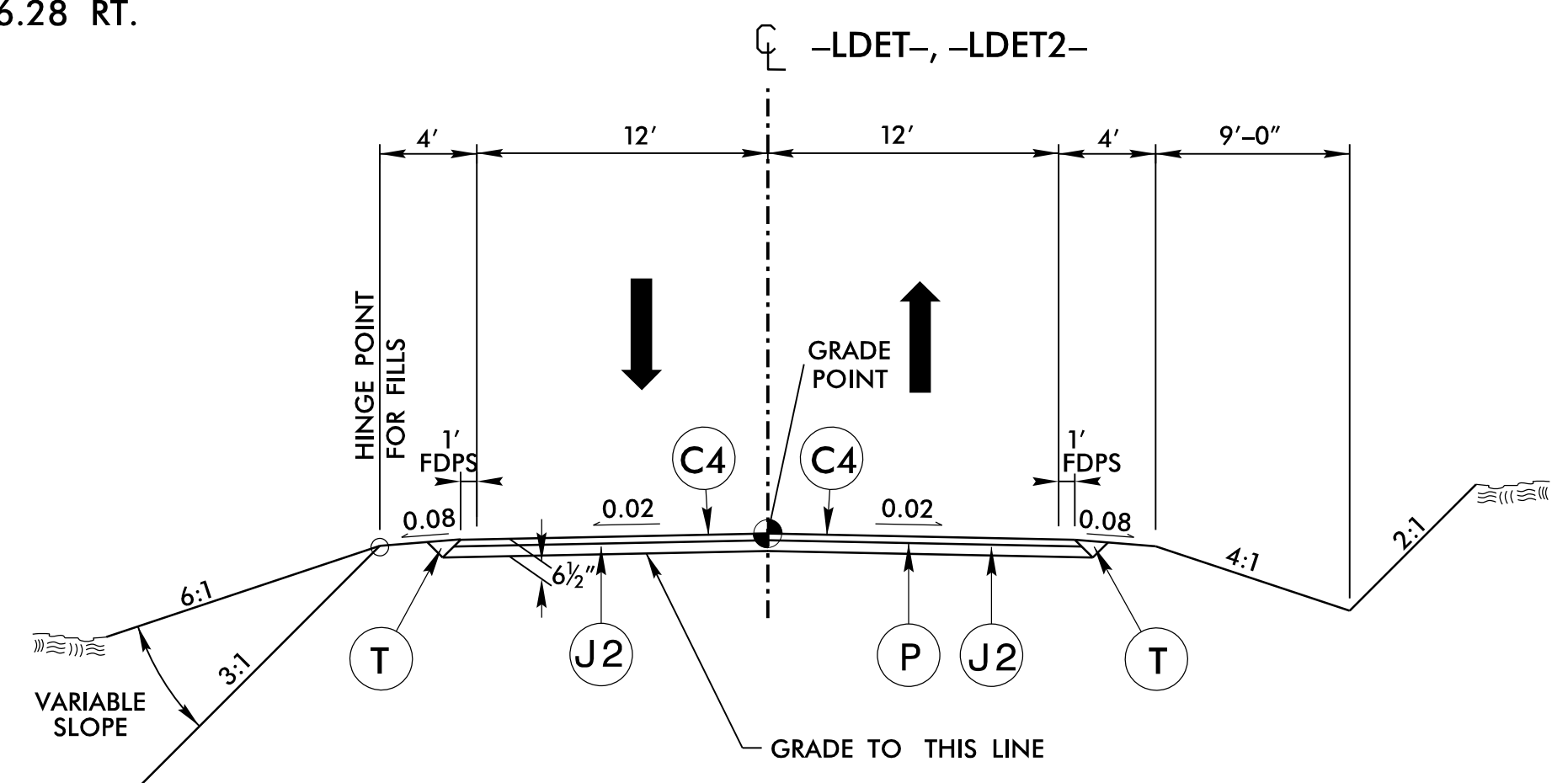
USE TYPICAL SECTION NO. 2D IN CONJUNCTION WITH TYPICAL SECTION NO. 1 & 2 AT THE FOLLOWING LOCATIONS:  
 -L- STA. 116+45.00 TO STA. 121+20.13 LT.  
 -L- STA. 119+50.00 TO STA. 122+50.00 RT.



**TYPICAL SECTION NO. 2F**

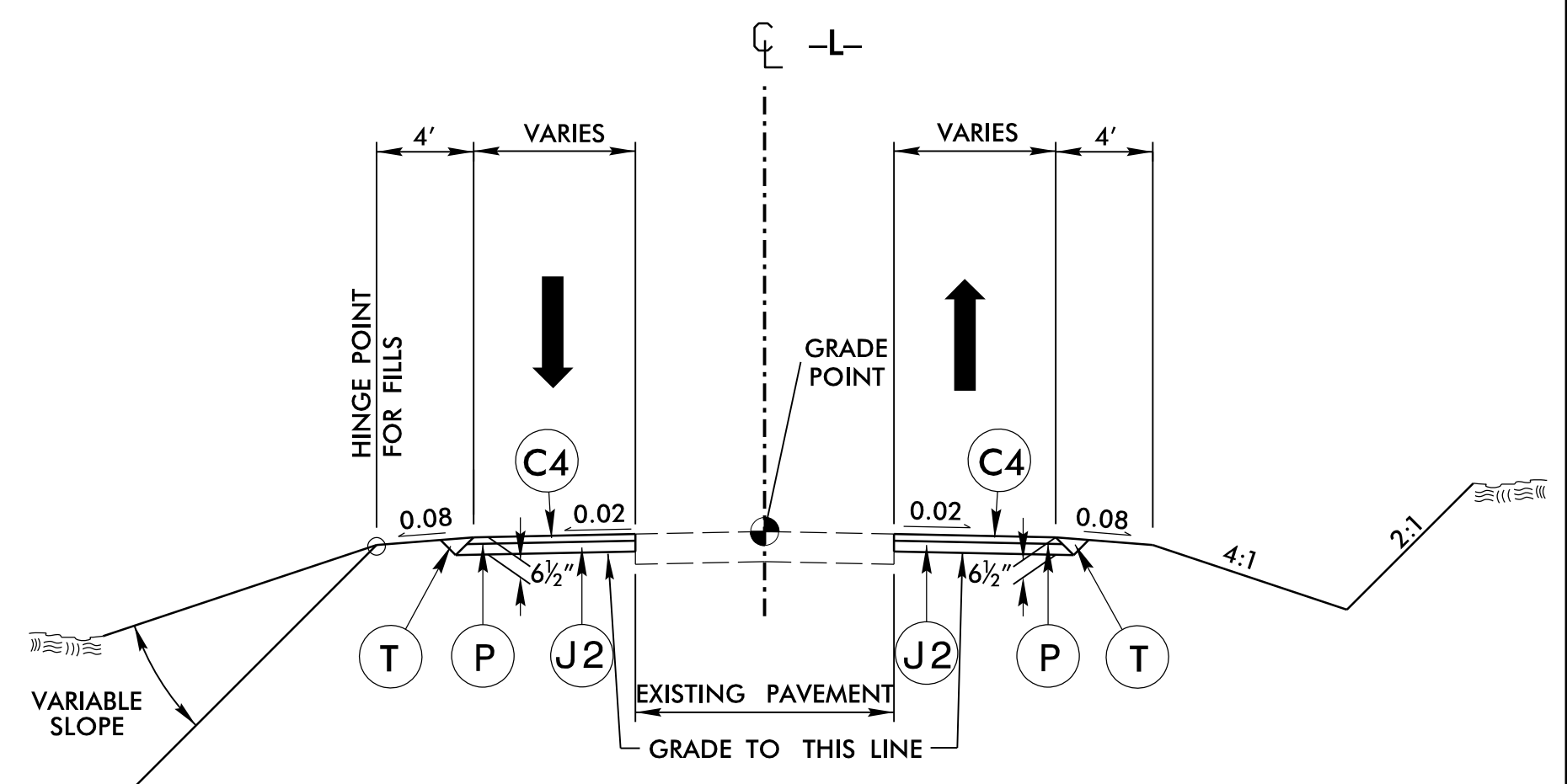
USE TYPICAL SECTION NO. 2F AT THE FOLLOWING LOCATION:  
 FROM (BEGIN BRIDGE)-L STA. 62+32.00 TO (END BRIDGE)-L STA. 66+08.00

\*MINIMUM 8' OFFSET TO BARRIER RAIL PER NCDOT BRIDGE POLICY



**TYPICAL SECTION NO. 2G**

USE TYPICAL SECTION NO. 2G AT THE FOLLOWING LOCATION:  
 -LDET- STA. 35+50.00 TO STA. 43+57.41  
 -LDET2- STA. 171+20.00 TO STA. 181+94.44



**TEMPORARY PAVEMENT WIDENING DETAIL**

USE TYPICAL SECTION AT THE FOLLOWING LOCATION:  
 -L- STA. 32+70.00 TO STA. 35+50.00 LT (7'-10')  
 -L- STA. 73+64.22 TO STA. 76+13.04 RT (6'-21')  
 -L- STA. 75+70.00 TO STA. 138+50.00 LT (5'-33')  
 -L- STA. 154+55.00 TO STA. 162+30.00 LT (3'-10')  
 -L- STA. 172+20.00 TO STA. 186+00.00 LT (3'-19')  
 -L- STA. 199+00.00 TO STA. 216+50.00 LT (5'-10')  
 SEE TMP PLANS FOR TEMPORARY PAVEMENT WIDENING



PROJECT REFERENCE NO. R-3825B	SHEET NO. 2A-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

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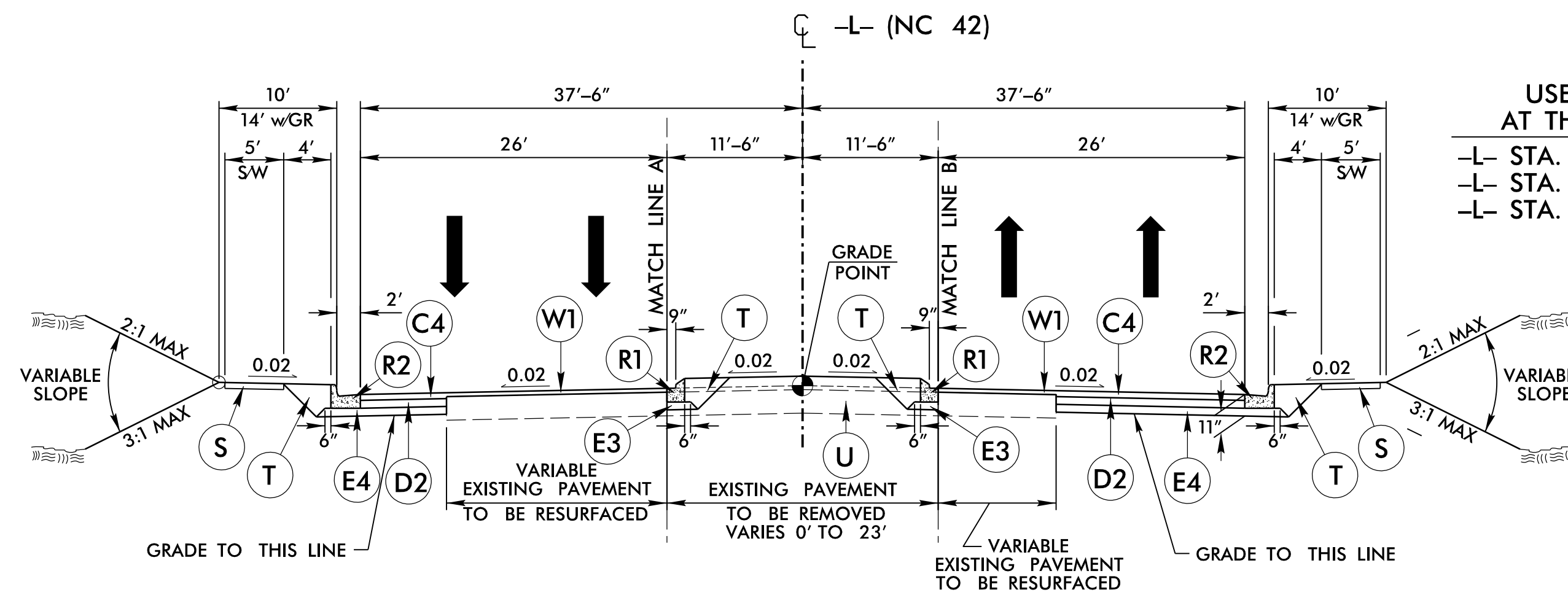


8/17/19

**PAVEMENT SCHEDULE  
FINAL PAVEMENT DESIGN**

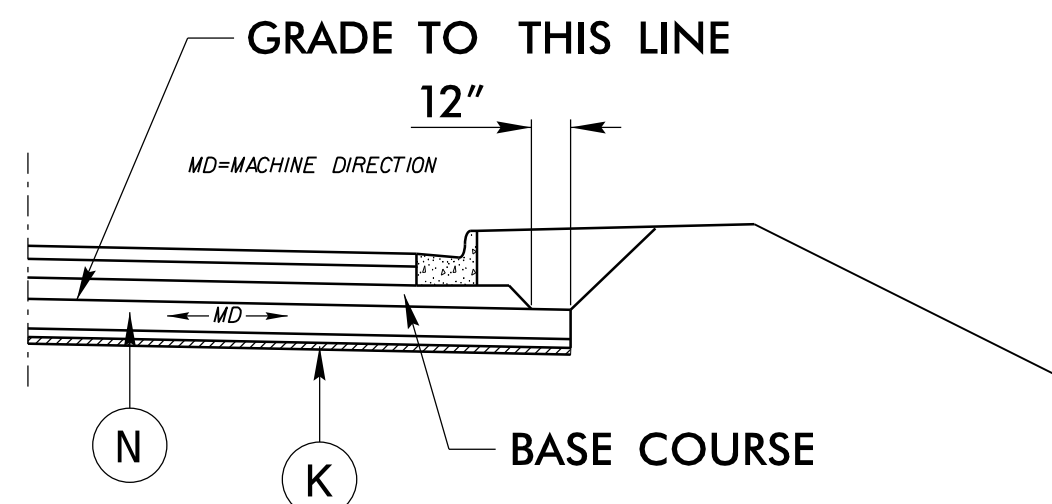
C1	2 1/2" S9.5B
C2	VAR. S9.5B
C3	1 1/2" S9.5C
C4	3" S9.5C
C5	VAR. S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4 1/2" B25.0C
E2	5" B25.0C
E3	4" B25.0C
E4	5 1/2" B25.0C
E5	VAR. B25.0C
J1	6" ABC
J2	8" ABC
K	K LIME OR CEMENT
N	GEOTEXTILE PVMT. STAB.
P	PRIME COAT
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
R6	5" CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL No. 1
W2	WEDGING DETAIL No. 2

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

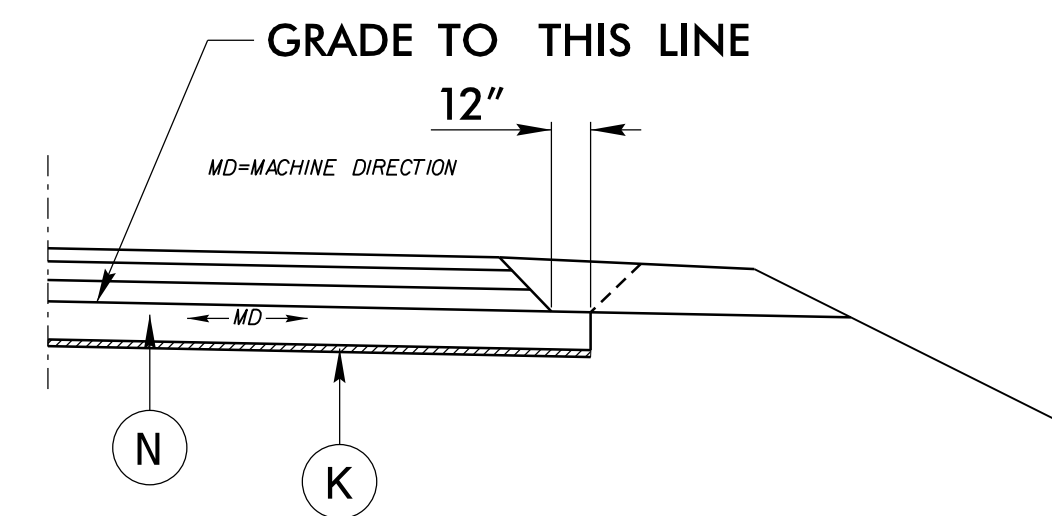


**TYPICAL SECTION NO. 3**

USE TYPICAL SECTION NO. 3  
AT THE FOLLOWING LOCATION:  
-L- STA. 216+29.03 TO STA. 216+44.00  
-L- STA. 226+78.00 TO STA. 231+07.28  
-L- STA. 236+59.28 TO STA. 240+84.98



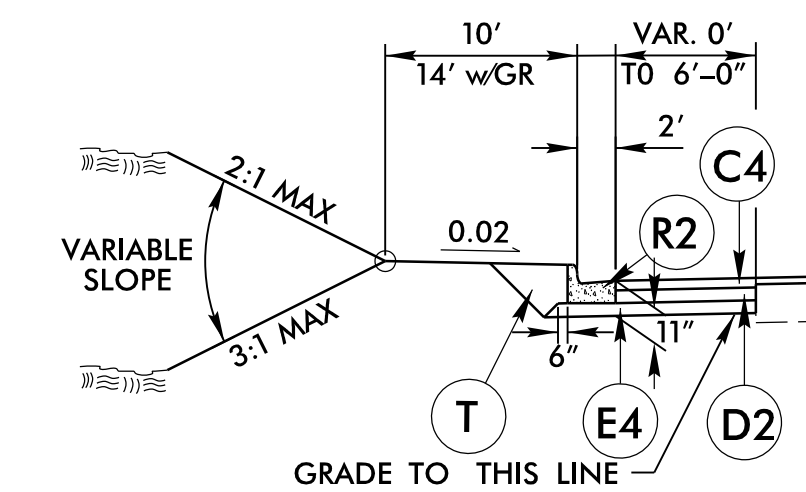
**TYPICAL SECTION NO. 3A**



**TYPICAL SECTION NO. 3B**

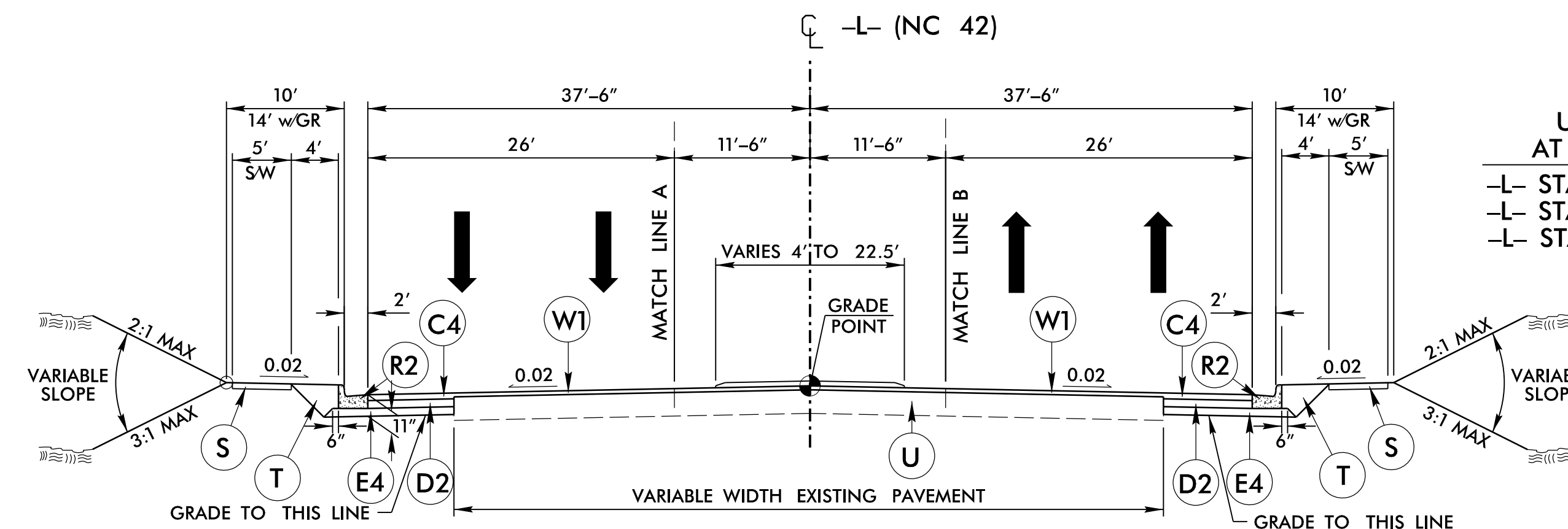
GEOTEXTILE FOR PAVEMENT STABILIZATION  
TYPICAL SECTION NO'S 3A & 3B TO BE USED  
IN CONJUNCTION WITH TYPICAL SECTION NO.  
1, 7, & 17 AT THE FOLLOWING LOCATIONS:

- L- STA. 24+00 TO STA. 29+50 LT
- L- STA. 37+00 TO STA. 39+00 LT
- L- STA. 48+75 TO STA. 50+25 LT
- L- STA. 48+75 TO STA. 49+75 RT
- L- STA. 57+75 TO STA. 62+50 RT
- L- STA. 66+25 TO STA. 67+25 RT
- L- STA. 105+00 TO STA. 108+50 LT
- L- STA. 107+00 TO STA. 109+00 RT
- L- STA. 112+75 TO STA. 115+25 RT
- L- STA. 127+25 TO STA. 129+00 LT, RT
- L- STA. 134+75 TO STA. 137+50 LT, RT
- L- STA. 155+00 TO STA. 158+00 LT, RT
- L- STA. 165+25 TO STA. 169+00 RT
- L- STA. 200+25 TO STA. 203+00 LT
- L- STA. 201+25 TO STA. 204+00 RT
- L- STA. 230+00 TO STA. 232+25 LT
- L- STA. 230+00 TO STA. 232+50 RT



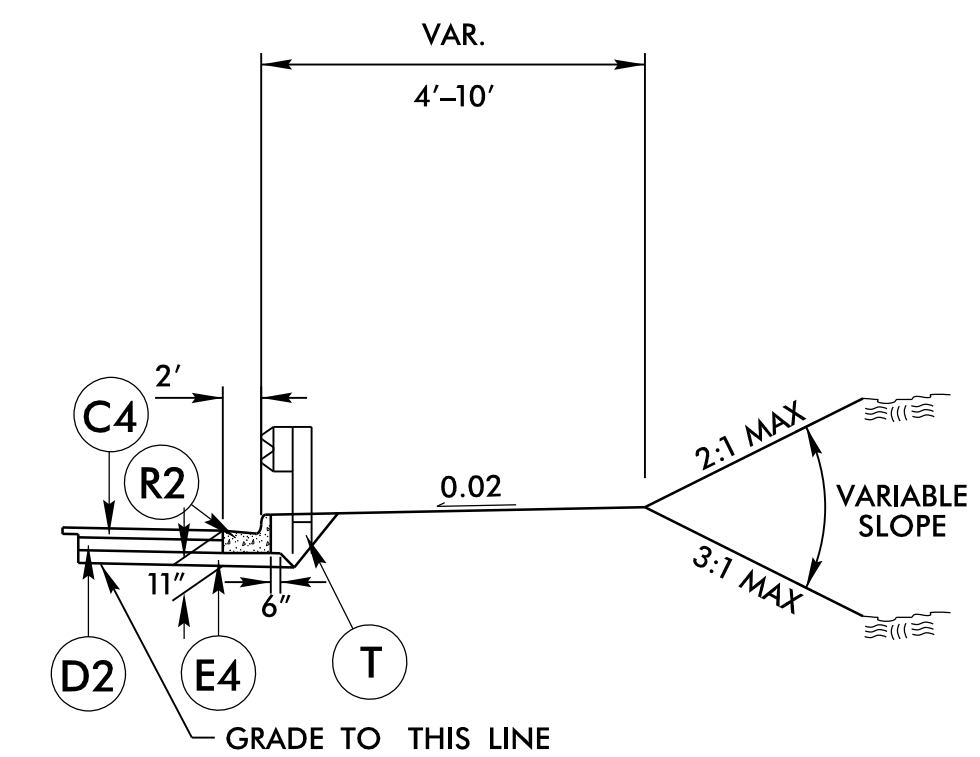
**NARROW WIDENING DETAIL**

- L- STA. 16+50.00 TO STA. 18+50.00 LT
- L- STA. 22+50.00 TO STA. 23+00.00 RT
- L- STA. 164+00.00 TO STA. 164+50.00 LT
- L- STA. 174+50.00 TO STA. 176+50.00 LT
- L- STA. 248+00.00 TO STA. 260+00.00 RT
- Y6- STA. 11+00.00 TO STA. 16+50.00 RT
- Y8- STA. 10+50.00 TO STA. 11+00.00 RT
- Y13- STA. 14+83.74 TO STA. 15+00.00 LT
- Y13- STA. 18+50.00 TO STA. 19+00.00 RT



**TYPICAL SECTION NO. 4**

USE TYPICAL SECTION NO. 4  
AT THE FOLLOWING LOCATION:  
-L- STA. 216+44.00 TO STA. 226+78.00  
-L- STA. 231+07.28 TO STA. 236+59.28  
-L- STA. 240+84.98 TO STA. 249+75.21



**TYPICAL SECTION NO. 4B**

TRANSITION BERM FROM 4' TO 10'  
IN TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 4B IN  
CONJUNCTION WITH TYPICAL SECTION NO. 4  
& 5 AT THE FOLLOWING LOCATIONS:  
-L- STA. 248+40.06 TO STA. 254+33 +/- RT.

REVISIONS

8/17/2018  
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tjpb

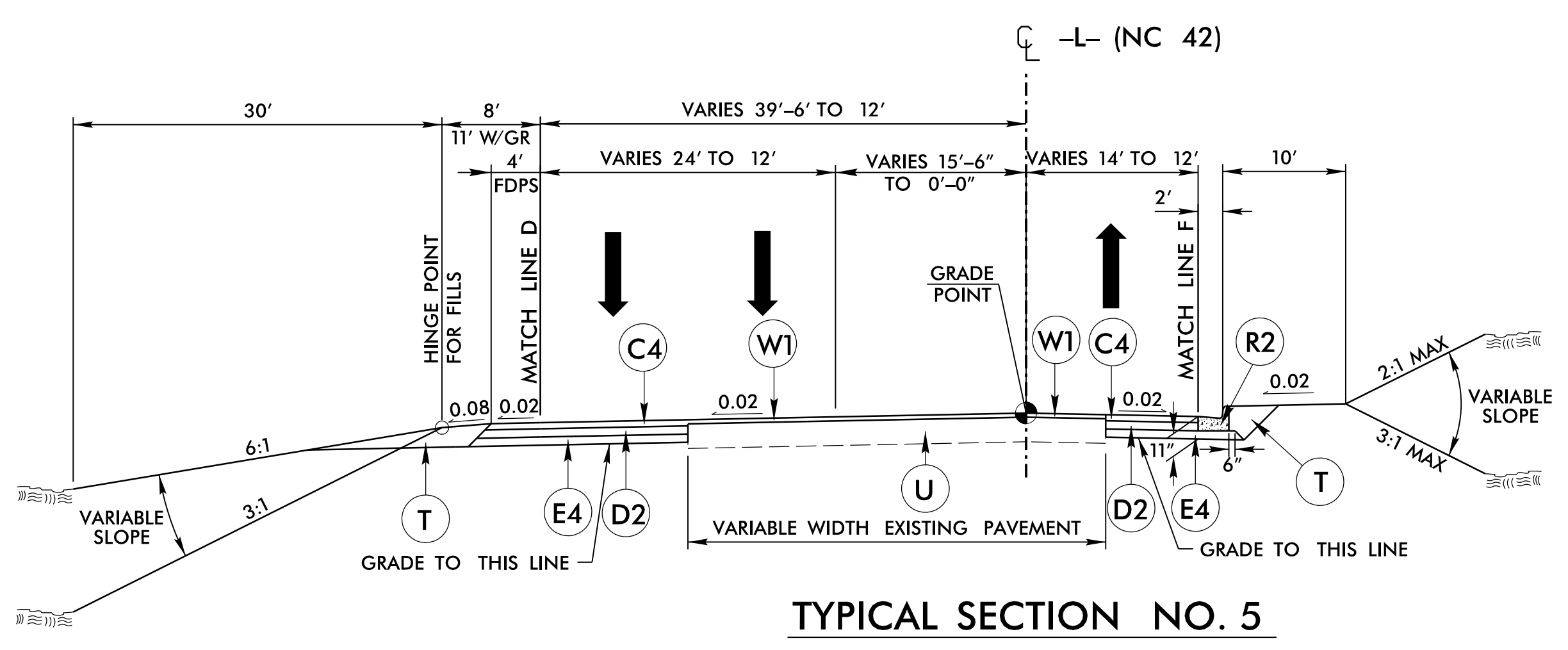
Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE: (919) 461-1100 FAX: (919) 461-1415  
NO. L10026E - C-2242

PROJECT REFERENCE NO. R-3825B	SHEET NO. 2A-3
R/W SHEET NO.	PAVEMENT DESIGN ENGINEER
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
Professional Seal: J. Glenn Edens, No. 18470, 8/17/2018	Professional Seal: Clark S. Morrison, No. 022896, 8/20/2018
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

8/17/99

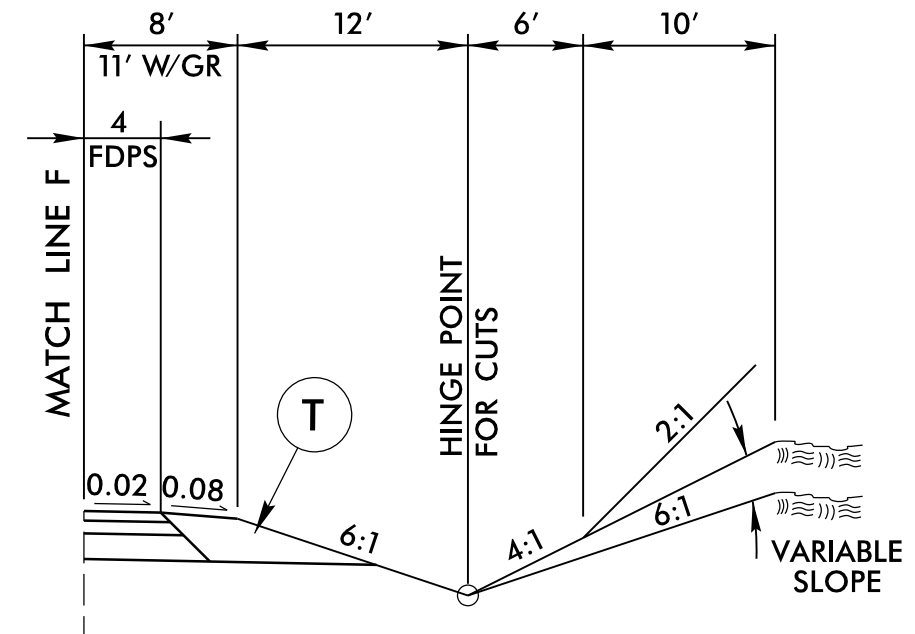
PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	2 1/2" S9.5B
C2	VAR. S9.5B
C3	1 1/2" S9.5C
C4	3" S9.5C
C5	VAR. S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4 1/2" B25.0C
E2	5" B25.0C
E3	4" B25.0C
E4	5 1/2" B25.0C
E5	VAR. B25.0C
J1	6" ABC
J2	8" ABC
K	K LIME OR CEMENT
N	GEOTEXTILE PVMT. STAB.
P	PRIME COAT
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
R6	5" CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL No. 1
W2	WEDGING DETAIL No. 2

REVISIONS



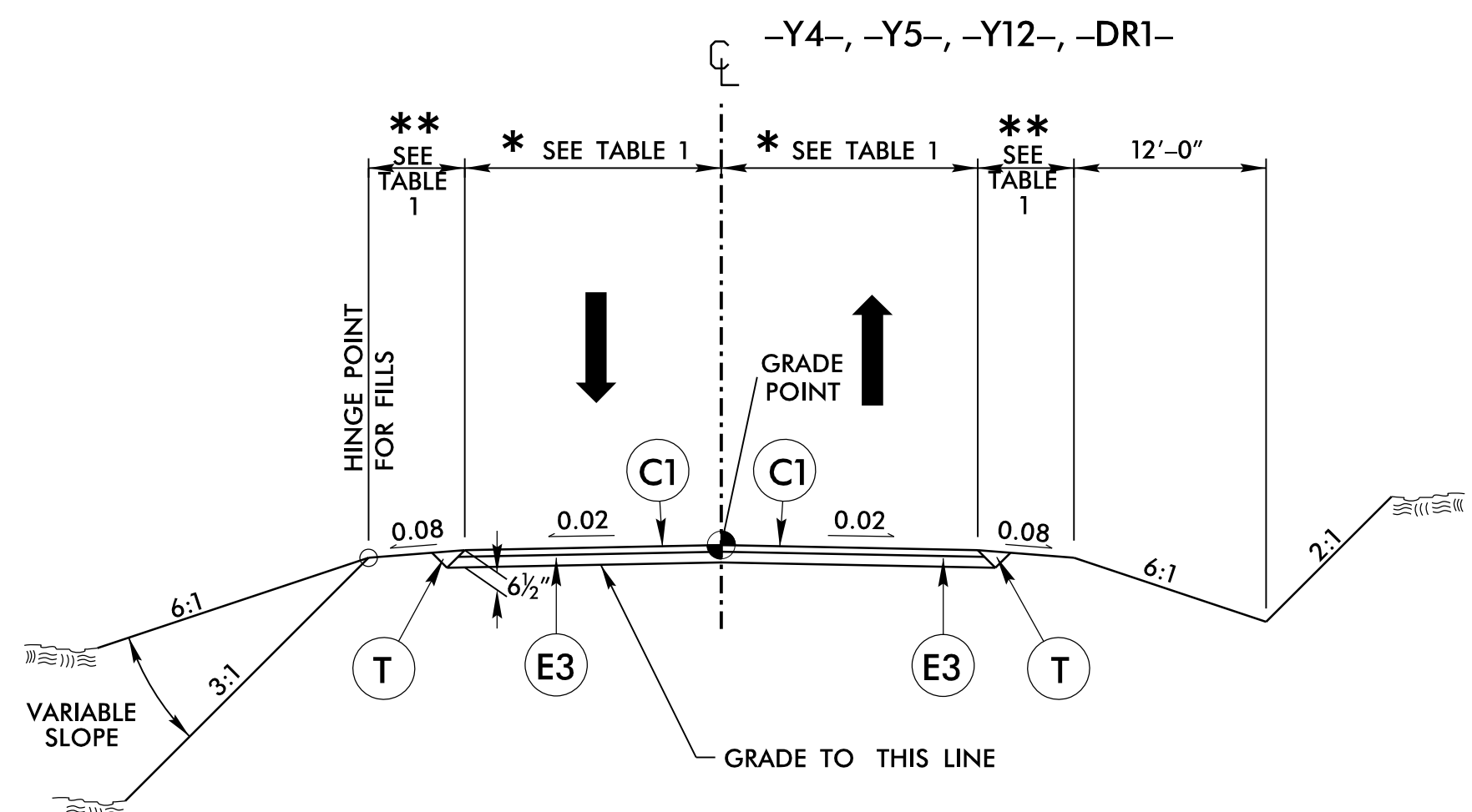
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5  
AT THE FOLLOWING LOCATION:  
-L- STA. 249 + 75.21 TO STA. 254 + 65.92



TYPICAL SECTION NO. 5A

USE TYPICAL SECTION NO. 5A IN  
CONJUNCTION WITH TYPICAL SECTION NO. 5  
AT THE FOLLOWING LOCATIONS:  
-L- STA. 254 + 67.06 TO STA. 257 + 50 RT.

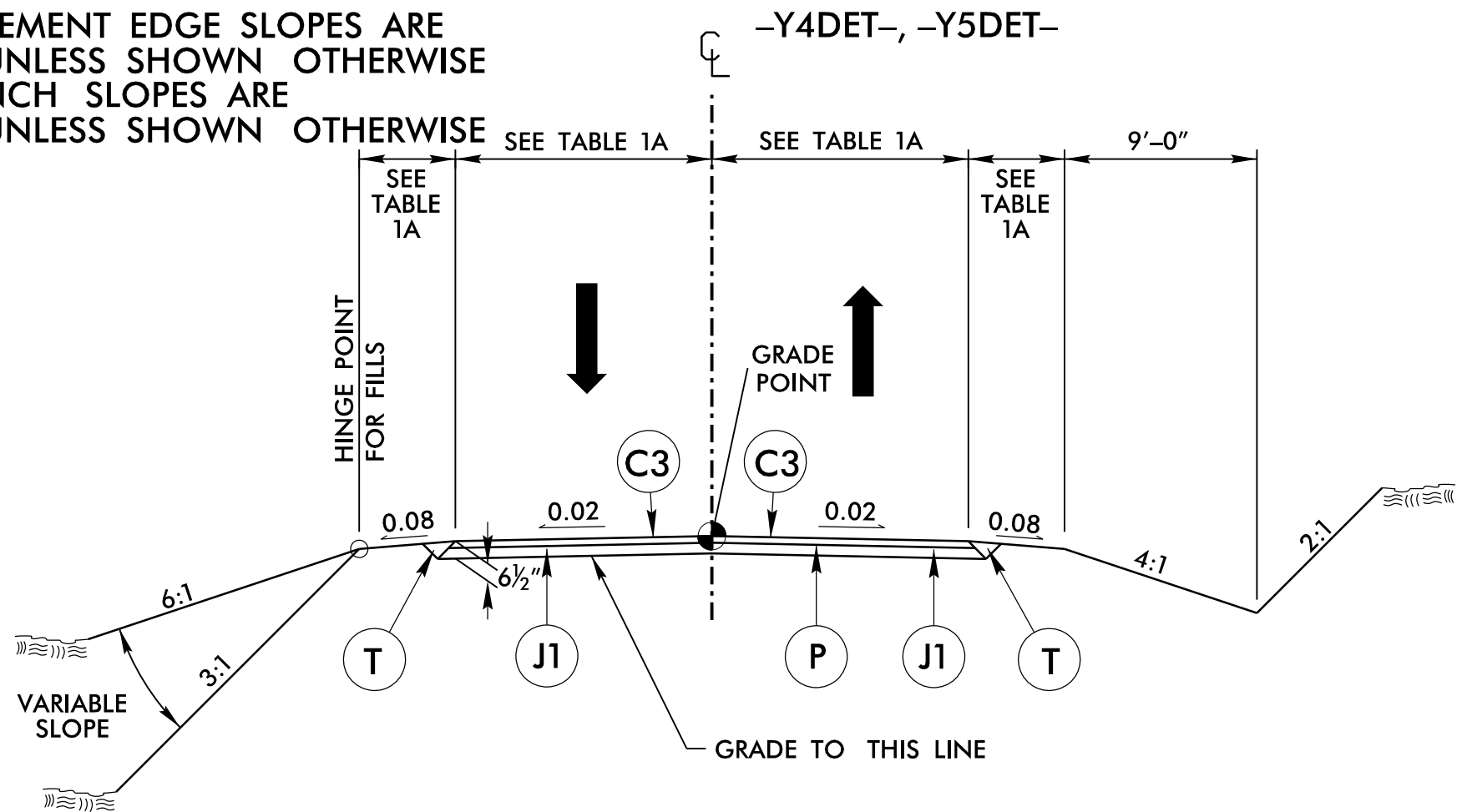


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6  
AT THE FOLLOWING LOCATION:  
-Y4- STA. 10 + 35.91 TO STA. 12 + 75.00  
-Y5- STA. 10 + 35.51 TO STA. 14 + 22.00  
-Y12- STA. 13 + 59.32 TO STA. 20 + 51.95  
-DRI- STA. 10 + 35.53 TO STA. 11 + 45.00

TABLE 1		
LINE	*	**
-Y4-	RT VAR 12'-0" TO 16'-0" LT VAR 12'-0" TO 16'-0"	6'-0", 9'-0" W/GR
-Y5-	12'-0"	2'-0", 7'-0" W/GR
-Y12-	RT VAR 12'-0" TO 26'-0" LT VAR 12'-0" TO 22'-0"	8'-0", 11'-0" W/GR
-DRI-	12'-0"	2'-0", 7'-0" W/GR

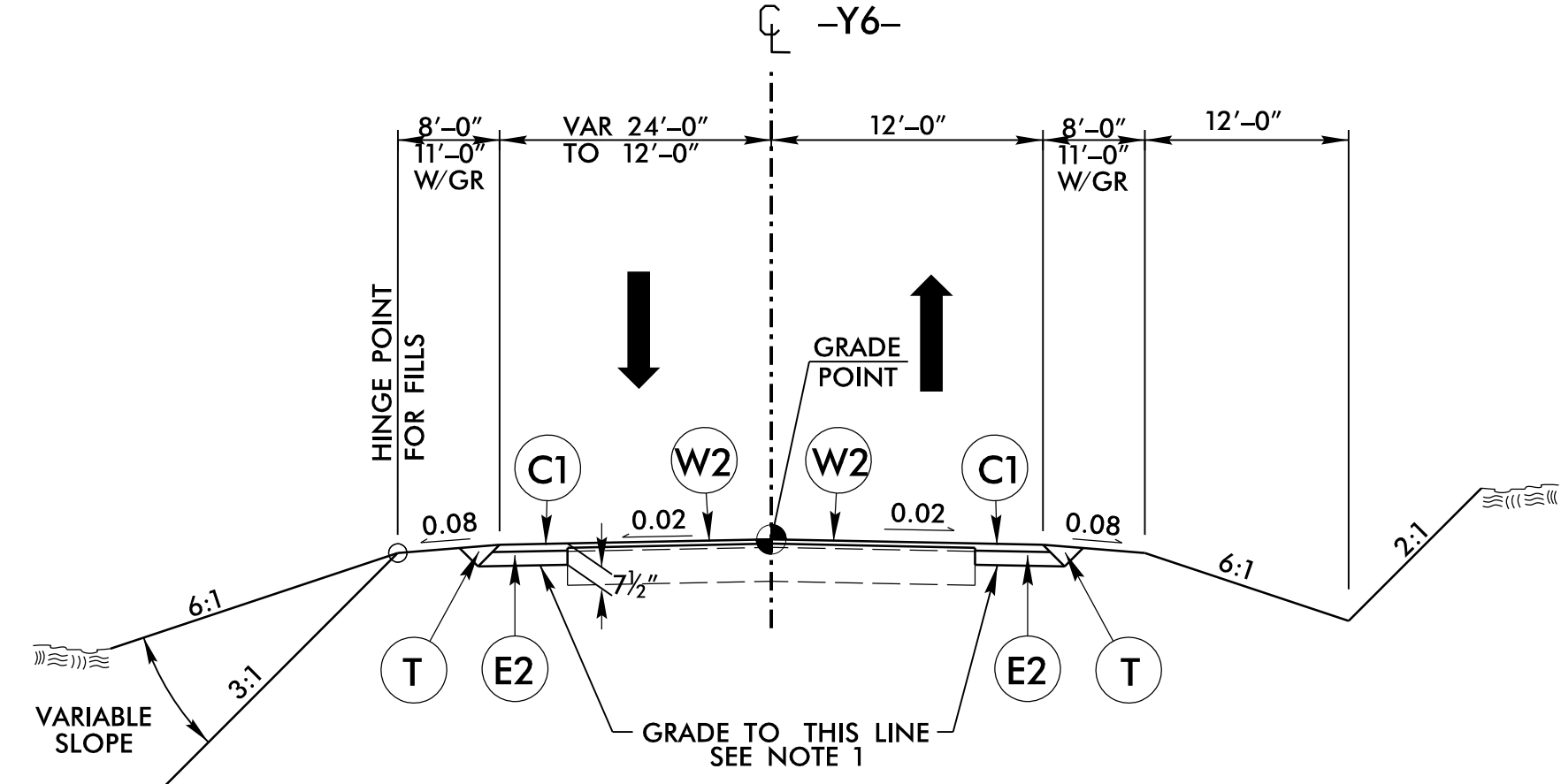
NOTE: PAVEMENT EDGE SLOPES ARE  
1:1 UNLESS SHOWN OTHERWISE  
TRENCH SLOPES ARE  
1:1 UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 6A

USE TYPICAL SECTION NO. 6A  
AT THE FOLLOWING LOCATION:  
-Y4DET- STA. 0 + 19.29 TO STA. 3 + 62.00  
-Y5DET- STA. 0 + 84.67 TO STA. 5 + 05.83

TABLE 1A		
LINE	LANE WIDTH	SHLDR WIDTH
-Y4DET-	RT 10'-0" LT 10'-0"	RT 2'-0" LT 2'-0"
-Y5DET-	RT 10'-0" LT 10'-0"	RT 2'-0" LT 2'-0"



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7  
AT THE FOLLOWING LOCATION:  
-Y6- STA. 10 + 60.00 TO STA. 17 + 43.84

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**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE: (919) 461-1100 FAX: (919) 461-1415  
NO. L10262E - C-2242

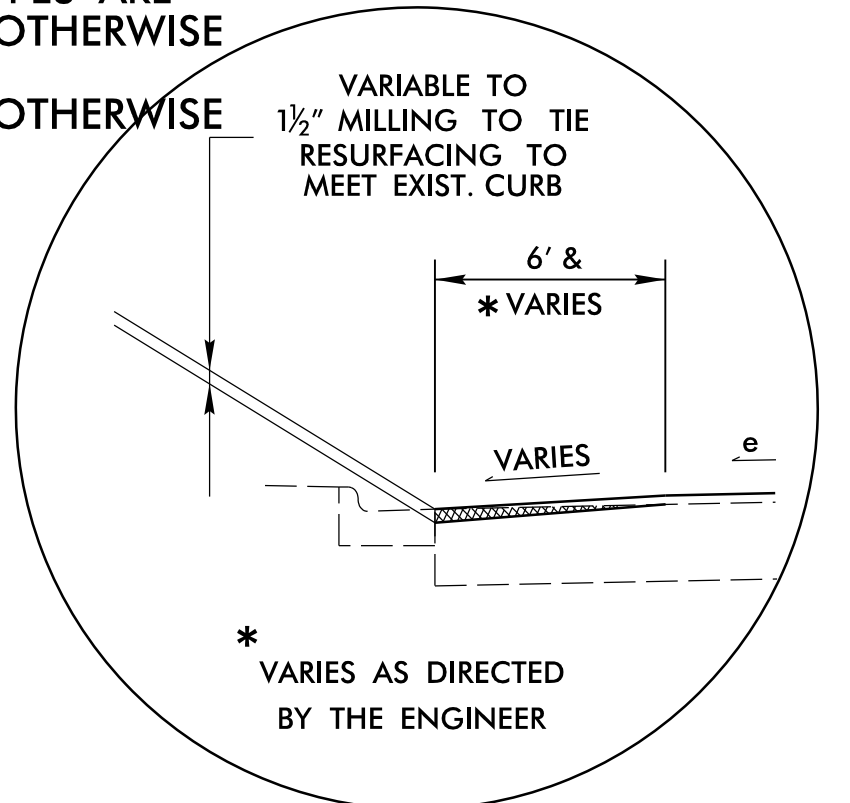
PROJECT REFERENCE NO. R-3825B	SHEET NO. 2A-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Edward S. Seal</i> 18470	PAVEMENT DESIGN ENGINEER <i>Clark S. Morrison</i> 022896
Professional Engineer Seal Edward S. Seal 18470 Professional Engineer Seal Clark S. Morrison 022896	Professional Engineer Seal Clark S. Morrison 022896
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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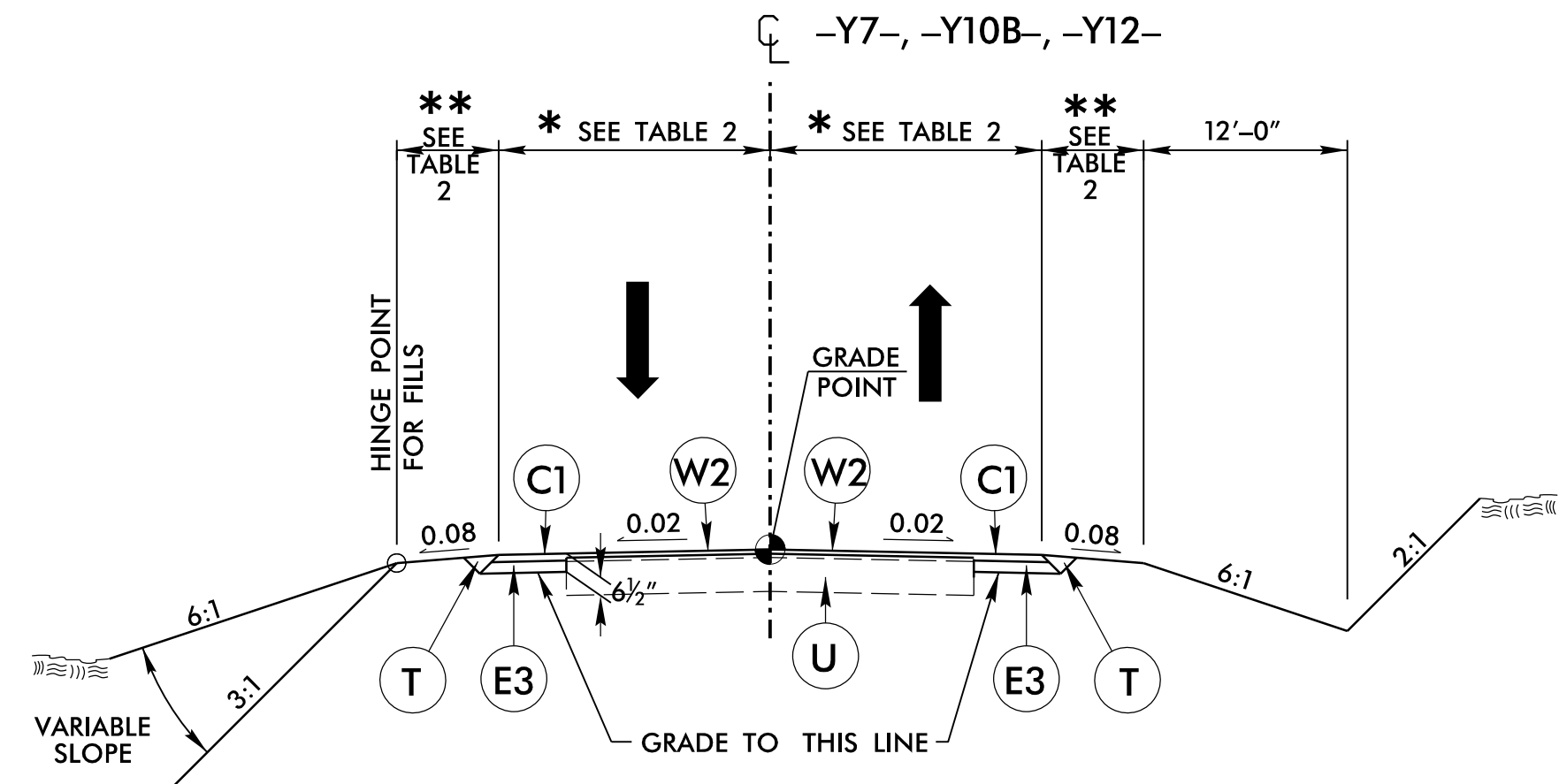
8/17/19

PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	2 1/2" S9.5B
C2	VAR. S9.5B
C3	1 1/2" S9.5C
C4	3" S9.5C
C5	VAR. S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4 1/2" B25.0C
E2	5" B25.0C
E3	4" B25.0C
E4	5 1/2" B25.0C
E5	VAR. B25.0C
J1	6" ABC
J2	8" ABC
K	K LIME OR CEMENT
N	GEOTEXTILE PVMT. STAB.
P	PRIME COAT
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
R6	5" CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL No. 1
W2	WEDGING DETAIL No. 2

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



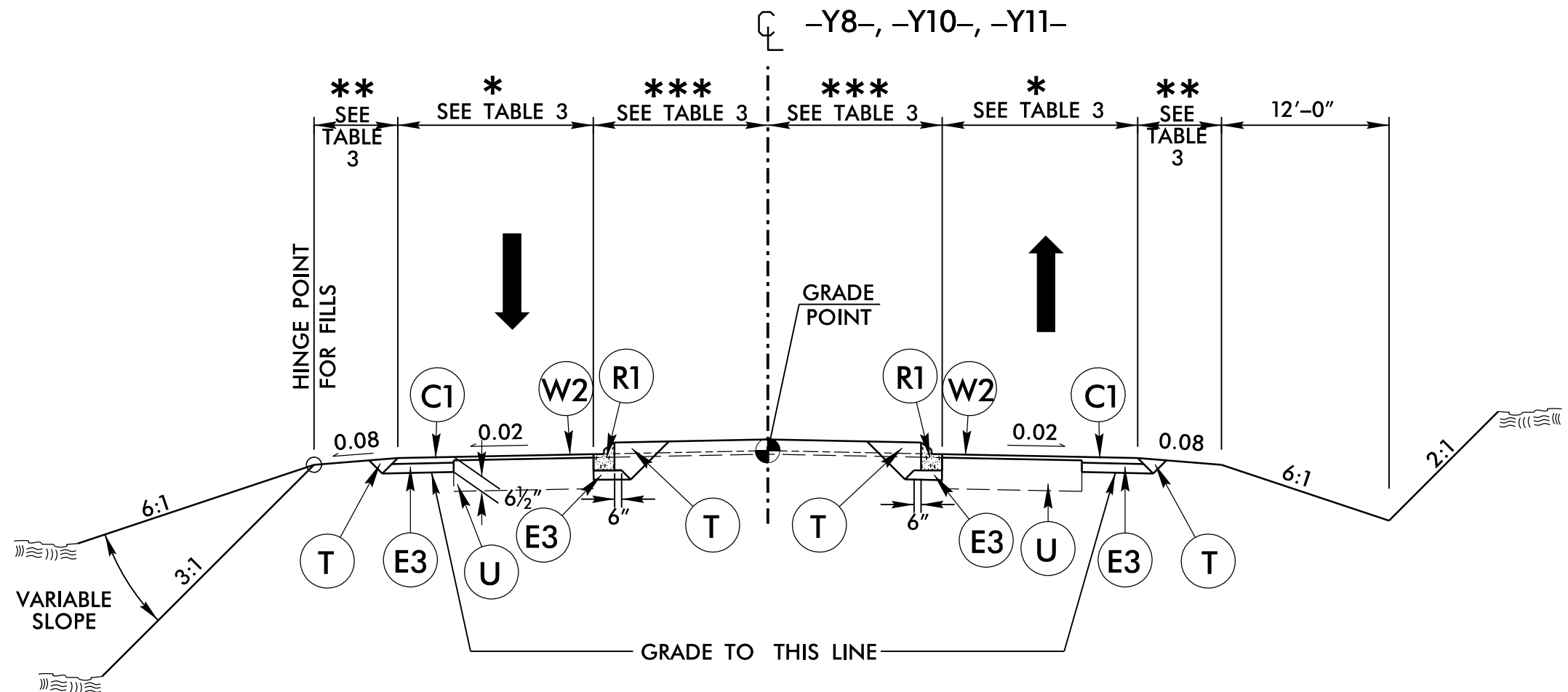
(INCIDENTAL) MILLING DETAIL  
ADJACENT TO CURB & GUTTER



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8  
AT THE FOLLOWING LOCATION:  
-Y7- STA. 15+00.00 TO STA. 16+87.82  
-Y10B- STA. 11+70.00 TO STA. 12+16.46  
-Y12- STA. 11+31.46 TO STA. 13+59.32

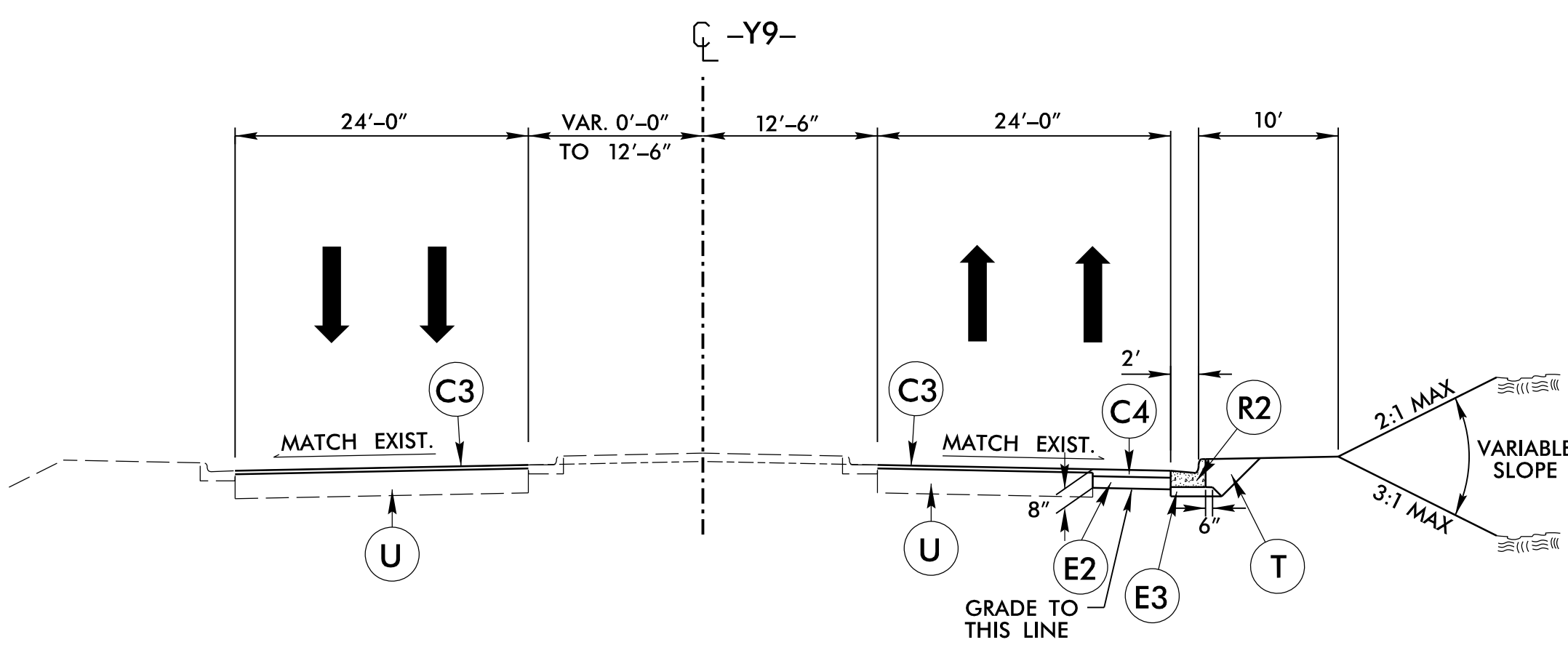
TABLE 2		
LINE	*	**
-Y7-	18'-0"	6'-0", 9'-0" W/GR
-Y10B-	VAR 11'-4" TO 12'-0"	2'-0", 7'-0" W/GR
-Y12-	12'-0"	8'-0", 11'-0" W/GR



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9  
AT THE FOLLOWING LOCATION:  
-Y8- STA. 10+47.74 TO STA. 11+30.00  
-Y10- STA. 10+60.02 TO STA. 11+11.65  
-Y11- STA. 10+47.56 TO STA. 11+37.75

TABLE 3			
LINE	*	**	***
-Y8-	RT 16'-0" LT 14'-0"	6'-0", 9'-0" w/GR	RT 10'-6" LT 12'-6"
-Y10-	14'-0"	2'-0", 7'-0" w/GR	RT 10'-0" LT 10'-0"
-Y11-	12'-0"	2'-0", 7'-0" w/GR	RT 13'-6" LT 13'-6"



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10  
AT THE FOLLOWING LOCATION:  
-Y9- STA. 11+73.15 TO STA. 14+37.69

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URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NO. L10266E - C-2242

PROJECT REFERENCE NO. R-3825B	SHEET NO. 2A-5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	PAVEMENT DESIGN ENGINEER <i>[Signature]</i>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

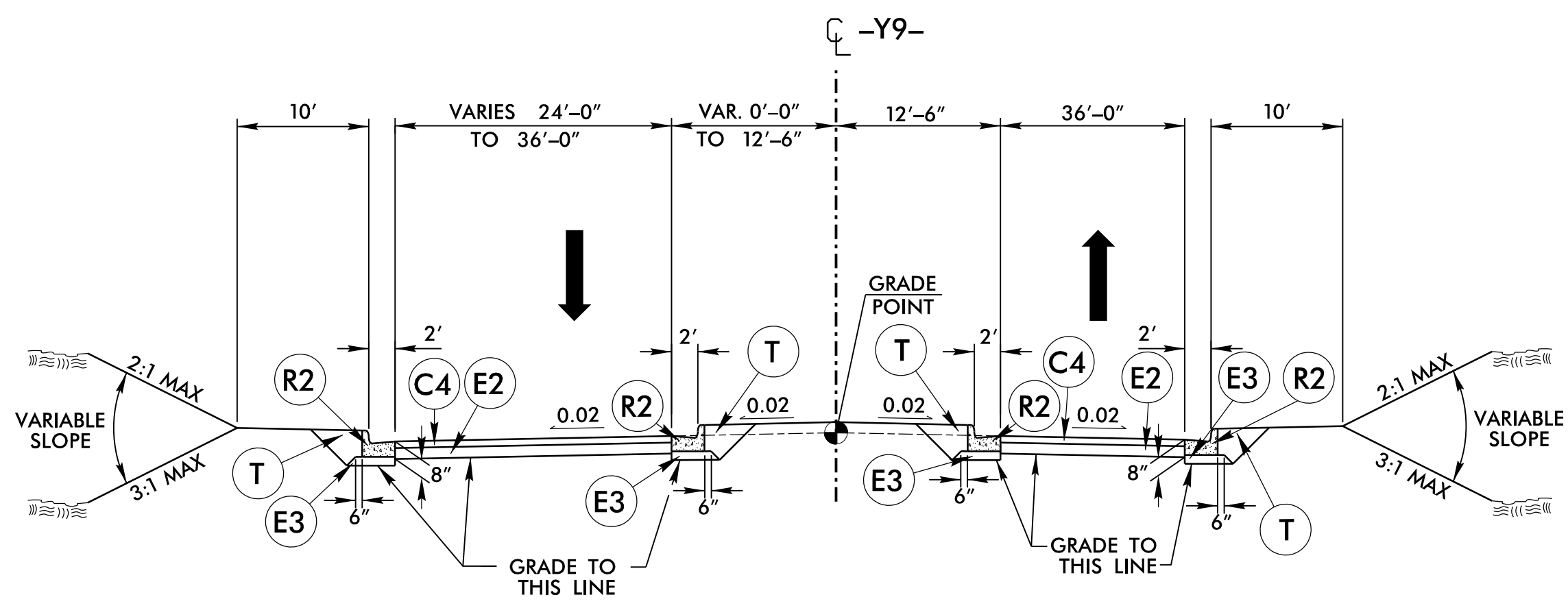
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8/17/99

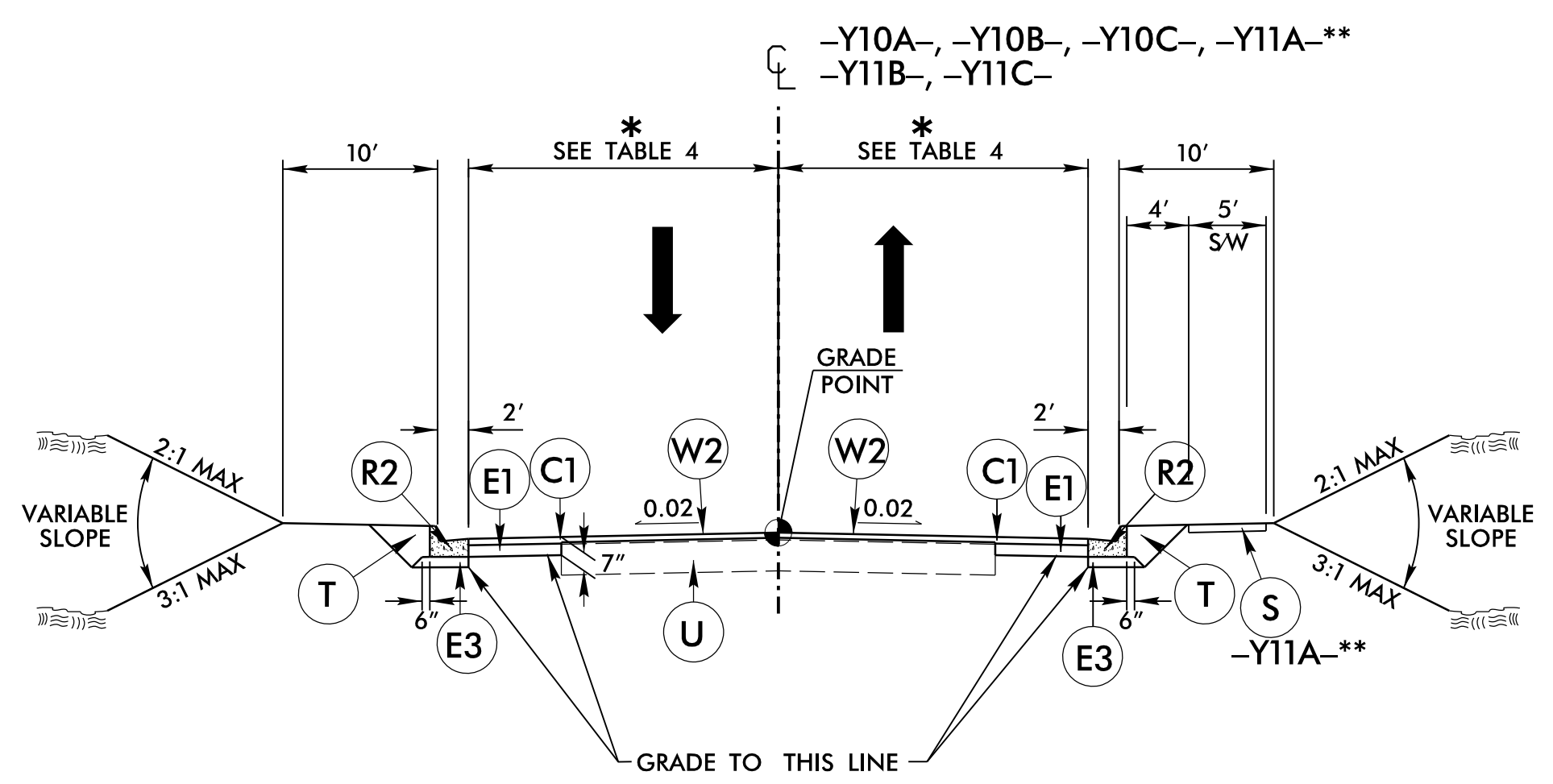
PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	2 1/2" S9.5B
C2	VAR. S9.5B
C3	1 1/2" S9.5C
C4	3" S9.5C
C5	VAR. S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4 1/2" B25.0C
E2	5" B25.0C
E3	4" B25.0C
E4	5 1/2" B25.0C
E5	VAR. B25.0C
J1	6" ABC
J2	8" ABC
K	K LIME OR CEMENT
N	GEOTEXTILE PVMT. STAB.
P	PRIME COAT
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
R6	5" CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL No. 1
W2	WEDGING DETAIL No. 2

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



TYPICAL SECTION NO. 11

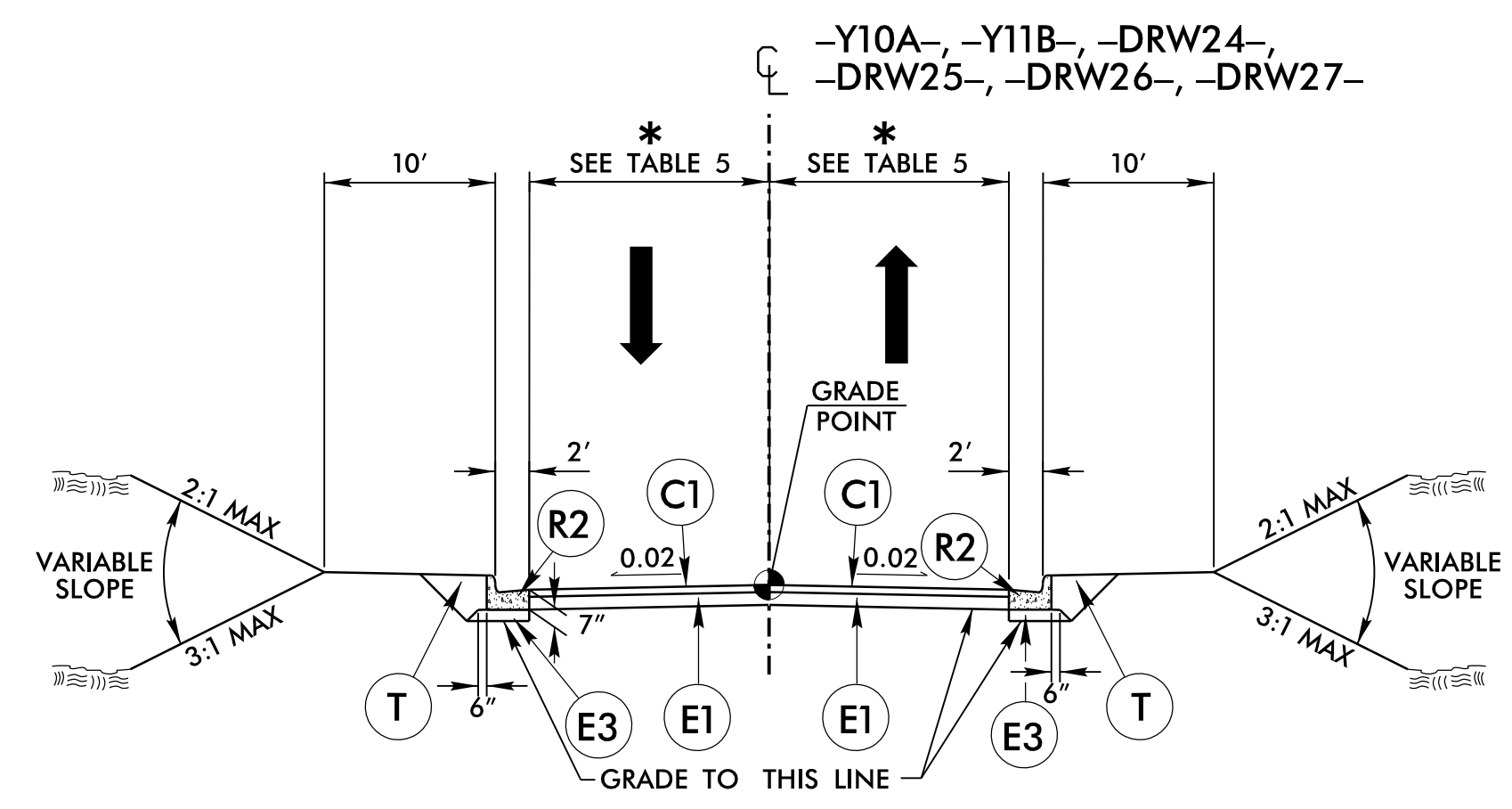
USE TYPICAL SECTION NO. 11  
AT THE FOLLOWING LOCATION:  
-Y9- STA. 14+37.69 TO STA. 17+62.94



TYPICAL SECTION NO. 12  
NOTE: ONLY Y11A REQUIRES THE  
REPLACEMENT OF EXISTING SIDEWALK

USE TYPICAL SECTION NO. 12  
AT THE FOLLOWING LOCATION:  
-Y10A- STA. 11+10.00 TO STA. 11+77.50  
-Y10B- STA. 12+16.46 TO STA. 12+77.97  
-Y10C- STA. 12+05.00 TO STA. 14+05.57  
\*\* -Y11A- STA. 11+67.96 TO STA. 12+85.00  
-Y11B- STA. 10+84.79 TO STA. 11+76.00  
-Y11C- STA. 11+56.79 TO STA. 12+17.42

LINE	*
-Y10A-	RT VAR 14'-11" TO 16'-0" LT VAR 14'-11" TO 16'-0"
-Y10B-	RT 12'-0" LT 12'-0"
-Y10C-	RT VAR 12'-0" TO 21'-10" LT VAR 12'-0" TO 20'-6"
-Y11A-	LT VAR 28'-10" TO 27'-7" RT VAR 32'-3" TO 27'-6"
-Y11B-	RT 16'-0" LT 16'-0"
-Y11C-	RT VAR 11'-0" TO 14'-0" LT VAR 11'-0" TO 14'-0"



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13  
AT THE FOLLOWING LOCATION:  
-Y10A- STA. 11+77.50 TO STA. 12+61.81  
-Y11B- STA. 28+46.41 TO STA. 10+84.79  
-DRW24- STA. 10+46.18 TO STA. 10+98.17  
-DRW25- STA. 10+45.50 TO STA. 11+00.21  
-DRW26- STA. 10+45.50 TO STA. 10+98.66  
-DRW27- STA. 10+22.85 TO STA. 10+76.44

LINE	*
-Y10A-	RT 16'-0" LT 20'-0"
-Y11B-	RT 16'-0" LT 16'-0"
-DRW24-	RT VAR 15'-0" TO 23'-6" LT VAR 15'-0" TO 23'-6"
-DRW25-	RT VAR 22'-0" TO 35'-6" LT VAR 35'-0" TO 38'-0"
-DRW26-	RT 17'-0" LT VAR 17'-0" TO 19'-0"
-DRW27-	RT VAR 27'-0" TO 39'-0" LT VAR 19'-6" TO 36'-0"

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NO. L10296E • C-2293

PROJECT REFERENCE NO. R-3825B	SHEET NO. 2A-6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER <i>Edward Seal</i> 18470	PAVEMENT DESIGN ENGINEER <i>J. B. Seal</i> 022896
EDWARD SEAL PROFESSIONAL ENGINEER NO. 18470 8/17/2018	J. B. SEAL PROFESSIONAL ENGINEER NO. 022896 8/20/2018
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS

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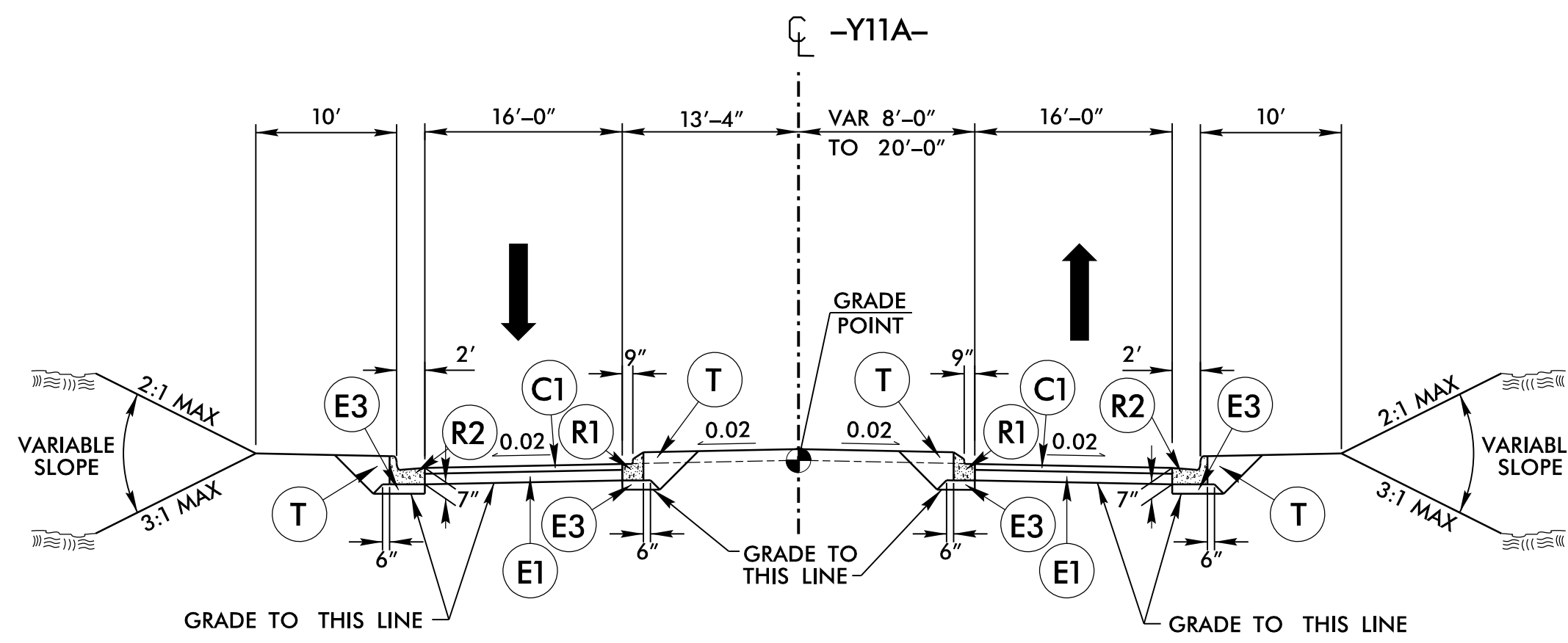
**PAVEMENT SCHEDULE  
FINAL PAVEMENT DESIGN**

C1	2 1/2" S9.5B
C2	VAR. S9.5B
C3	1 1/2" S9.5C
C4	3" S9.5C
C5	VAR. S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4 1/2" B25.0C
E2	5" B25.0C
E3	4" B25.0C
E4	5 1/2" B25.0C
E5	VAR. B25.0C
J1	6" ABC
J2	8" ABC
K	K LIME OR CEMENT
N	GEOTEXTILE PVMT. STAB.
P	PRIME COAT
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
R6	5" CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL No. 1
W2	WEDGING DETAIL No. 2

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

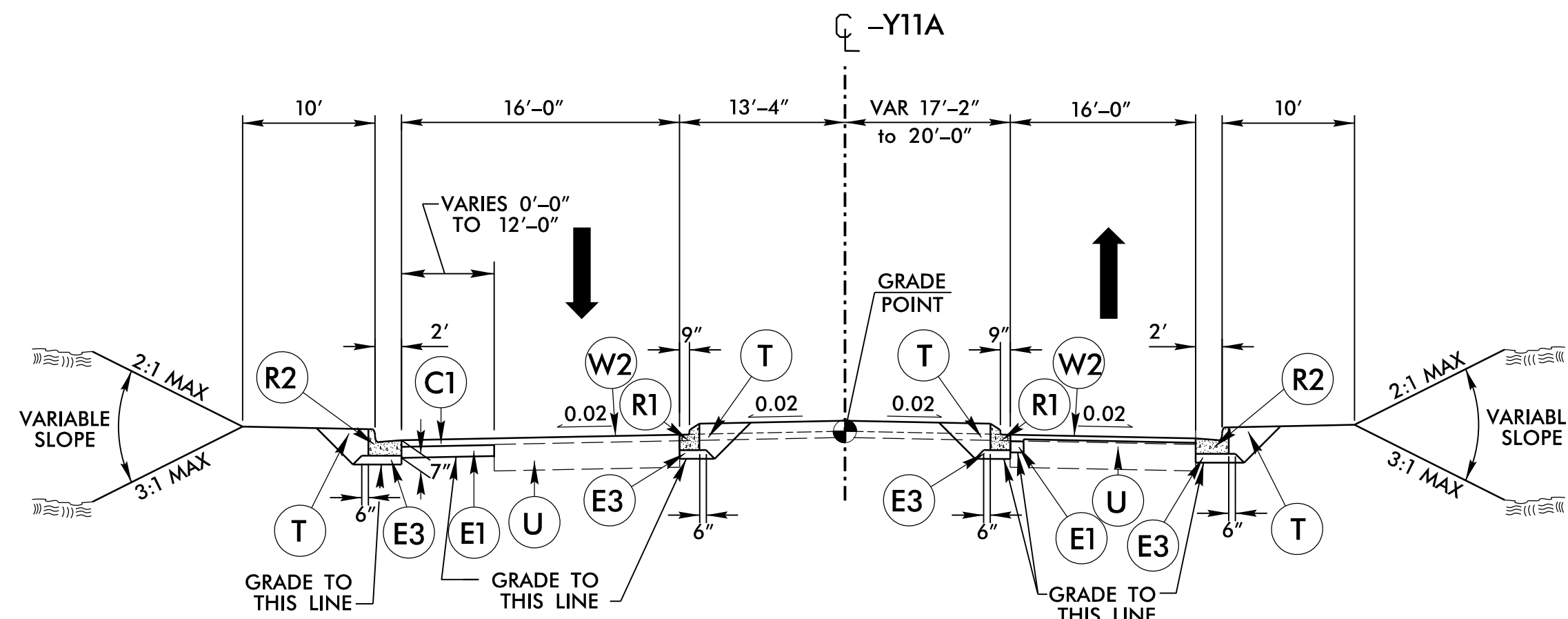
REVISIONS

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Tjpb



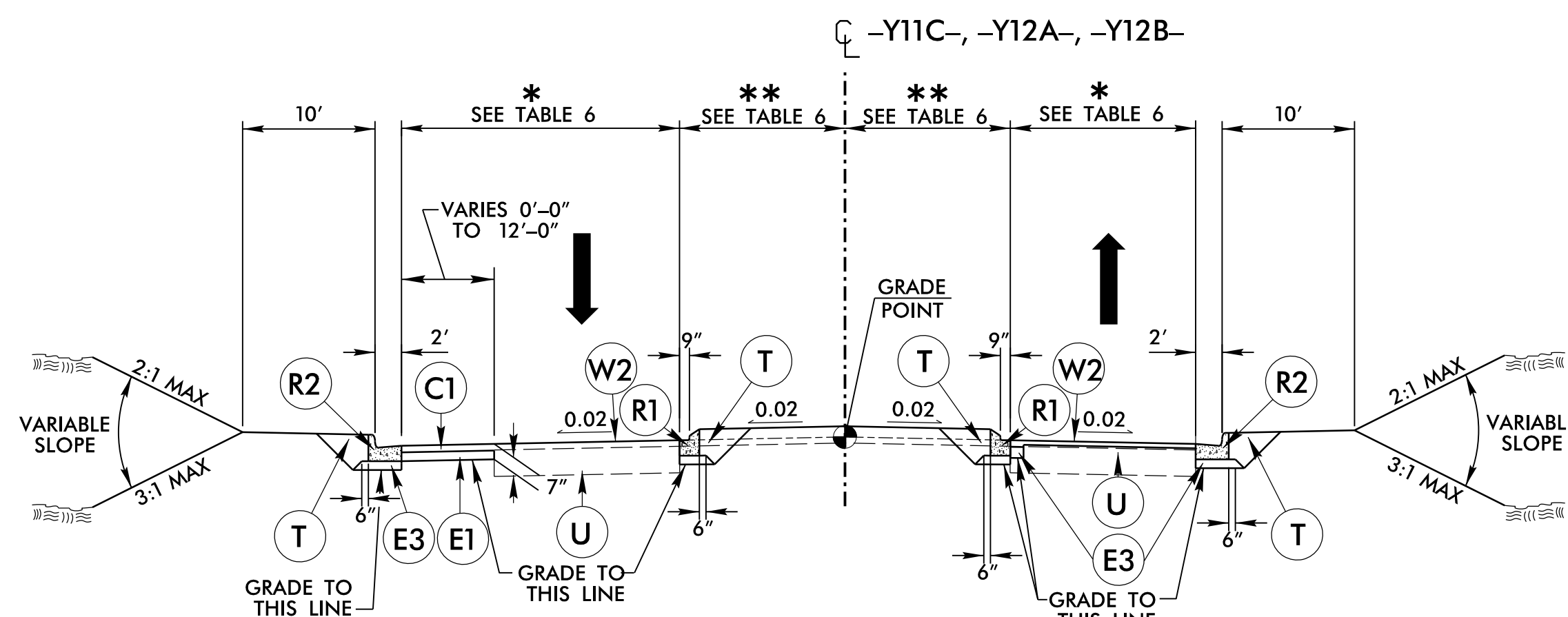
**TYPICAL SECTION NO. 14**

USE TYPICAL SECTION NO. 14  
AT THE FOLLOWING LOCATION:  
-Y11A- STA. 10+49.51 TO STA. 10+91.41



**TYPICAL SECTION NO. 15**

USE TYPICAL SECTION NO. 15  
AT THE FOLLOWING LOCATION:  
-Y11A- STA. 10+91.41 TO STA. 11+67.96



**TYPICAL SECTION NO. 16**

USE TYPICAL SECTION NO. 16  
AT THE FOLLOWING LOCATION:  
-Y11C- STA. 10+48.39 TO STA. 11+56.79  
-Y12A- STA. 12+25.00 TO STA. 12+82.39  
-Y12B- STA. 10+41.28 TO STA. 10+99.57

TABLE 6		
LINE	*	**
-Y11C-	RT VAR 16'-0" TO 14'-0" LT VAR 16'-0" TO 14'-0"	RT 6'-0" LT 6'-0"
-Y12A-	RT 16'-5" LT 17'-0"	RT 14'-6" LT 12'-0"
-Y12B-	RT 25'-11" LT 24'-0"	RT 13'-0" LT 13'-0"

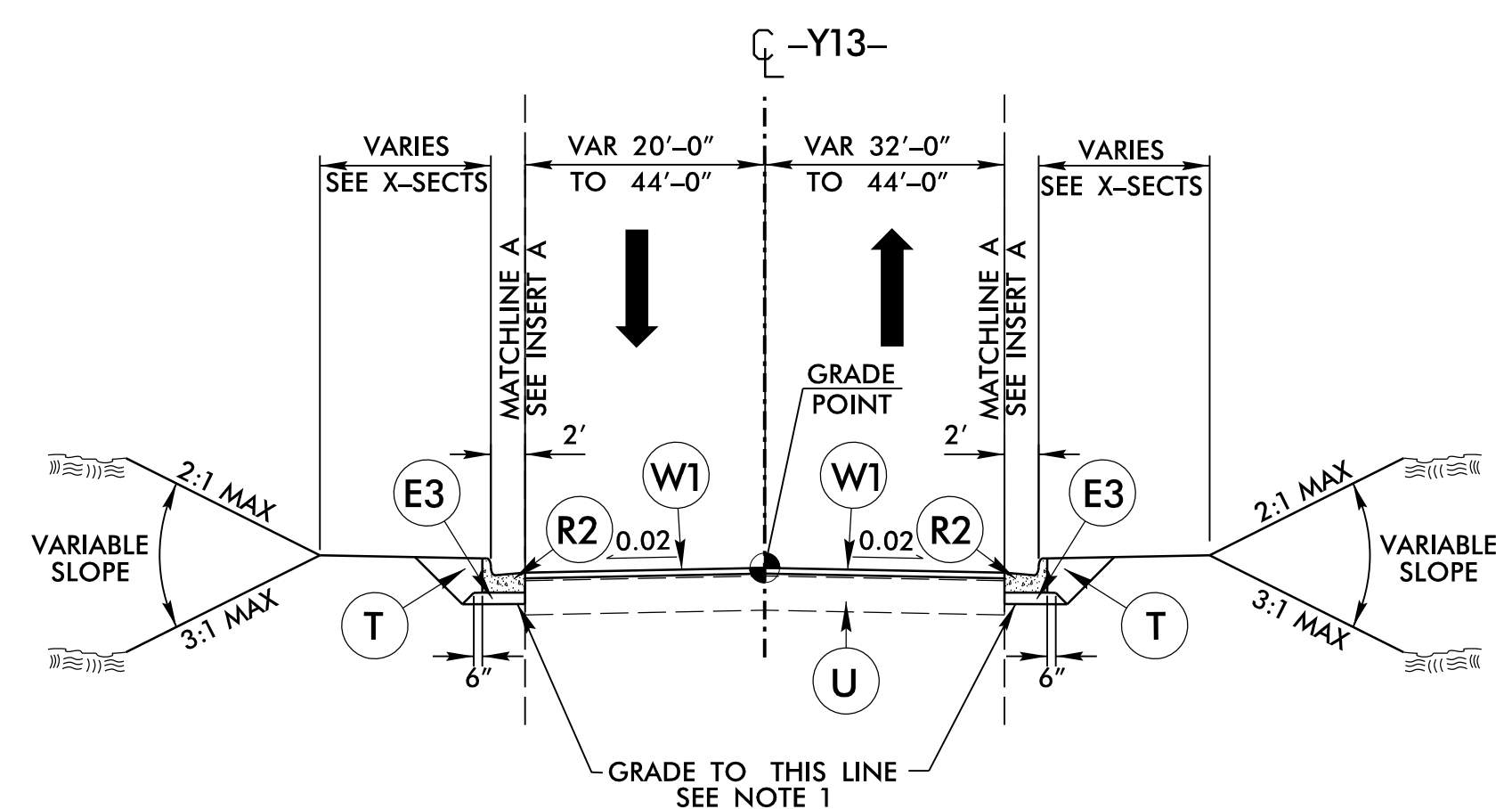
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URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NO. L10296E - C-2242

PROJECT REFERENCE NO. R-3825B	SHEET NO. 2A-7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER Edward Seal 18470	PAVEMENT DESIGN ENGINEER Clark S. Morrison 022896
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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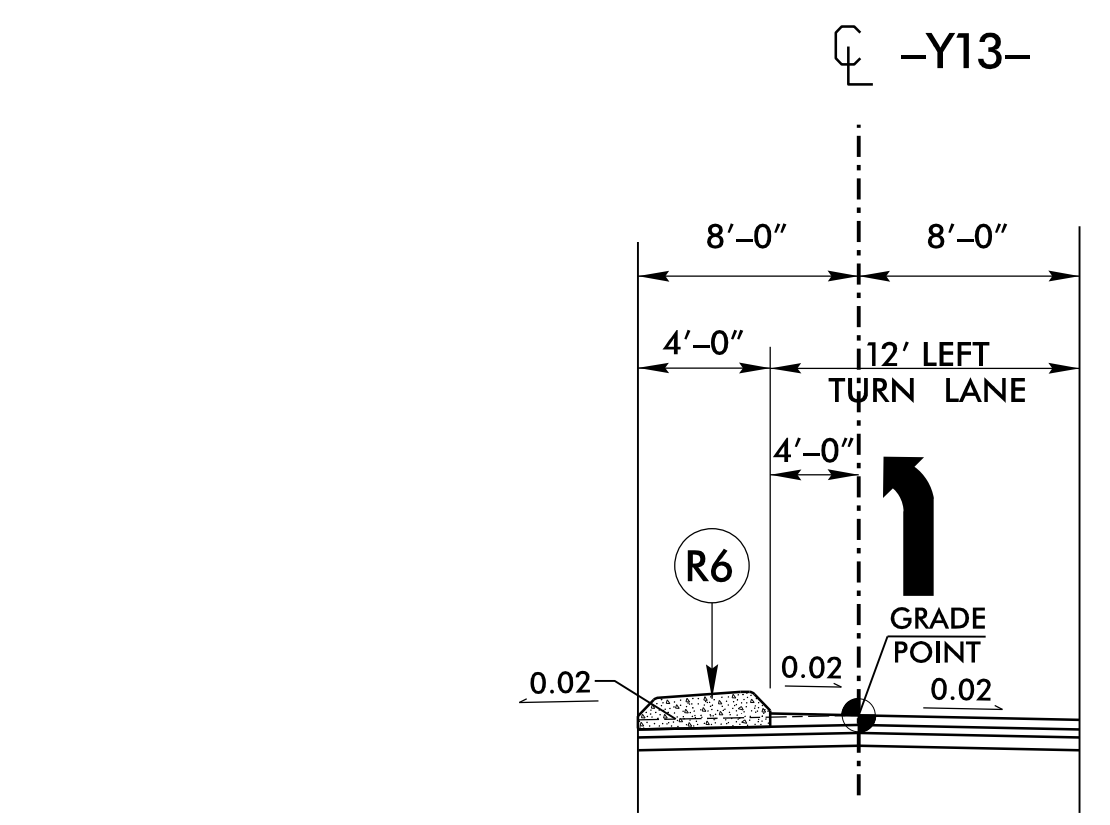
PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	2 1/2" S9.5B
C2	VAR. S9.5B
C3	1 1/2" S9.5C
C4	3" S9.5C
C5	VAR. S9.5C
D1	2 1/2" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4 1/2" B25.0C
E2	5" B25.0C
E3	4" B25.0C
E4	5 1/2" B25.0C
E5	VAR. B25.0C
J1	6" ABC
J2	8" ABC
K	K LIME OR CEMENT
N	GEOTEXTILE PVMT. STAB.
P	PRIME COAT
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	EXPRESSWAY GUTTER
R5	SHOULDER BERM GUTTER
R6	5" CONC. ISLAND
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING DETAIL No. 1
W2	WEDGING DETAIL No. 2

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



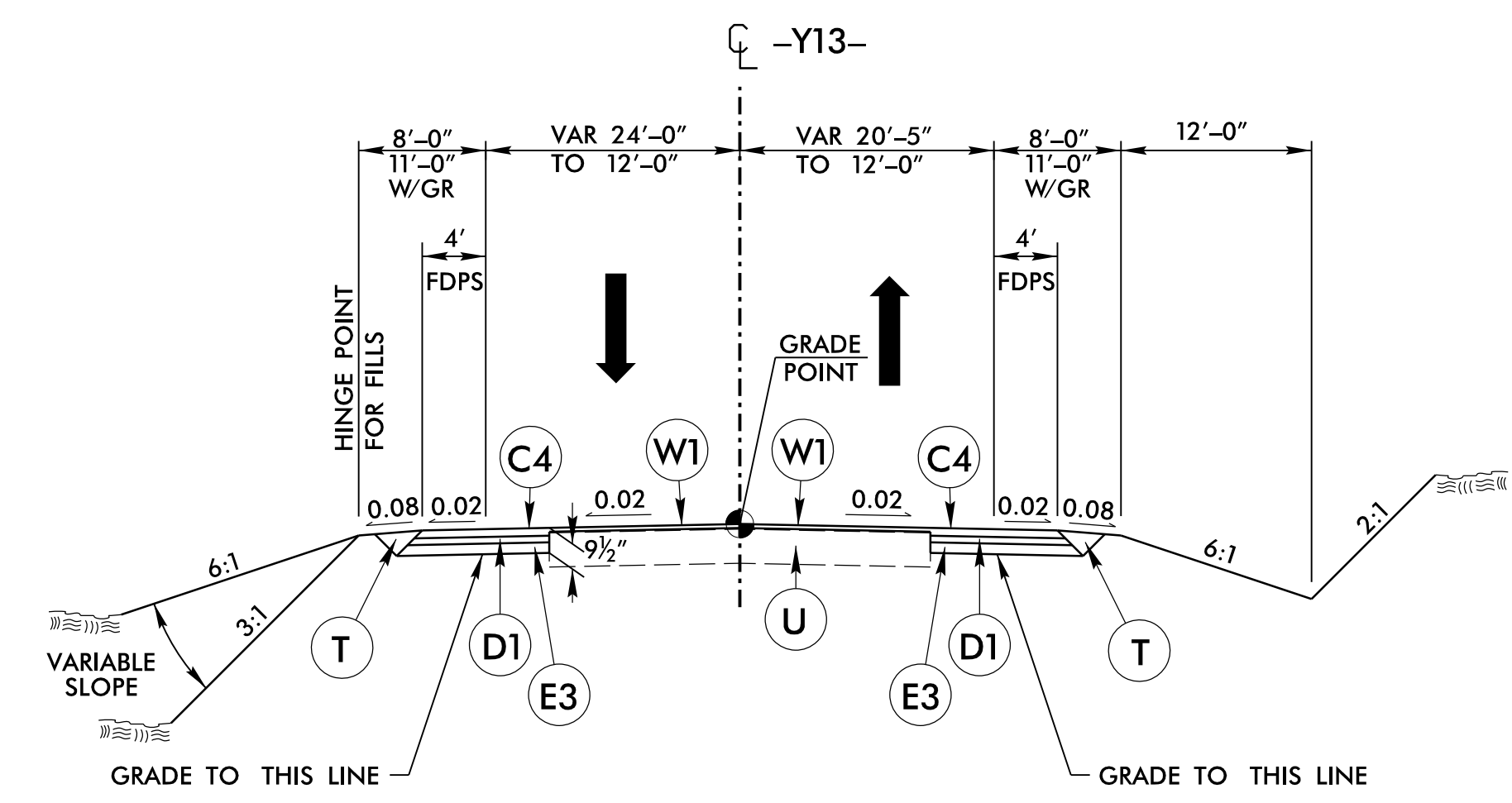
TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17  
AT THE FOLLOWING LOCATION:  
-Y13- STA. 14+83.74 TO STA. 24+21.09  
-Y13- STA. 25+05.65 TO STA. 31+48.30



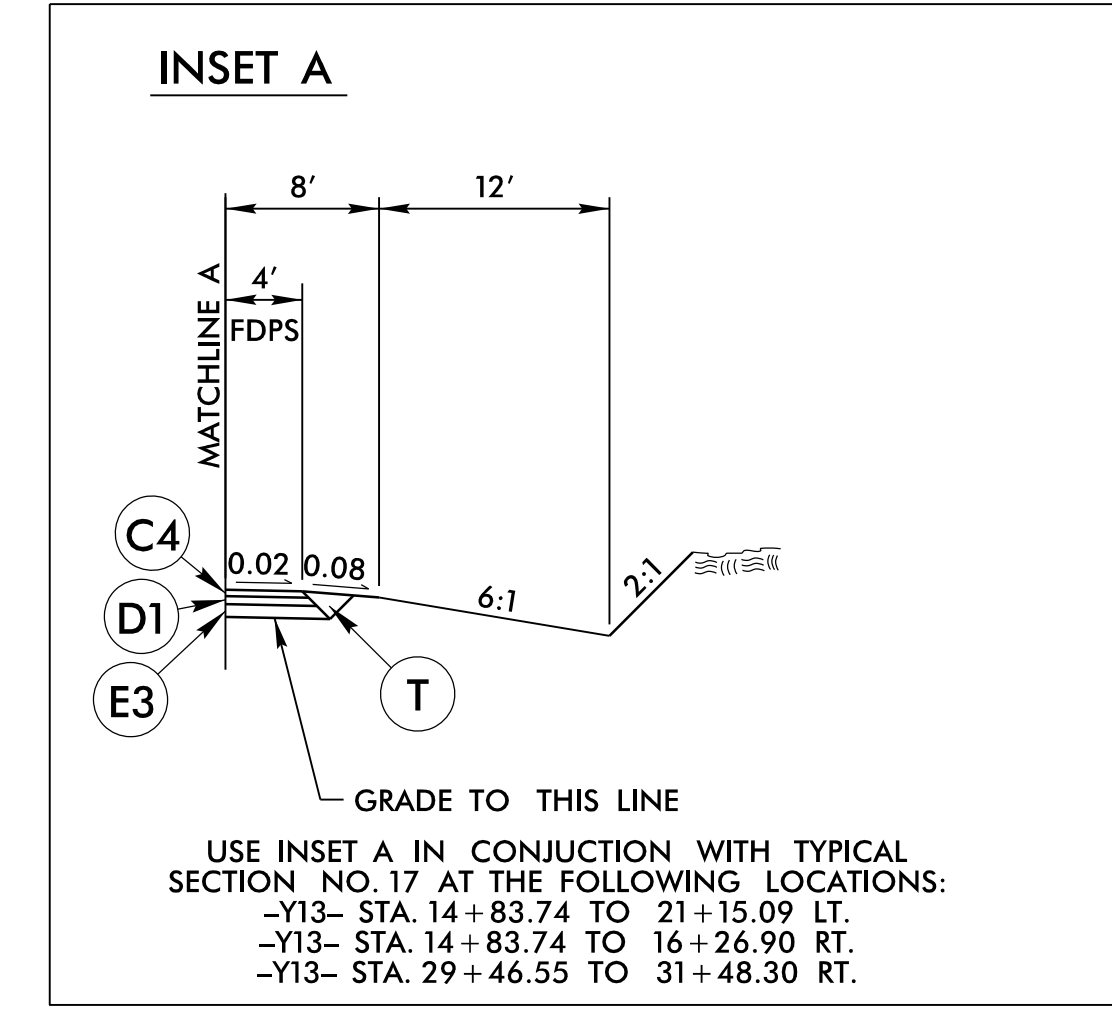
TYPICAL SECTION NO. 17A

USE TYPICAL SECTION NO. 17A IN  
CONJUNCTION WITH TYPICAL SECTION NO. 17,  
AT THE FOLLOWING LOCATIONS:  
-Y13- STA. 16+58.24 TO STA. 23+86.23  
-Y13- STA. 25+27.28 TO STA. 29+30.81



TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18  
AT THE FOLLOWING LOCATION:  
-Y13- STA. 31+48.30 TO STA. 35+70.00

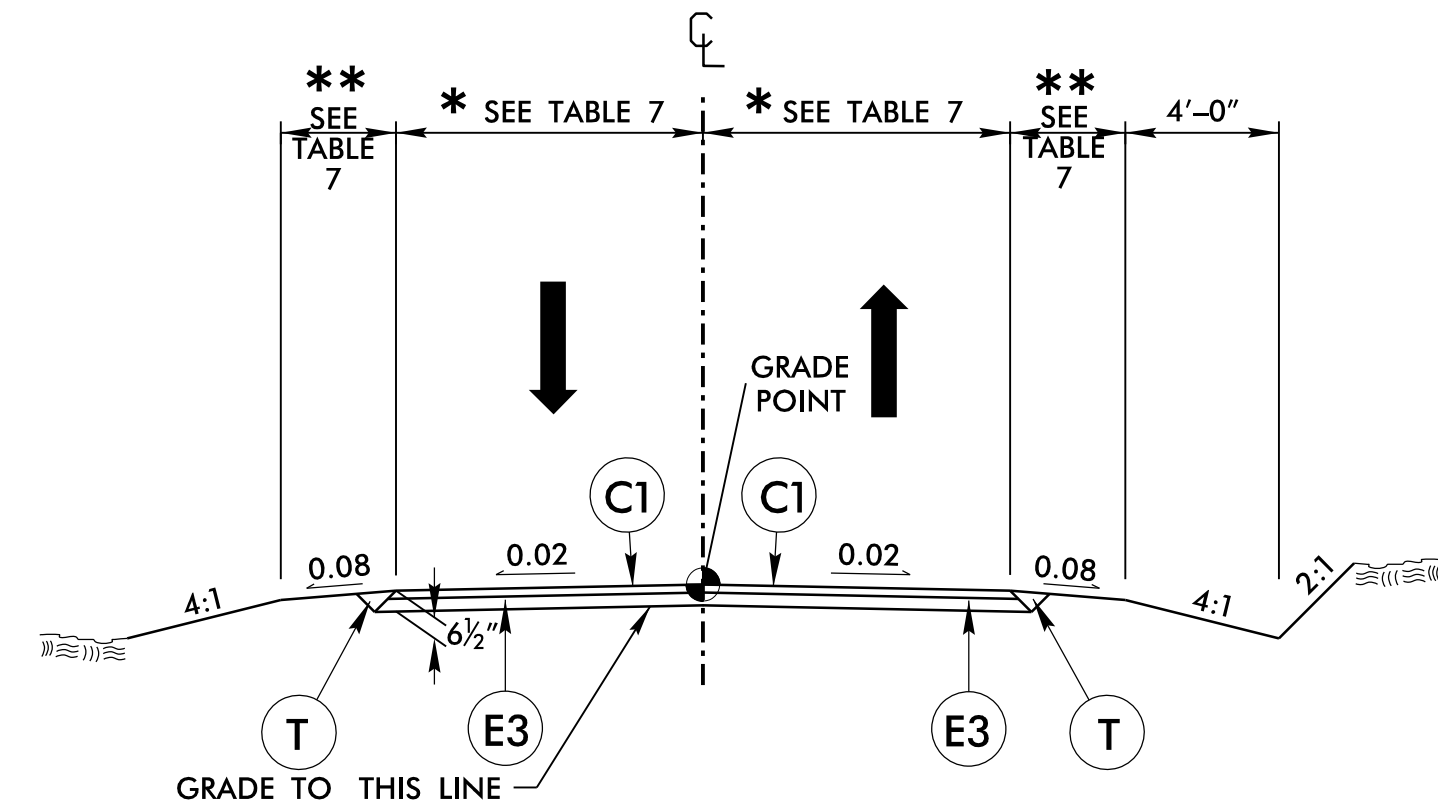


USE INSET A IN CONJUNCTION WITH TYPICAL  
SECTION NO. 17 AT THE FOLLOWING LOCATIONS:  
-Y13- STA. 14+83.74 TO 21+15.09 LT.  
-Y13- STA. 14+83.74 TO 16+26.90 RT.  
-Y13- STA. 29+46.55 TO 31+48.30 RT.

-DRW1-, -DRW2-, -DRW3-, -DRW7-, -DRW8-,  
-DRW9-, -DRW10-, -DRW11-, -DRW12-, -DRW15-,  
-DRW16-, -DRW17-, -DRW18-, -DRW23-

USE TYPICAL SECTION NO. 19  
AT THE FOLLOWING LOCATION:

-DRW1-	10+34.00	TO	10+94.57
-DRW2-	10+45.00	TO	10+94.50
-DRW3-	10+35.50	TO	10+97.00
-DRW7-	10+35.50	TO	10+93.00
-DRW8-	10+35.50	TO	11+29.03
-DRW9-	10+35.50	TO	10+94.00
-DRW10-	10+35.50	TO	10+94.00
-DRW11-	10+36.00	TO	10+84.50
-DRW12-	10+35.50	TO	10+74.09
-DRW15-	10+56.45	TO	11+04.80
-DRW16-	10+14.53	TO	10+55.00
-DRW17-	10+37.38	TO	10+88.00
-DRW18-	10+38.35	TO	10+63.00
-DRW23-	10+12.00	TO	10+95.63



TYPICAL SECTION NO. 19

PROJECT REFERENCE NO. R-3825B SHEET NO. 2A-8

Prepared by URS

URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NO. L10266E • C-2242

R/W SHEET NO. ROADWAY DESIGN ENGINEER PAVEMENT DESIGN ENGINEER

Professional Engineer Seal: Edward S. Moran, No. 022896, 8/17/2018

Professional Engineer Seal: Clark S. Morrison, No. 022896, 8/20/2018

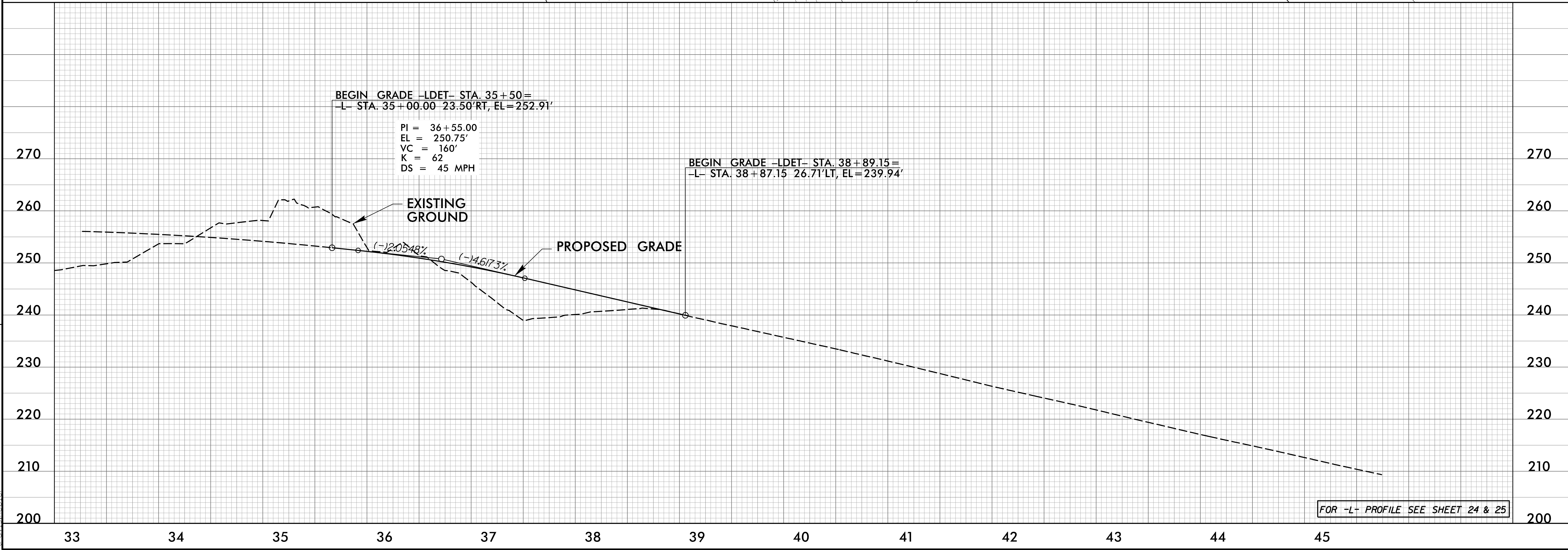
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TABLE 7		
LINE	*	**
-DRW1-	8'	1'
-DRW2-	8'	1'
-DRW3-	8'	1'
-DRW7-	8'	1'
-DRW8-	8'	1'
-DRW9-	8'	1'
-DRW10-	8'	1'
-DRW11-	8'	1'
-DRW12-	8'	1'
-DRW15-	8'	1'
-DRW16-	8'	1'
-DRW17-	8'	1'
-DRW18-	10'	2'
-DRW23-	12'	2'

REVISIONS

8/17/2018  
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8/17/99



8/9/2018  
R:\Roadway\Proj\NR3825b\_rdy\_psh02B.1.dgn  
Travis Hedler

REVISIONS

-LDET- NC 42

PI Sta 34+16.79 Δ = 3° 58' 23.8" (RT) D = 1' 29' 26.6" L = 266.54' T = 133.32' R = 3,843.50'	PI Sta 36+86.11 Δ = 4° 52' 06.3" (RT) D = 1' 47' 22.3" L = 272.05' T = 136.11' R = 3,201.71'
PI Sta 40+89.85 Δ = 4° 08' 45.3" (RT) D = 0' 46' 27.9" L = 535.36' T = 267.80' R = 7,398.60'	PI Sta 44+57.62 Δ = 0' 01' 17.2" (RT) D = 0' 00' 38.5" L = 200.42' T = 100.21' R = 535,208.36'

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE 1 919 461-1100 FAX 1 919 461-1415  
NC LICENSE # C-22843

PROJECT REFERENCE NO.  
R-3825B

SHEET NO.  
2B-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

Professional Engineer Seal: Edward S. Hedler, P.E., No. 18470, State of North Carolina, expires 8/9/2018.

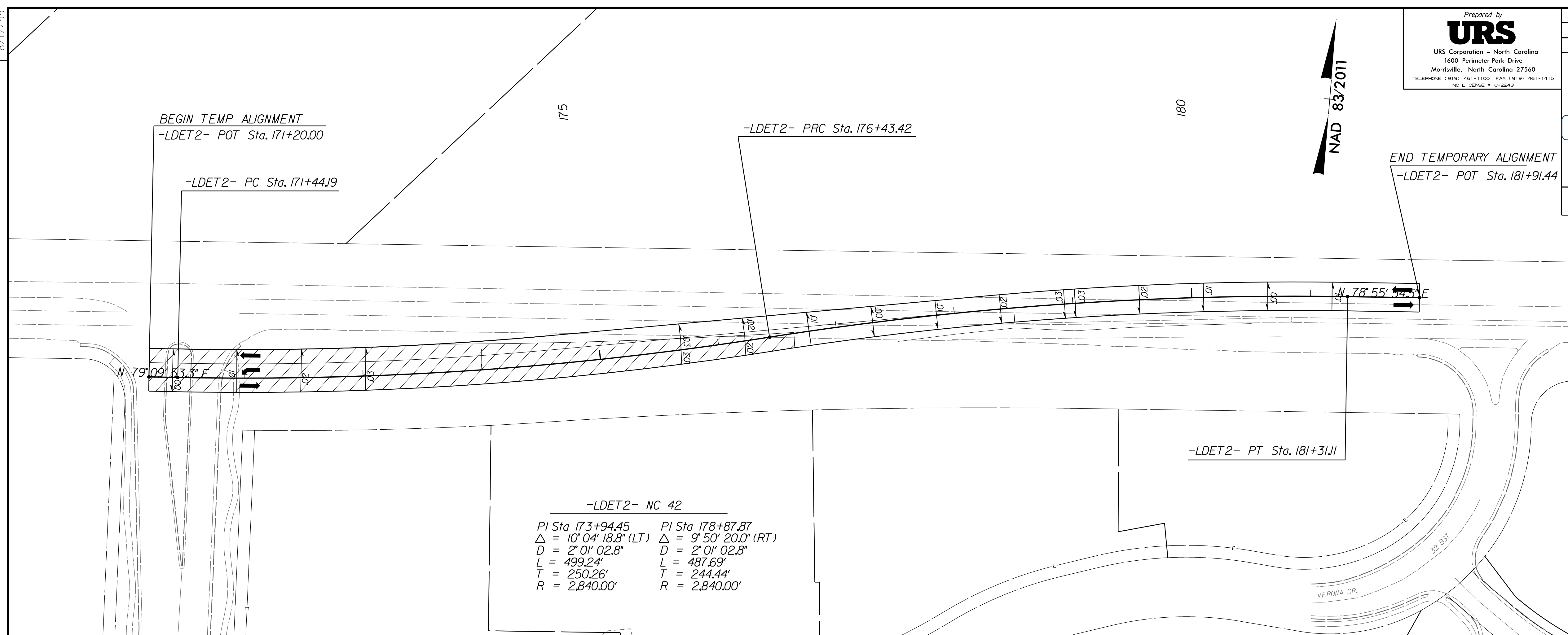
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

8/17/19

Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE 1 919 461-1100 FAX 1 919 461-1415  
 NC LICENSE # C-2243

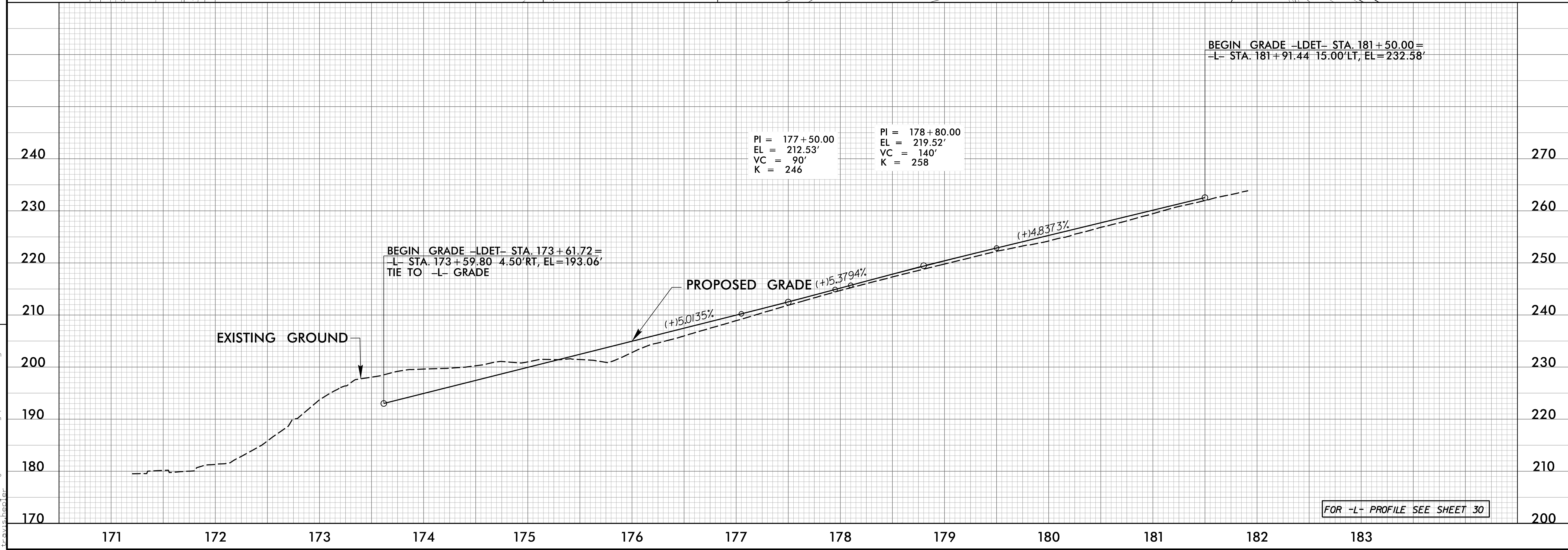
PROJECT REFERENCE NO. R-3825B	SHEET NO. 2B-1A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	

NAD 83/2011



**-LDET2- NC 42**  
 PI Sta 173+94.45    PI Sta 178+87.87  
 $\Delta = 10^{\circ} 04' 18.8\" (LT)$      $\Delta = 9^{\circ} 50' 20.0\" (RT)$   
 $D = 2^{\circ} 01' 02.8\"$      $D = 2^{\circ} 01' 02.8\"$   
 $L = 499.24'$      $L = 487.69'$   
 $T = 250.26'$      $T = 244.44'$   
 $R = 2,840.00'$      $R = 2,840.00'$

REVISIONS



FOR -L- PROFILE SEE SHEET 30

8/17/2018  
 P:\o\13825b\_r\dj\_psh02b\_3A.dgn  
 threaher

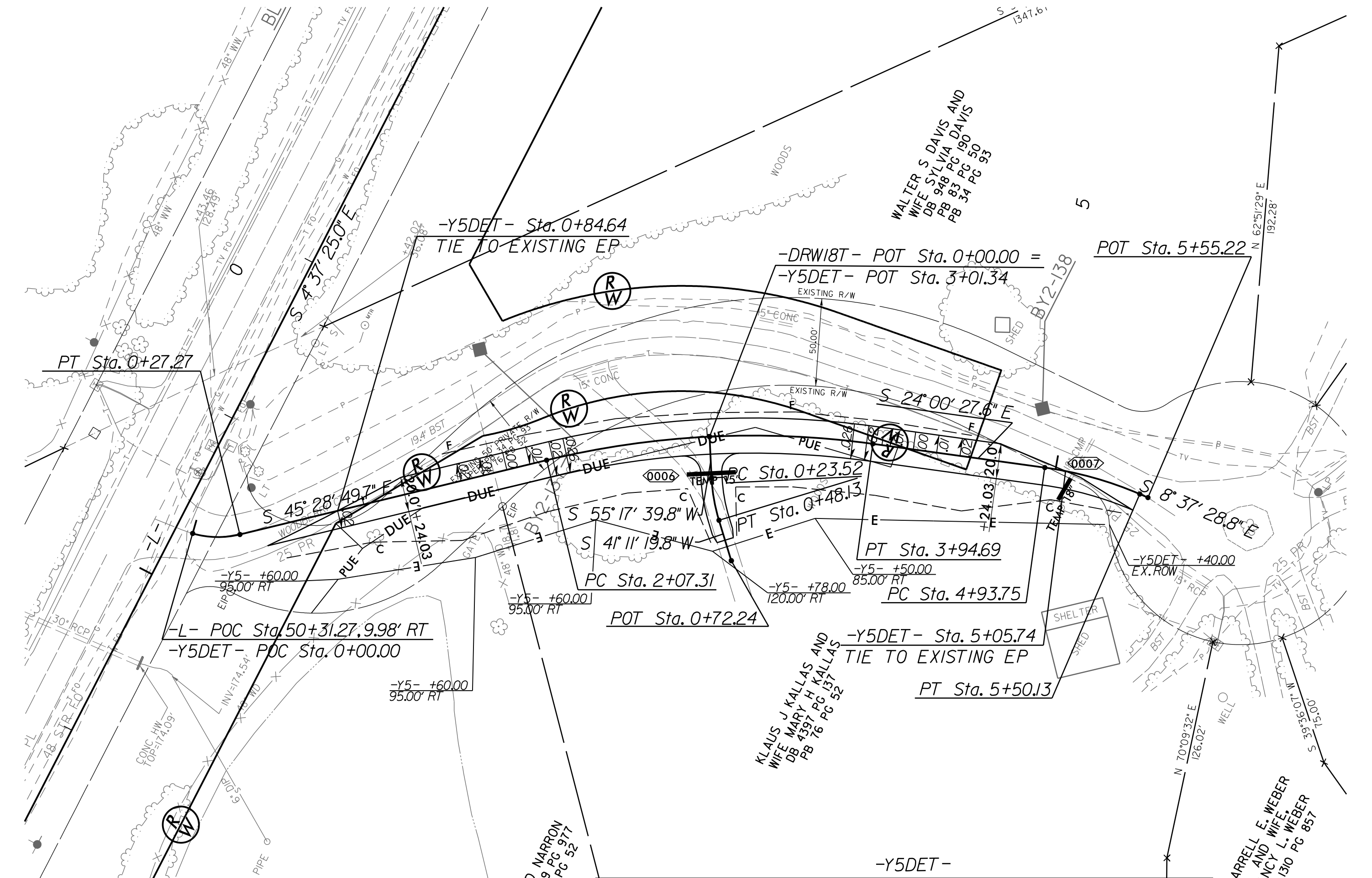
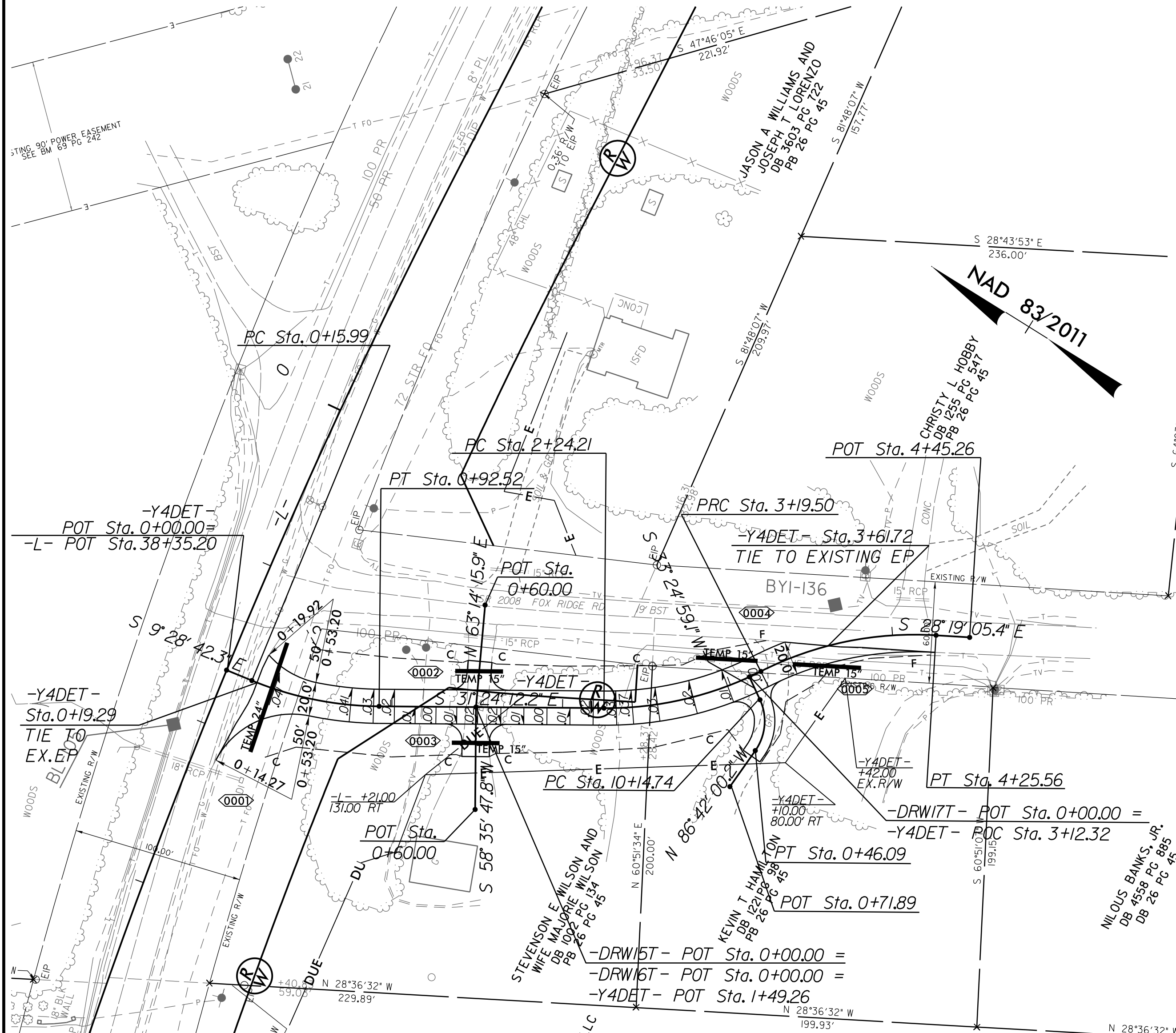
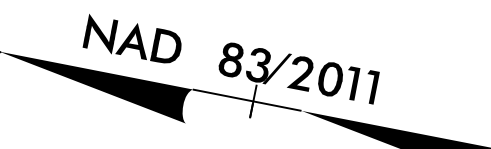


8/17/09

REVISIONS

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE 919 911 4611 FAX 919 911 4611  
NC LICENSE # 18470

PROJECT REFERENCE NO. <b>R-3825B</b>	SHEET NO. <b>2B-2</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



-DRWT17-	-Y4DET-	-Y4DET-	-Y4DET-
PI Sta 10+32.02	PI Sta 0+54.73	PI Sta 2+72.78	PI Sta 3+73.81
$\Delta = 59^{\circ} 53' 00.7''$ (RT)	$\Delta = 21^{\circ} 55' 29.9''$ (LT)	$\Delta = 27^{\circ} 17' 54.9''$ (LT)	$\Delta = 30^{\circ} 23' 01.7''$ (RT)
D = 190' 59" 09.4"	D = 28' 38" 52.4"	D = 28' 38" 52.4"	D = 28' 38" 52.4"
L = 31.35'	L = 76.53'	L = 95.29'	L = 106.06'
T = 17.28'	R = 38.74'	T = 48.57'	T = 54.31'
R = 30.00'	R = 200.00'	R = 200.00'	R = 200.00'
	e = 41%	e = 3.70%	e = N/A
	RUNOFF = 50'	RUNOFF = 50'	

-Y5DET-	-Y5DET-	-Y5DET-
PI Sta 0+13.95	PI Sta 3+02.11	PI Sta 5+22.11
$\Delta = 29^{\circ} 40' 52.7''$ (LT)	$\Delta = 21^{\circ} 28' 22.1''$ (RT)	$\Delta = 15^{\circ} 22' 58.8''$ (RT)
D = 108' 50" 11.1"	D = 11' 27" 33.0"	D = 27' 17" 01.3"
L = 27.27'	L = 187.39'	L = 56.38'
T = 13.95'	T = 94.81'	T = 28.36'
R = 52.64'	R = 500.00'	R = 210.00'
e = N/A	e = 2.6%	e = N/A
	RUNOFF = 35'	

-DRWT18-
PI Sta 0+35.89
$\Delta = 14^{\circ} 06' 20.1''$ (LT)
D = 57' 17" 44.8"
L = 24.62'
T = 12.37'
R = 100.00'

FOR -L- PROFILE SEE SHEET 25  
FOR -Y4DET- PROFILE SEE SHEET 2B-4  
FOR -Y5DET- PROFILE SEE SHEET 2B-4

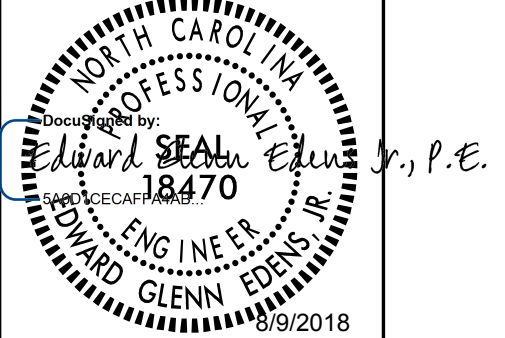
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revised

5/28/2018

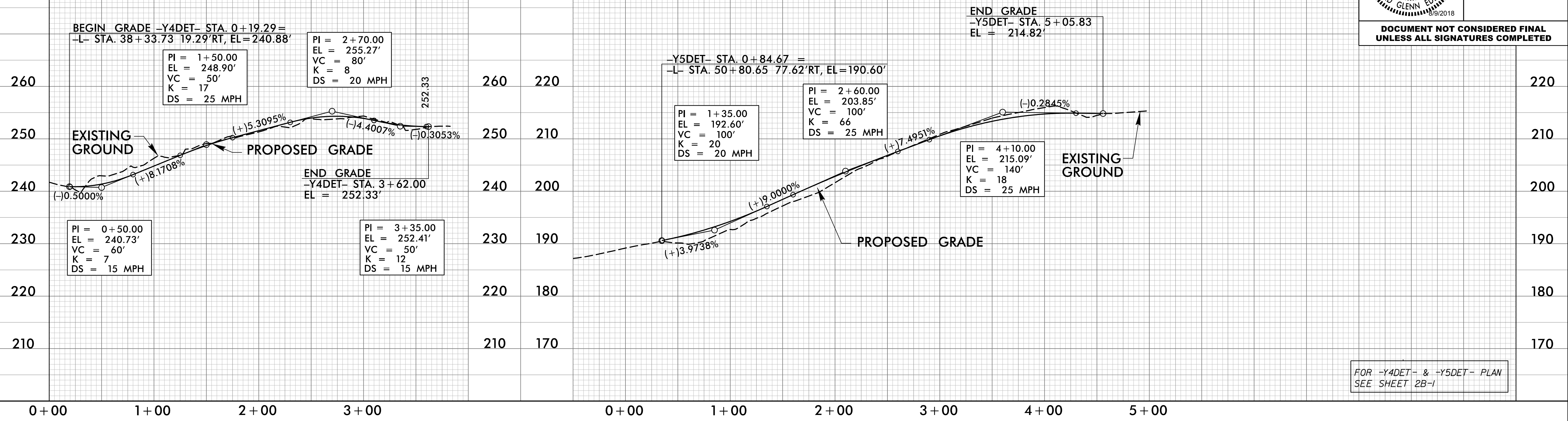
# -Y4DET-

# -Y5DET-



PROJECT REFERENCE NO. R-3825B	SHEET NO. 2B-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**



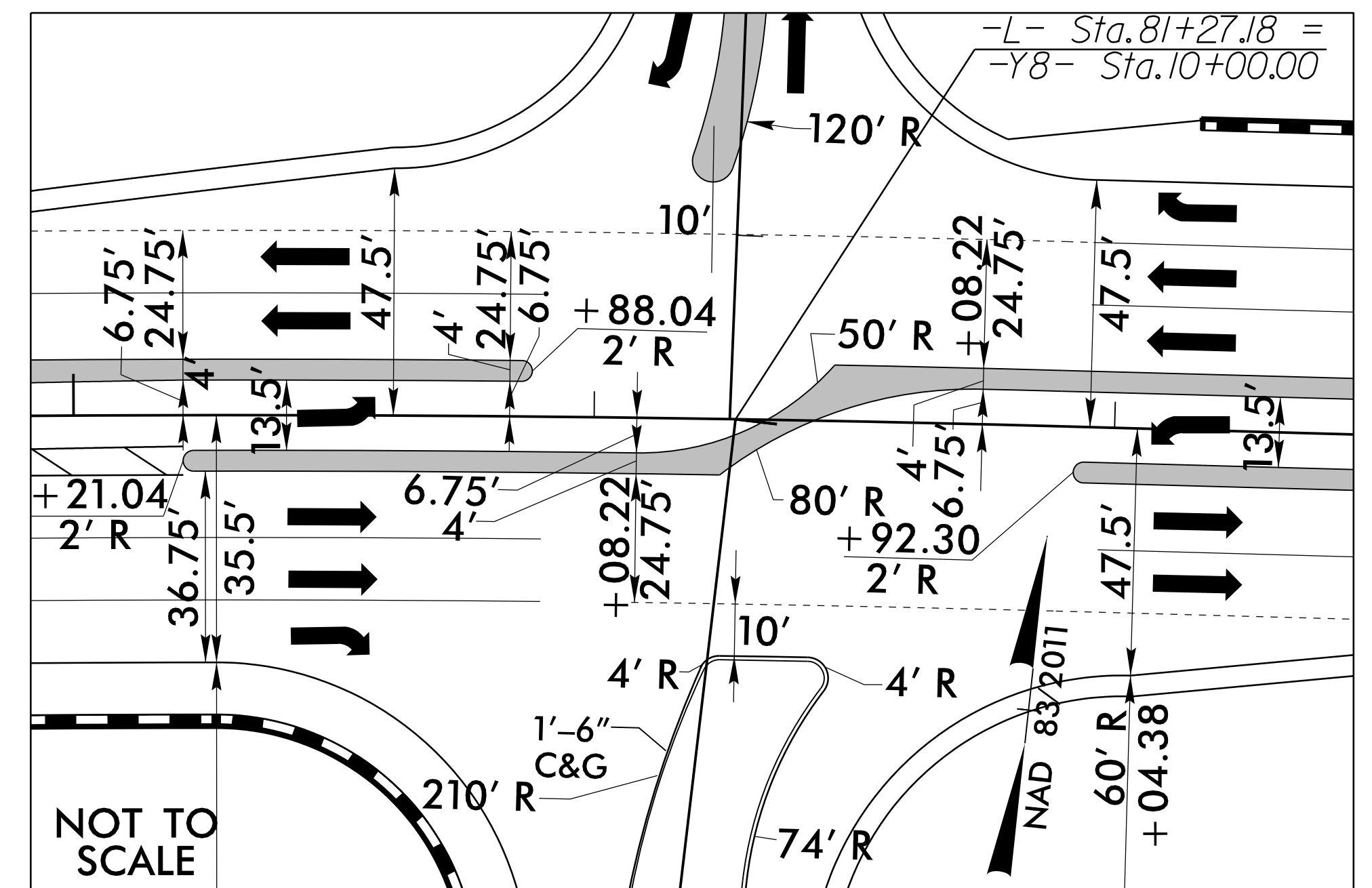
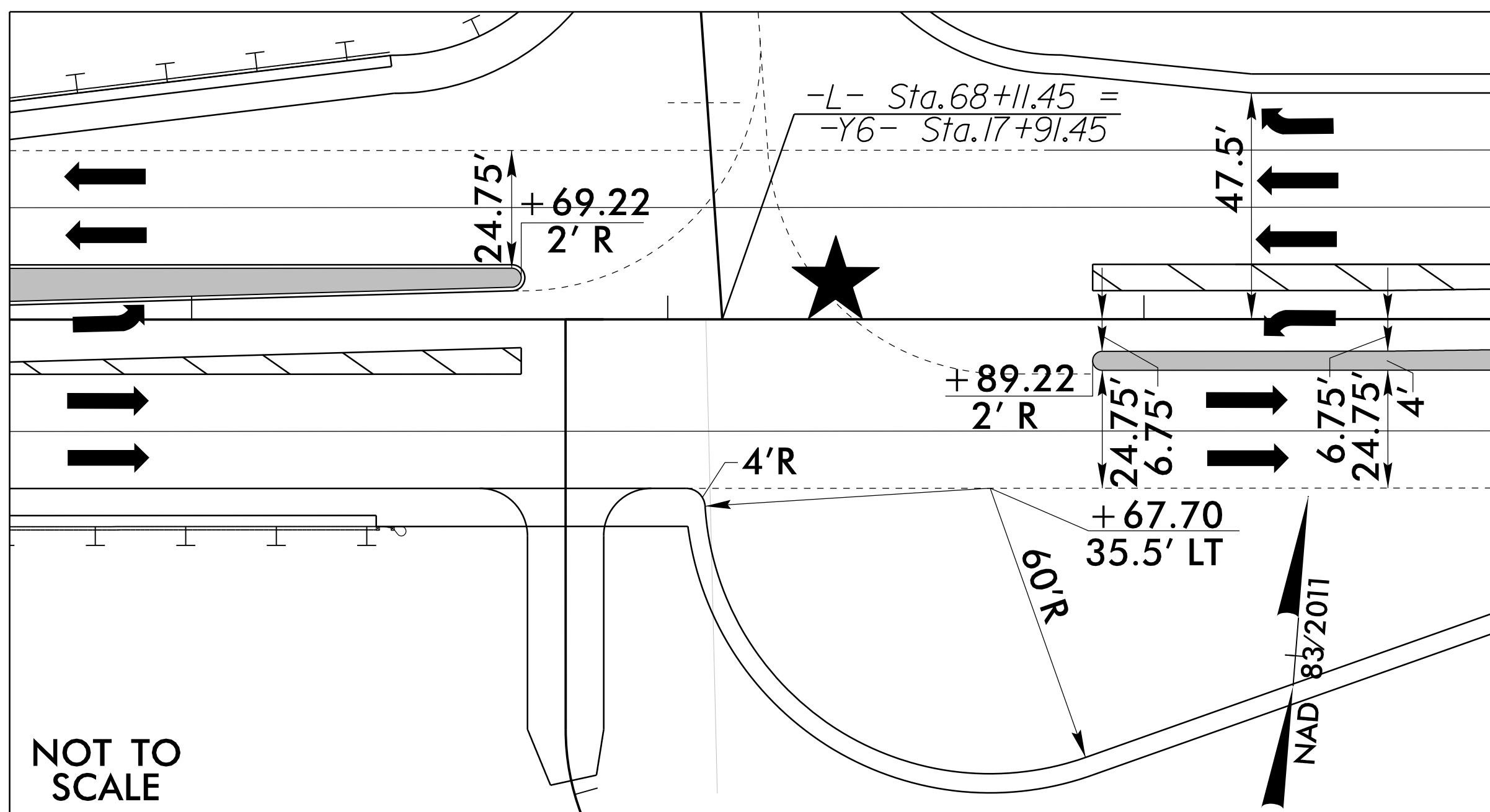
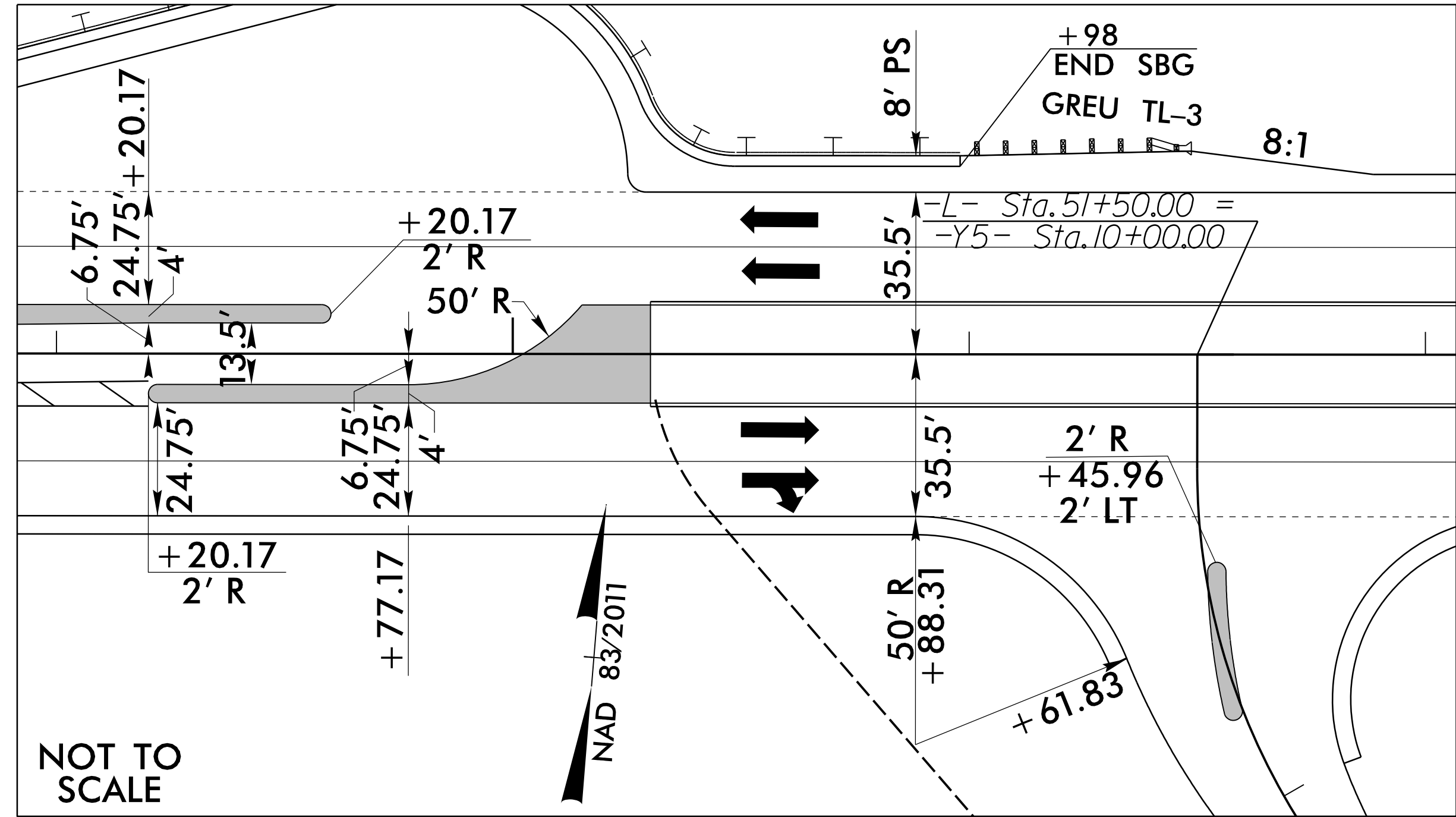
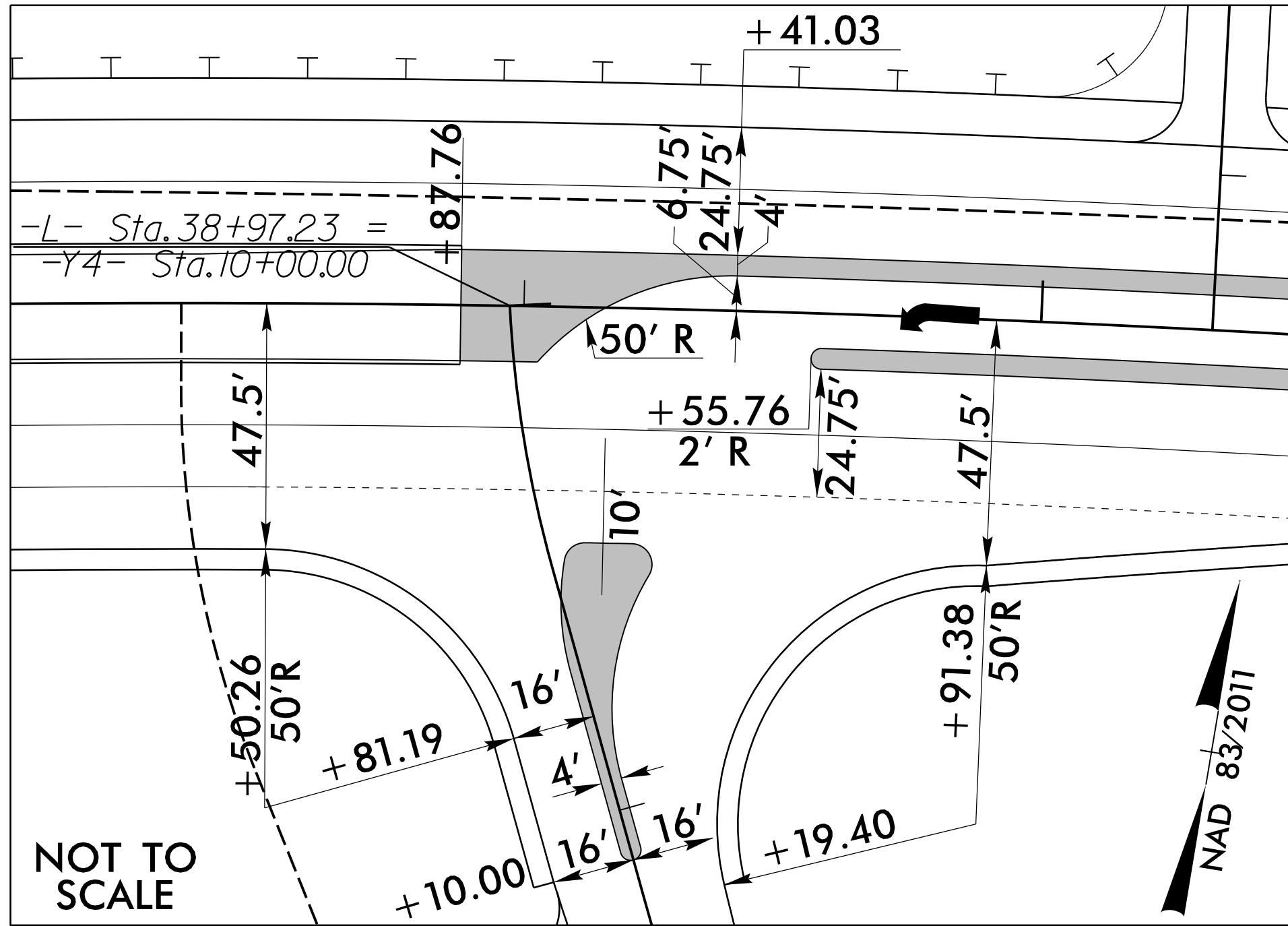
FOR -Y4DET- & -Y5DET- PLAN  
SEE SHEET 2B-1

R:\2018\05\05\Projects\3825b\rdy\_psh02B\_4.dgn

# CONCRETE ISLAND DETAILS

Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE: (919) 461-1100 FAX: (919) 461-1415  
 NC LICENSE # C-22843

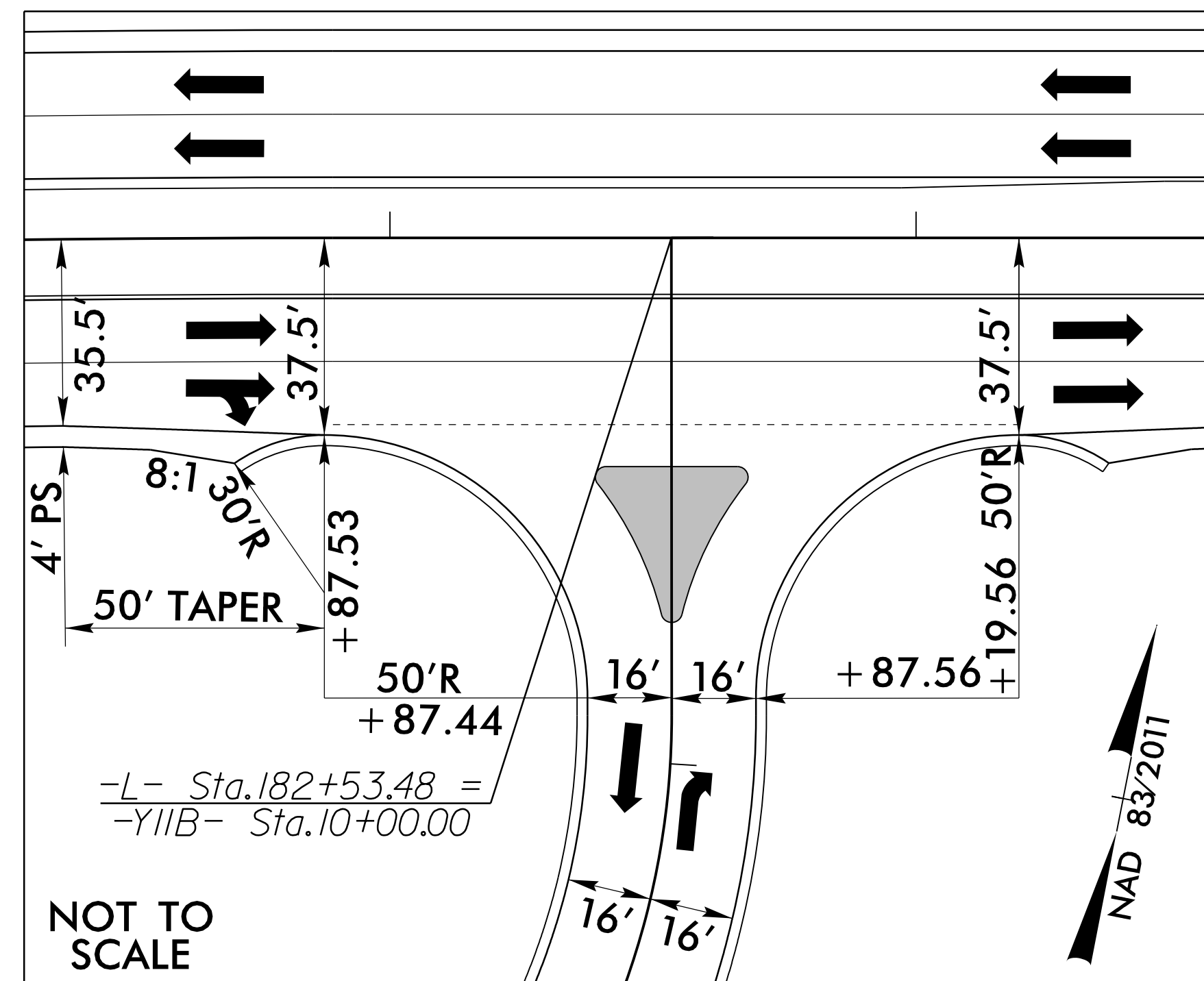
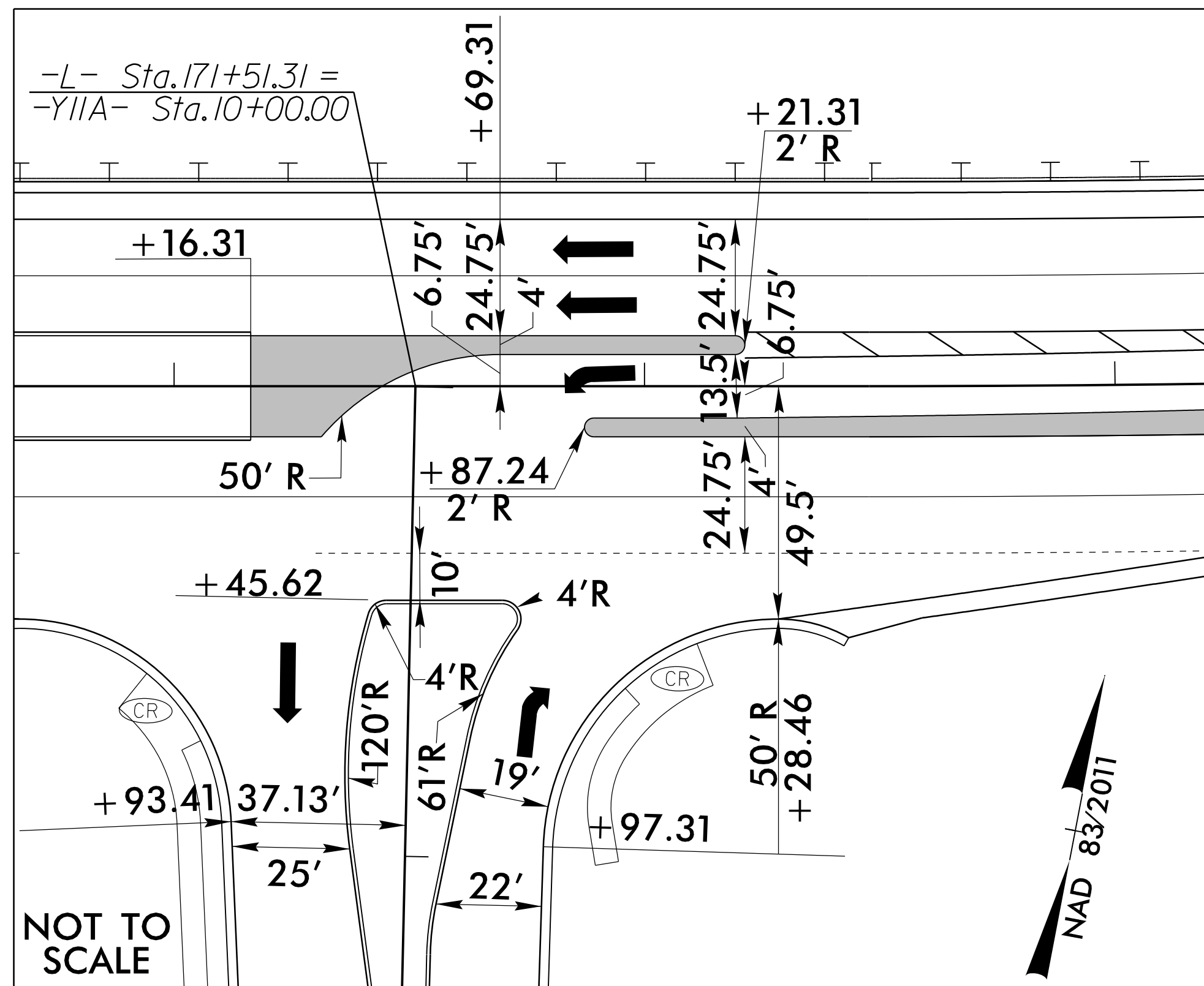
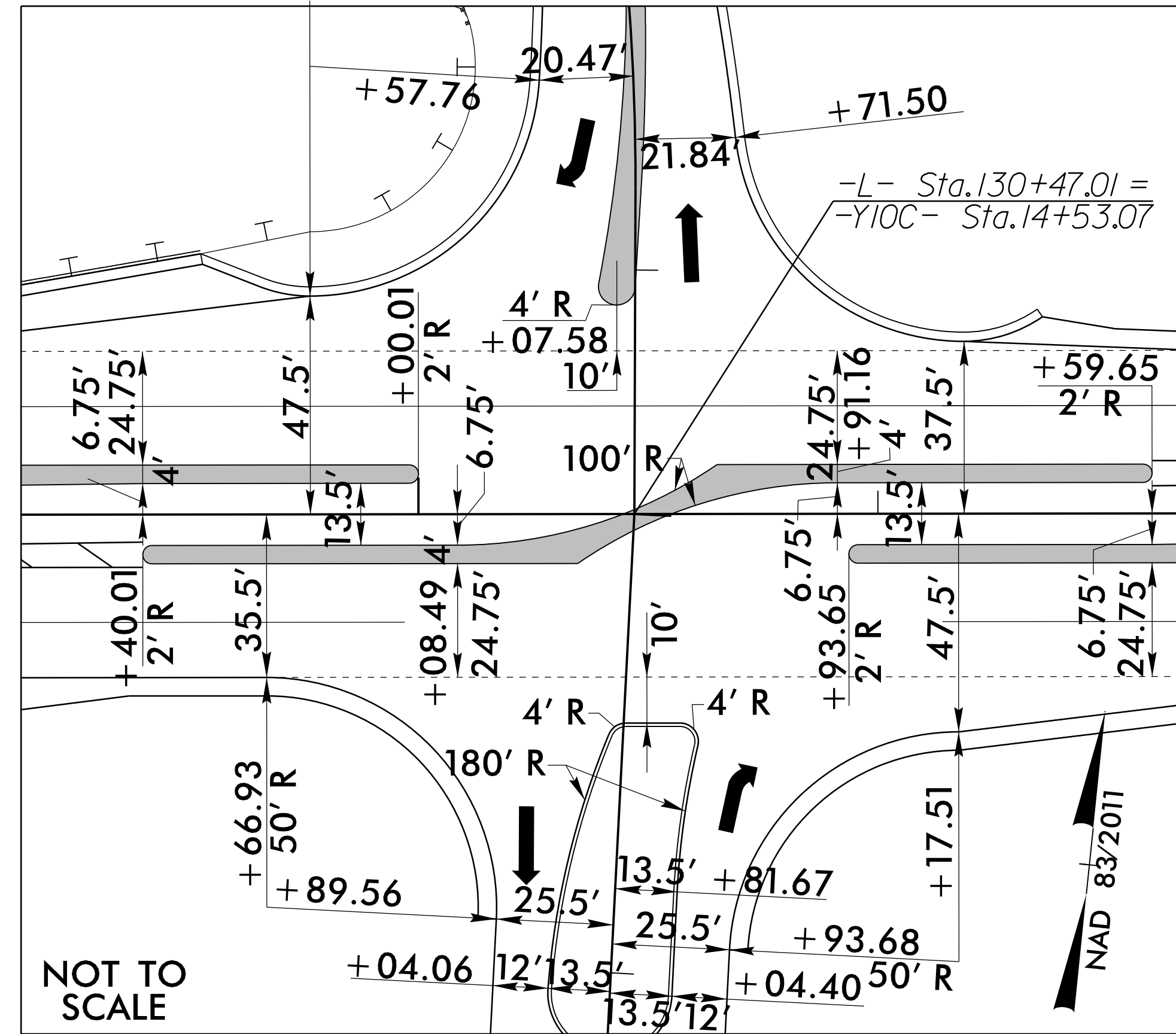
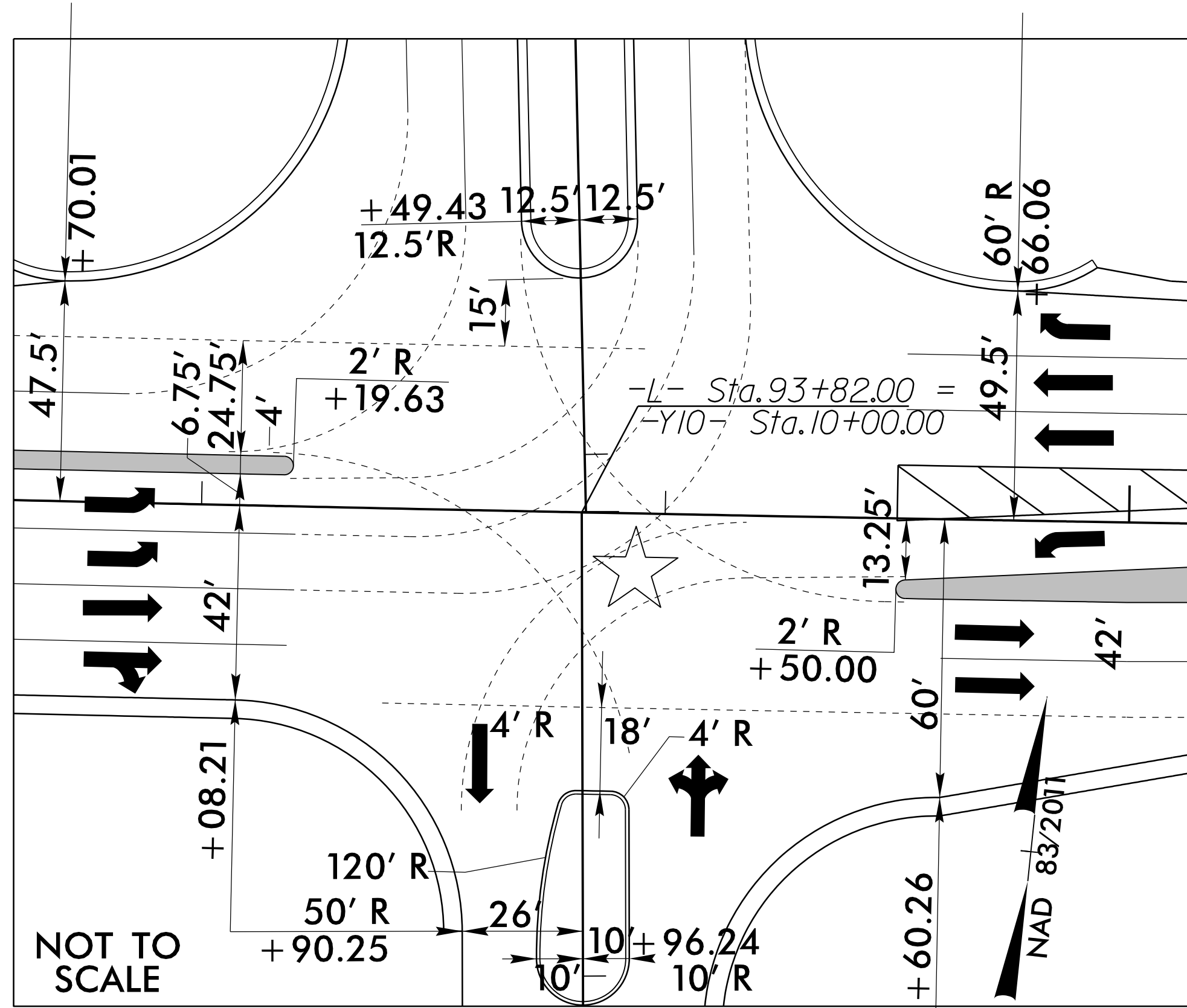
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R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL        UNLESS ALL SIGNATURES COMPLETED</b>	



# CONCRETE ISLAND DETAILS

Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE: (919) 461-1100 FAX: (919) 461-1415  
 NC LICENSE # C-22842

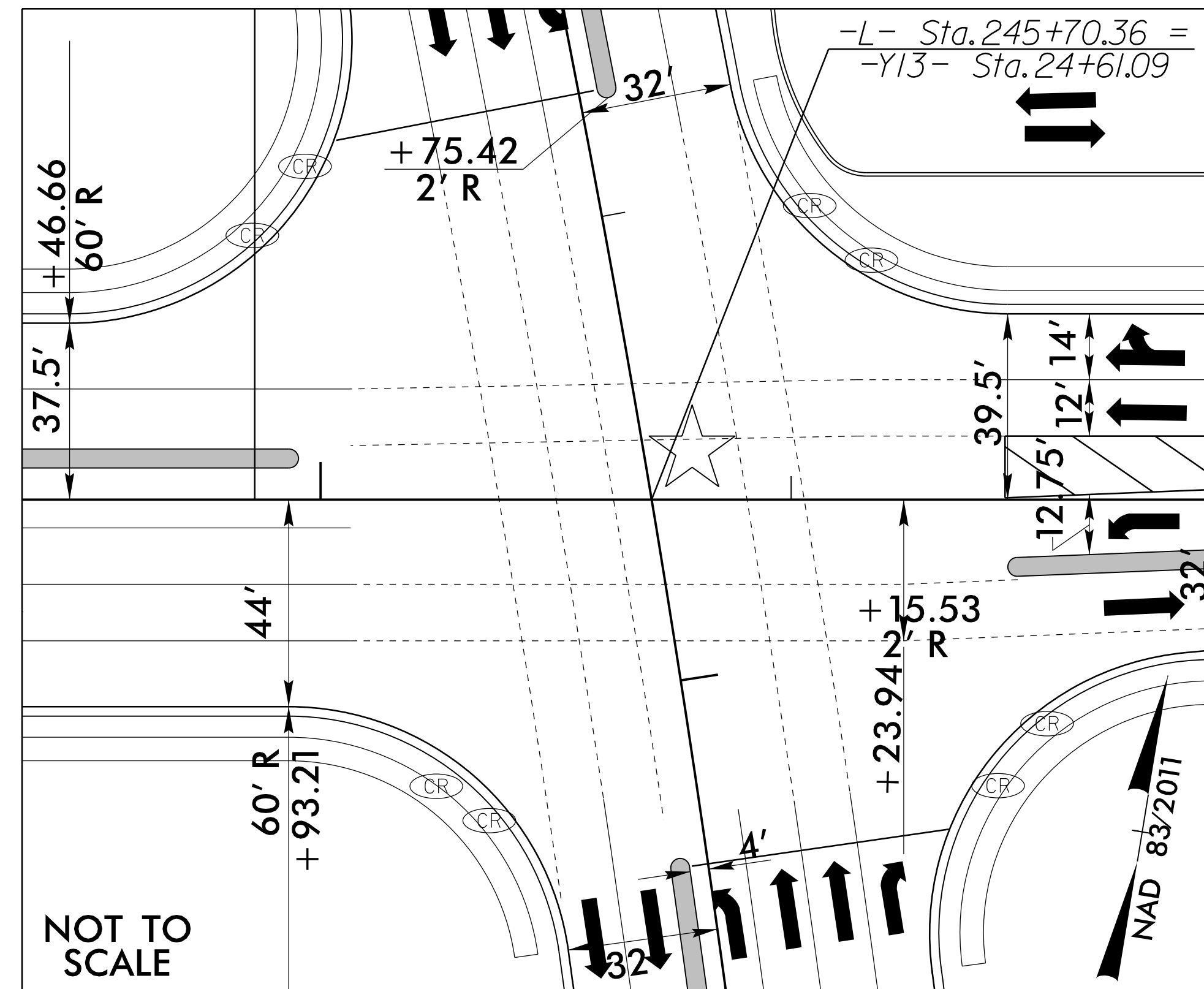
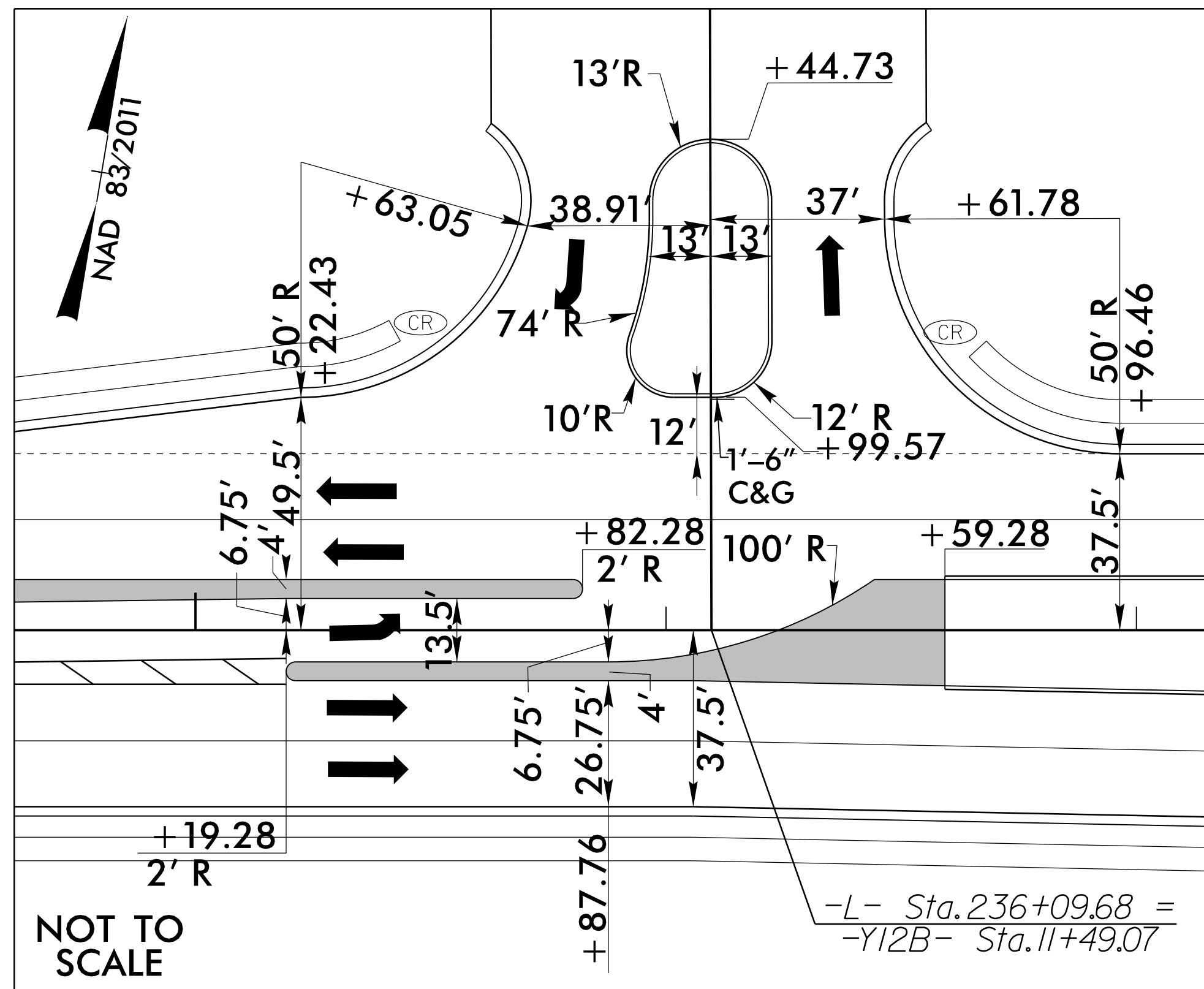
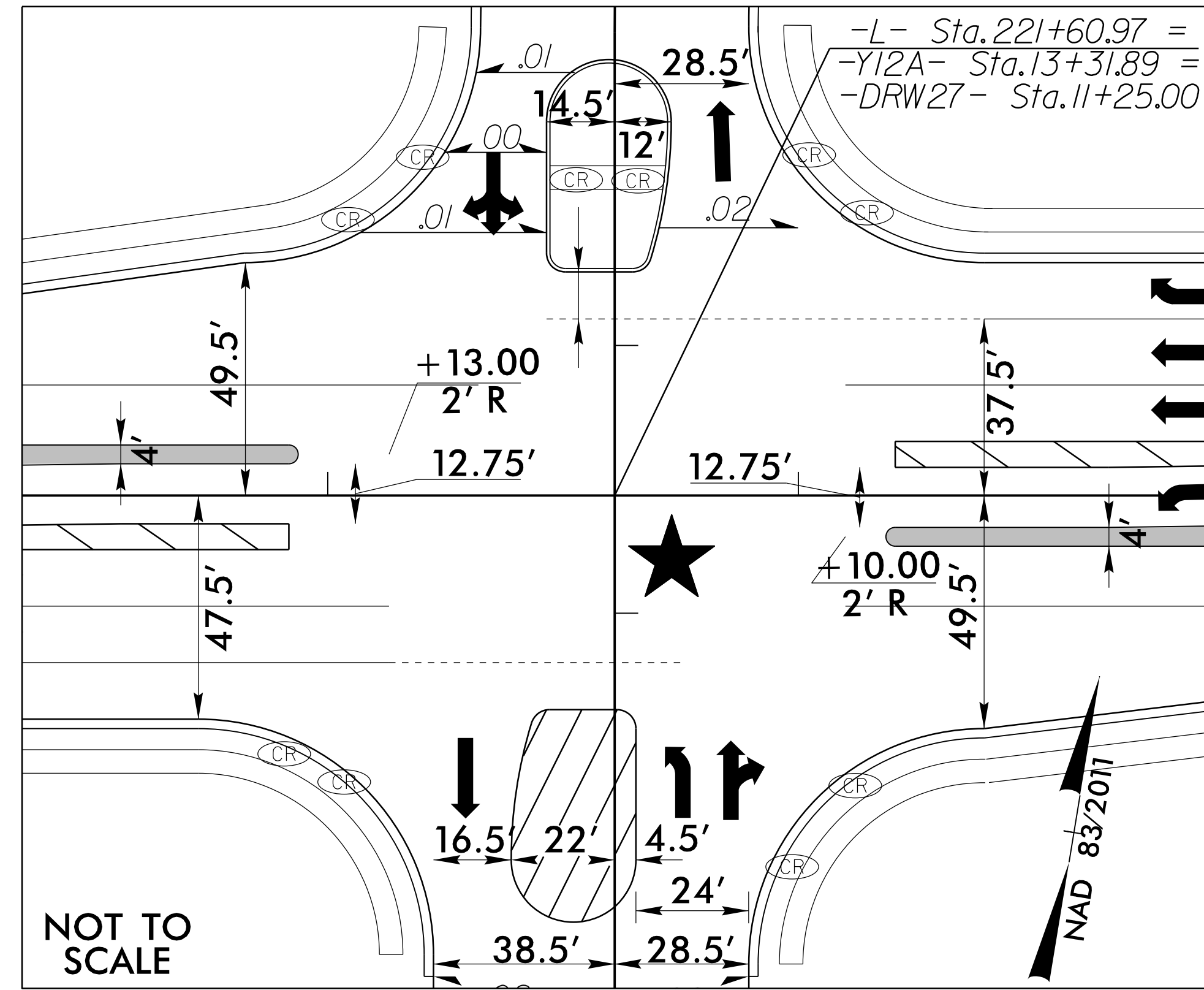
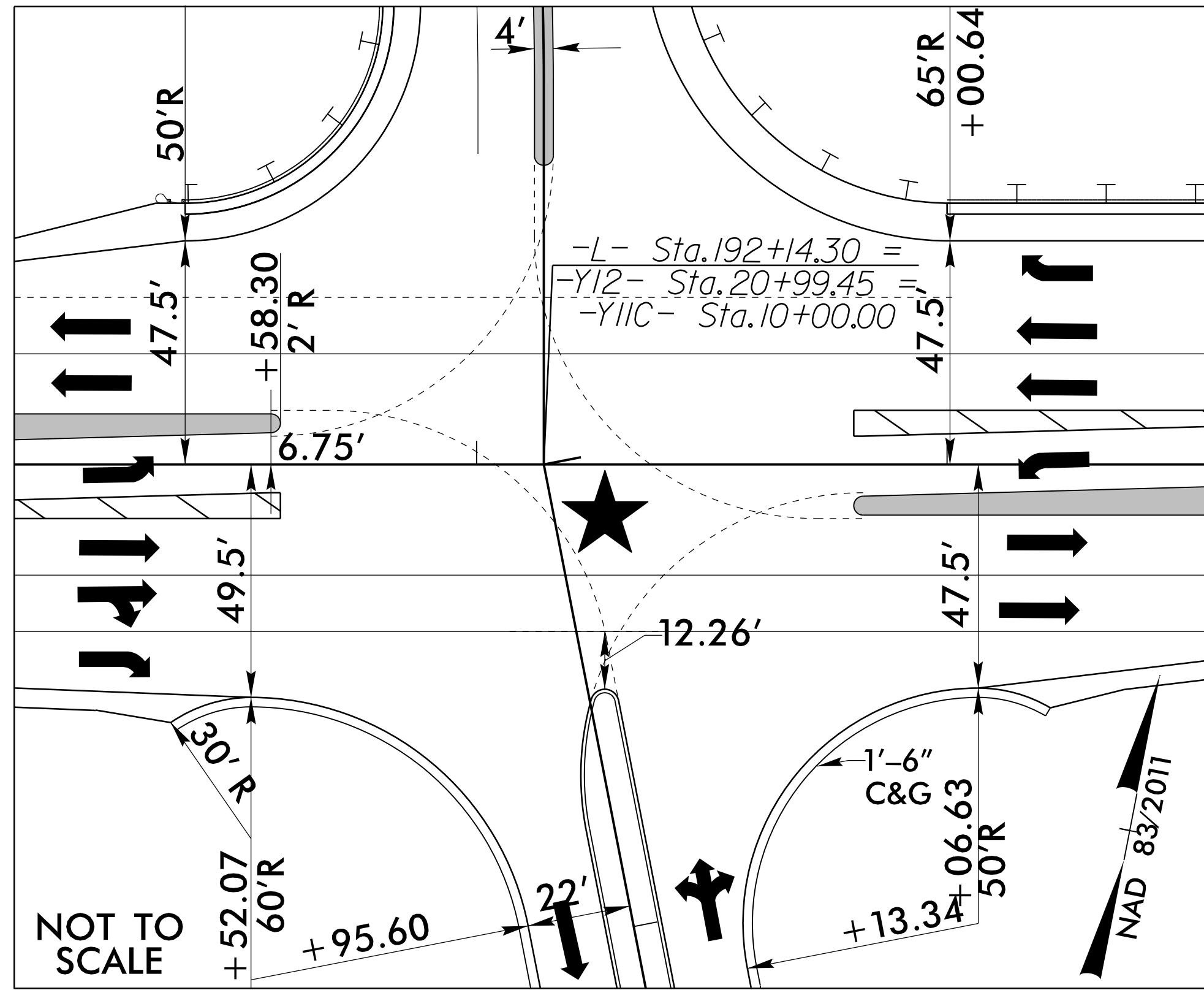
PROJECT REFERENCE NO. R-3825B	SHEET NO. 2B-5
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL        UNLESS ALL SIGNATURES COMPLETED</b>	



# CONCRETE ISLAND DETAILS

Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE (919) 461-1100 FAX (919) 461-1415  
 NC LICENSE # C-2242

PROJECT REFERENCE NO. R-3825B	SHEET NO. 2B-6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL        UNLESS ALL SIGNATURES COMPLETED</b>	

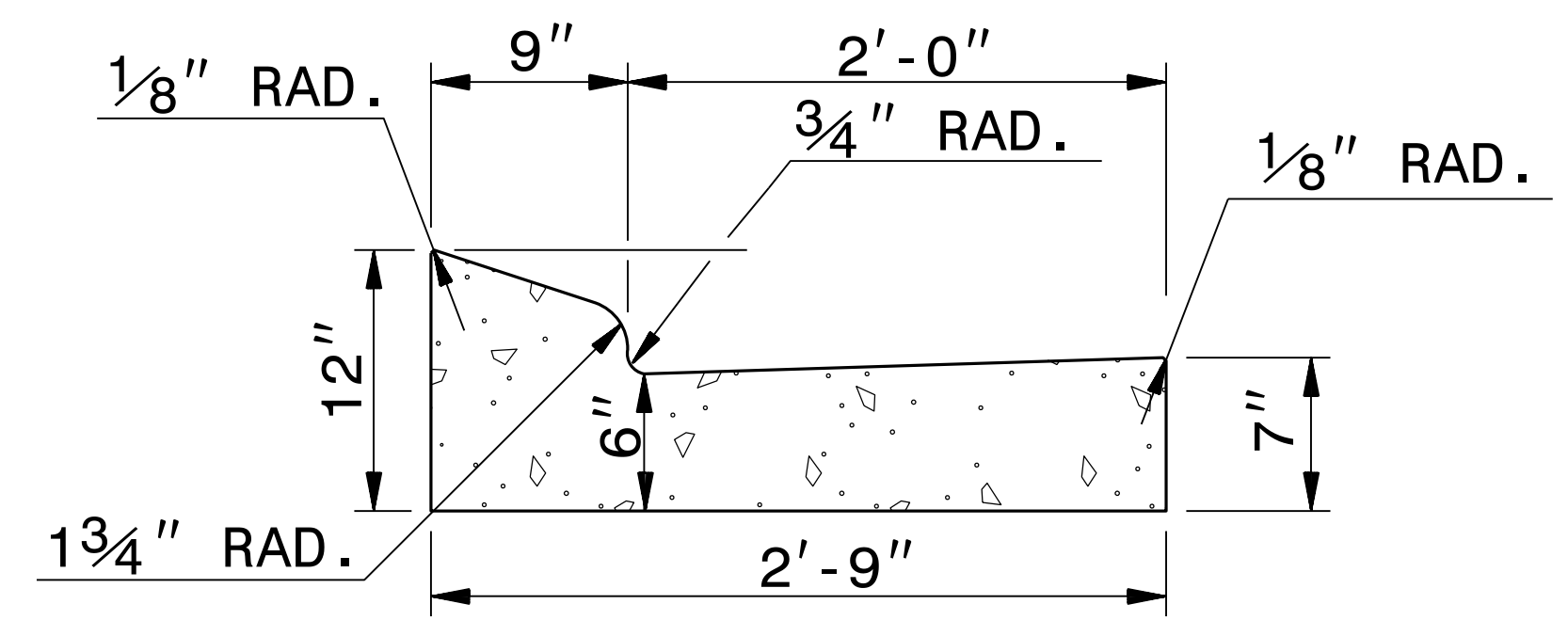


STATE OF  
 NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**2'-9" CONCRETE CURB & GUTTER**

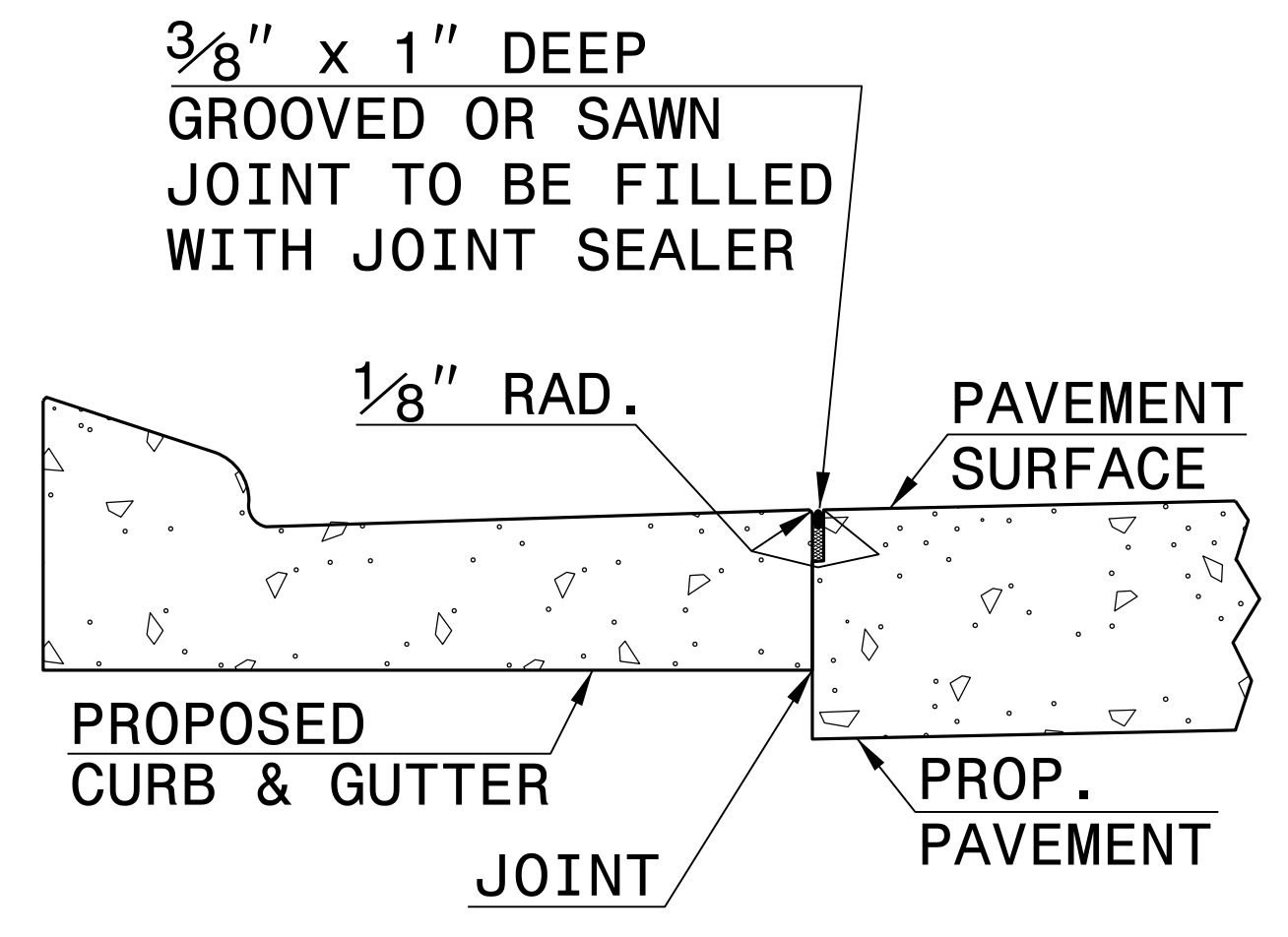
SHEET 1 OF 1  
**846D01**

- GENERAL NOTES:**
- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
  - JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
  - CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
  - FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
  - SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
  - SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2'-6" CURB AND GUTTER RATES)

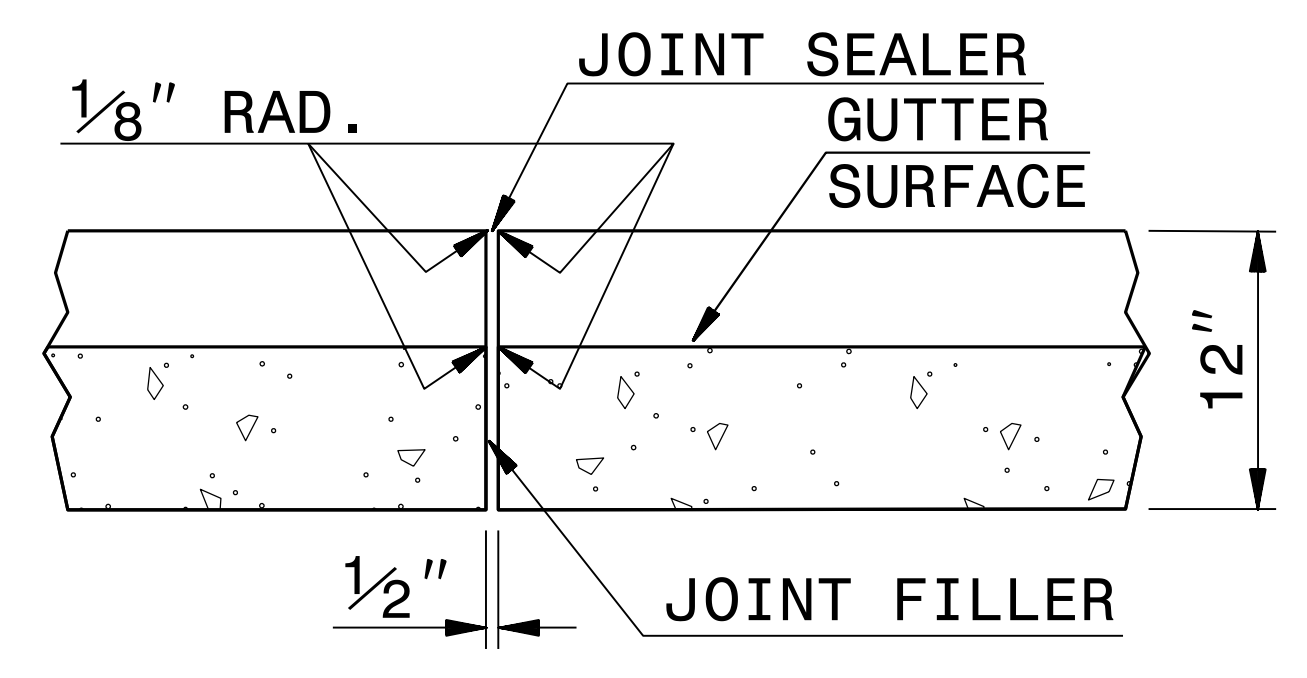


**2'-9" CURB AND GUTTER**

**SECTION VIEW OF CURB AND GUTTER**



**LONGITUDINAL JOINT**



**TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER**

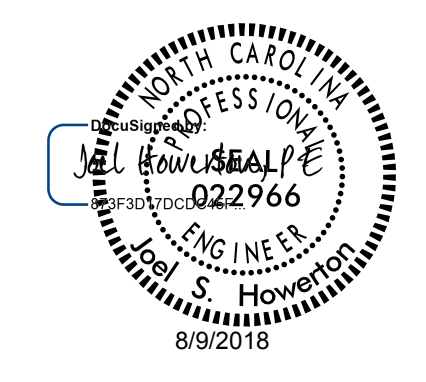
**SECTION VIEW OF JOINTS**

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

ENGLISH DETAIL DRAWING FOR  
**2'-9" CONCRETE CURB & GUTTER**

SHEET 1 OF 1  
**846D01**

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**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
 Office 919-707-6950 FAX 919-250-4119

**SEE PLATE FOR TITLE**

ORIGINAL BY: STD. 846.01 DATE: \_\_\_\_\_  
 MODIFIED BY: E.E. WARD DATE: 8-15-00  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

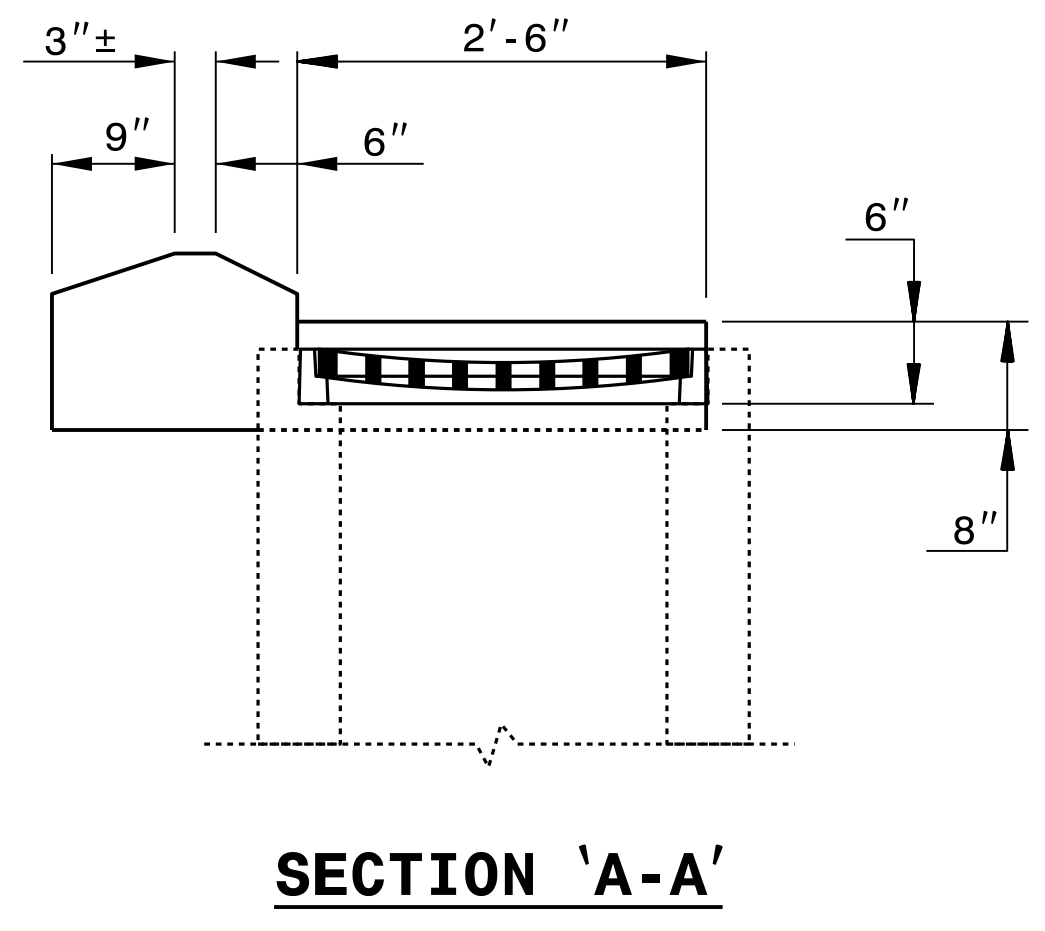
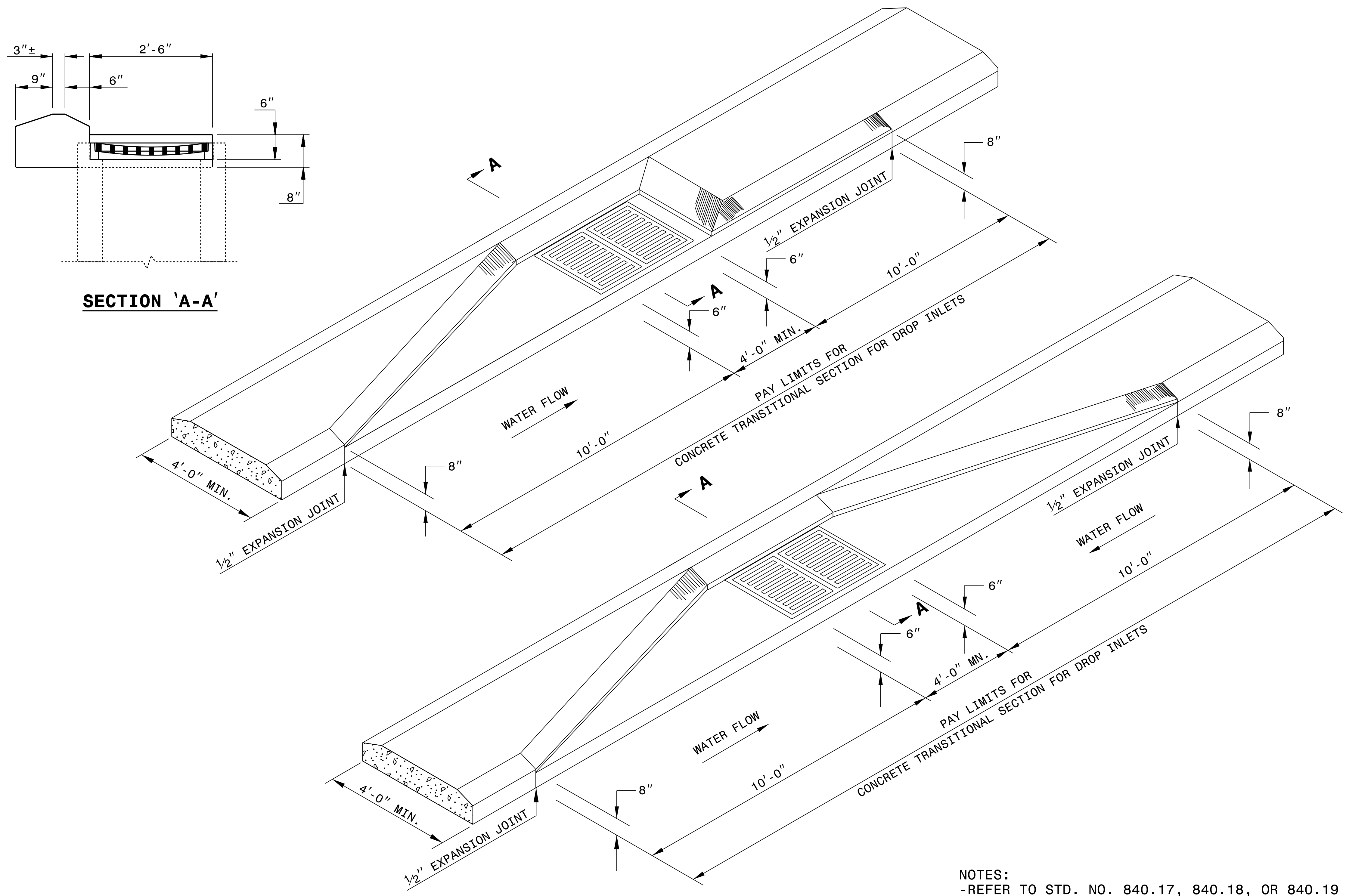
ENGLISH DETAIL DRAWING FOR  
**METHOD FOR PLACEMENT OF  
DROP INLETS IN CONCRETE ISLANDS**

SHEET 1 OF 1  
**852D06**

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

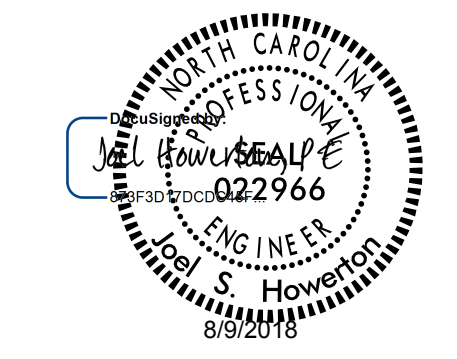
ENGLISH DETAIL DRAWING FOR  
**METHOD FOR PLACEMENT OF  
DROP INLETS IN CONCRETE ISLANDS**

SHEET 1 OF 1  
**852D06**



NOTES:  
-REFER TO STD. NO. 840.17, 840.18, OR 840.19 FOR DRAINAGE STRUCTURE.  
-REFER TO STD. NO. 840.20 OR 840.29 FOR GRATE AND FRAME.

06-MAR-2018 10:58  
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UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS  
AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE PLATE**

ORIGINAL BY: KKEMPF DATE: 8/2/10  
 MODIFIED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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 Jhowerton AT: USD-292595

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

ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III  
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7  
**862D03**

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

**NOTE:**  
 \*\*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
 \*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.  
 -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 3 FOR POST SECTIONS 1 THRU 9.

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

ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 1 OF 7  
**862D03**

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

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 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

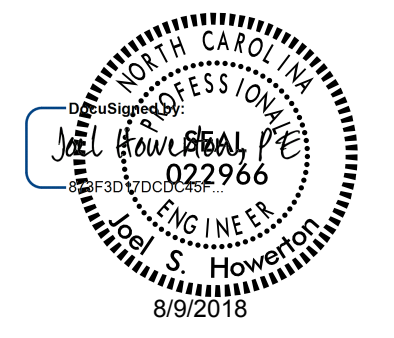
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**STRUCTURE ANCHOR UNITS**  
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO  
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862D03**

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

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 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



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UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS  
AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON	DATE: 06-22-12
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	



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

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 6 OF 8  
**862D02**

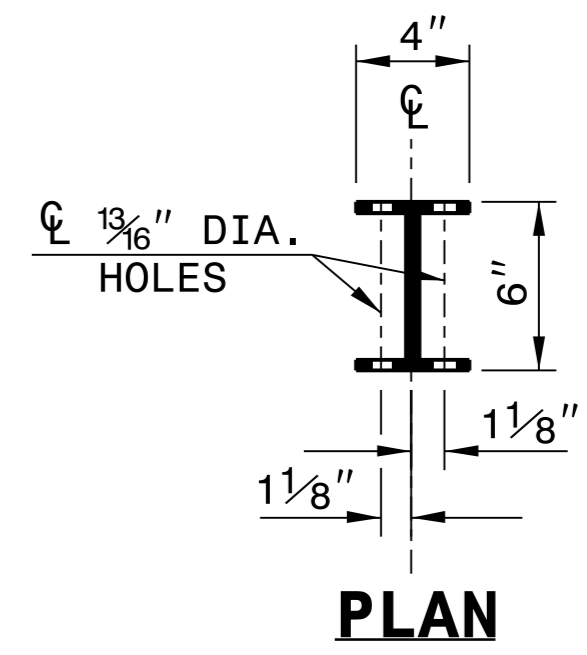
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 6 OF 8  
**862D02**



**STANDARD W-BEAM GUARDRAIL**



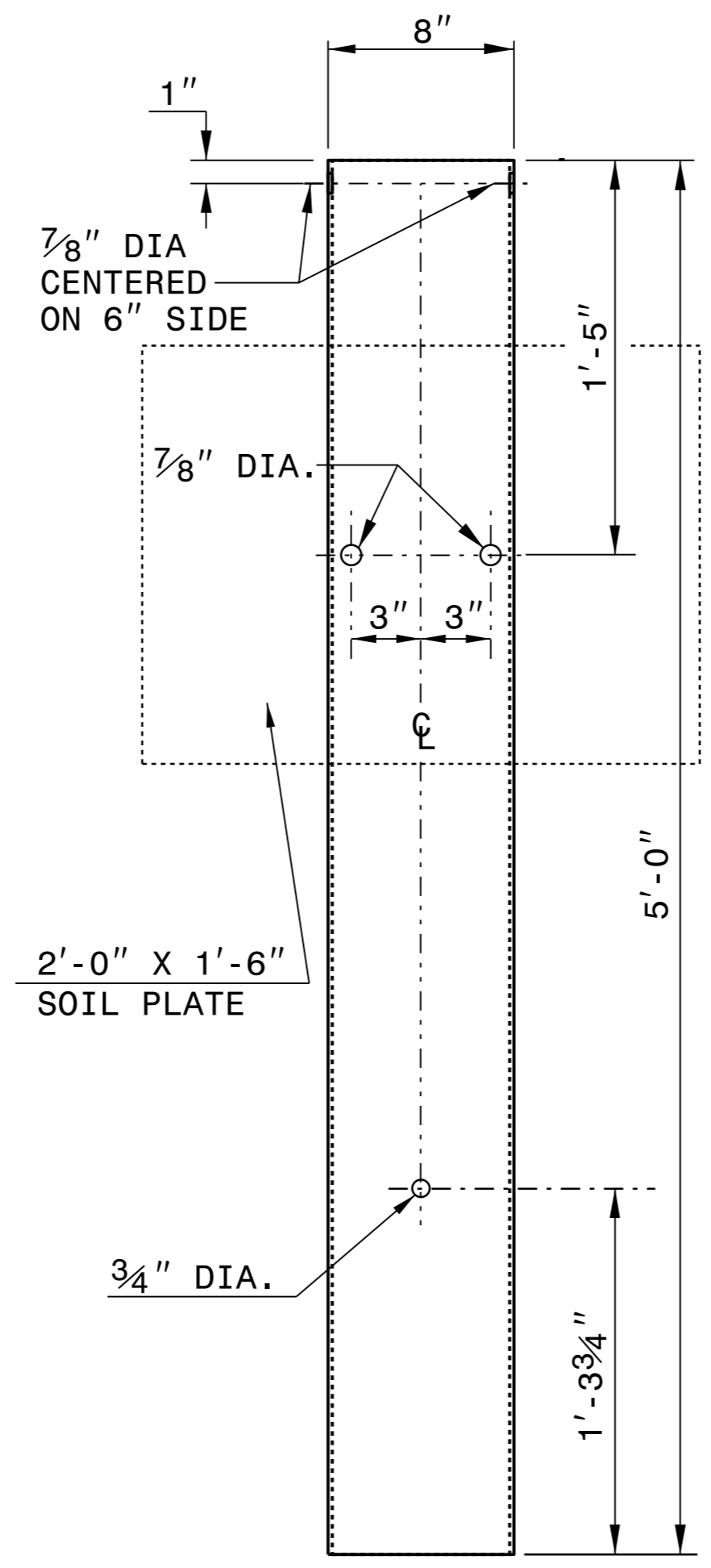
**PLAN**



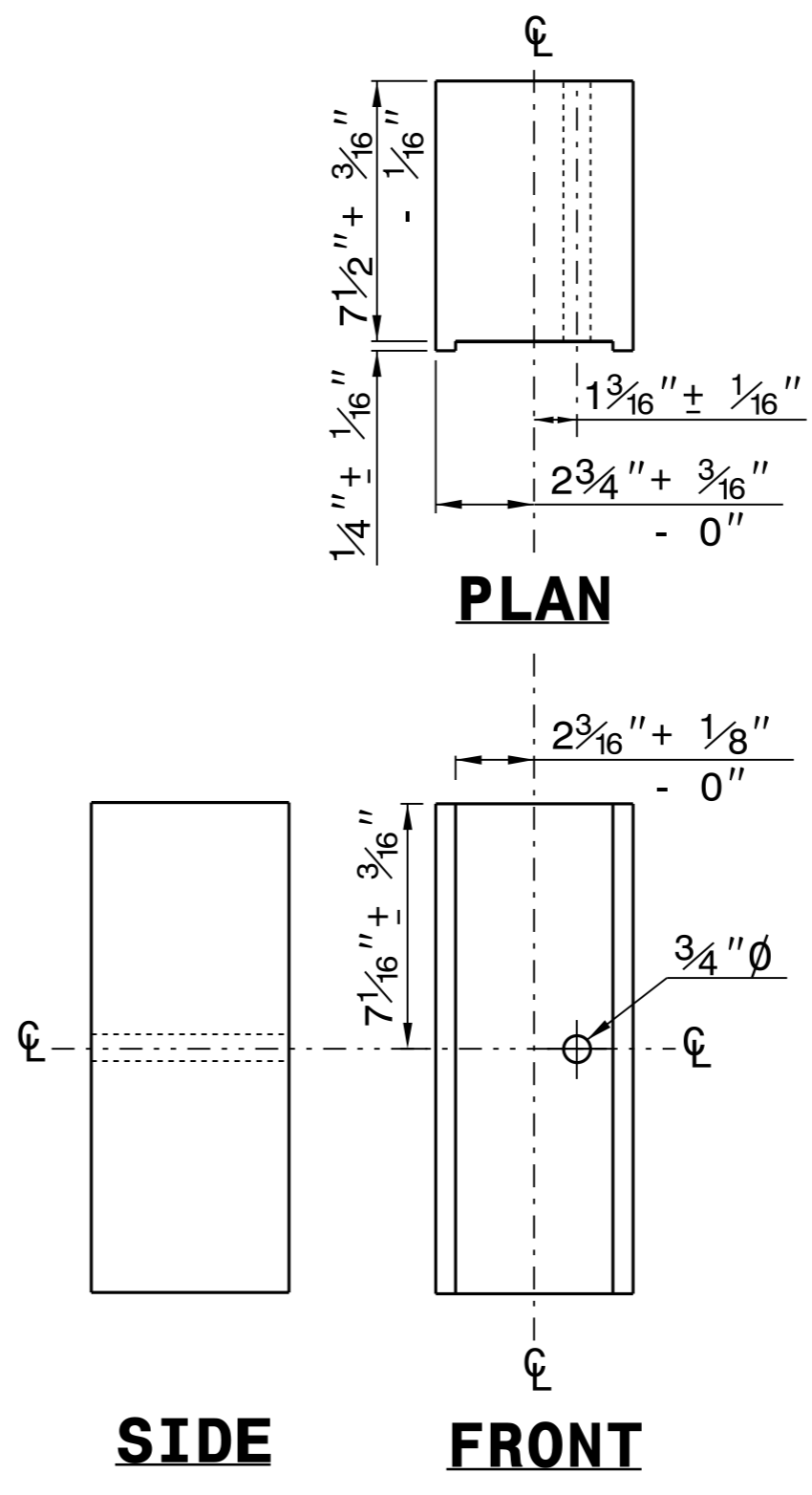
**WOOD OFFSET BLOCK**  
(FOR WOOD POSTS)

**STANDARD LINE POST**

**SHORT WOOD BREAKAWAY POST**



**STEEL TUBE**  
TS 6"x8"x0.1875"

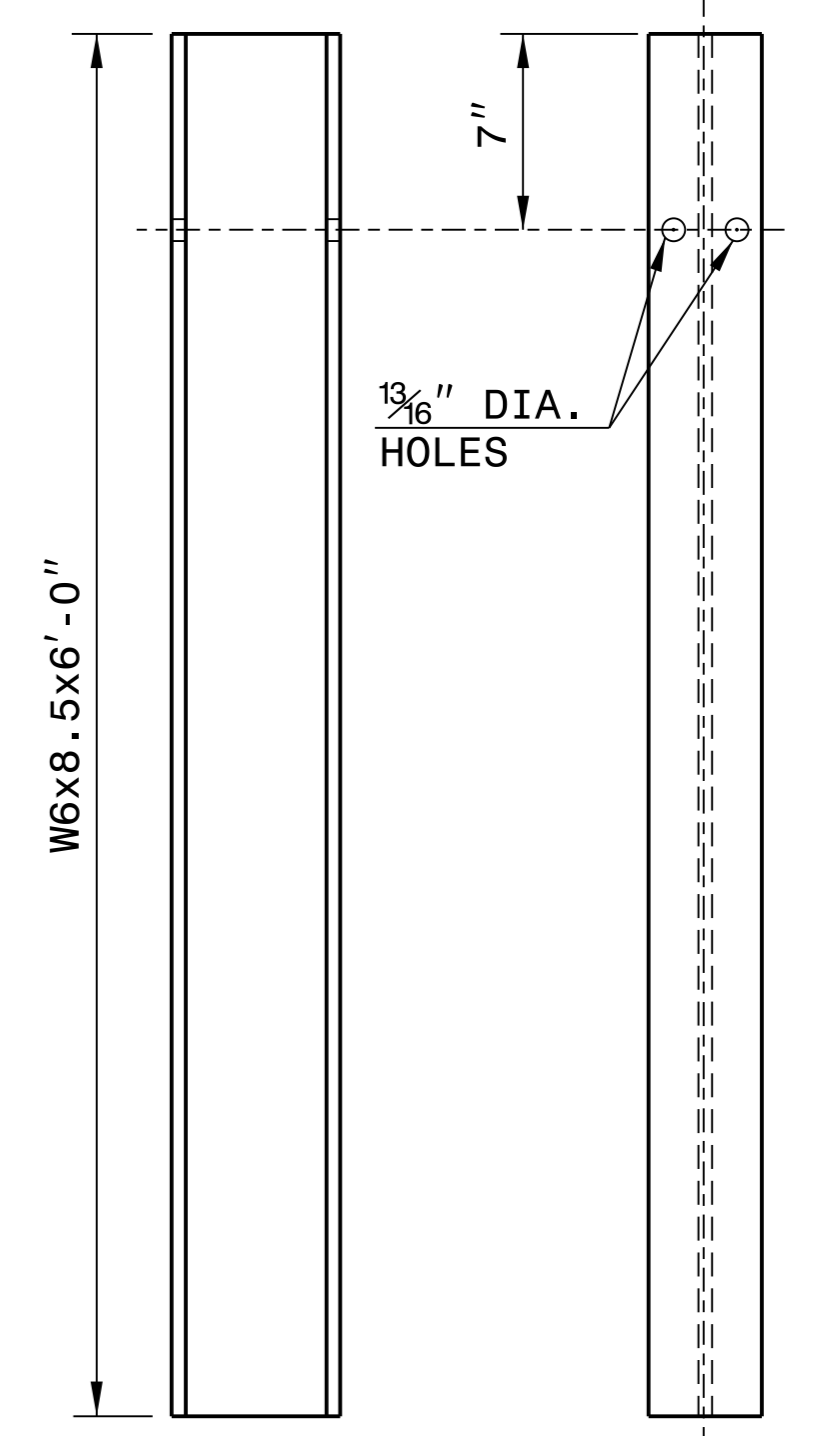


**PLAN**

**SIDE**

**FRONT**

**ROUTED OFFSET BLOCK**

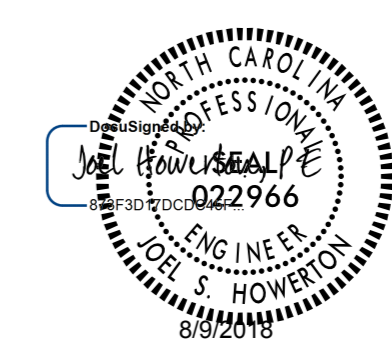


**SIDE**

**FRONT**

**"W6" STEEL POST**

**SYSTEM PARTS**



**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

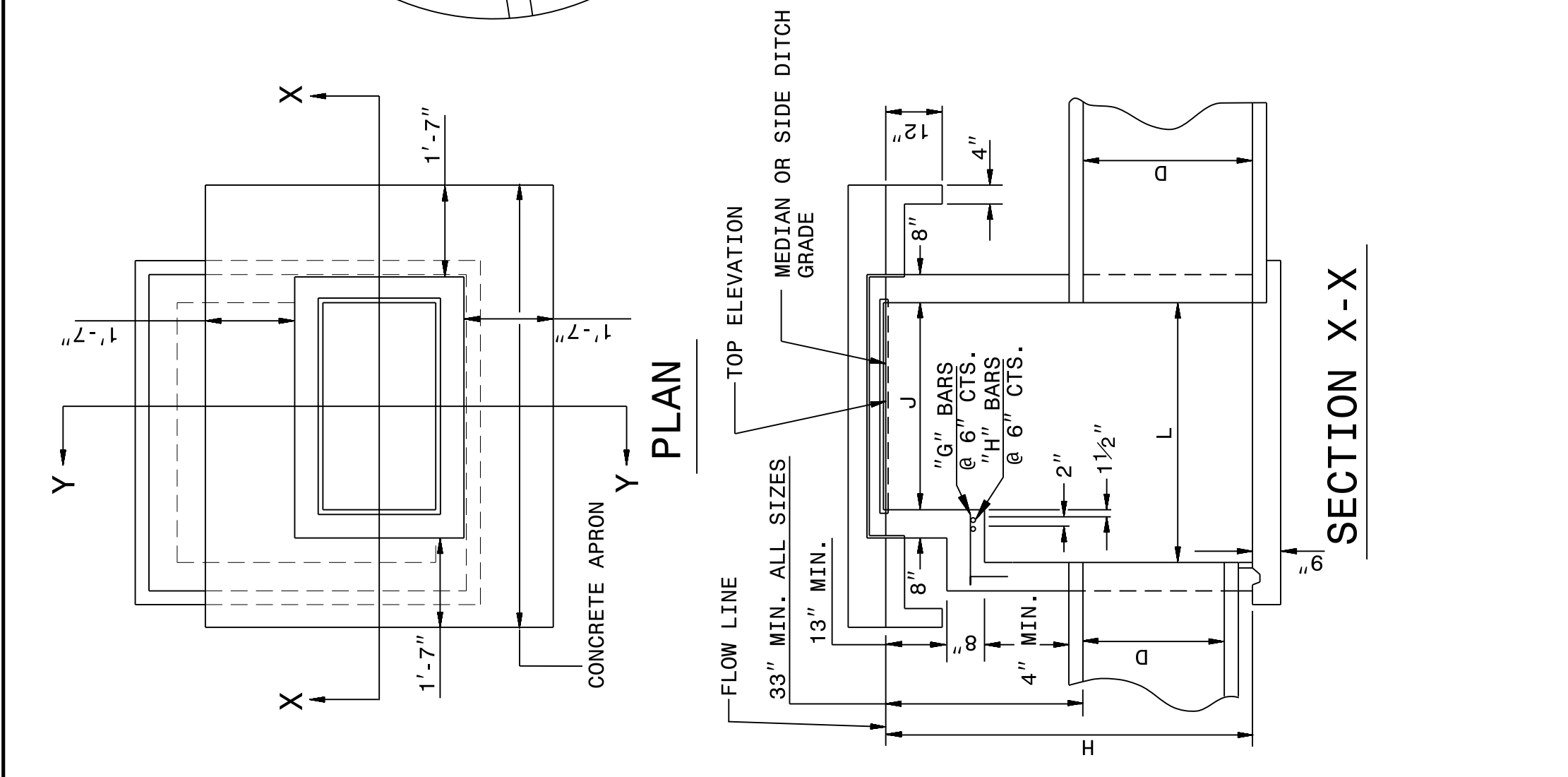
ORIGINAL BY: J. HOWERTON DATE: 3-7-2018  
MODIFIED BY: DATE: \_\_\_\_\_  
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FILE SPEC.: \_\_\_\_\_

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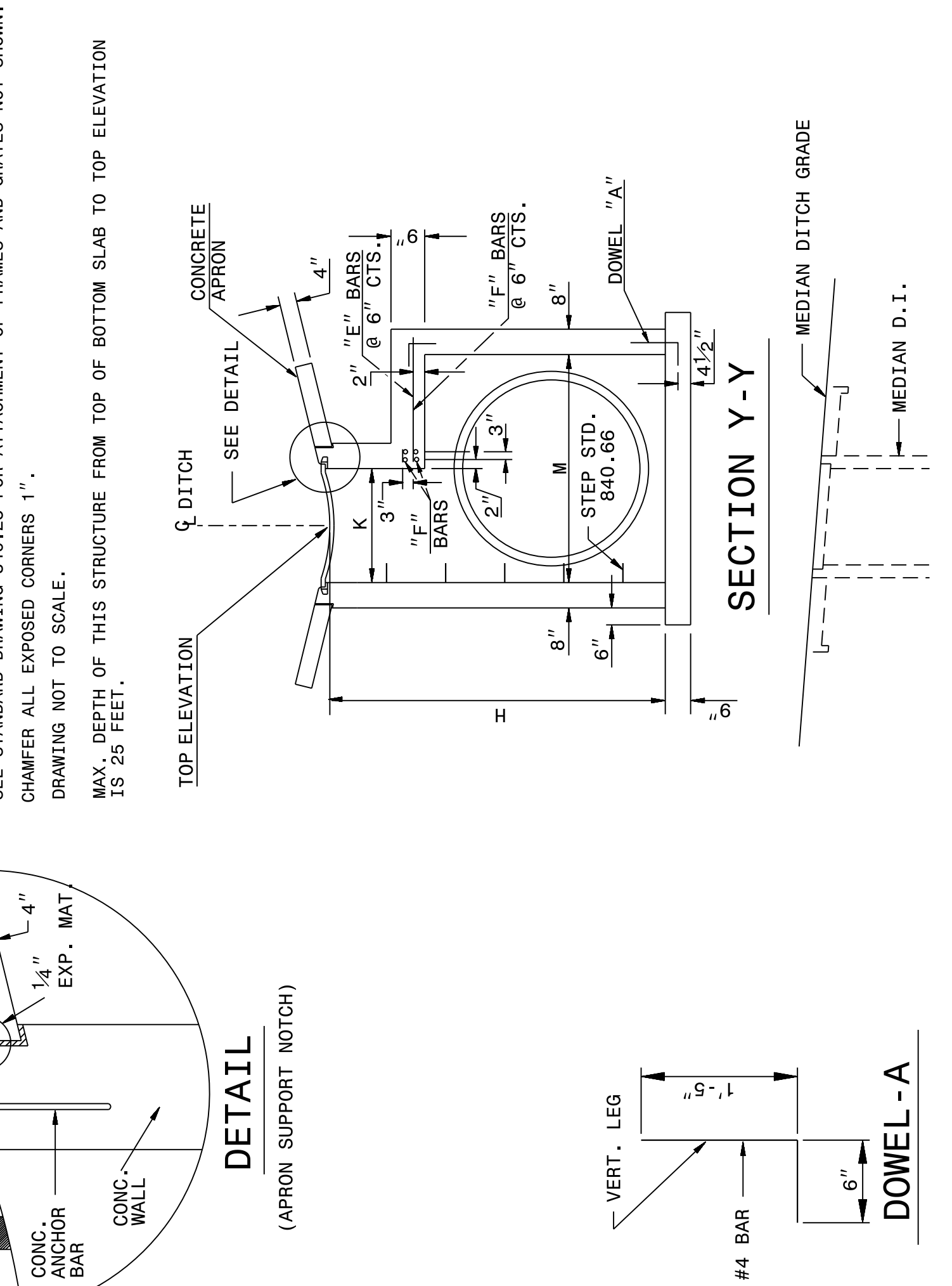
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**CONCRETE MEDIAN DROP INLET TYPE 'A'**  
EXTRA DEPTH OVER 12' TO 25'  
12" THRU 72" PIPE

SHEET 1 OF 2  
**840D17**



**GENERAL NOTES:**  
USE CLASS "B" CONCRETE THROUGHOUT.  
PROVIDE DROP INLETS WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.  
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.  
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.  
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
WHEN PAYMENT FOR THE DROP INLET IS MADE ON A PER EACH BASIS, THE CONCRETE APRON WILL BE CONSIDERED PART OF THE DROP INLET.  
CONSTRUCT WITH PIPE CROWNS MATCHING.  
USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24 (SHOWN), 840.20, 840.29, AND 840.33.  
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.  
CHAMFER ALL EXPOSED CORNERS 1".  
DRAWING NOT TO SCALE.  
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 25 FEET.



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

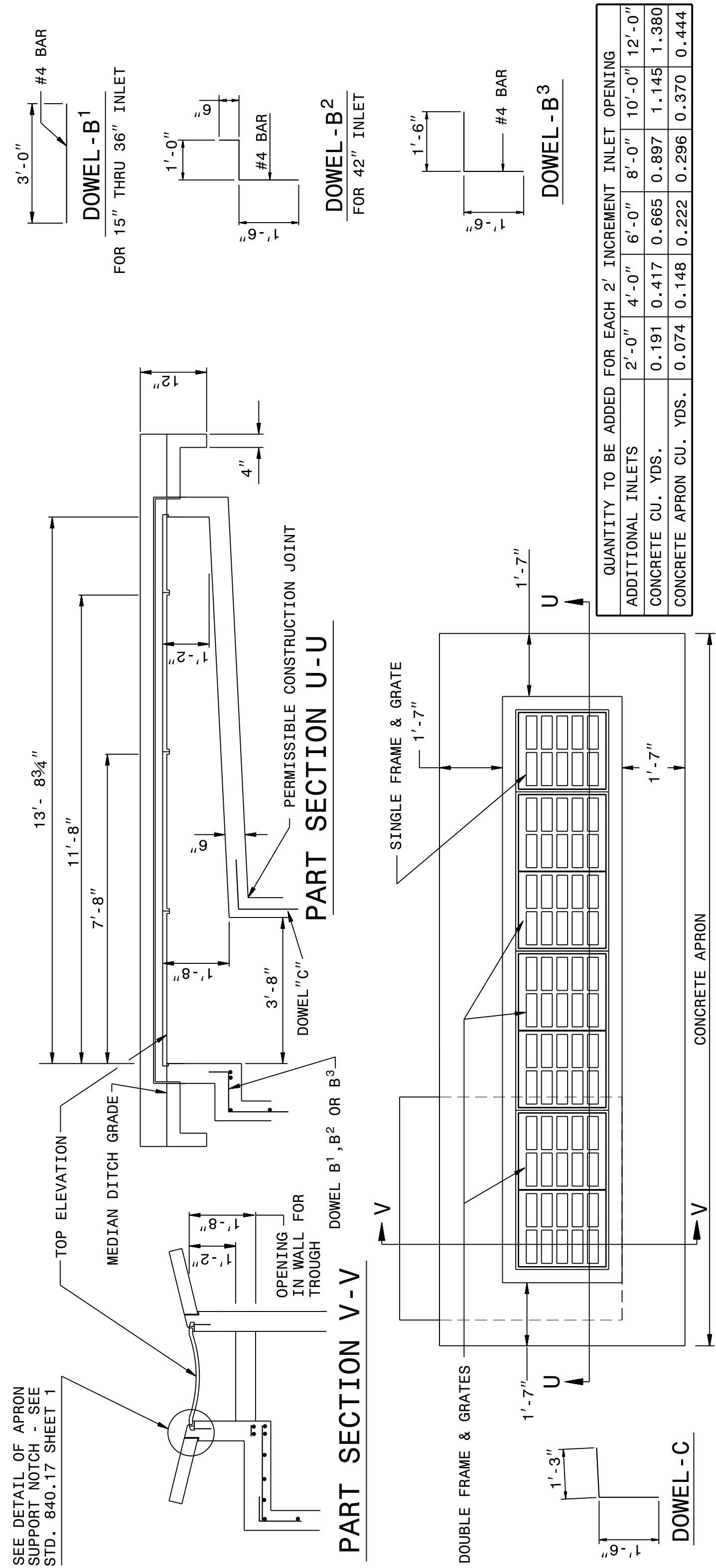
ENGLISH DETAIL DRAWING FOR  
**CONCRETE MEDIAN DROP INLET TYPE 'A'**  
EXTRA DEPTH OVER 12' TO 25'  
12" THRU 72" PIPE

SHEET 1 OF 2  
**840D17**

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

ENGLISH DETAIL DRAWING FOR  
**CONCRETE MEDIAN DROP INLET TYPE 'A'**  
EXTRA DEPTH OVER 12' TO 25'  
12" THRU 72" PIPE

SHEET 2 OF 2  
**840D17**



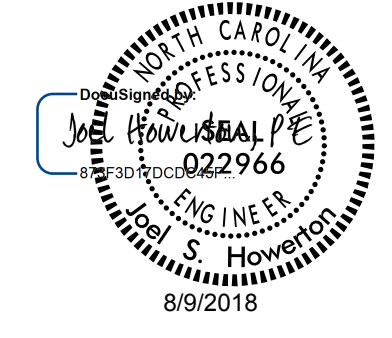
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DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**CONCRETE MEDIAN DROP INLET TYPE 'A'**  
EXTRA DEPTH OVER 12' TO 25'  
12" THRU 72" PIPE

SHEET 2 OF 2  
**840D17**

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET (BASED ON MIN. HEIGHT, H)																	
DIMENSIONS OF BOX AND PIPE		REINFORCING STEEL - NO. 4 BARS				CU YDS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE							
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E	BARS F	BARS G	BARS H	TOTAL	H PER	APRON	TOTAL	C. S.	R. C.		
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	FT	FT		
12"	3'-8"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	0.362	0.926	0.247	0.395	1.683	0.015	0.024
15"	3'-8"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	0.362	0.988	0.247	0.395	1.745	0.023	0.036
18"	—	—	—	—	4'-3"	—	—	—	—	—	0.362	1.050	0.247	—	1.807	0.033	0.049
24"	—	—	—	—	4'-9"	8	1'-5"	6	4'-9"	—	0.444	1.362	0.278	—	2.201	0.059	0.085
30"	—	—	—	—	5'-3"	8	2'-0"	7	4'-9"	—	0.502	1.644	0.288	—	2.541	0.092	0.127
36"	—	—	—	—	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	47	0.560	1.931	0.321
42"	—	—	—	—	6'-3"	10	3'-1"	9	5'-7"	3	1'-5"	3	5'-7"	67	0.704	2.500	0.370
48"	—	—	—	—	6'-9"	11	3'-7"	10	6'-1"	4	1'-11"	4	6'-1"	87	0.823	3.013	0.407
54"	—	—	—	—	7'-3"	12	4'-1"	11	6'-7"	5	2'-5"	5	6'-7"	107	0.951	3.589	0.444
60"	—	—	—	—	7'-9"	13	4'-9"	12	7'-3"	6	3'-1"	6	7'-3"	135	1.311	4.539	0.494
66"	—	—	—	—	8'-3"	14	5'-4"	14	7'-10"	7	3'-7"	7	7'-10"	188	1.136	5.061	0.537
72"	—	—	—	—	8'-9"	15	5'-11"	15	8'-5"	4	4'-3"	8	8'-5"	199	1.500	5.860	0.560

QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING	
ADDITIONAL INLETS	2'-0" 4'-0" 6'-0" 8'-0" 10'-0" 12'-0"
CONCRETE CU. YDS.	0.191 0.417 0.665 0.897 1.145 1.380
CONCRETE APRON CU. YDS.	0.074 0.148 0.222 0.296 0.370 0.444



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**SEE PLATE FOR TITLE**

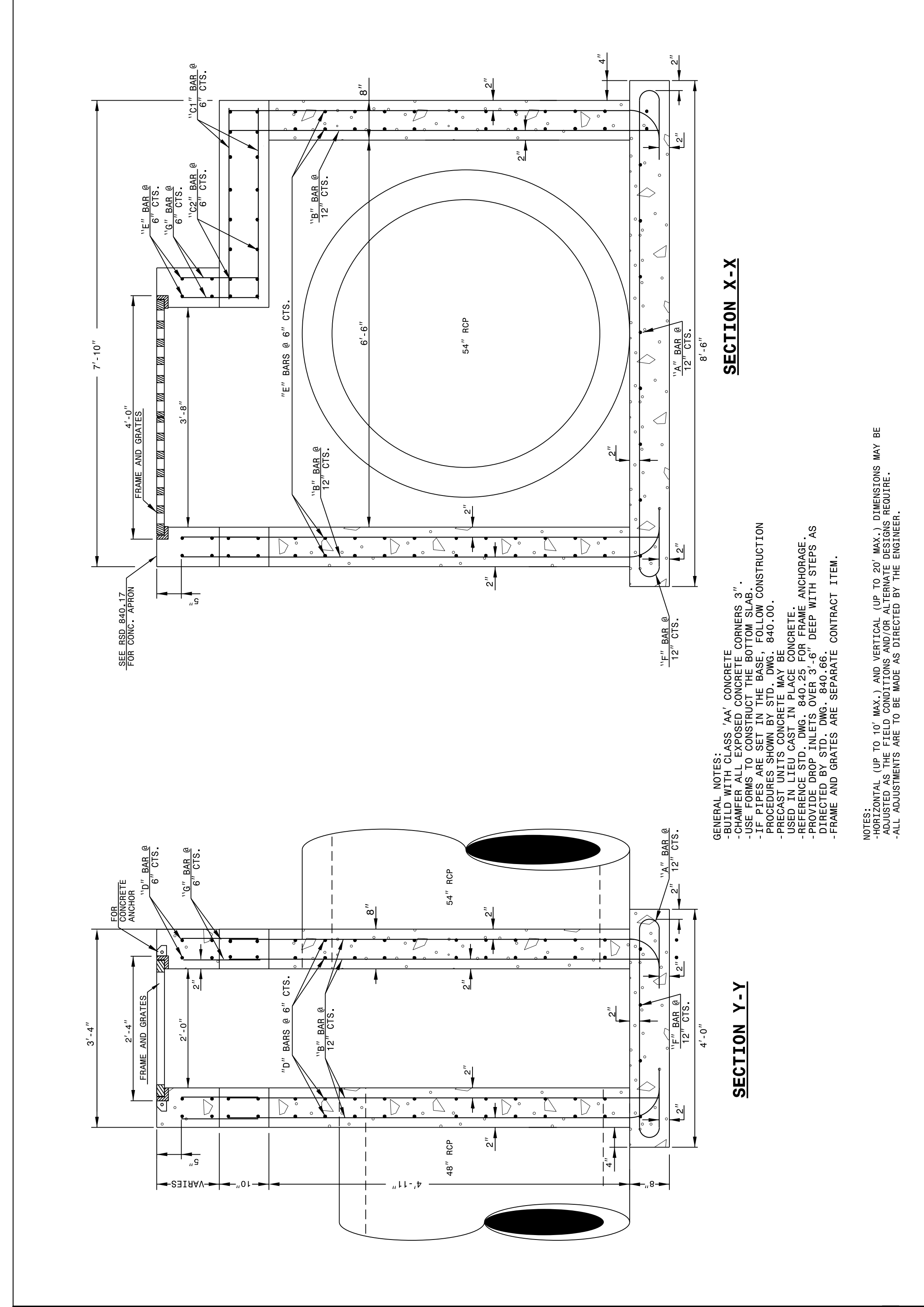
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MODIFIED BY: K.A. KEMPF DATE: 07-06-09  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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15-FEB-2018 10:11  
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 Jhoverton AT\_CSD-292595

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ENGLISH DETAIL DRAWING FOR  
**TRAFFIC BEARING GRATED INLET**  
 FOR PIPES UP TO 54"

SHEET 1 OF 2  
**840D35**



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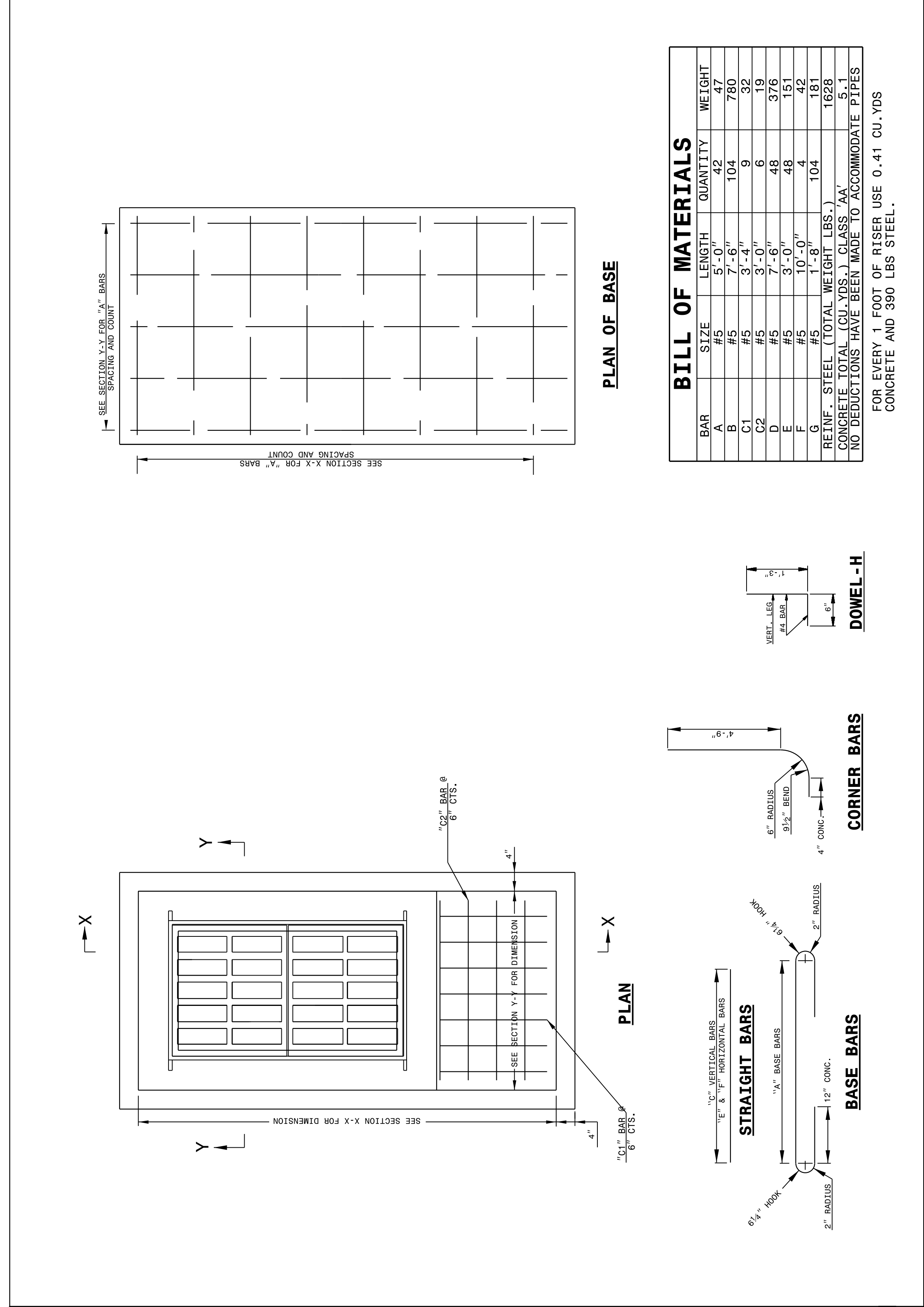
ENGLISH DETAIL DRAWING FOR  
**TRAFFIC BEARING GRATED INLET**  
 FOR PIPES UP TO 54"

SHEET 1 OF 2  
**840D35**

STATE OF NORTH CAROLINA  
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ENGLISH DETAIL DRAWING FOR  
**TRAFFIC BEARING GRATED INLET**  
 FOR PIPES UP TO 54"

SHEET 2 OF 2  
**840D35**



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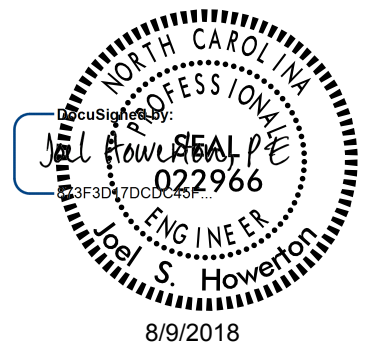
ENGLISH DETAIL DRAWING FOR  
**TRAFFIC BEARING GRATED INLET**  
 FOR PIPES UP TO 54"

SHEET 2 OF 2  
**840D35**

**BILL OF MATERIALS**

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#4	5'-0"	42	47
B	#3	7'-6"	104	790
C1	#3	3'-0"	9	32
C2	#3	3'-0"	6	19
D	#5	3'-6"	48	376
E	#5	3'-0"	48	151
F	#5	1'-0"	4	42
G	#5	1'-0"	104	181
REFIN. STEEL (TOTAL WEIGHT LBS.)				1626
CONCRETE TOTAL (CU. YDS.) CLASS. AA'				5.1
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES				

FOR EVERY 1 FOOT OF RISER USE 0.41 CU. YDS CONCRETE AND 390 LBS STEEL.

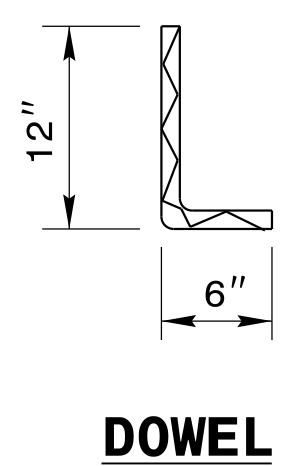
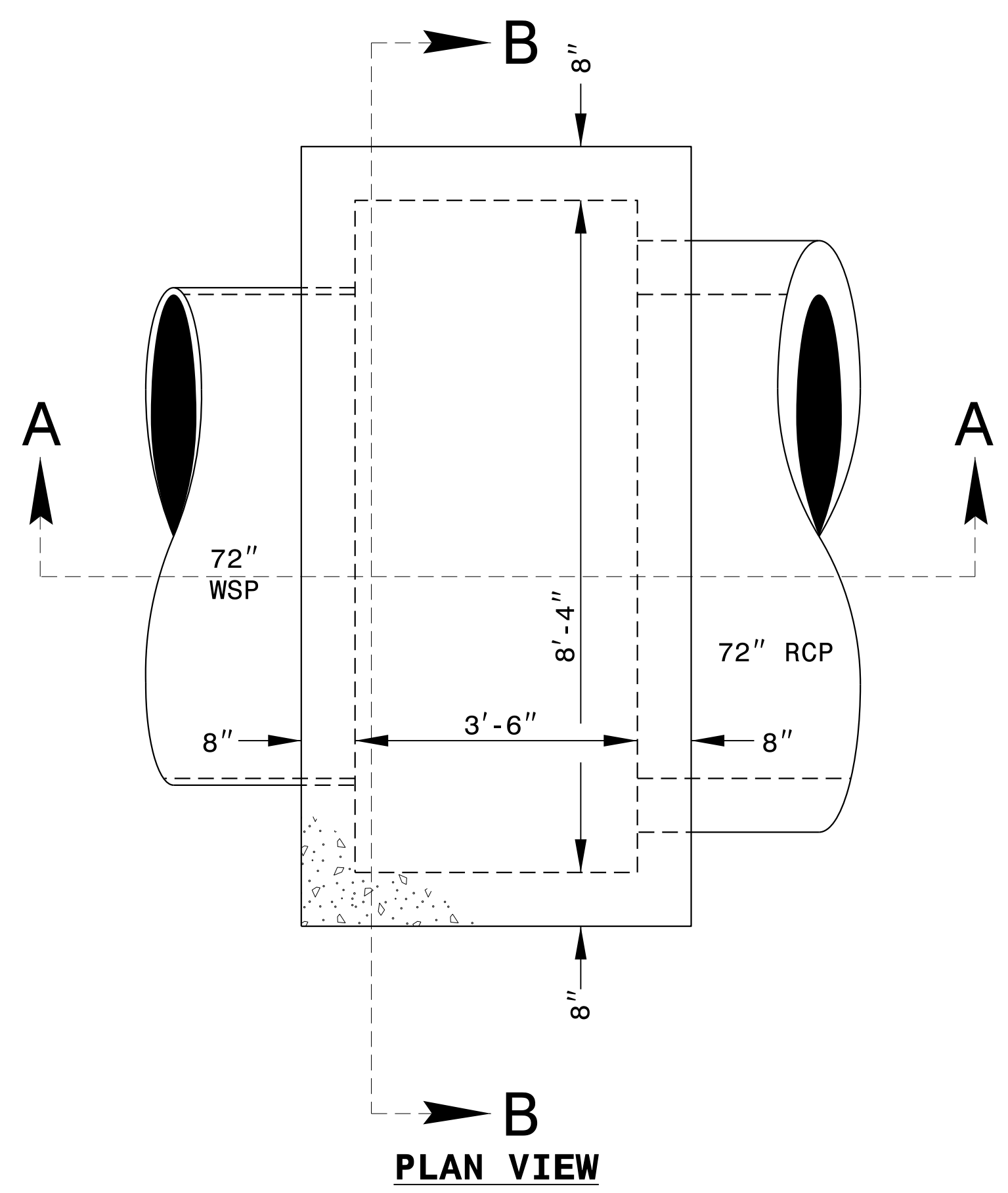


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ORIGINAL BY: K. KEMPF DATE: 03-03-2015  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.: kkempfvenglish\B5121-B5317\_840d35\_54\_TB261.dgn



**GENERAL NOTES:**

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

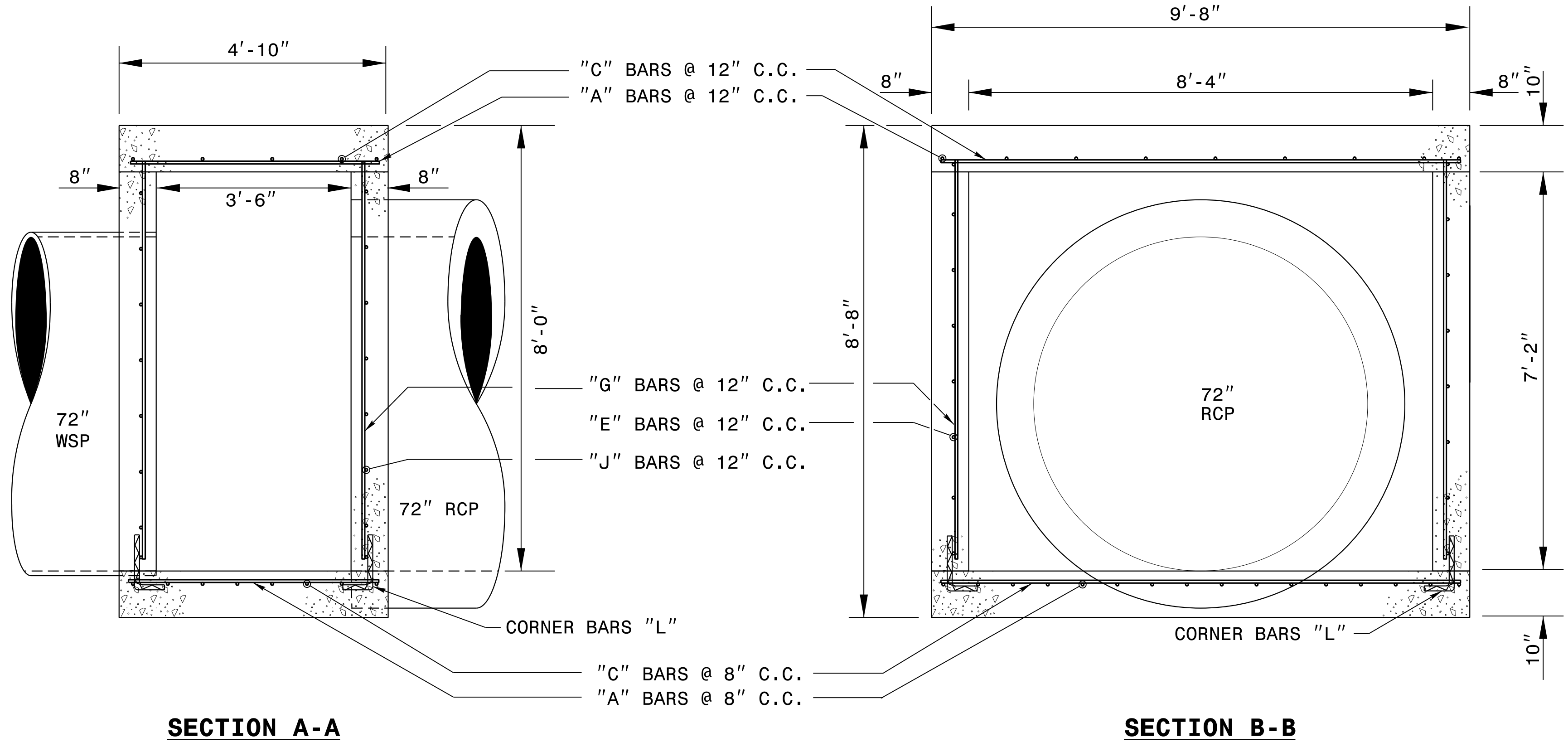
NO DEDUCTIONS HAVE BEEN MADE FOR PIPES.

CHAMFER ALL EXPOSED CORNERS 1".

BOX DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.

DRAWING NOT TO SCALE.

BILL OF MATERIAL FOR CATCH BASIN				
REINF. STEEL			1 PIPE	
BAR	SIZE	LENGTH	NO.	WEIGHT
A	#5	4'-6"	24	113
C	#5	9'-4"	13	127
E	#4	4'-0"	16	43
G	#4	7'-2"	26	124
J	#4	8'-8"	16	93
REINF. STEEL LBS.			500	
CLASS "B" CONCRETE			CU. YDS.	7.5

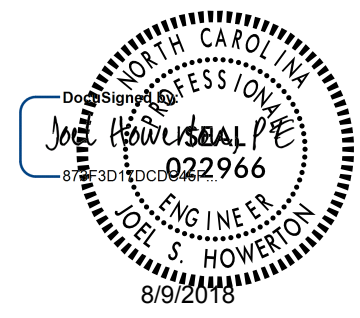


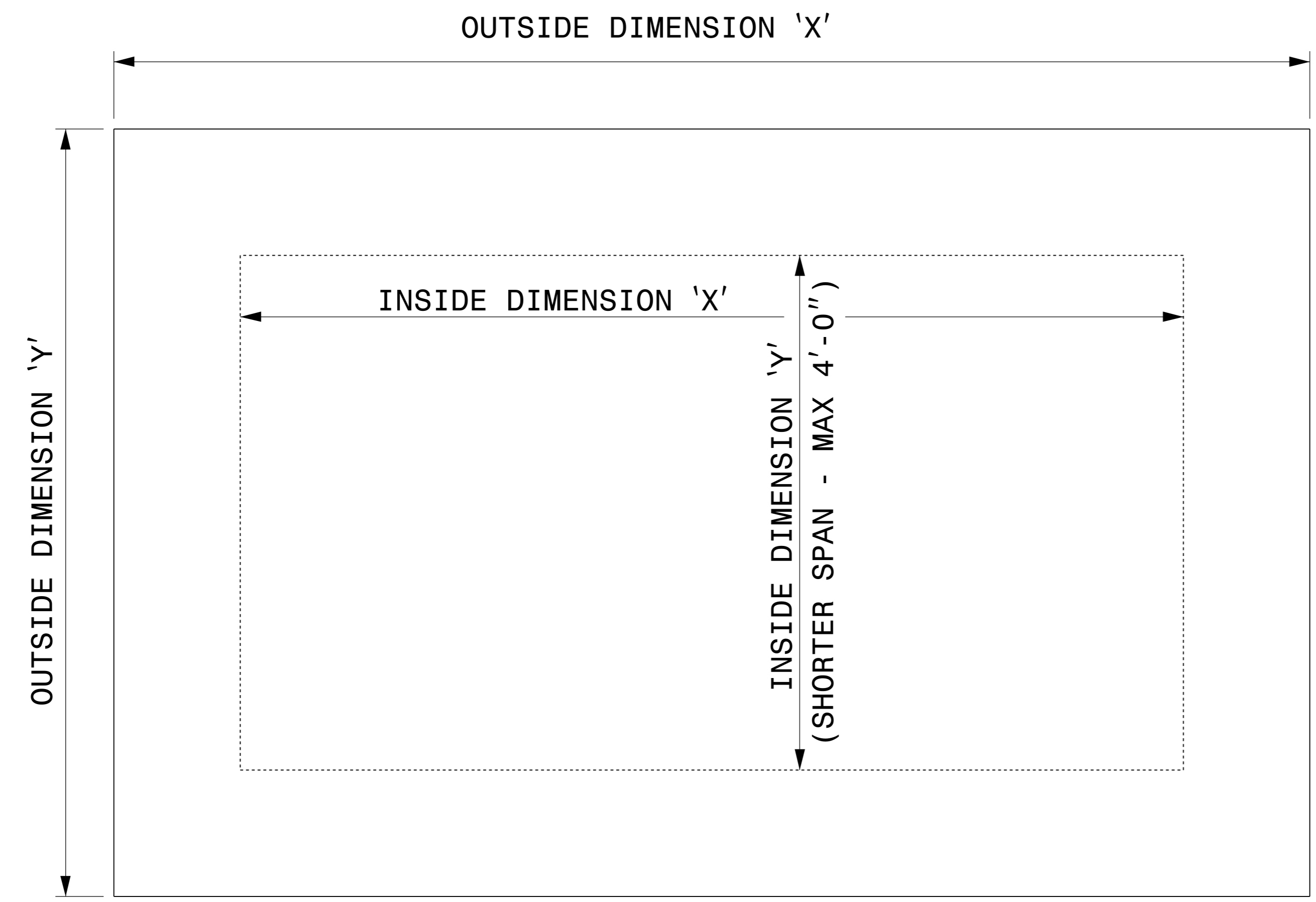
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**SPECIAL JUNCTION BOX  
W/ SLAB LID**

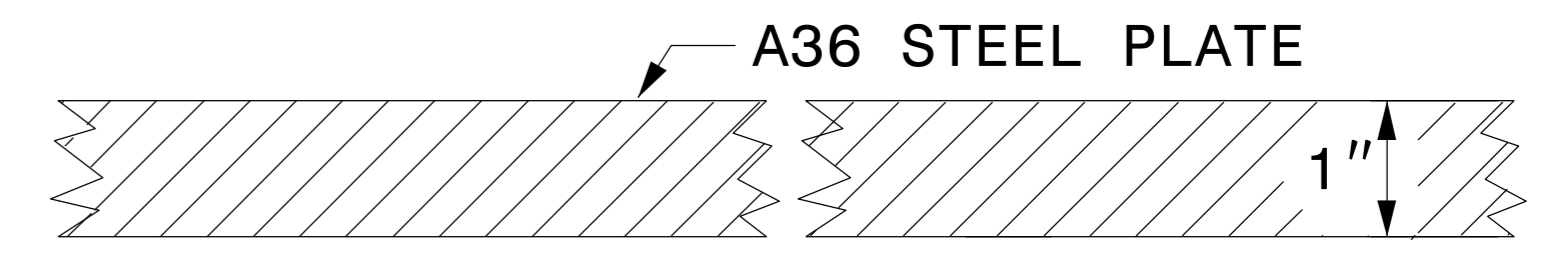
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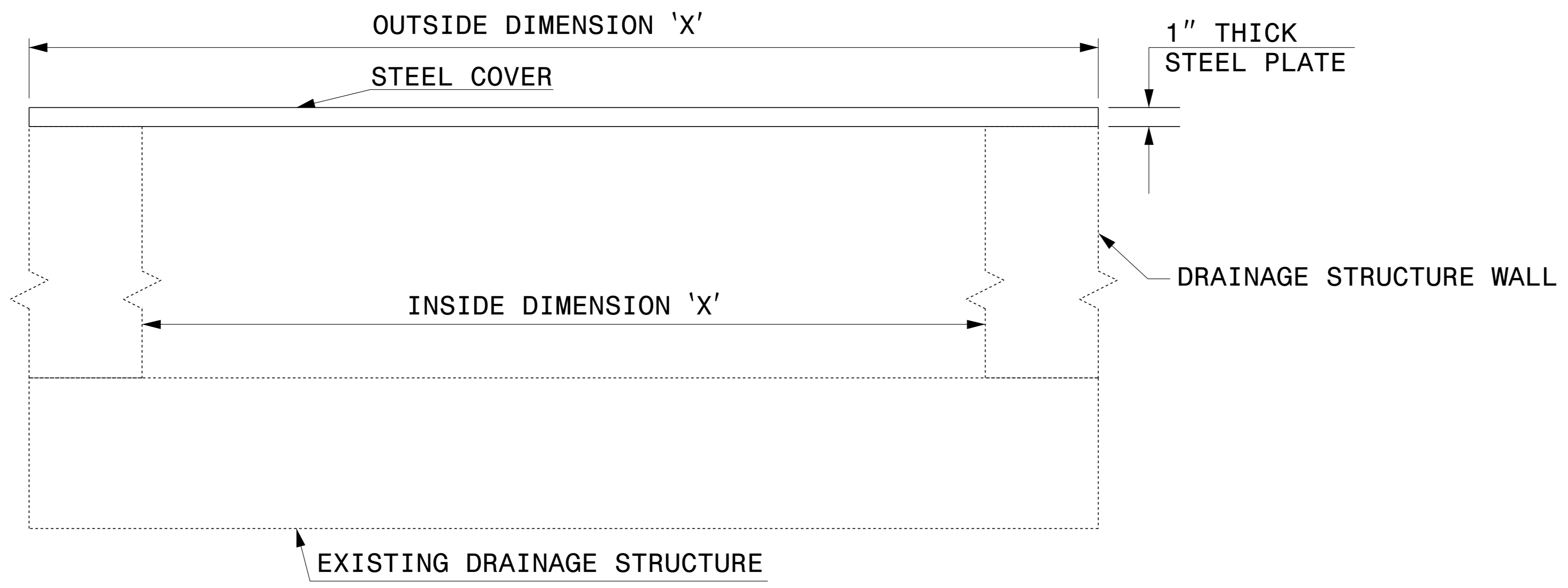
GENERAL NOTES:

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

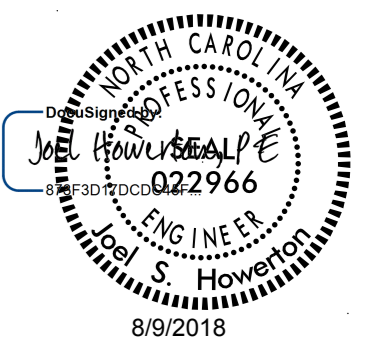


SECTION VIEW OF STEEL TOP PLATE

PLAN VIEWS



ELEVATION VIEWS



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**DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE**

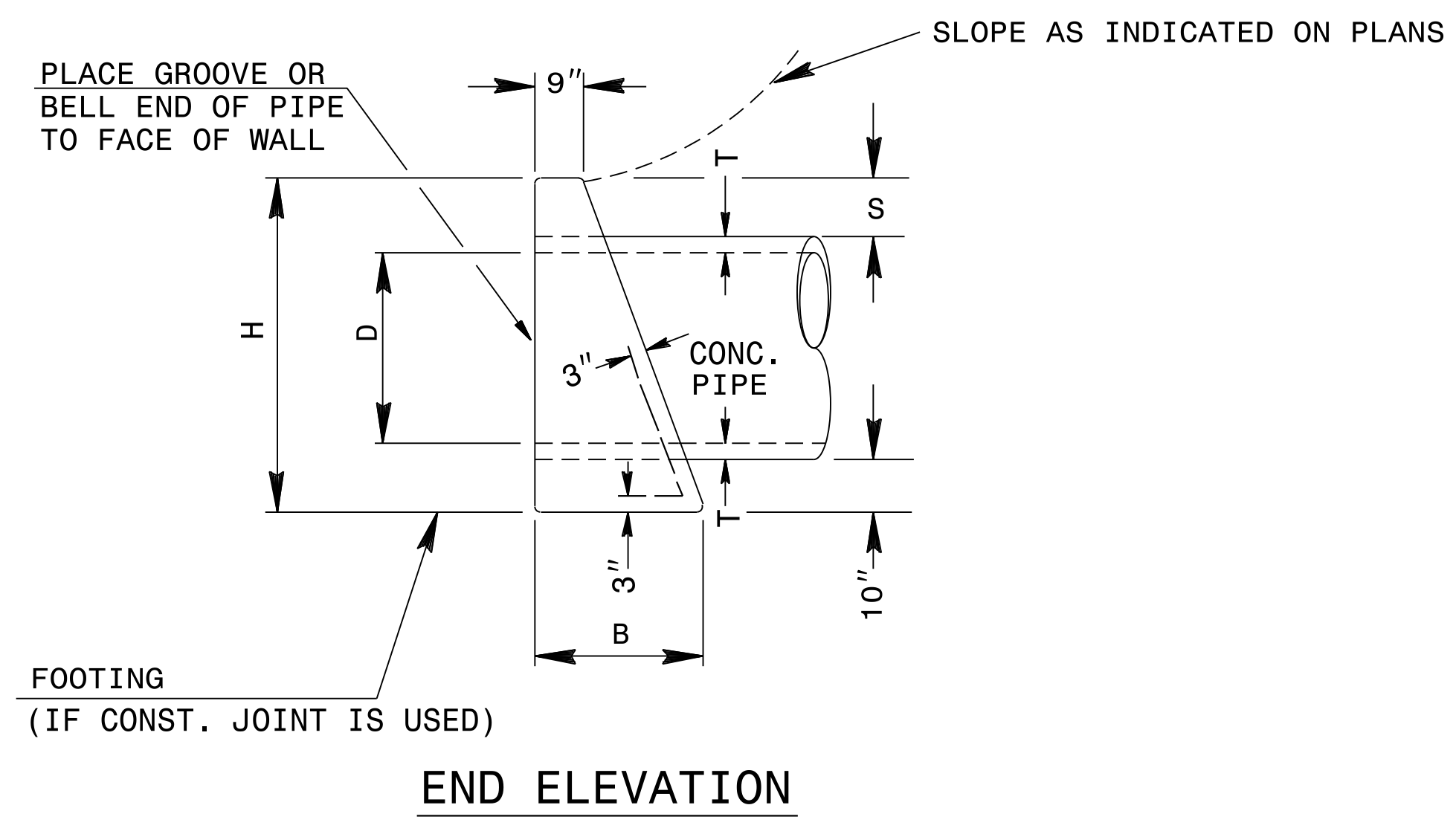
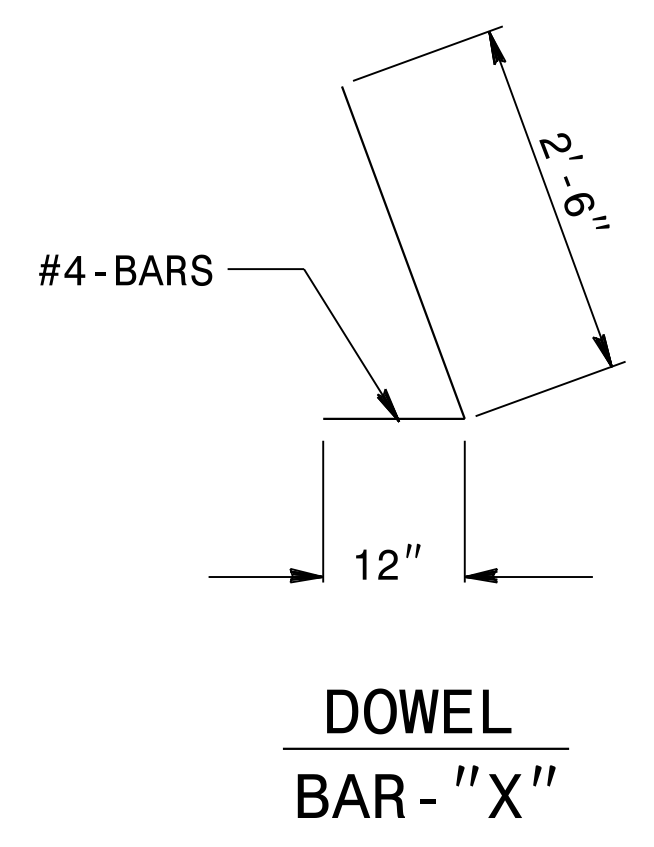
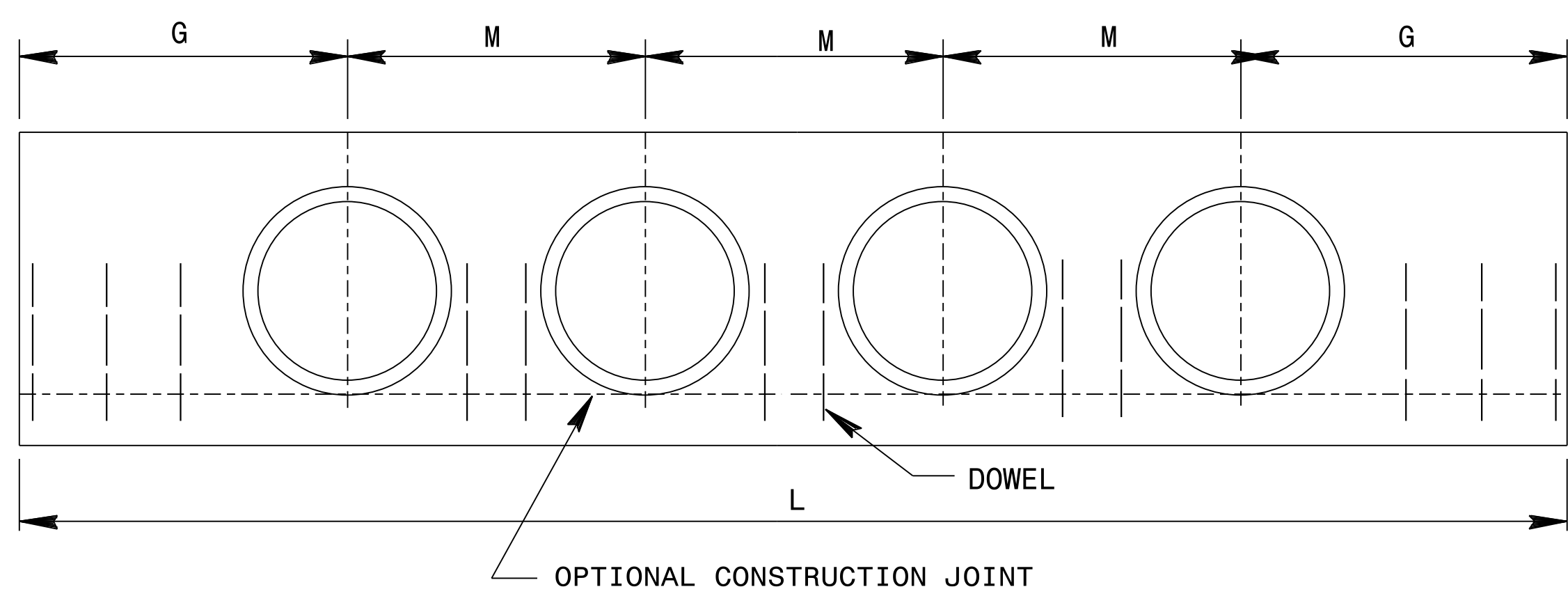
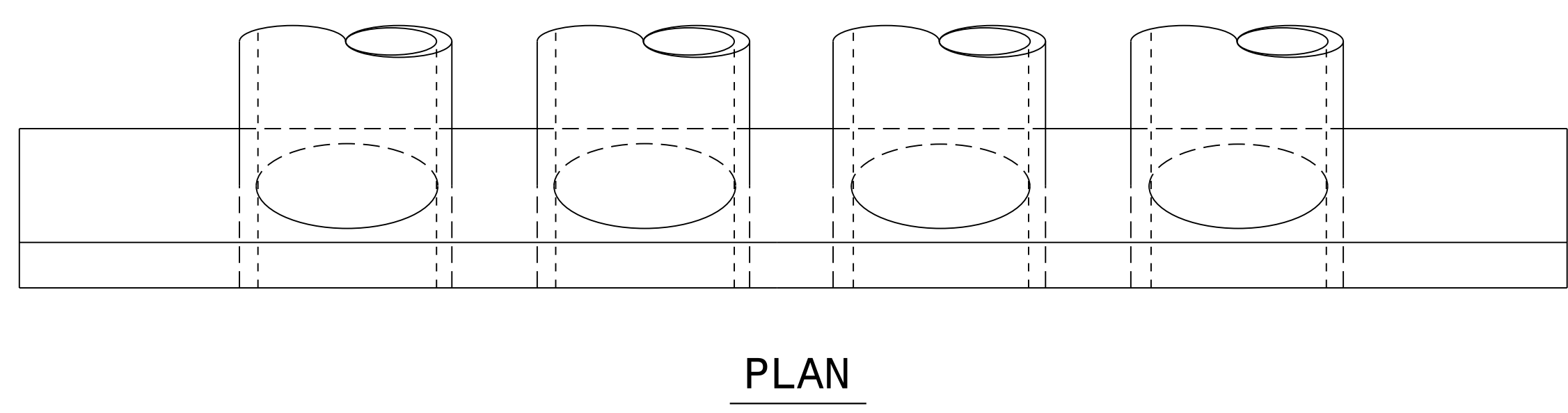
ORIGINAL BY: E.E. WARD DATE: 2-2-98  
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\$\$\$\$\$ USERNAME\$\$\$\$\$

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

ENGLISH DETAIL DRAWING FOR  
**CONCRETE ENDWALL FOR TRIPLE AND  
 QUADRUPLE PIPE CULVERTS**  
 15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 3  
**838D01**



DIMENSIONS AND CONCRETE QUANTITIES										
USING CONCRETE PIPE										
D	COMMON DIMENSIONS					TRIPLE PIPE		QUADRUPLE PIPE		
	H	B	G	T	S	L	YD <sup>3</sup>	L	YD <sup>3</sup>	M
15"	3'-3"	1'-8"	2'-9"	2 1/4"	9 1/2"	9'-10"	1.3	12'-0"	1.6	2'-2"
18"	3'-7"	1'-10"	3'-2"	2 1/2"	10"	11'-6"	1.6	14'-1"	1.9	2'-7"
24"	4'-2"	2'-1"	4'-0"	3"	10"	14'-10"	2.5	18'-3"	3.0	3'-5"
30"	5'-0"	2'-6"	4'-7"	4 1/4"	11 1/2"	17'-8"	3.9	21'-11"	4.7	4'-3"
36"	5'-8"	2'-8"	5'-6"	4 3/4"	12 1/2"	21'-0"	5.6	26'-0"	6.7	5'-0"
42"	6'-2"	3'-1"	6'-4"	5 1/4"	11 1/2"	24'-4"	7.5	30'-2"	9.0	5'-10"
48"	6'-9"	3'-5"	7'-2"	5 3/4"	11 1/2"	27'-8"	10.0	34'-4"	12.0	6'-8"

\* NOTE: SEE ROADWAY STANDARD DRAWING 838.01 SHEET 3 OF 3 FOR GENERAL NOTES

DOWELS IN ENDWALL WITH REINFORCED CONCRETE PIPE																	
LOC.	PIPE DIA.	TRIPLE PIPE						QUADRUPLE PIPE									
		15"	18"	24"	30"	36"	42"	15"	18"	24"	30"	36"	42"	48"			
	BARS	"X"	"X"	"X"	"X"	"X"	Y*	"X"	Y*	"X"	"X"	"X"	"X"	"X"	Y*	"X"	Y*
G	QTY.	2	2	3	3	4	4	5	2	2	3	3	4	4	5	5	
M(s)	QTY.	2	2	4	4	4	4	6	2	3	3	6	6	6	2	9	2
G	QTY.	2	2	3	3	4	4	5		2	2	3	3	4	4	5	
TOTAL LBS.		14	14	23	23	28	100	119		17	17	28	28	33	122	147	

STATE OF NORTH CAROLINA  
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ENGLISH DETAIL DRAWING FOR  
**CONCRETE ENDWALL FOR TRIPLE AND  
 QUADRUPLE PIPE CULVERTS**  
 15" THRU 48" PIPE - 90° SKEW

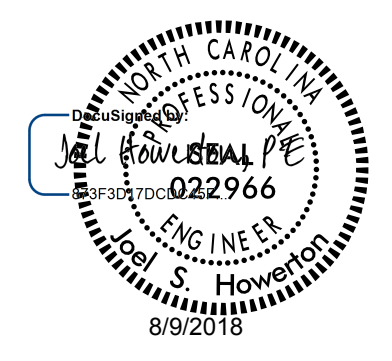
SHEET 1 OF 3  
**838D01**

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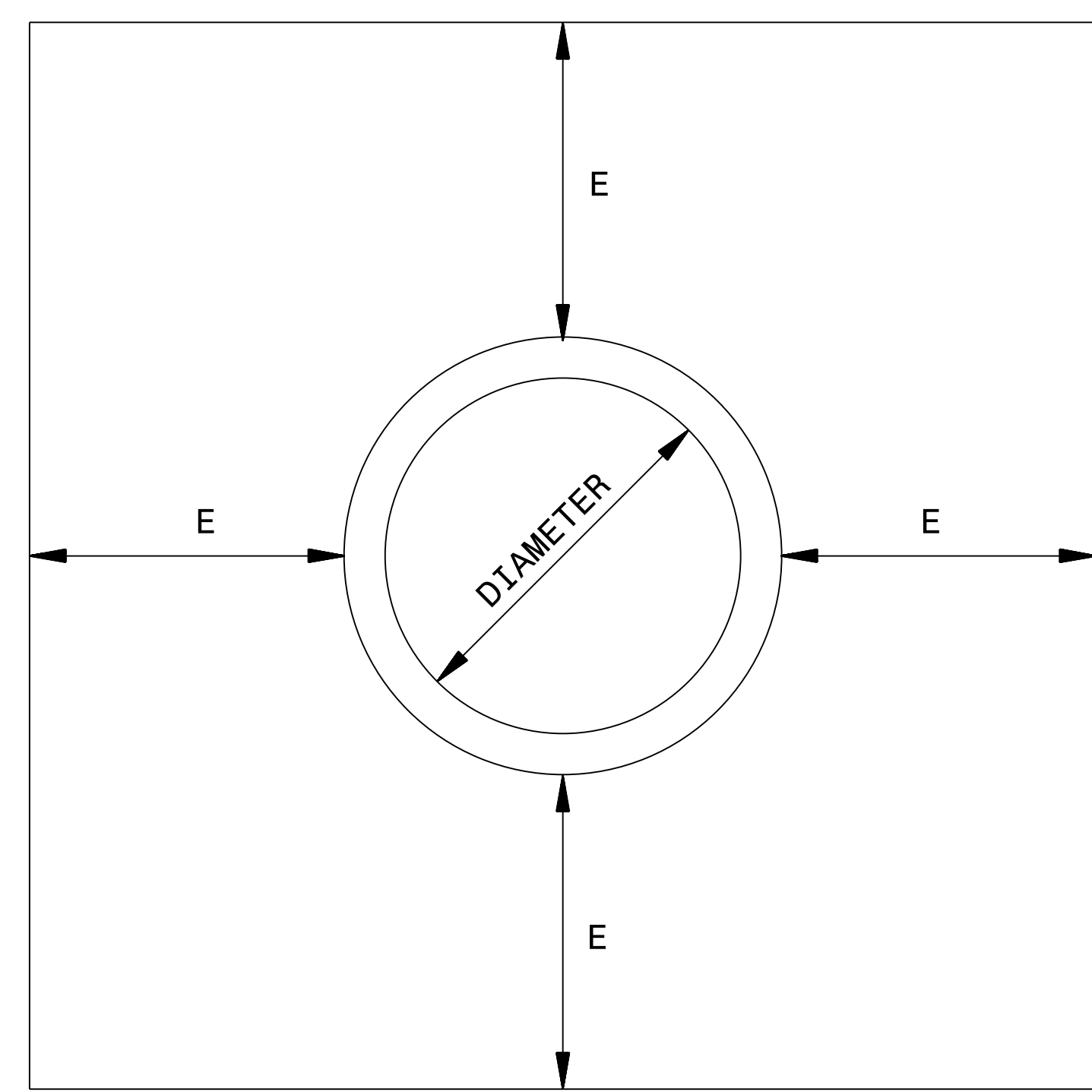
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 MODIFIED BY: K.A. Kempf DATE: \_\_\_\_\_  
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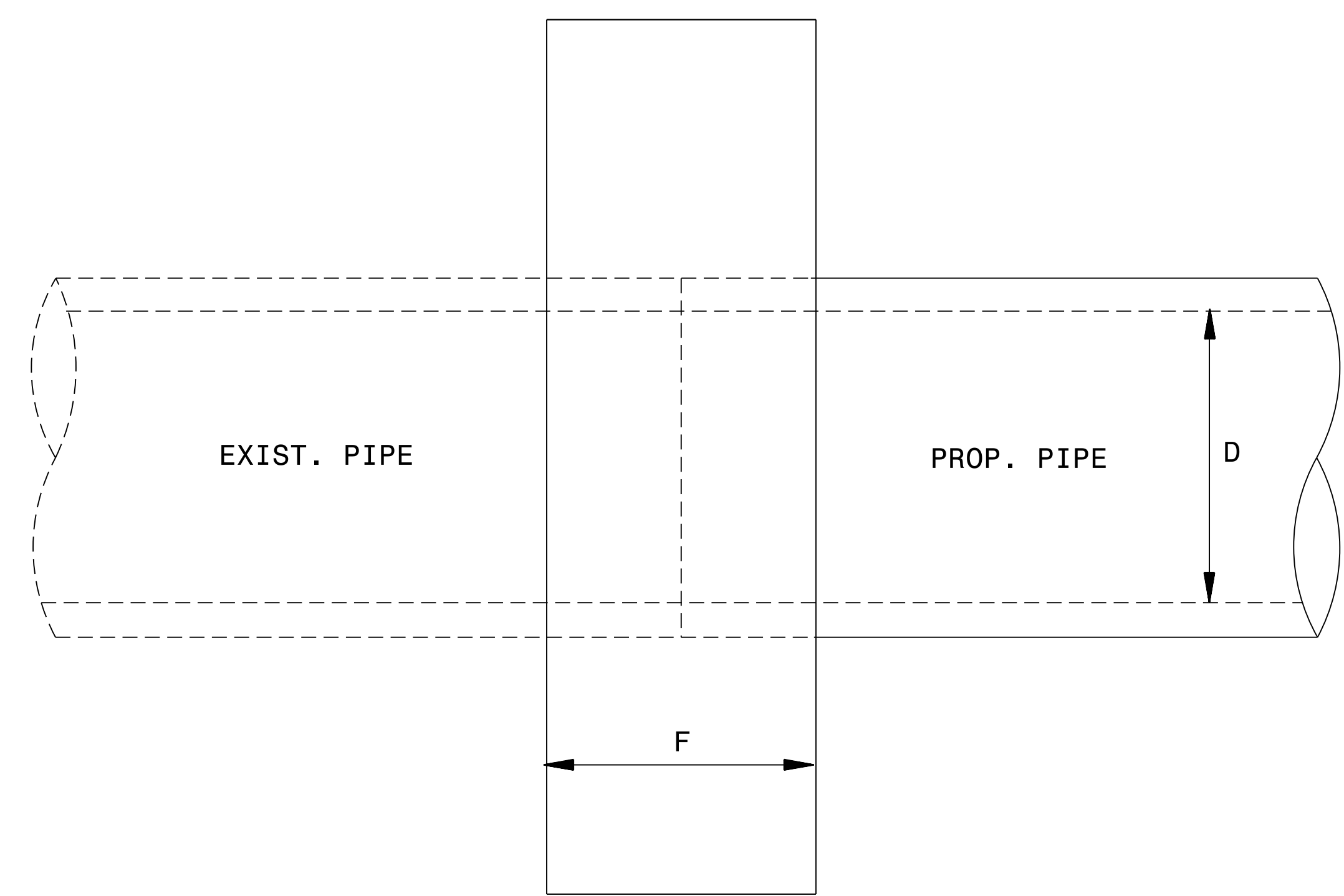
ROADWAY DETAIL DRAWING FOR  
**PIPE COLLAR**

SHEET 1 OF 1  
**840D72**



**ELEVATION**

GENERAL NOTES:  
 USE PIPE COLLAR FOR EXTENDING EXISTING CONCRETE PIPE CULVERTS AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. THIS INCLUDES EXTENDING EXISTING PIPES WITH PIPES OF DIFFERENT MATERIALS.  
 CONSTRUCT THE PIPE COLLAR WITH CLASS "B" OR BETTER CONCRETE.  
 OBSERVE ALL REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.  
 \* USE 12 INCH DIAMETER VALUES FOR PIPE DIAMETERS LESS THAN 12 INCH.



**SIDE ELEVATION**

D	E	F	CU. YD.
12"	12"	24"	0.7056
15"	12"	24"	0.7980
18"	12"	24"	0.8930
24"	12"	24"	0.5526
30"	12"	24"	1.1052
36"	12"	24"	1.5280
42"	12"	24"	1.7712
48"	12"	24"	2.0252
54"	18"	30"	4.2988
60"	18"	30"	4.7520
66"	18"	30"	5.2189
72"	18"	30"	5.6971

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ROADWAY DETAIL DRAWING FOR  
**PIPE COLLAR**

SHEET 1 OF 1  
**840D72**

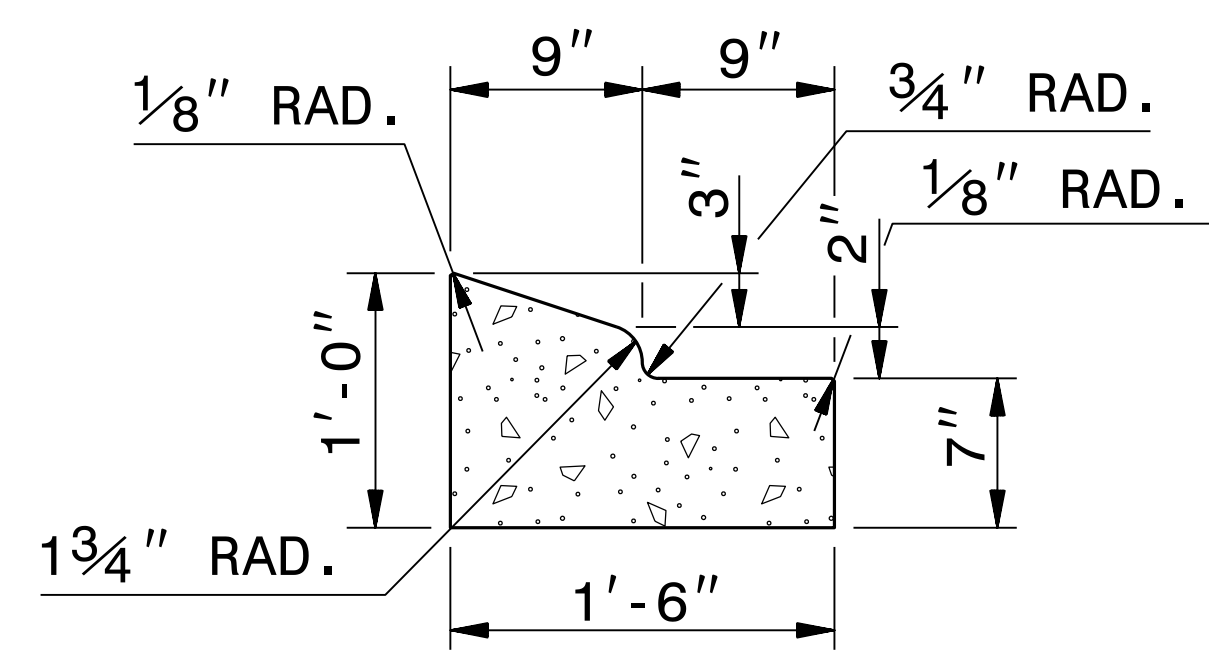
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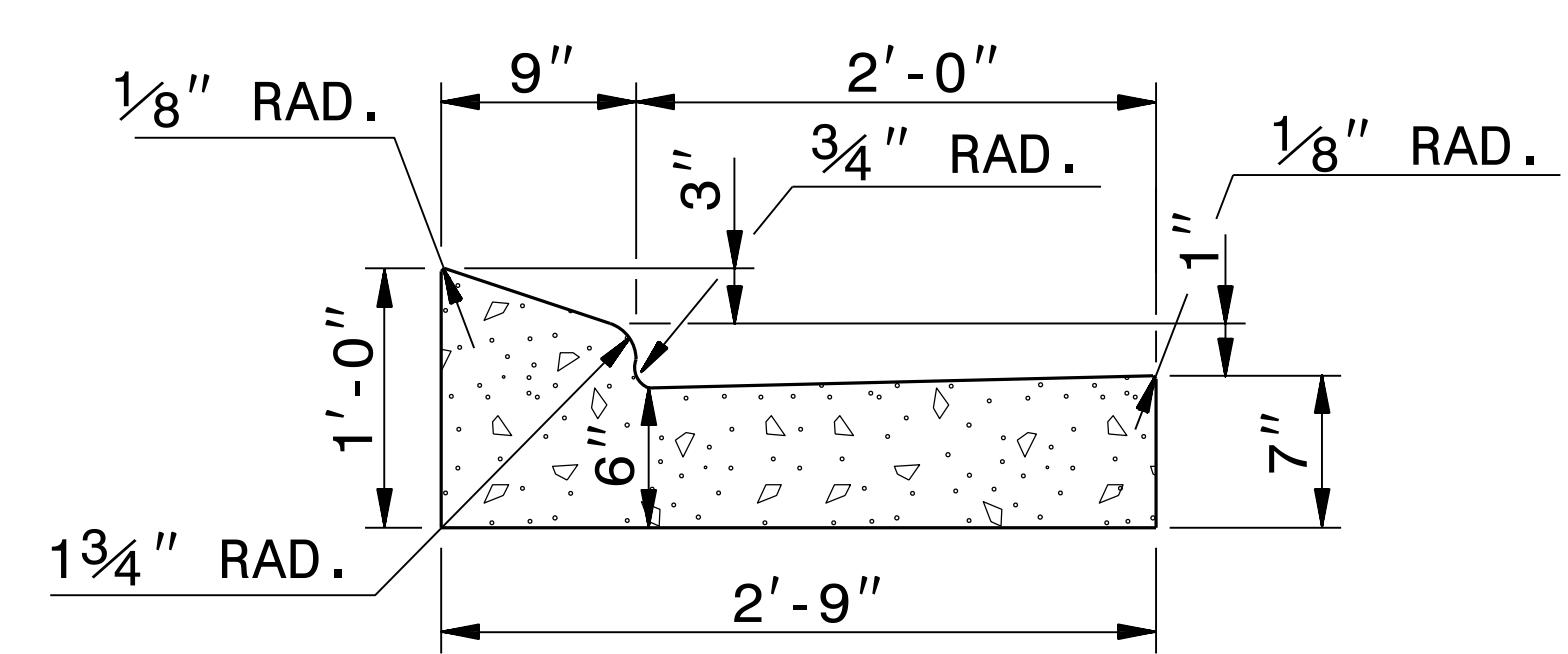
CONTRACTS STANDARDS  
AND DEVELOPMENT UNIT  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE PLATE**

ORIGINAL BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 MODIFIED BY: K.KEMPF DATE: 4/23/2018  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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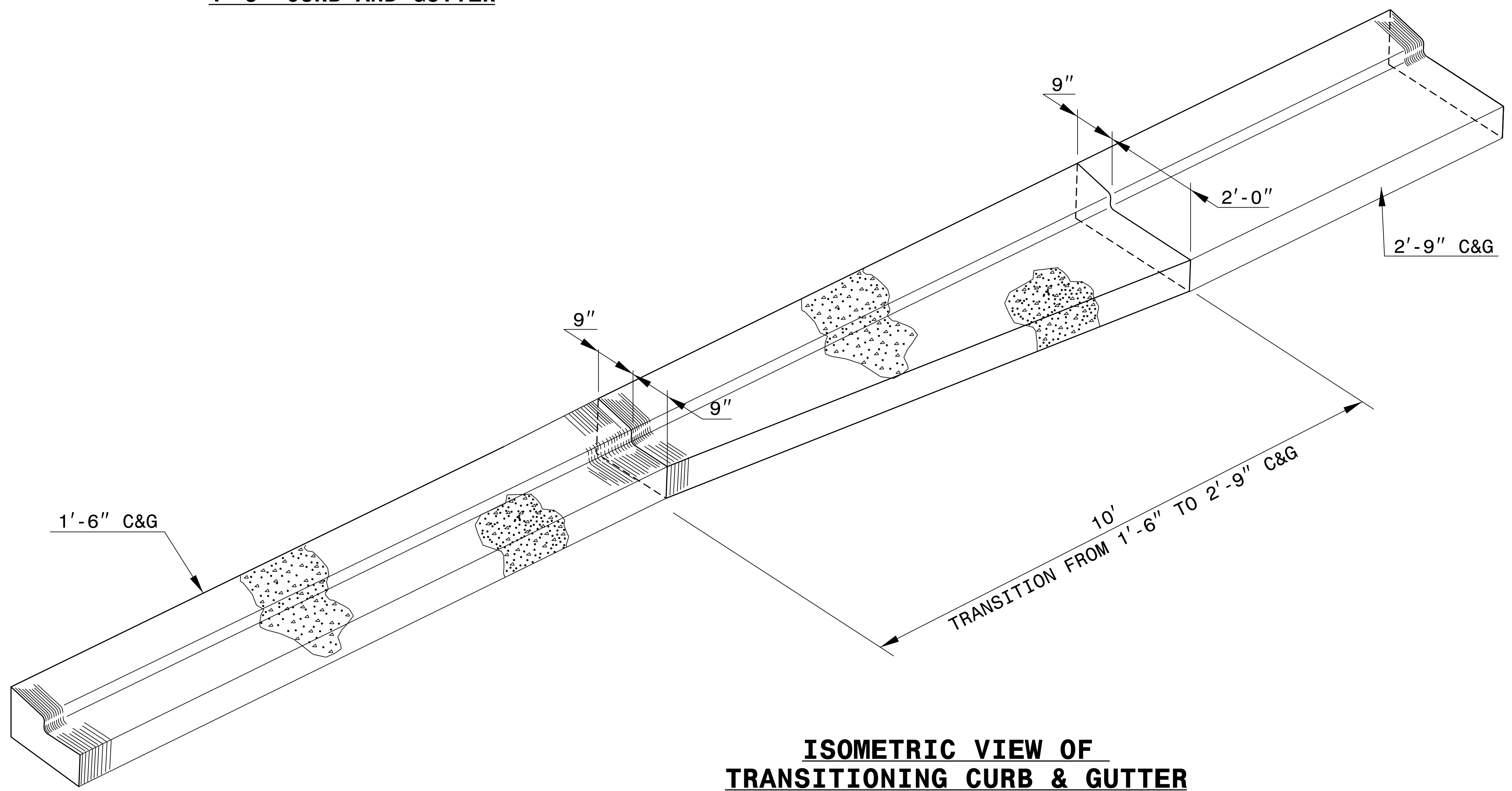
**1'-6" CURB AND GUTTER**



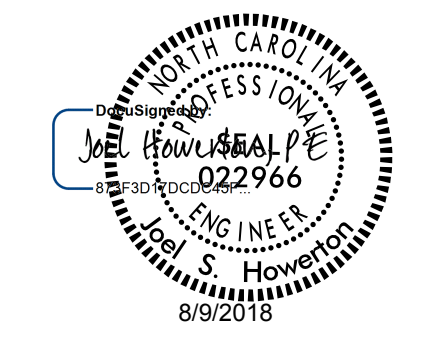
**2'-9" CURB AND GUTTER**

NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



**ISOMETRIC VIEW OF  
TRANSITIONING CURB & GUTTER**



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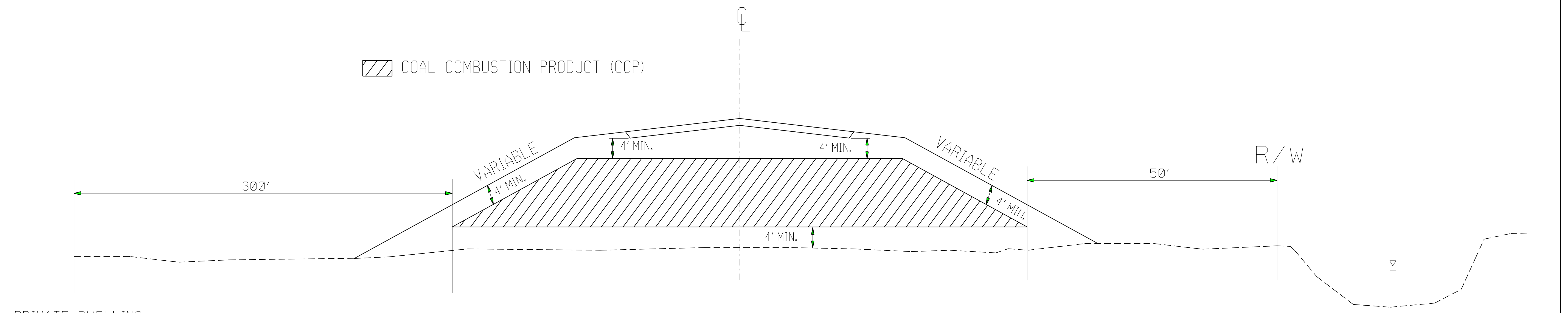
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**DETAIL OF 1'-6"  
TO 2'-9" CURB & GUTTER  
TRANSITION SECTION**

ORIGINAL BY: T.S.SPELL DATE: NOV. 26, 2001  
 MODIFIED BY: T.S.SPELL DATE: JAN. 23, 2007  
 CHECKED BY: DATE:  
 FILE SPEC.: DS174:/usr/details/stand/cotrtransit.dgn



# COAL COMBUSTION PRODUCT PLACEMENT



PRIVATE DWELLING OR WELL

PERENNIAL STREAM, OTHER SURFACE WATER BODY OR \*WETLAND

\*(OBTAIN PERMISSION FROM ARMY CORPS OF ENGINEERS)

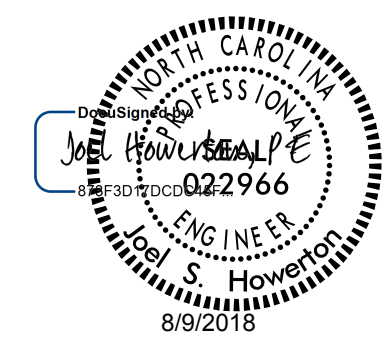
PLACE CCP IN HATCHED AREA IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS

PLACE CCP A MINIMUM OF 5' ABOVE SEASONAL HIGH GROUND WATER

PLACE AT LOCATIONS AS APPROVED BY THE ENGINEER

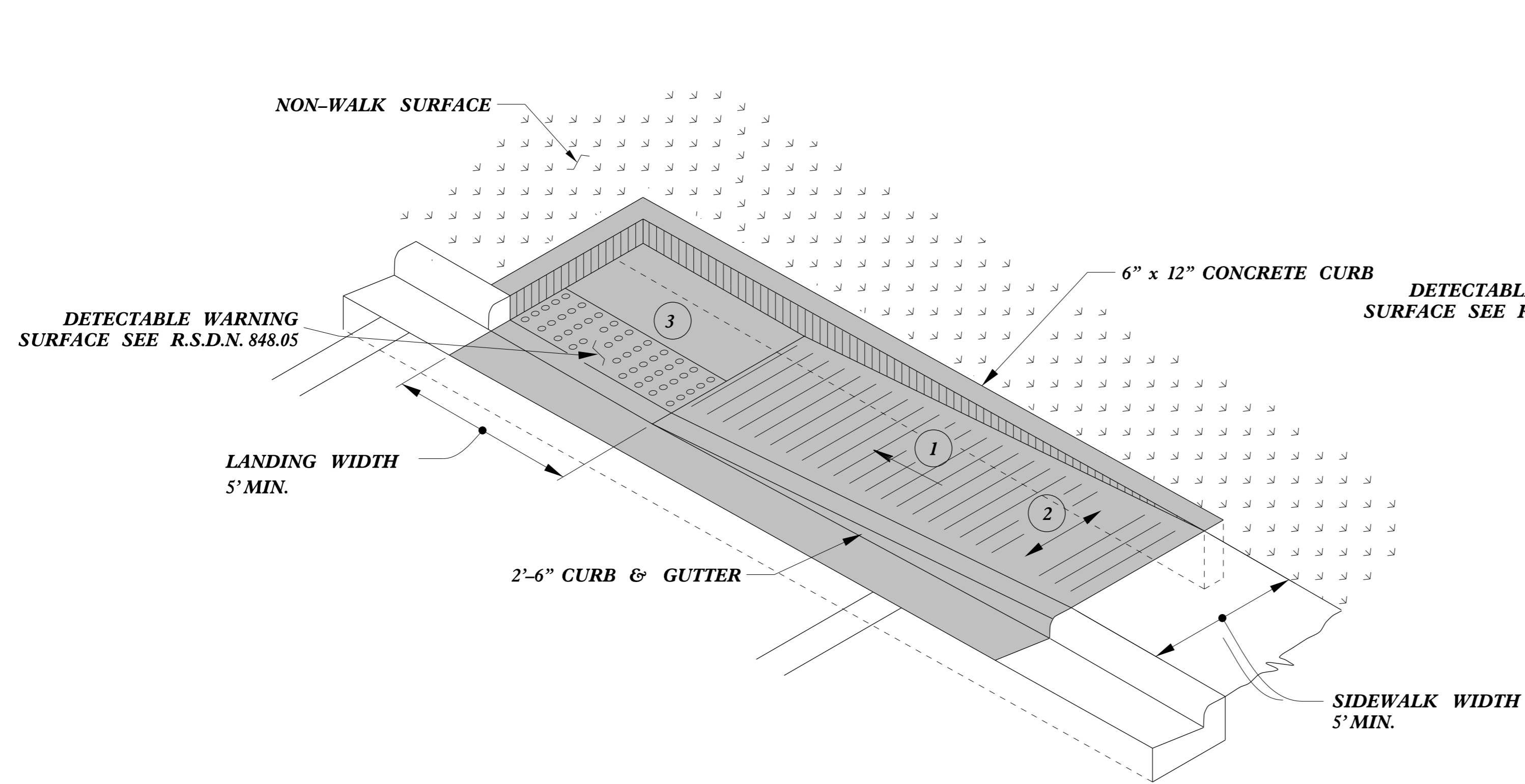
PLACE SOIL BORROW MATERIAL ON THE OUTSIDE OF CCP AS EACH LIFT OF CCP IS PLACED

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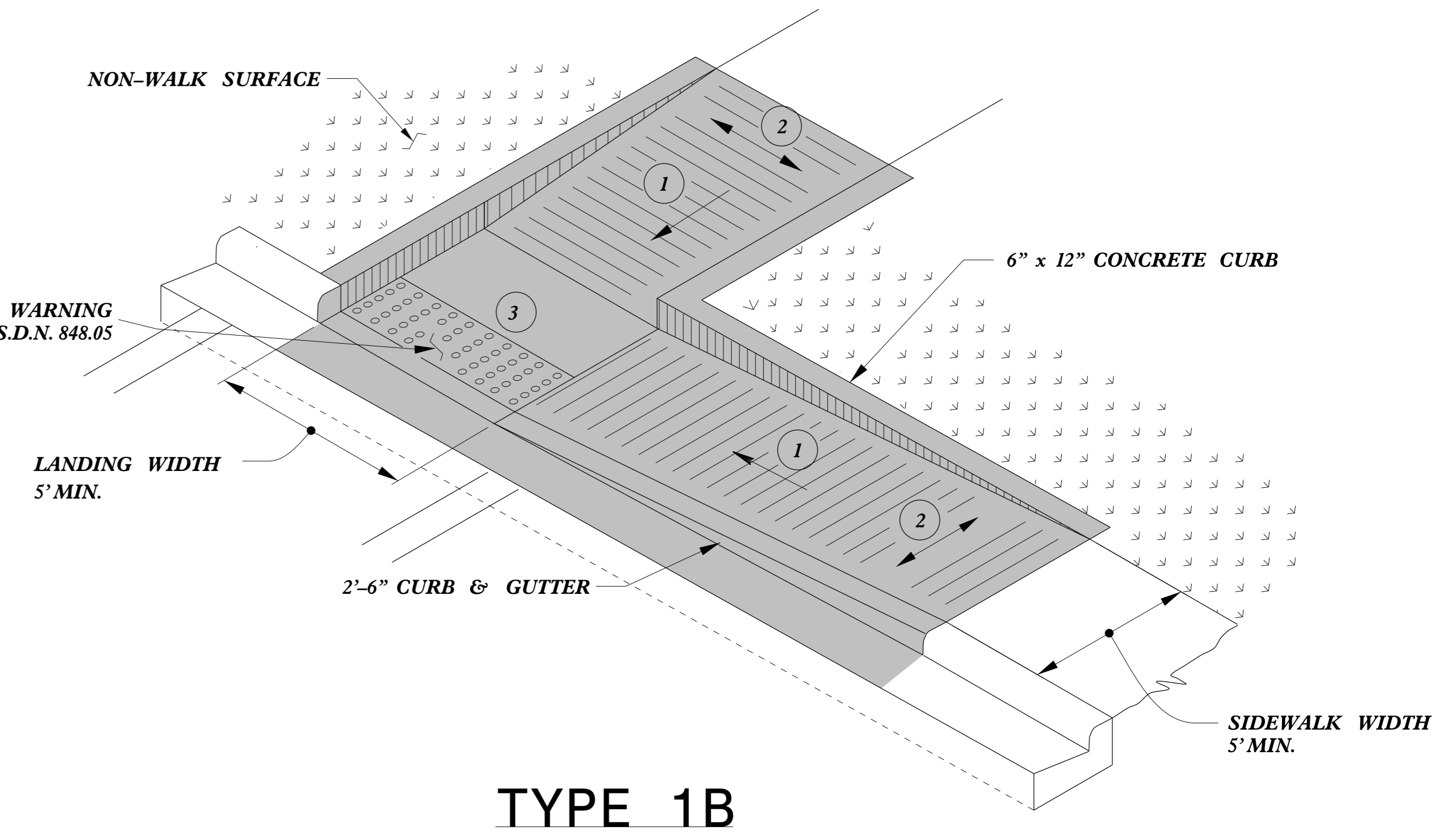


<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950 FAX 919-250-4119	
<b>COAL COMBUSTION PRODUCT PLACEMENT DETAIL</b>	
ORIGINAL BY: J.S.H.	DATE: 3/16/15
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: joel/coal combustion material detail.dgn	

07-SEP-2017 08:21 S:\Contracts\Special Details\Howerton\Coal Combustion Product Detail.dgn



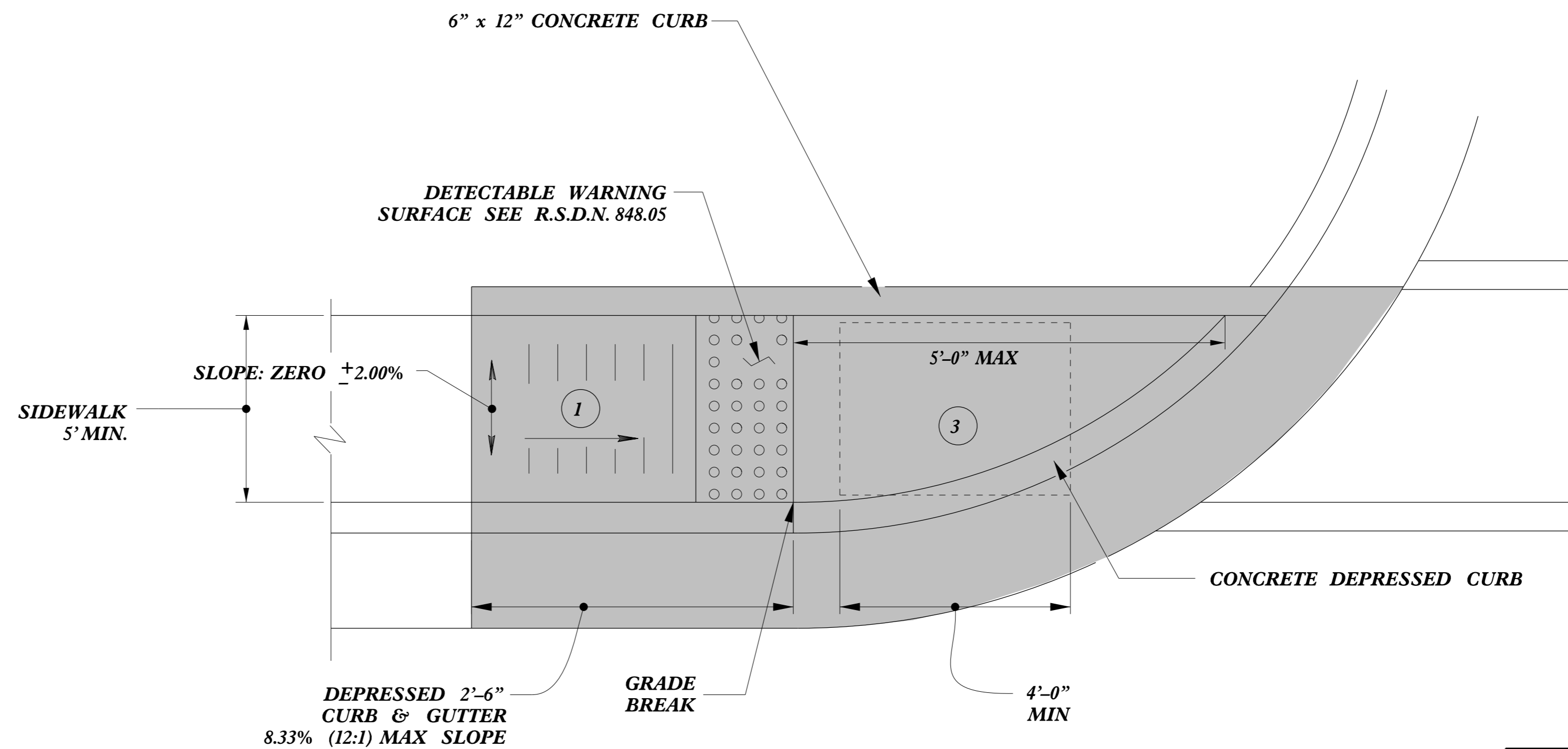
**TYPE 1A**



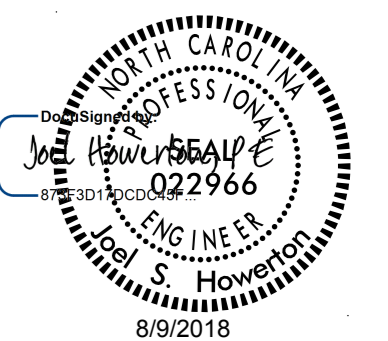
**TYPE 1B**

**PAY LIMITS FOR 1 CURB RAMP**

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



**TYPE 1**



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

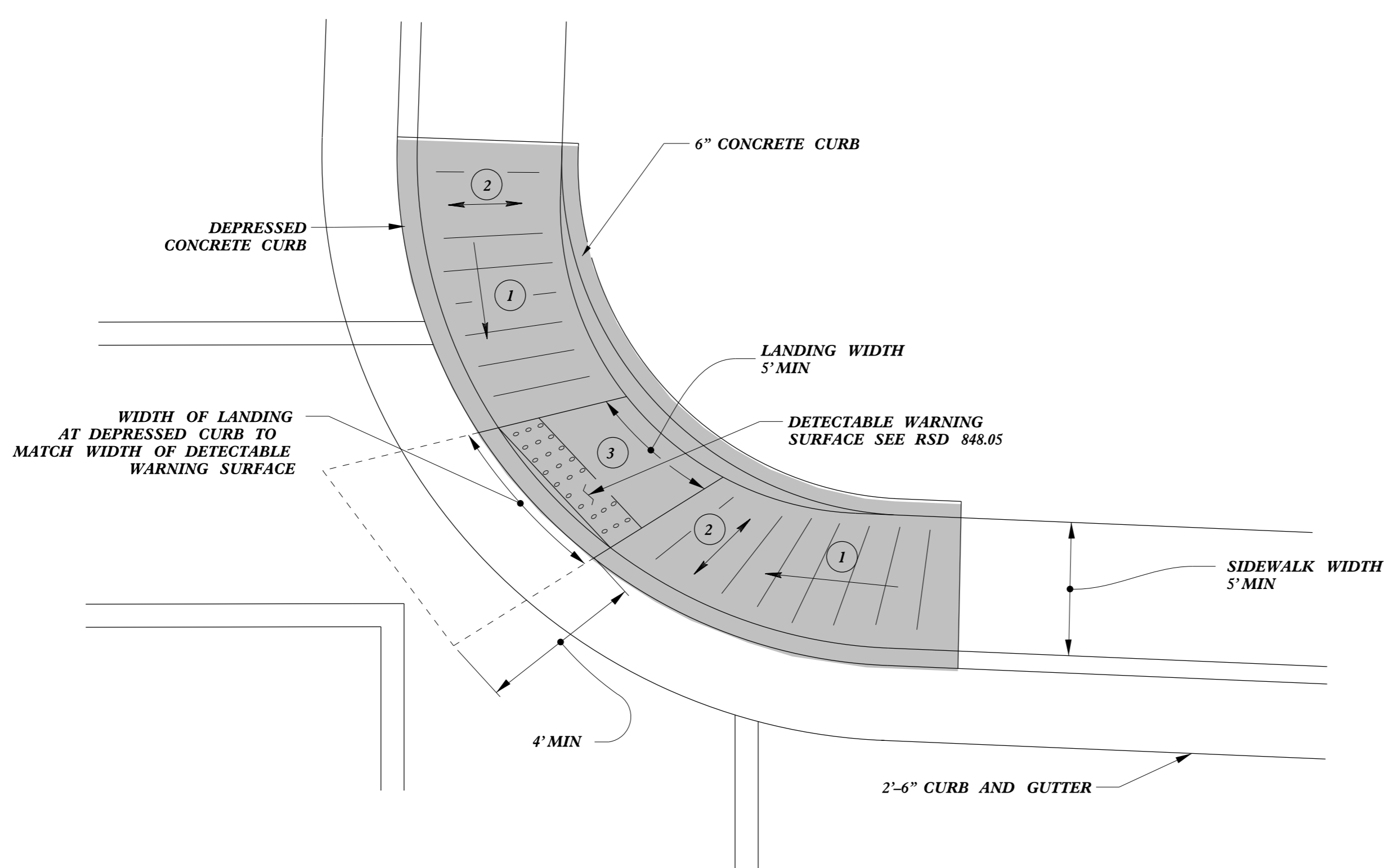
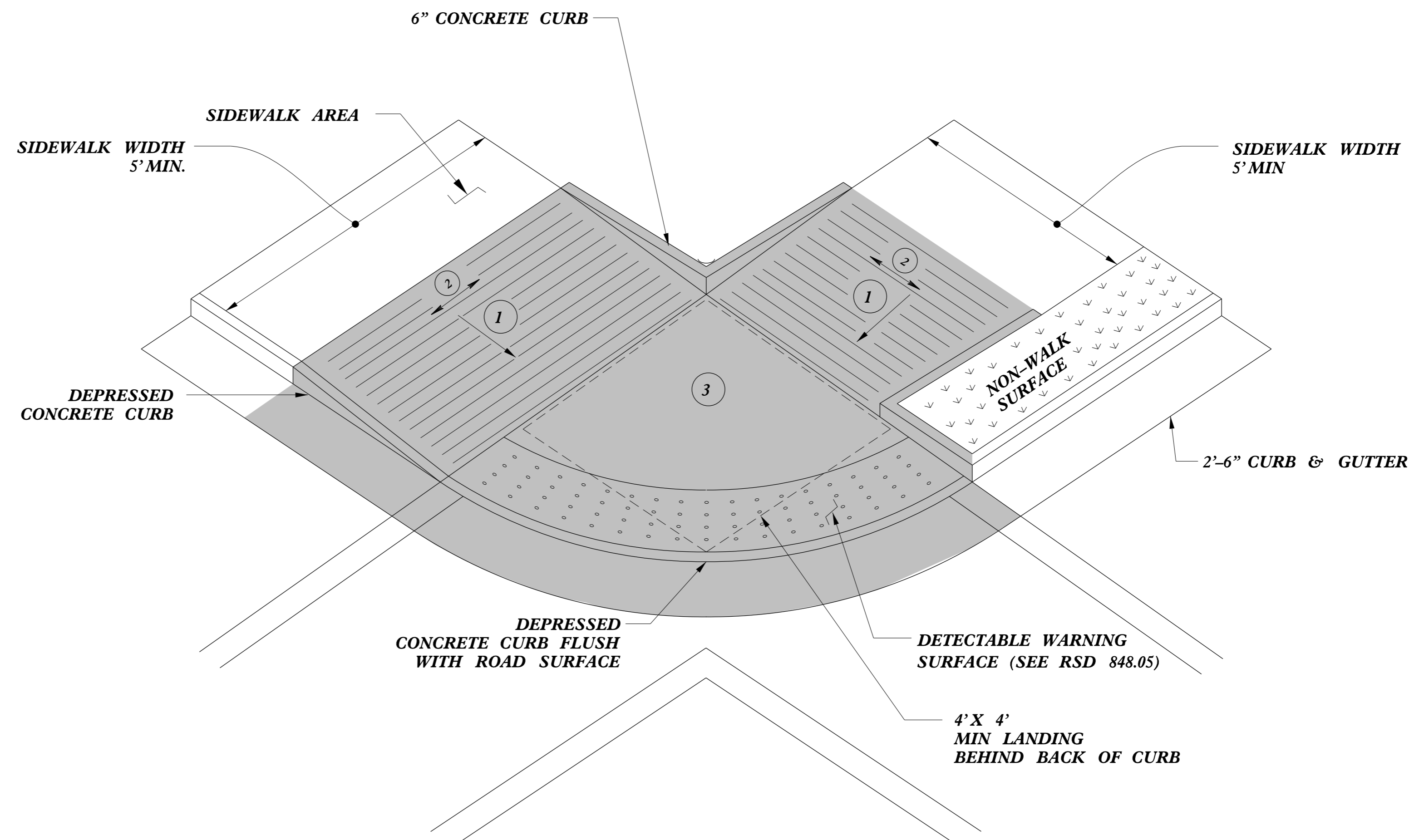
**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**CURB RAMPS**  
Directional Ramps

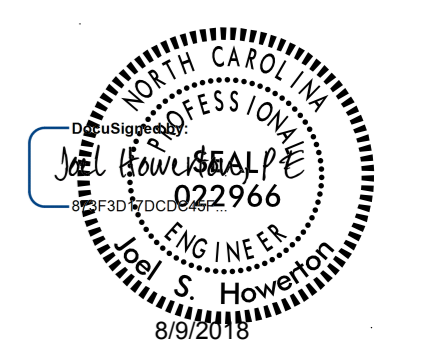
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

**PAY LIMITS FOR 1 CURB RAMP**



- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

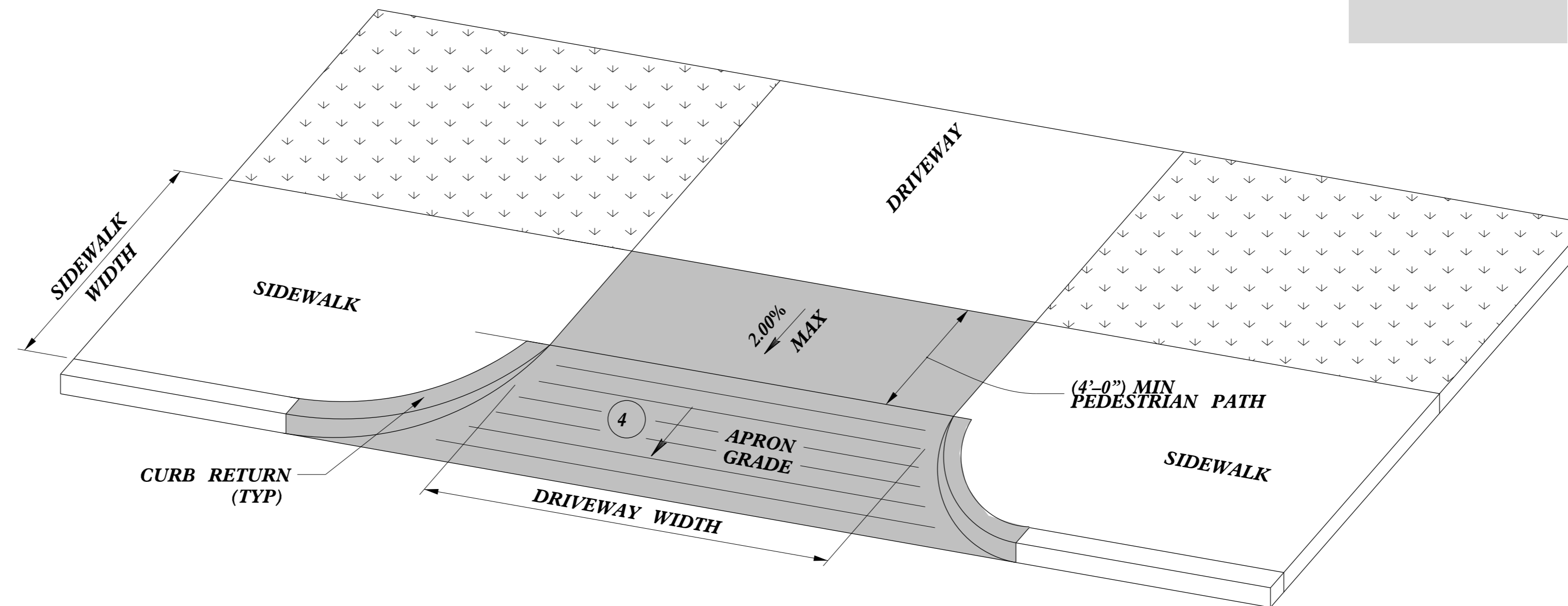
<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950	FAX 919-250-4119
<b>CURB RAMPS</b>	
Blended Transition	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn	

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

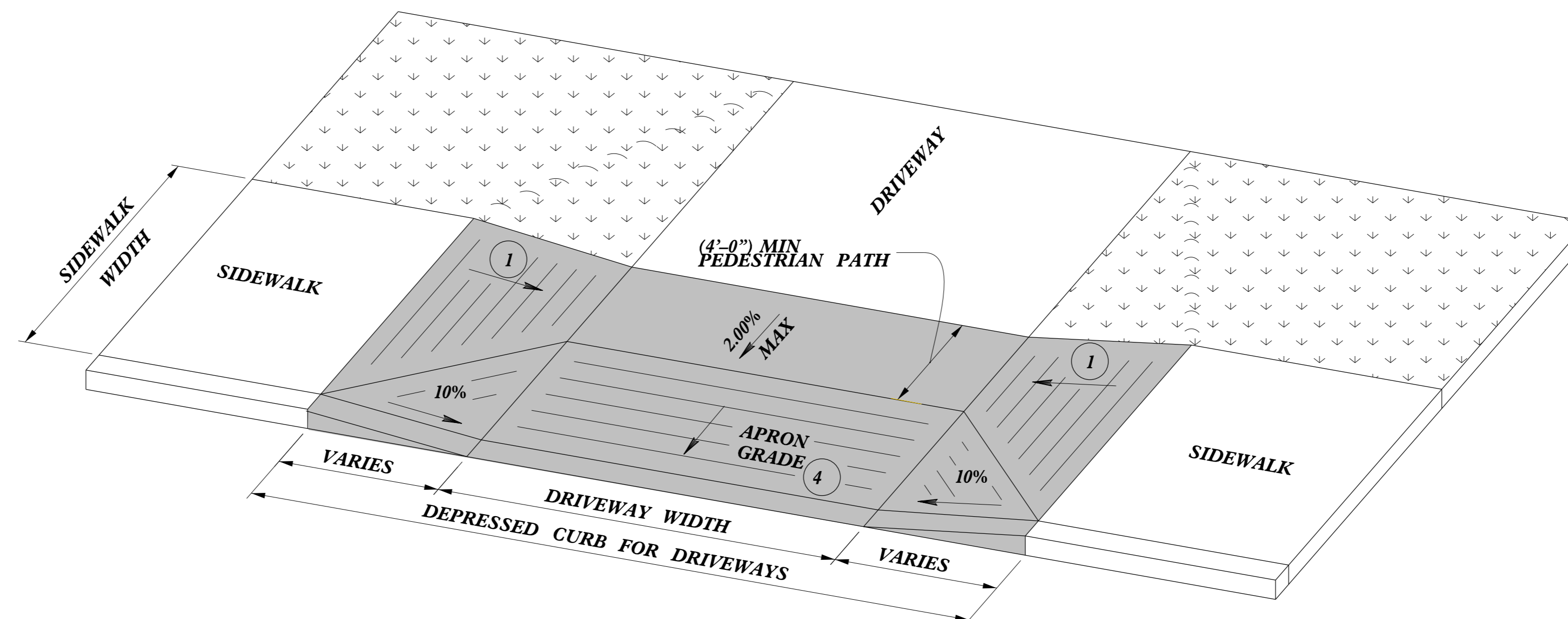
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 USER: J.S.HOWERTON  
 DATE: 7/7/11 10:58 AM  
 FILE: stds/2012CurbRamp/CurbRampDetails.dgn  
 \$\$\$\$\$\$

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ④ 8.00% MAX CHANGE IN GRADE BETWEEN ROAD SURFACE AND DRIVEWAY

PAY LIMITS FOR 1 CURB RAMP

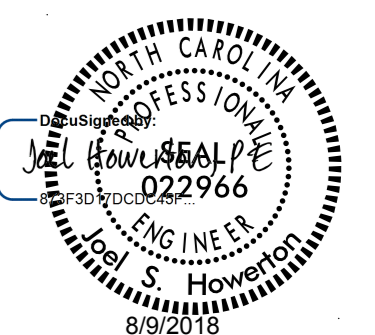


**DRIVEWAY APRON  
OPTION 1**



**DRIVEWAY APRON  
OPTION 2**

-SEE ROADWAY DETAIL DRAWING 848.05 FOR DETECTABLE WARNING SURFACE AND FOR RAMP NOTES.  
-SEE ROADWAY STANDARD DRAWING 848.02 FOR CONCRETE DRIVEWAYS.



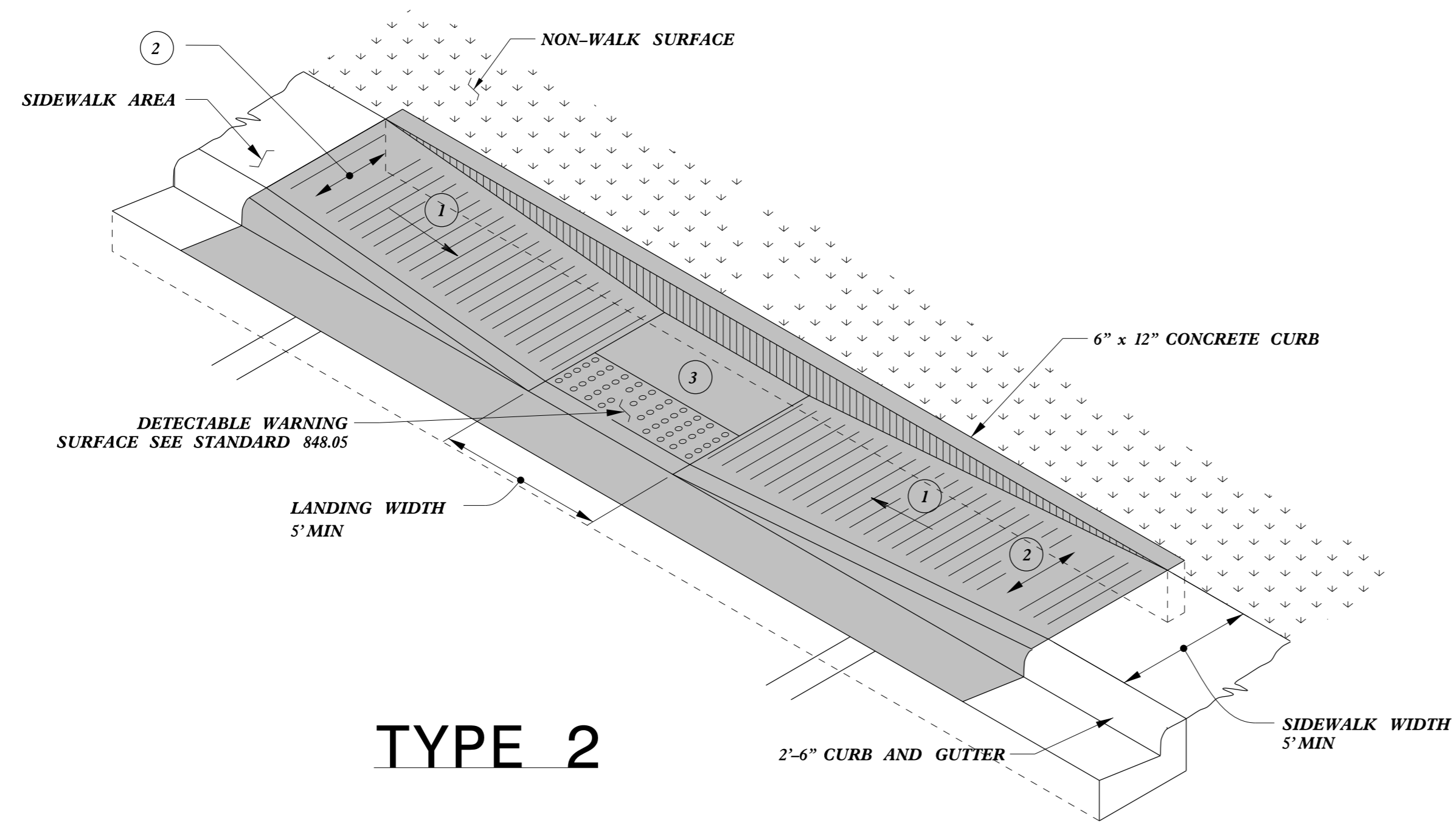
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS  
AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**CURB RAMPS  
@ DRIVEWAY OPENINGS**

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11  
MODIFIED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn

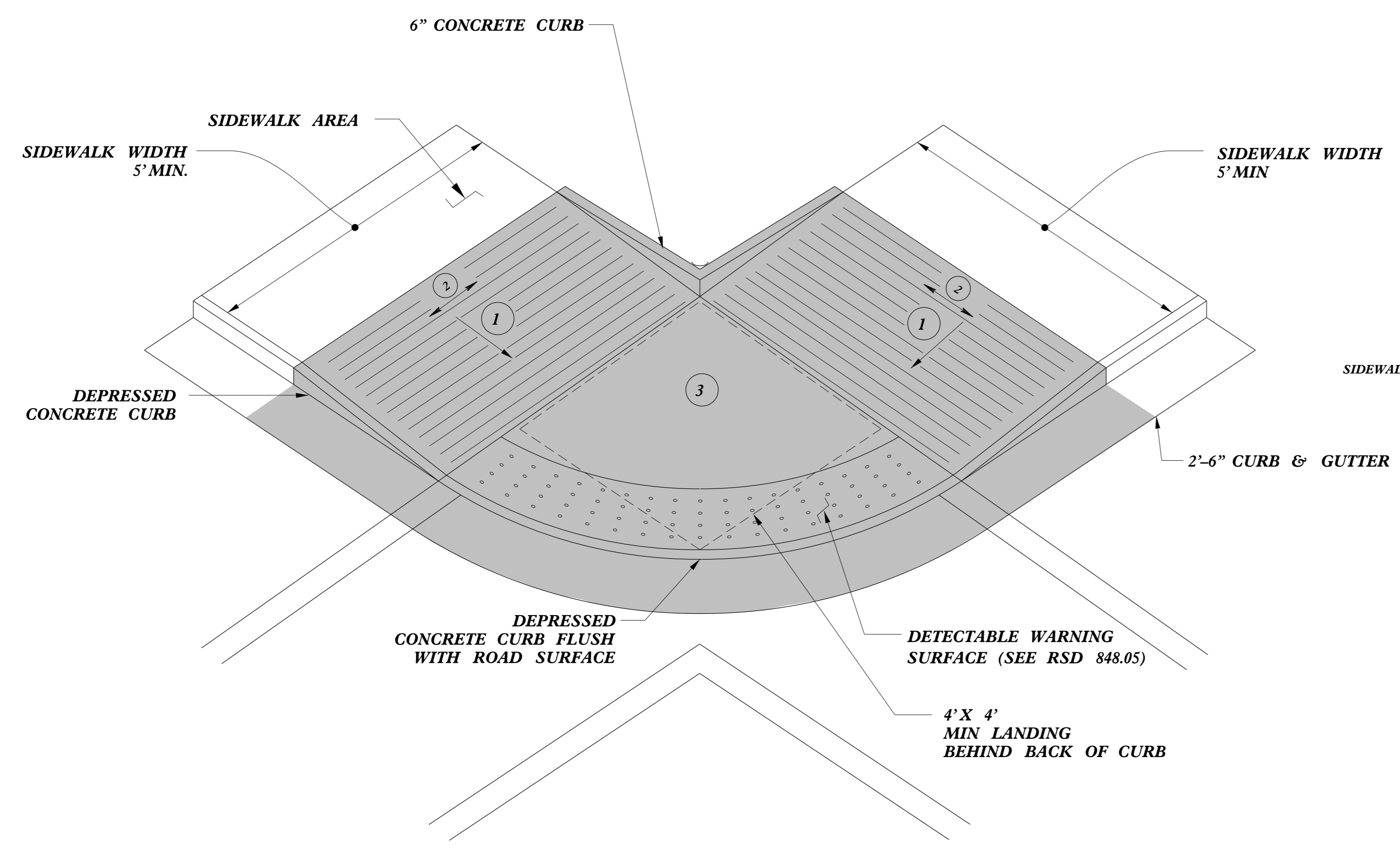




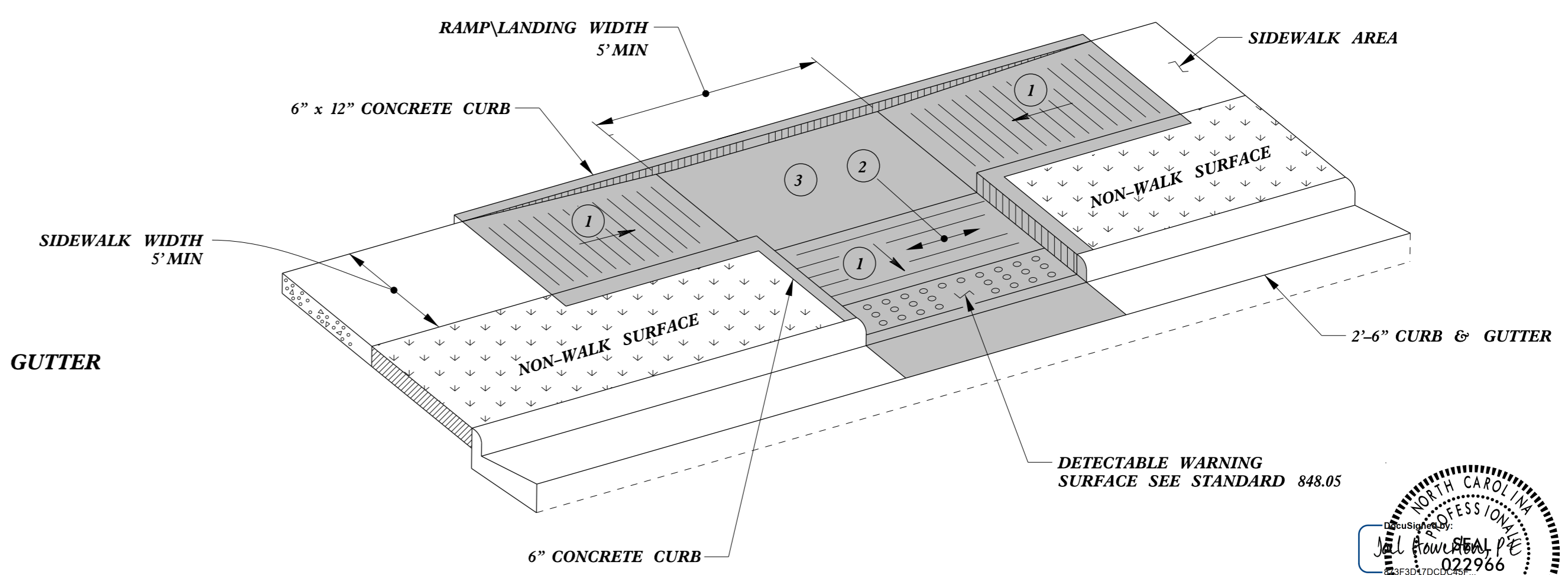
**TYPE 2**

PAY LIMITS FOR 1 CURB RAMP

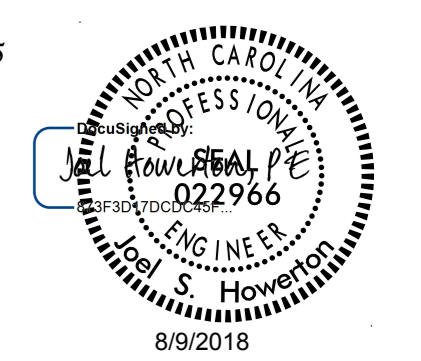
- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



**TYPE 2A**



**TYPE 3**



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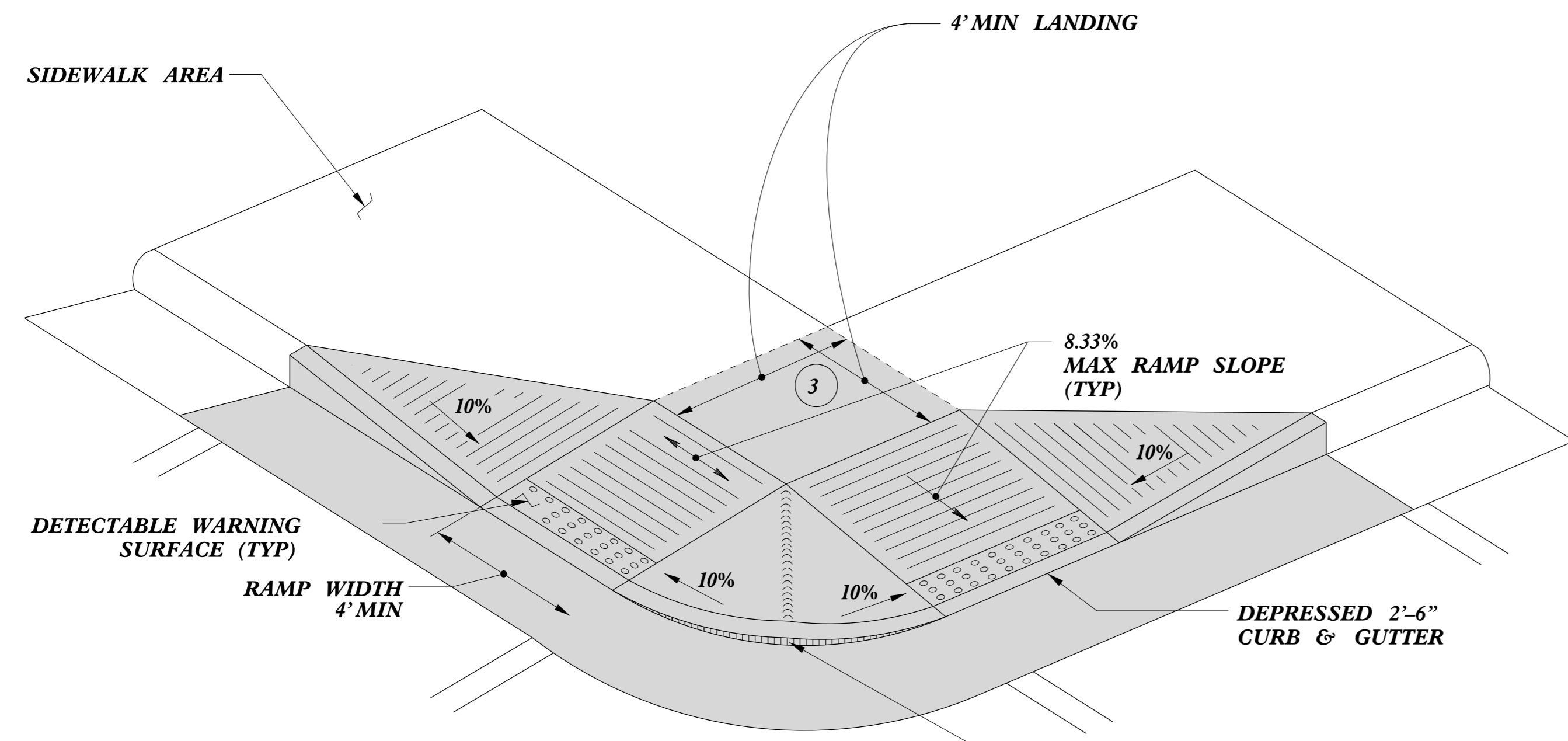
**CURB RAMPS**  
 Parallel Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11  
 MODIFIED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

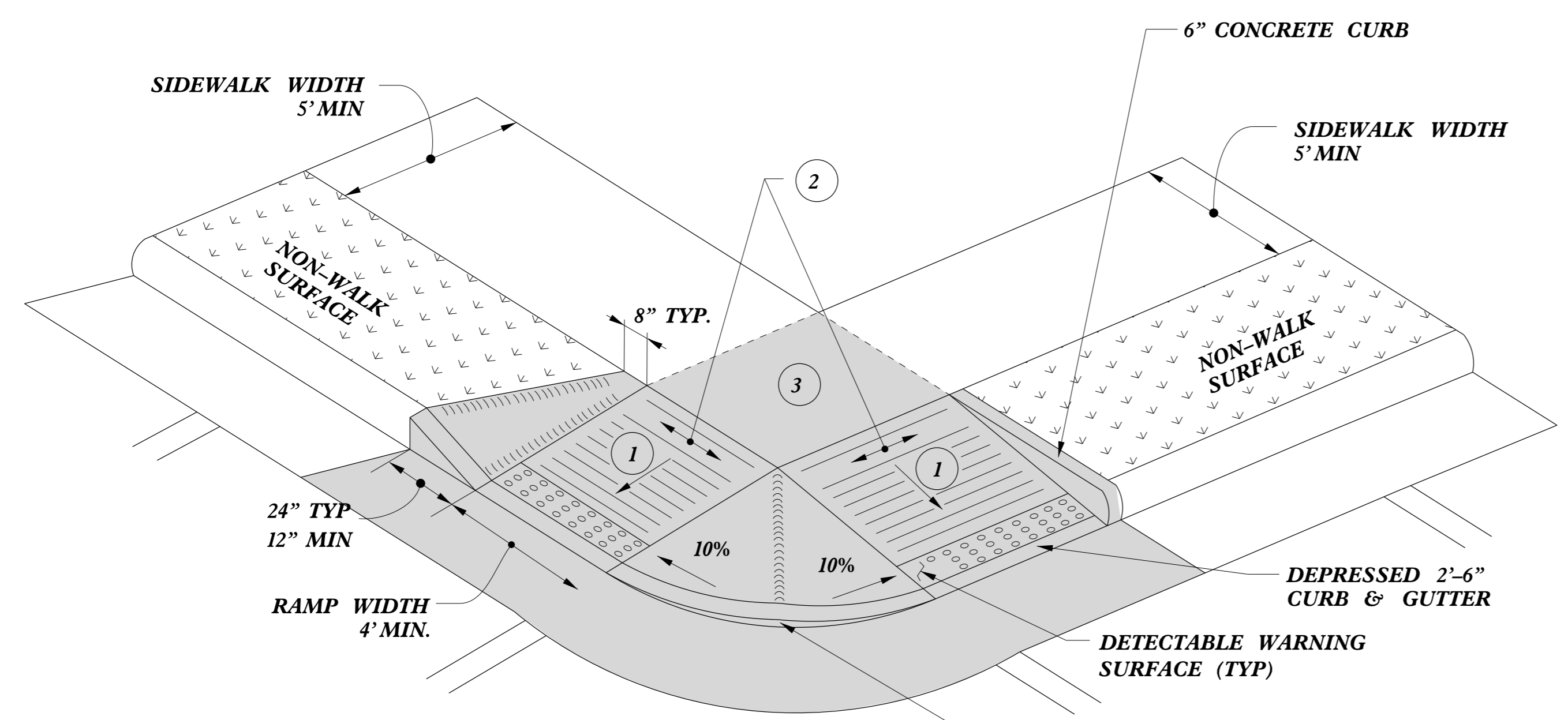
REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

5/14/99  
C:\TIME\CON\CON\USER\NAME

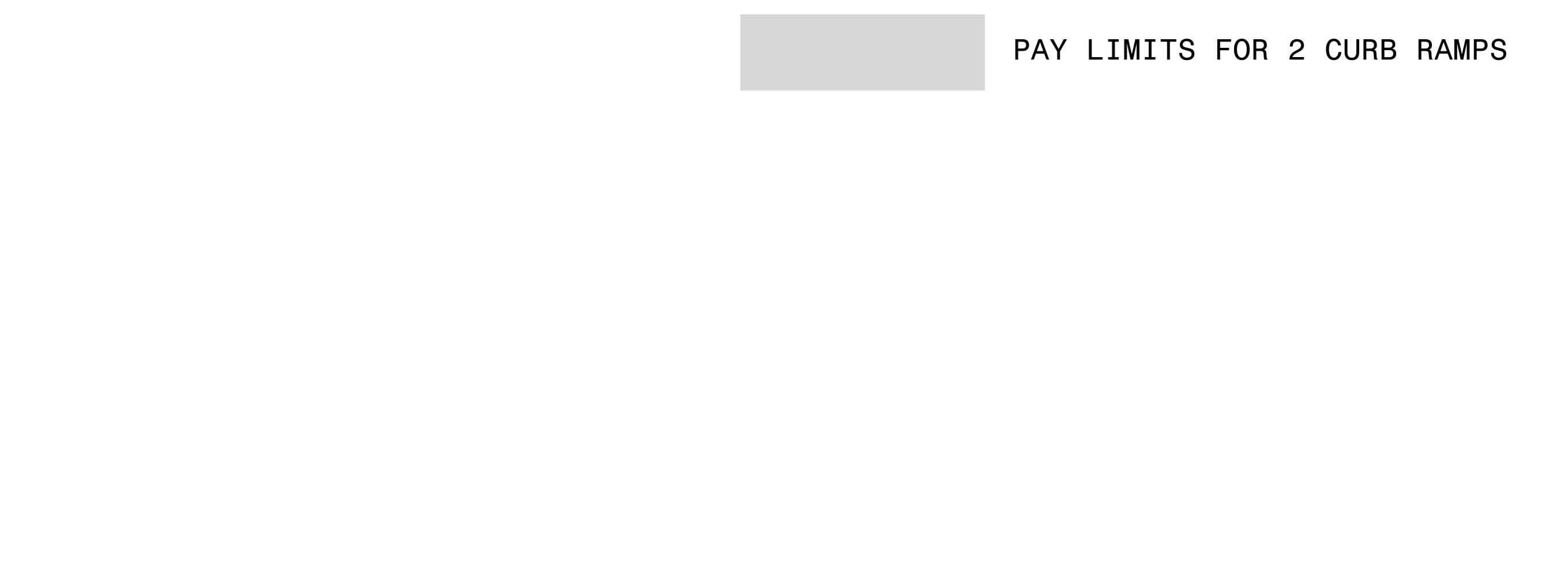
5/14/99  
C:\TEMP\DRAWING\CONSTRUCTION\USER\NAME\$\$\$\$



**TYPE 4**



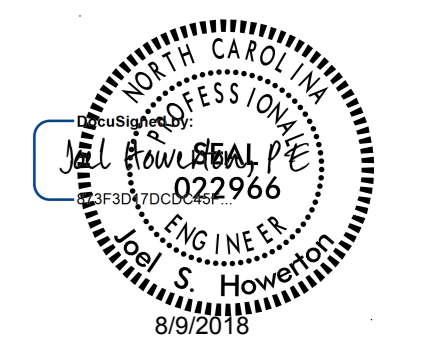
**TYPE 4A**



**TYPE 5**

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES


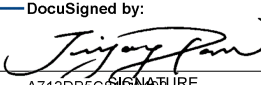


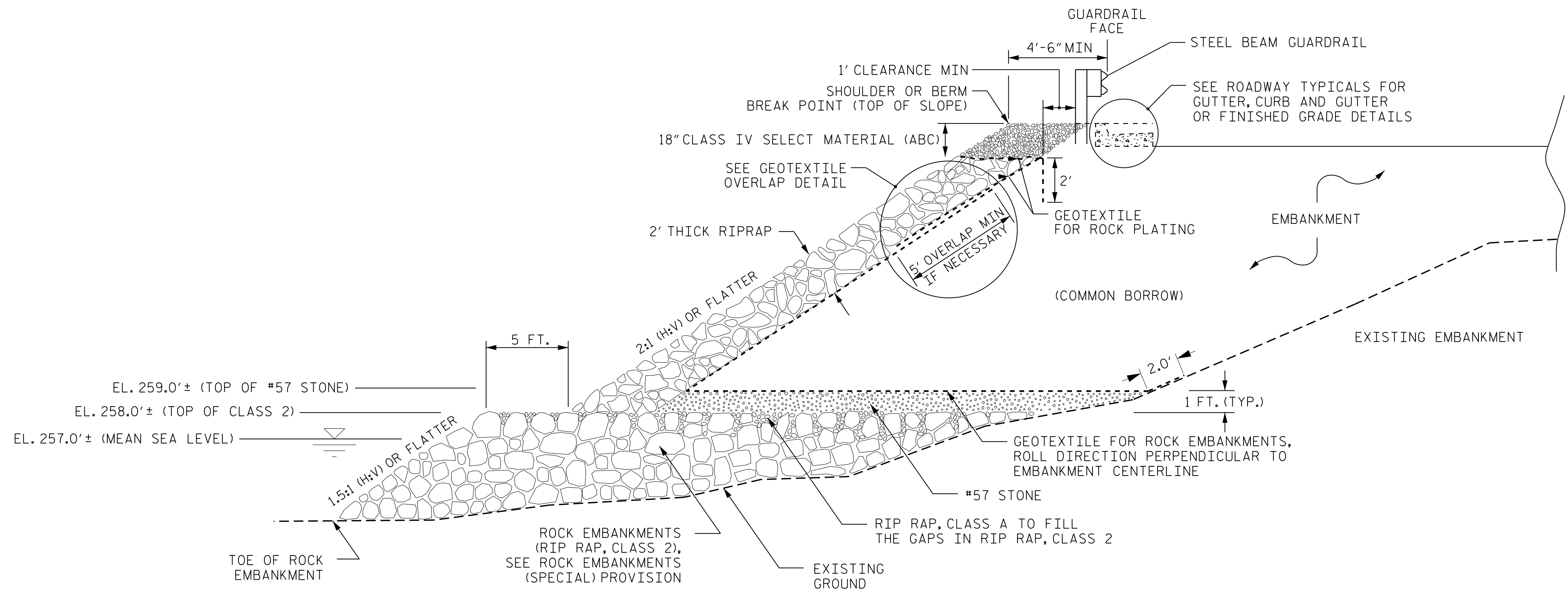
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**CURB RAMPS**  
Shared Landing

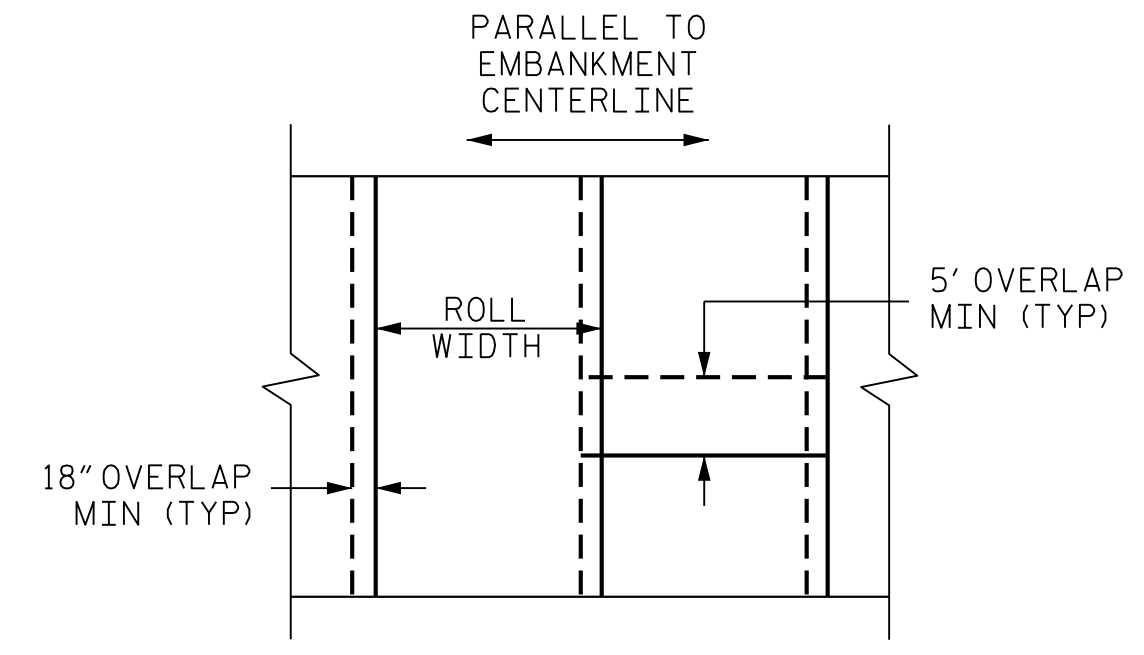
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn	

<b>PROJECT REFERENCE NO.</b> R-3825B		<b>SHEET NO.</b> 2G-1	
GEOTECHNICAL ENGINEER  SEAL 032171 NORTH CAROLINA PROFESSIONAL ENGINEER WYOMING PARK		ENGINEER	
DocuSigned by:  3/27/2018 DATE		SIGNATURE DATE	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			



**ROCK EMBANKMENT TYPICAL SECTION**

NOT TO SCALE



**GEOTEXTILE OVERLAP DETAIL**

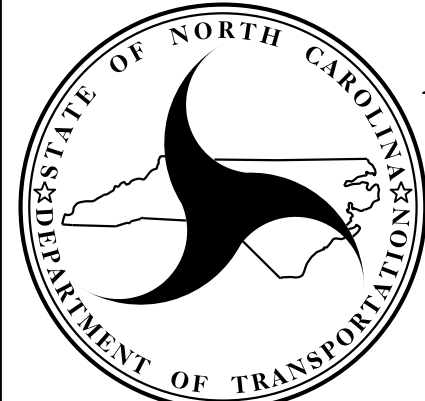
(PLAN VIEW)

ESTIMATED QUANTITIES	
RIP RAP, CLASS 2	570 TONS
RIP RAP, CLASS A	230 TONS
#57 STONE (SELECT MATERIAL, CLASS VI)	200 TONS
GEOTEXTILE FOR ROCK EMBANKMENTS	440 SY

**NOTES**

- FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENTS (SPECIAL) PROVISIONS.
- INSTALL ROCK EMBANKMENTS USING CLASS 2 RIP RAP AS SHOWN IN THE PLAN AND TO 1.0 FT ABOVE THE MEAN SEA LEVEL.
- FILL VOIDS IN THE TOP OF ROCK EMBANKMENTS WITH RIP RAP, CLASS A.
- PLACE #57 STONE (SELECT MATERIAL, CLASS VI) 1 FT. (TYP.) ABOVE RIP RAP, CLASS 2 AS SHOWN IN THE PLAN.
- INSTALL GEOTEXTILE FOR ROCK EMBANKMENT ON TOP OF #57 STONE.
- CONSTRUCT ROCK PLATING ABOVE ROCK EMBANKMENTS. FOR ROCK PLATING, SEE SECTION 275 OF STANDARD SPECIFICATIONS AND STANDARD ROADWAY DRAWING NO. 275.01.

PREPARED BY: J. PARK	DATE: 03 / 2018
REVIEWED BY: J. BATTS	DATE: 03 / 2018


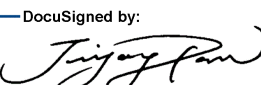


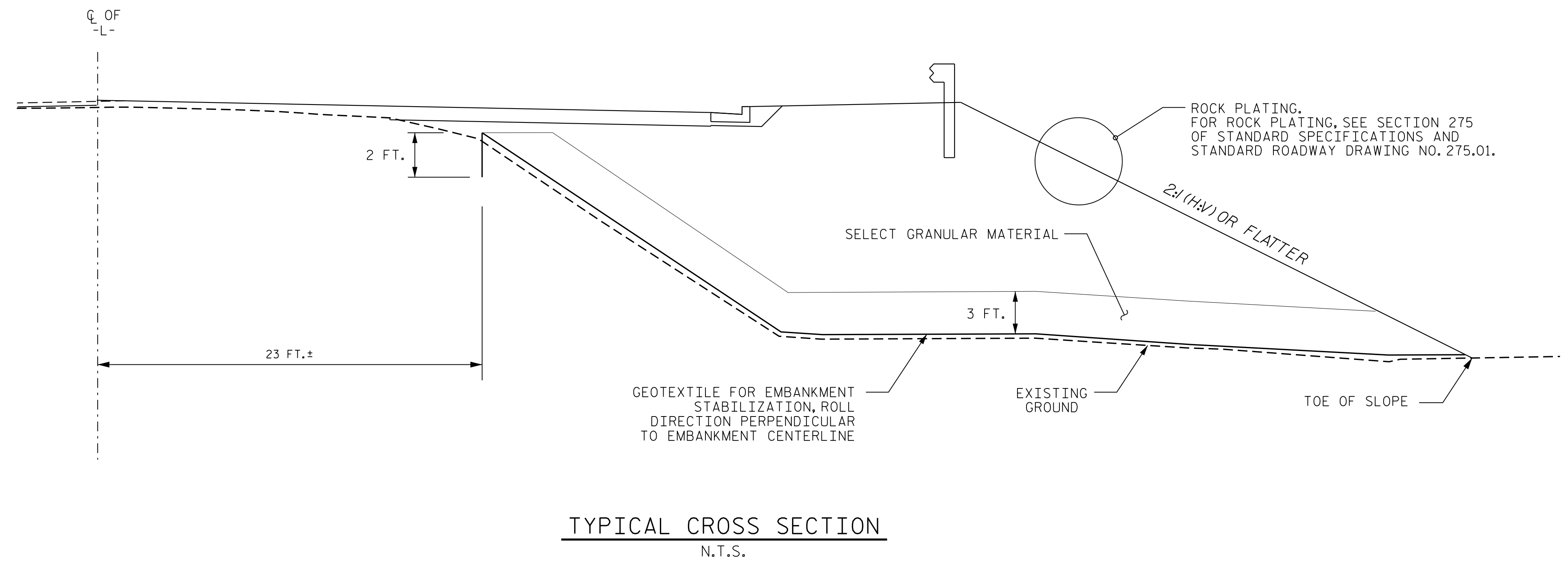
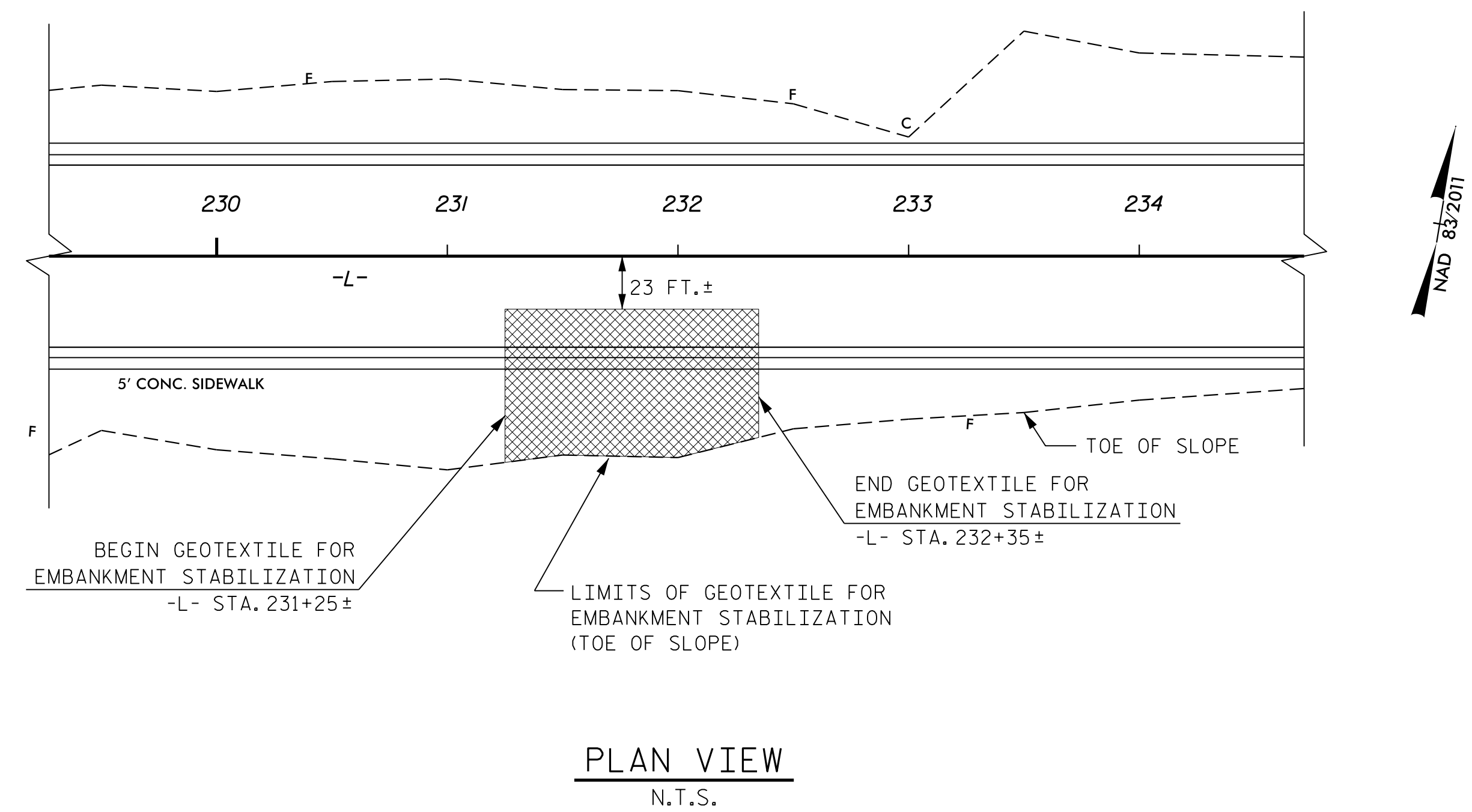
**NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

**GEOTECHNICAL  
ENGINEERING UNIT**

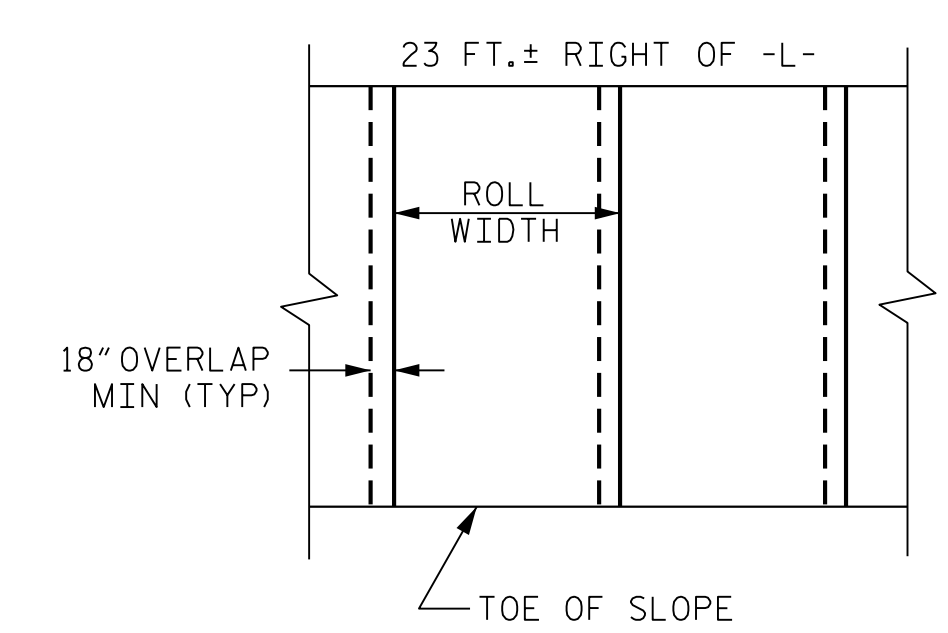
ROCK EMBANKMENTS DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	J. PARK	03 / 2018	3		
2			4		



<b>PROJECT REFERENCE NO.</b> R-3825B		<b>SHEET NO.</b> 2G-2	
GEOTECHNICAL ENGINEER 		ENGINEER	
DocuSigned by: 		3/27/2018	
DATE		SIGNATURE	DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			



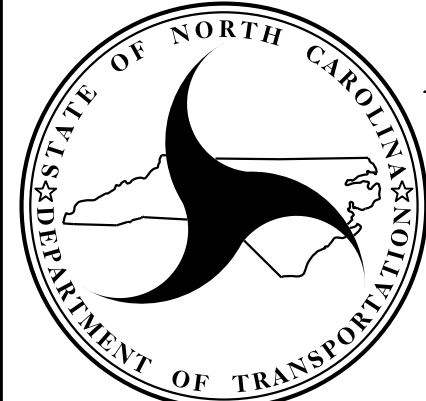
- NOTES**
- FOR GEOTEXTILE FOR EMBANKMENT STABILIZATION, SEE GEOTEXTILE FOR EMBANKMENT STABILIZATION (SPECIAL) PROVISION.
  - CLEAR THE AREA WITHIN LIMITS FOR GEOTEXTILE FOR EMBANKMENT STABILIZATION.
  - PLACE GEOTEXTILE FOR EMBANKMENT STABILIZATION ROLL DIRECTION PERPENDICULAR TO EMBANKMENT CENTERLINE ON THE EXISTING GROUND.
  - PLACE 3 FT. OF SELECT GRANULAR MATERIAL ON THE GEOTEXTILE FOR EMBANKMENT STABILIZATION.
  - PLACE THE GEOTEXTILE FOR EMBANKMENT STABILIZATION WITHOUT ANY WRINKLES OR CREASES.
  - NO SEAMS OR JOINTS ARE ALLOWED IN THE MACHINE DIRECTION OF GEOTEXTILE FOR EMBANKMENT STABILIZATION.
  - THE TERMS ROLL AND MACHINE DIRECTION ARE USED INTERCHANGEABLY.
  - ALL JOINTS IN THE CROSS MACHINE DIRECTION MUST BE OVERLAPPED A MINIMUM OF 18 INCHES.



ESTIMATED QUANTITIES	
GEOTEXTILE FOR EMBANKMENT STABILIZATION	900 SY*
SELECT GRANULAR MATERIAL	850 CY

\* GEOTEXTILE FOR EMBANKMENT STABILIZATION ESTIMATED QUANTITY DOES NOT INCLUDE OVERLAPS OR WASTE.

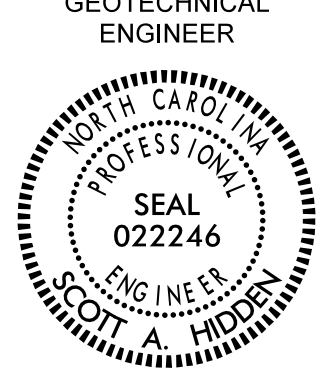
PREPARED BY: J. PARK	DATE: 03 / 2018
REVIEWED BY: J. BATTS	DATE: 03 / 2018



**NORTH CAROLINA**  
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**GEOTECHNICAL**  
**ENGINEERING UNIT**

GEOTEXTILE FOR EMBANKMENT STABILIZATION DETAILS					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	J. PARK	03 / 2018	3	-	-
2	-	-	4	-	-

<b>PROJECT REFERENCE NO.</b> R-3825B		<b>SHEET NO.</b> 2G-3
GEOTECHNICAL ENGINEER  SEAL 022246 SCOTT A. HADDEN ENGINEER		ENGINEER
DocuSigned by: Scott A. Hadden 5/21/2018 SIGNATURE DATE		SIGNATURE DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		

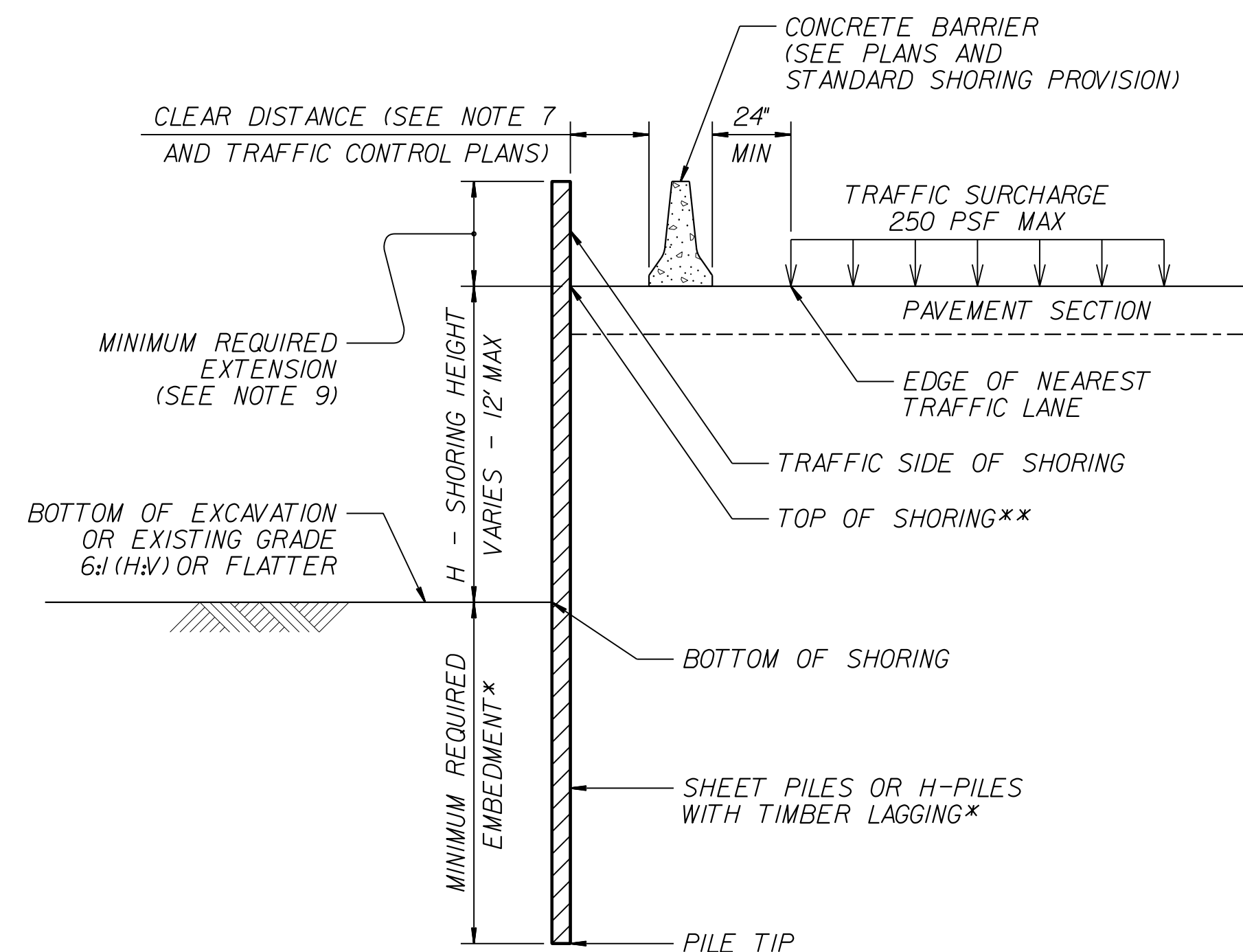
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

**NOTES:**

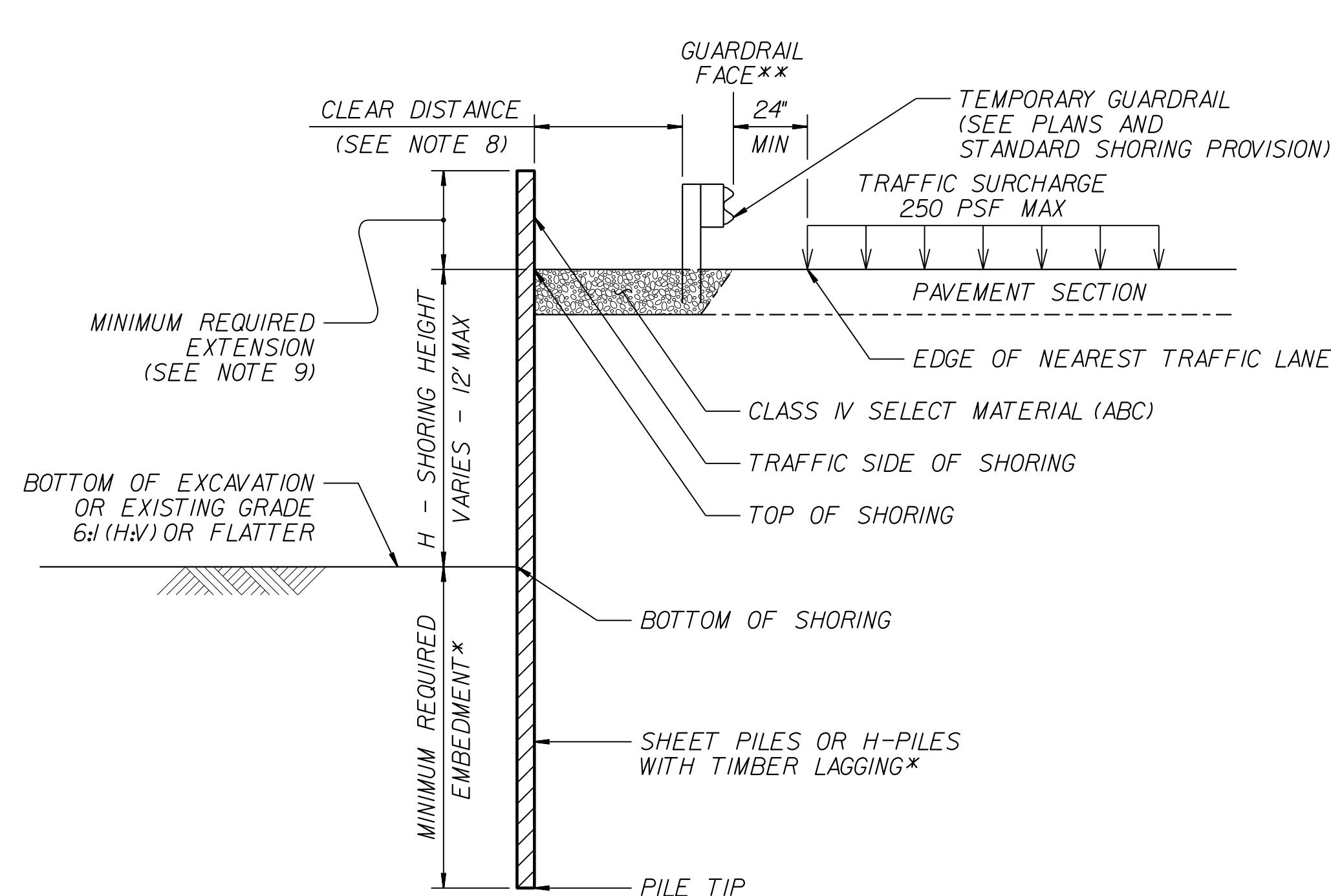
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  PCF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  PSF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:  
[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

**MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS**

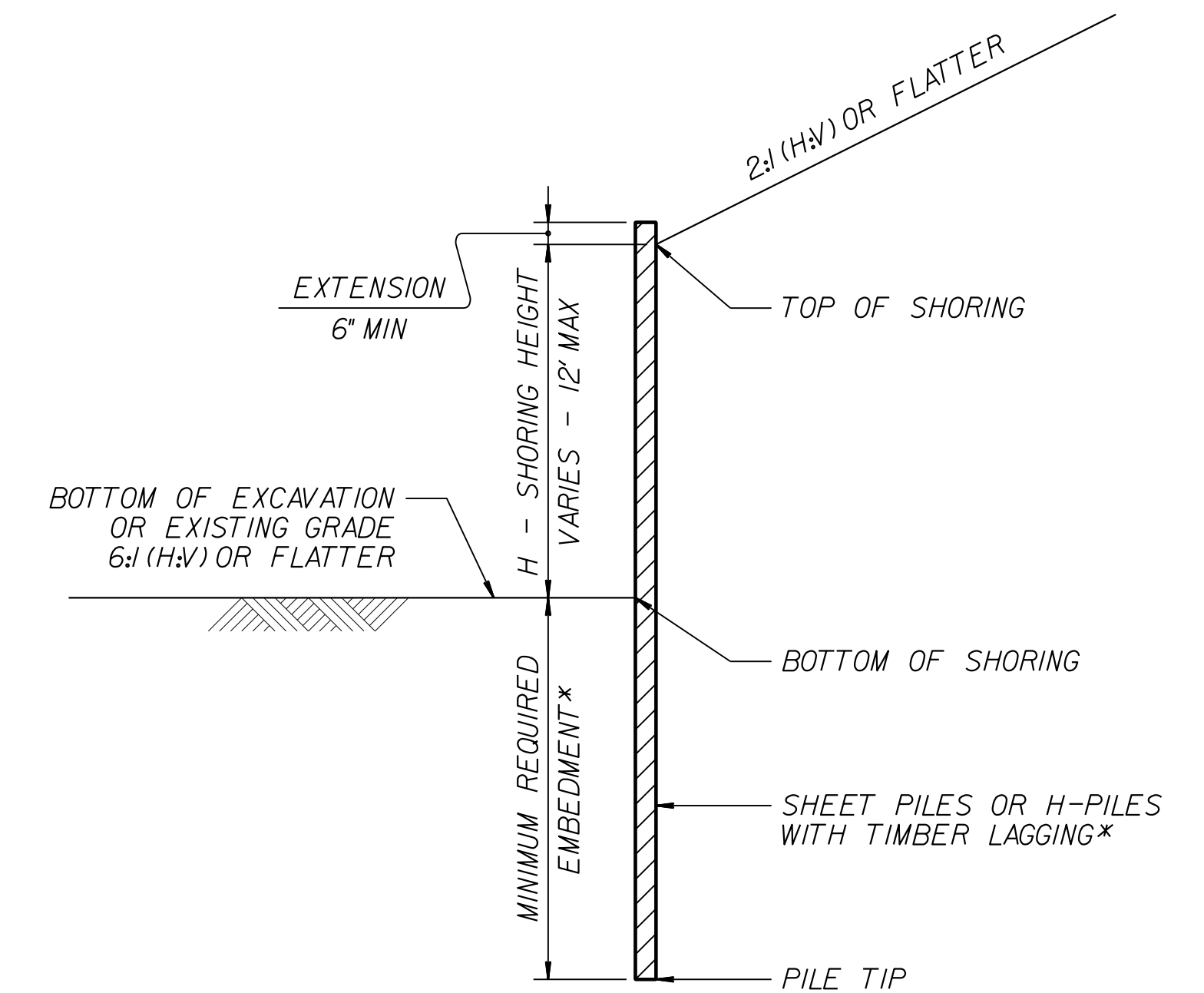
**\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**



**CONCRETE BARRIER**  
\*\*TOP OF SHORING = EDGE OF PAVEMENT

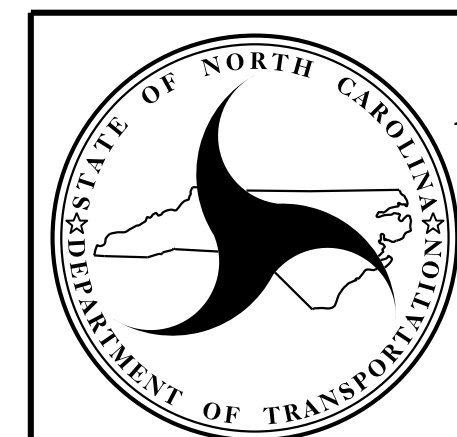


**TEMPORARY GUARDRAIL**  
\*\*GUARDRAIL FACE = EDGE OF PAVEMENT



**STANDARD TEMPORARY SHORING (SLOPE CASE)**  
\*SEE TABLE ABOVE.


**STANDARD TEMPORARY SHORING (SURCHARGE CASE)**  
\*SEE TABLE ABOVE.

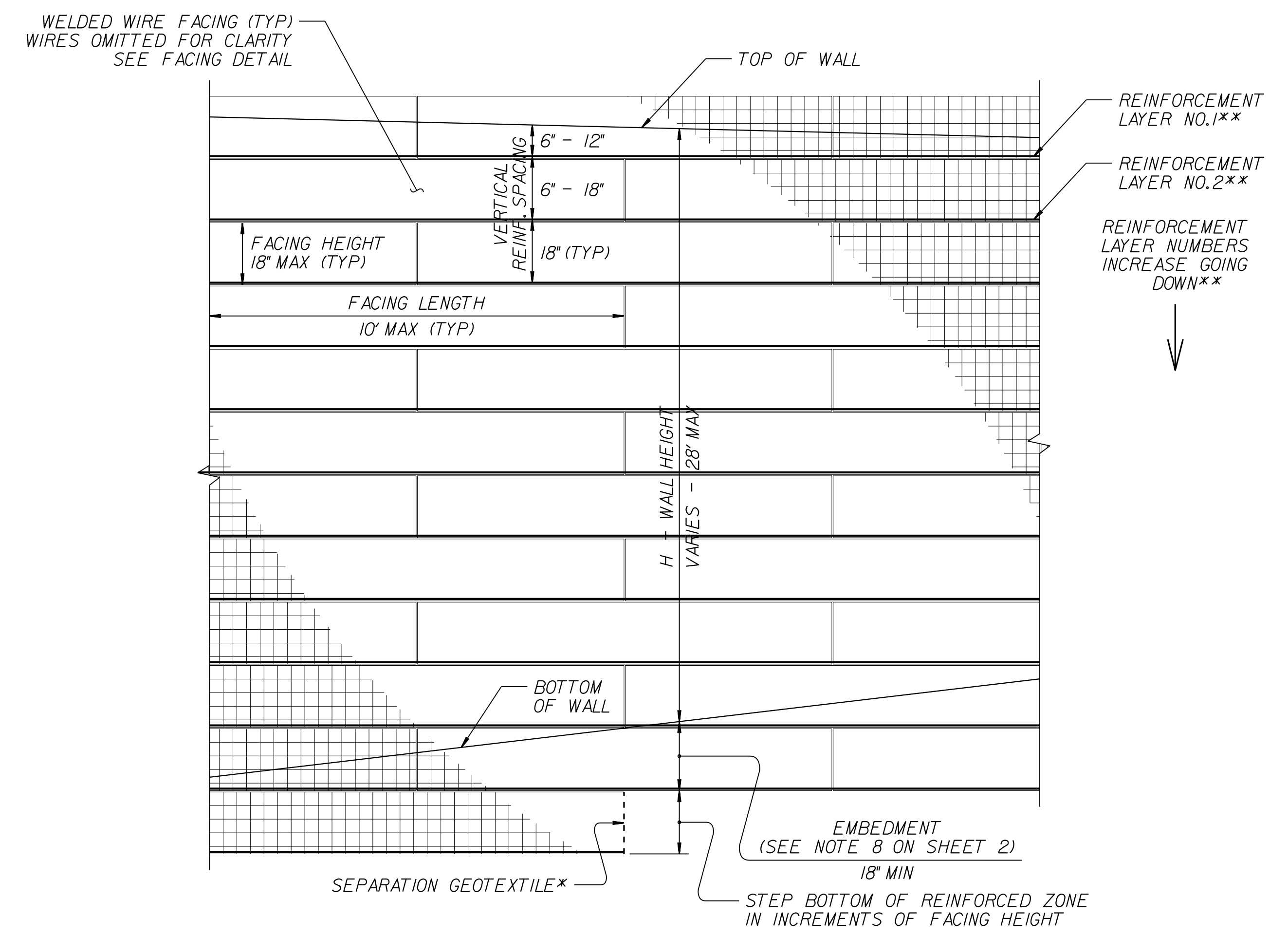
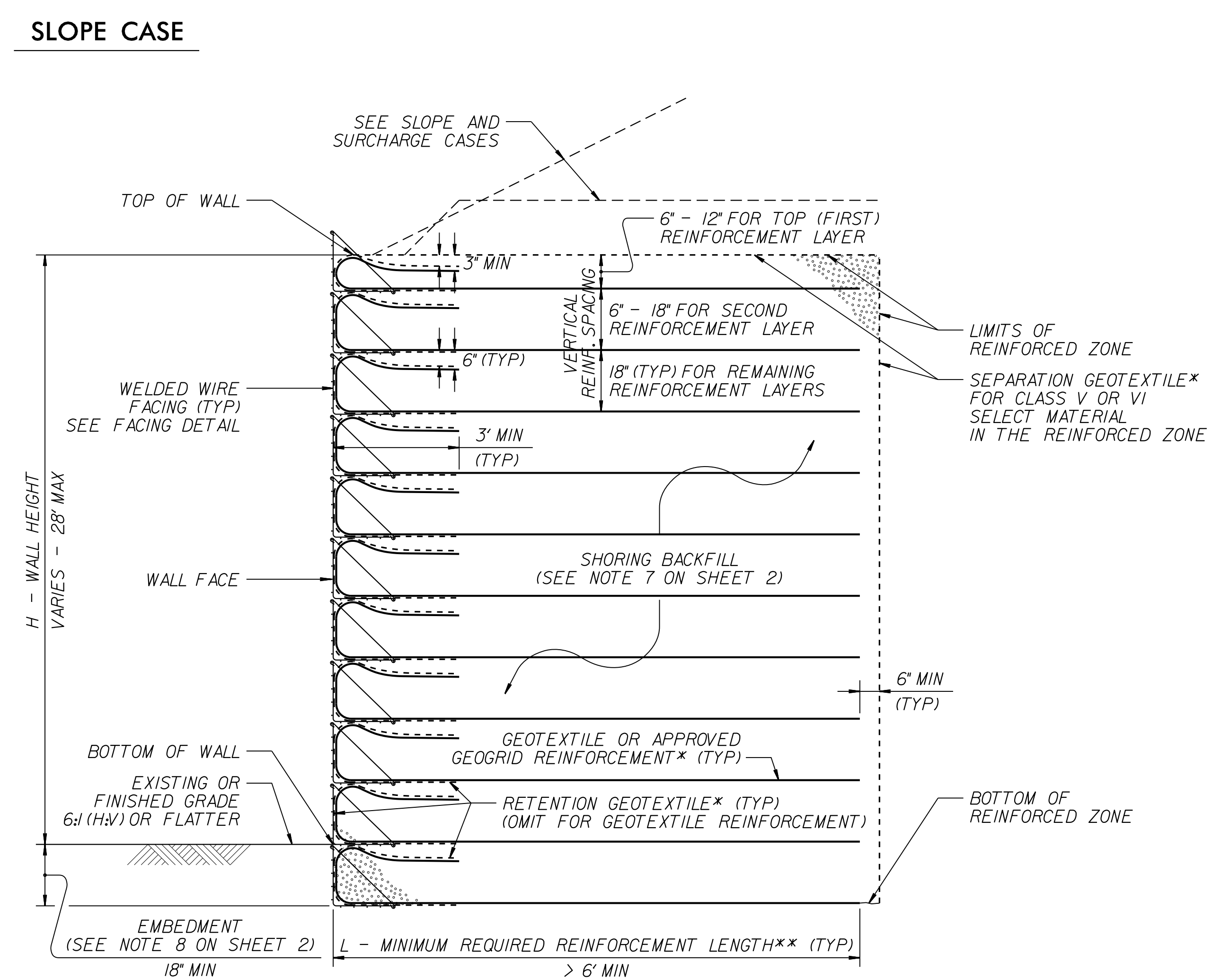
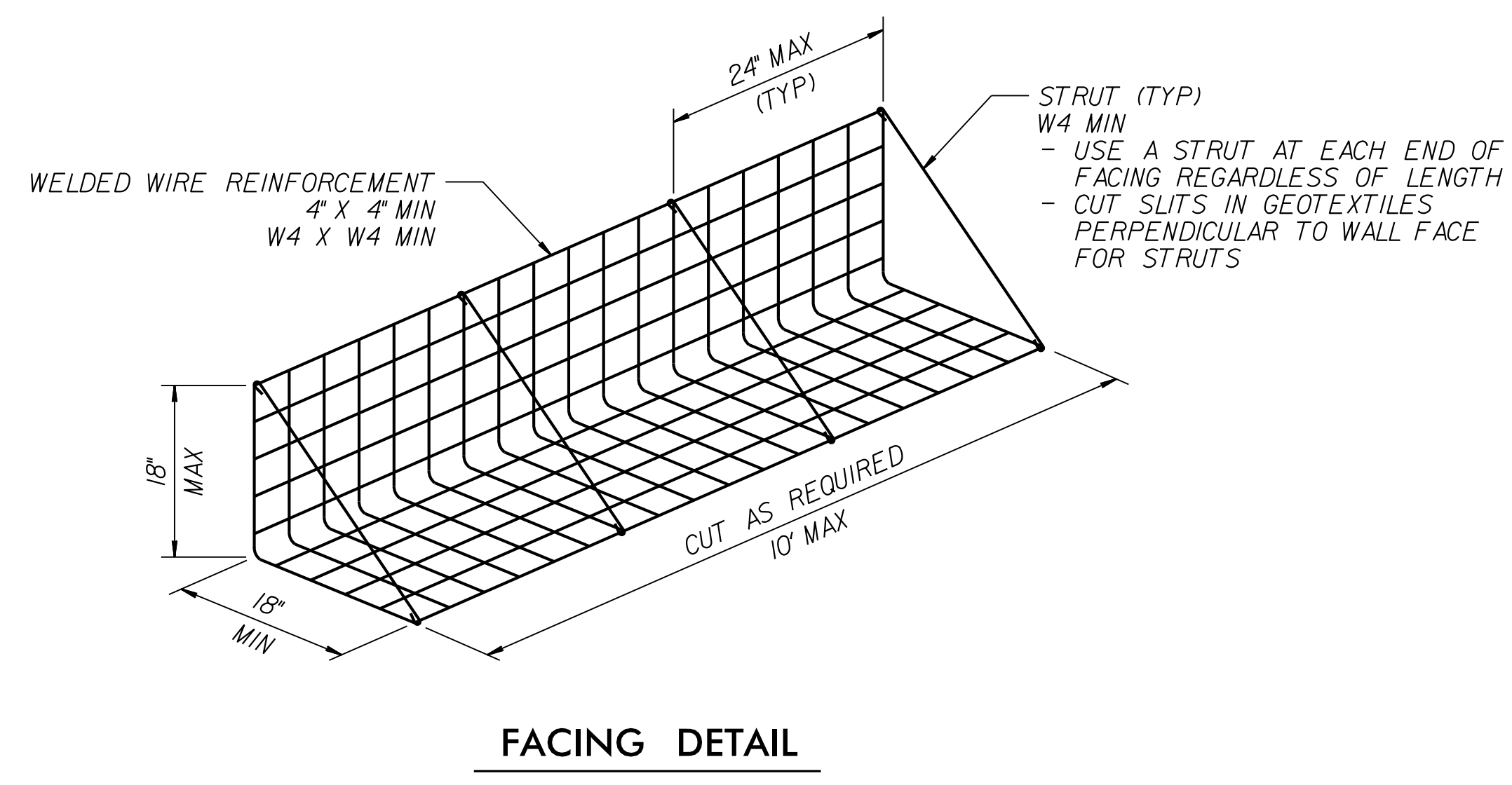
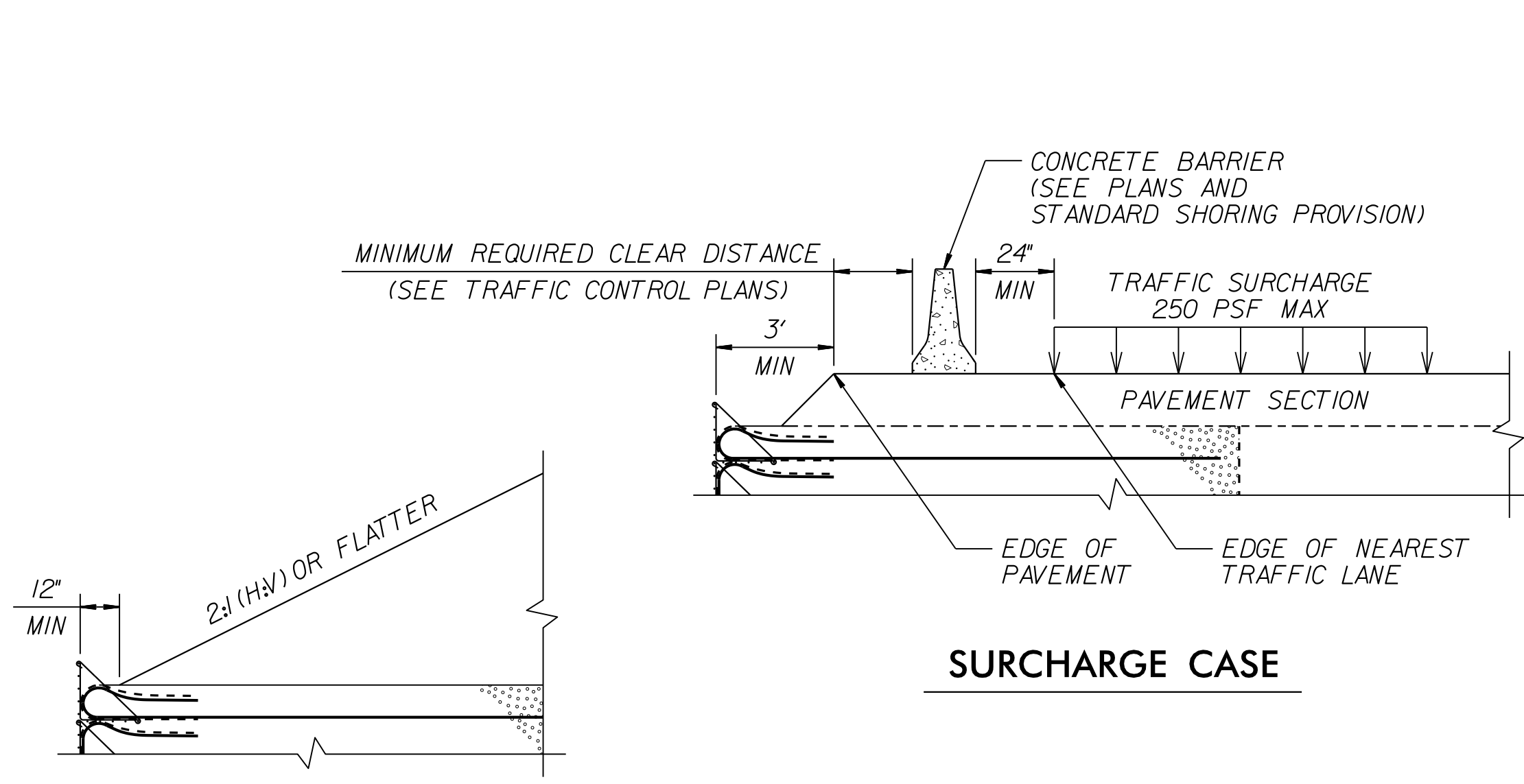


NORTH CAROLINA  
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**GEOTECHNICAL ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.01

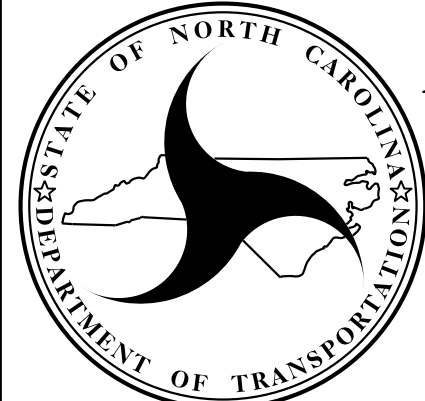
STANDARD TEMPORARY SHORING


<b>PROJECT REFERENCE NO.</b> R-3825B	<b>SHEET NO.</b> 2G-4
GEOTECHNICAL ENGINEER  Scott A. Hadden 5/21/2018	ENGINEER _____ DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

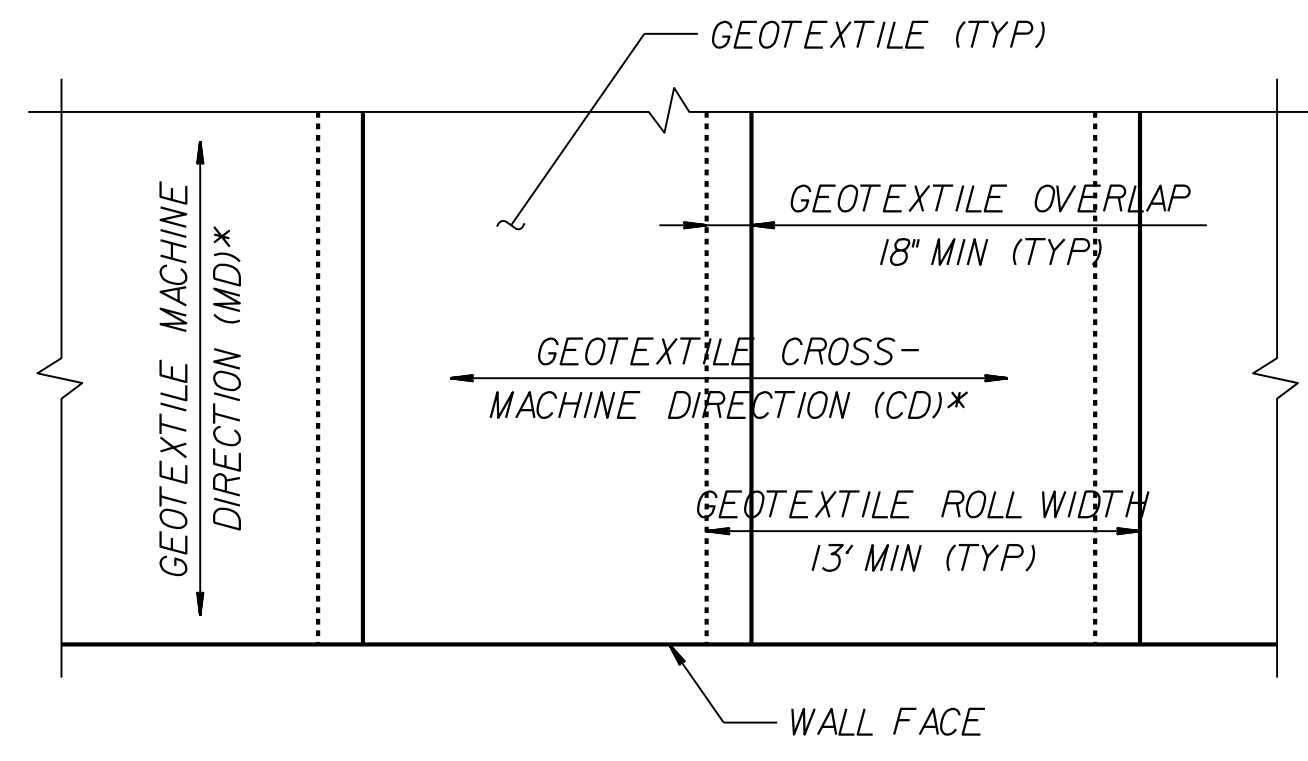


**STANDARD TEMPORARY WALL**  
 (FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)  
 \*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.  
 \*\*SEE REINFORCEMENT TABLES ON SHEET 3.

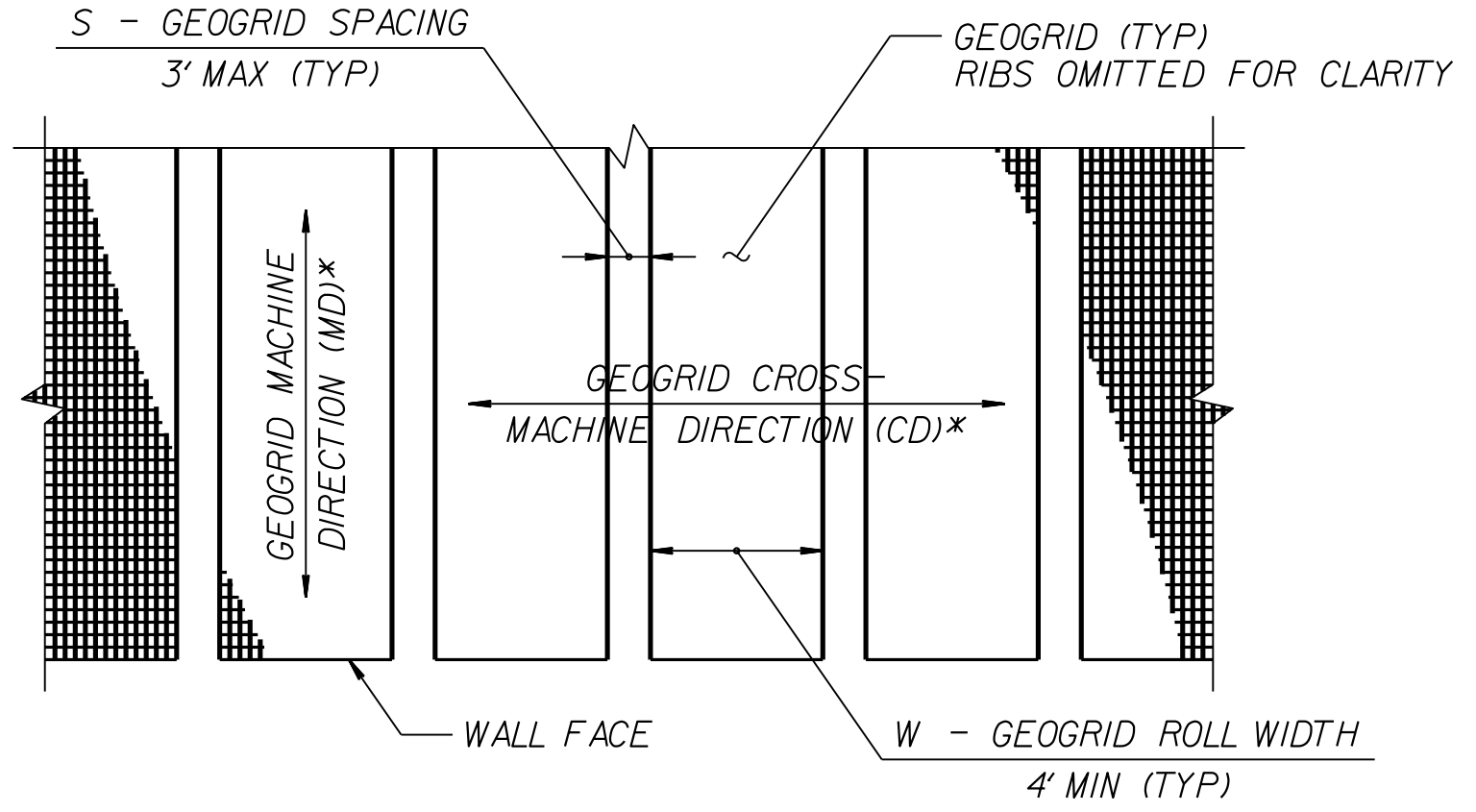
**STANDARD TEMPORARY WALL - PARTIAL ELEVATION**  
 \*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.  
 \*\*SEE REINFORCEMENT TABLES ON SHEET 3.

 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS <b>GEOTECHNICAL ENGINEERING UNIT</b>	STANDARD DETAIL NO. 1801.02
	STANDARD TEMPORARY WALL SHEET 1 OF 3 DATE: 11-19-13

<b>PROJECT REFERENCE NO.</b> R-3825B	<b>SHEET NO.</b> 2G-5
GEOTECHNICAL ENGINEER  DocuSigned by: Scott A. Hidden 5/21/2018	ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

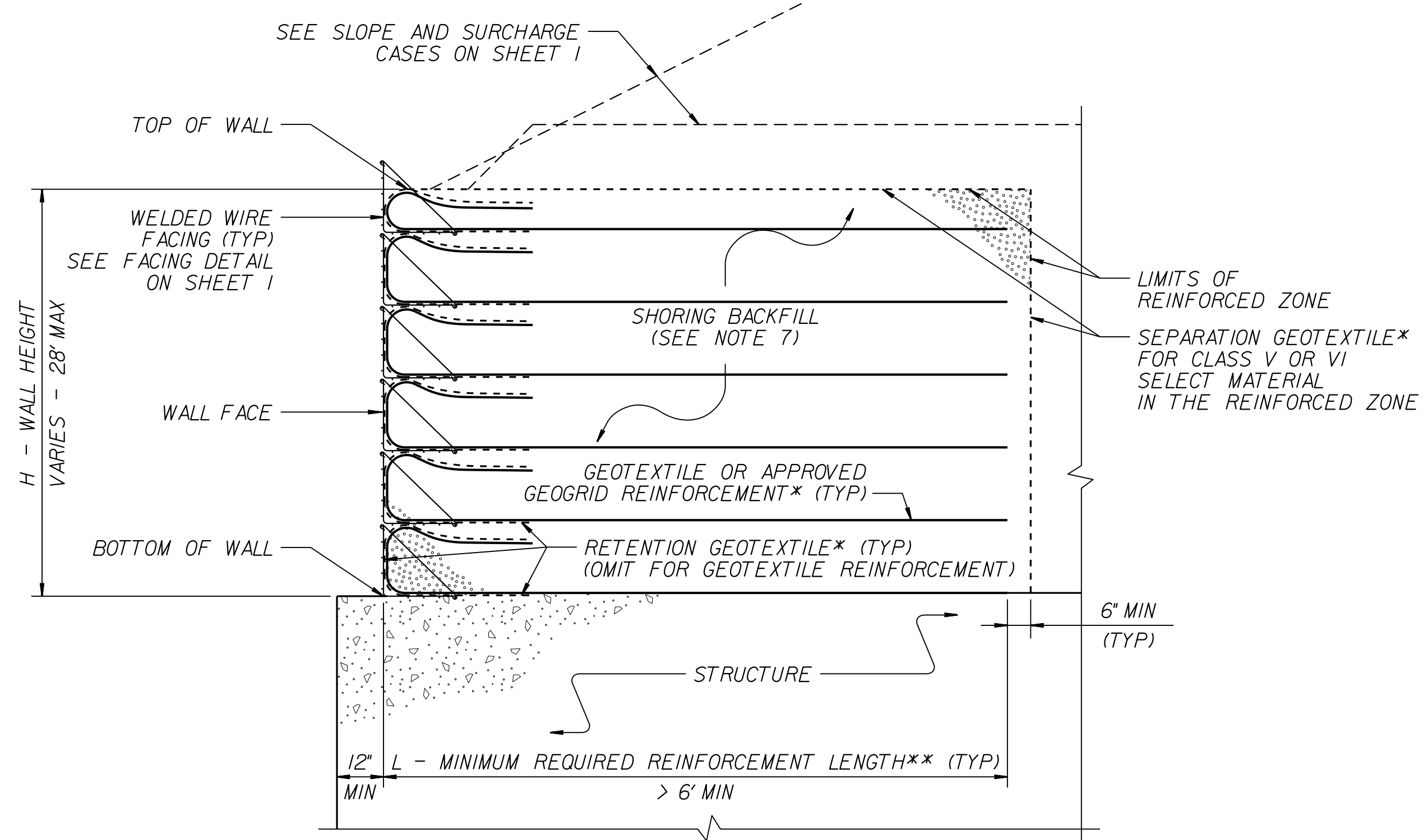


**GEOTEXTILE PLACEMENT**  
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



**GEOGRID PLACEMENT**  
(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT -  $\frac{W}{W+S} \times 100 \geq 80\%$ , SEE NOTE 11)

**GEOSYNTHETIC PLACEMENT DETAILS**  
(PLAN VIEW)  
\*SEE NOTE 12.



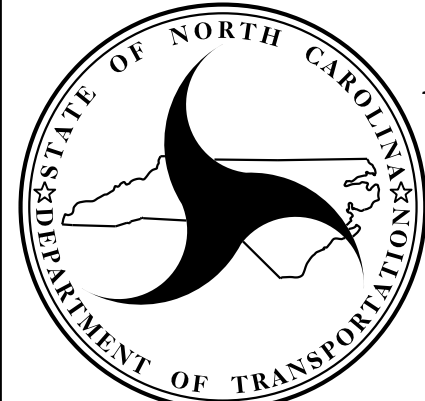
**TEMPORARY WALL ON STRUCTURE DETAIL**  
\*SEE GEOSYNTHETIC PLACEMENT DETAILS.  
\*\*SEE REINFORCEMENT TABLES ON SHEET 3.

**NOTES:**

- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  PCF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  PSF
- DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
- DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
- EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
- DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
- GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: [connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Manual.aspx](http://connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Manual.aspx). DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
  - AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:  
-  $W$  (REINFORCEMENT ROLL WIDTH)  $\geq$  (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND  
- REINFORCEMENT STRENGTH IN CD  $\geq$  MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
  - SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: [connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
  - DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
  - FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
  - DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
  - CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
  - FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
  - FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.



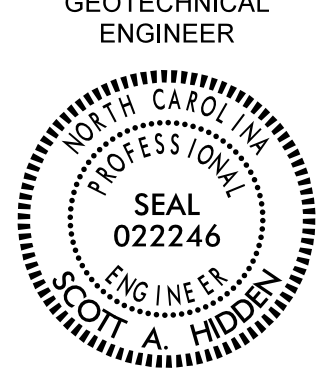
**NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

**GEOTECHNICAL  
ENGINEERING UNIT**

**STANDARD DETAIL NO. 1801.02**

**STANDARD  
TEMPORARY WALL  
SHEET 2 OF 3**

DATE: 11-19-13

<b>PROJECT REFERENCE NO.</b> R-3825B	<b>SHEET NO.</b> 2G-6
GEOTECHNICAL ENGINEER  ENGINEER	ENGINEER
DocsSigned by: Scott A. Hidden DATE: 5/21/2018	SIGNATURE: _____ DATE: _____
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																									
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27	
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	
		A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21	
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20	
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19	

**L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)**  
(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

\*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

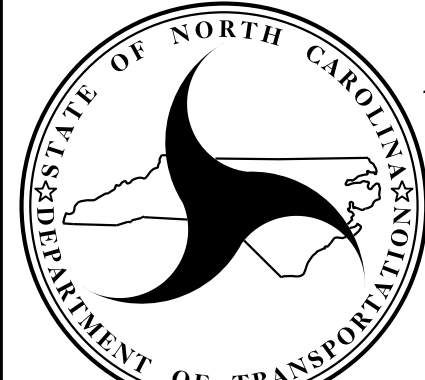
REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

**GEOTEXTILE REINFORCEMENT**  
**ULTIMATE TENSILE STRENGTH (LB/FT)**

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

**GEOGRID REINFORCEMENT**  
**SHORT-TERM DESIGN STRENGTH (LB/FT)**  
(SEE NOTE 10 ON SHEET 2.)

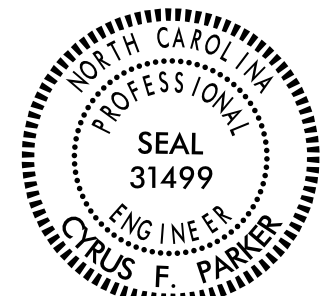
**MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD**  
(SEE NOTE 9 ON SHEET 2.)  
\*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



**NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**GEOTECHNICAL**  
**ENGINEERING UNIT**

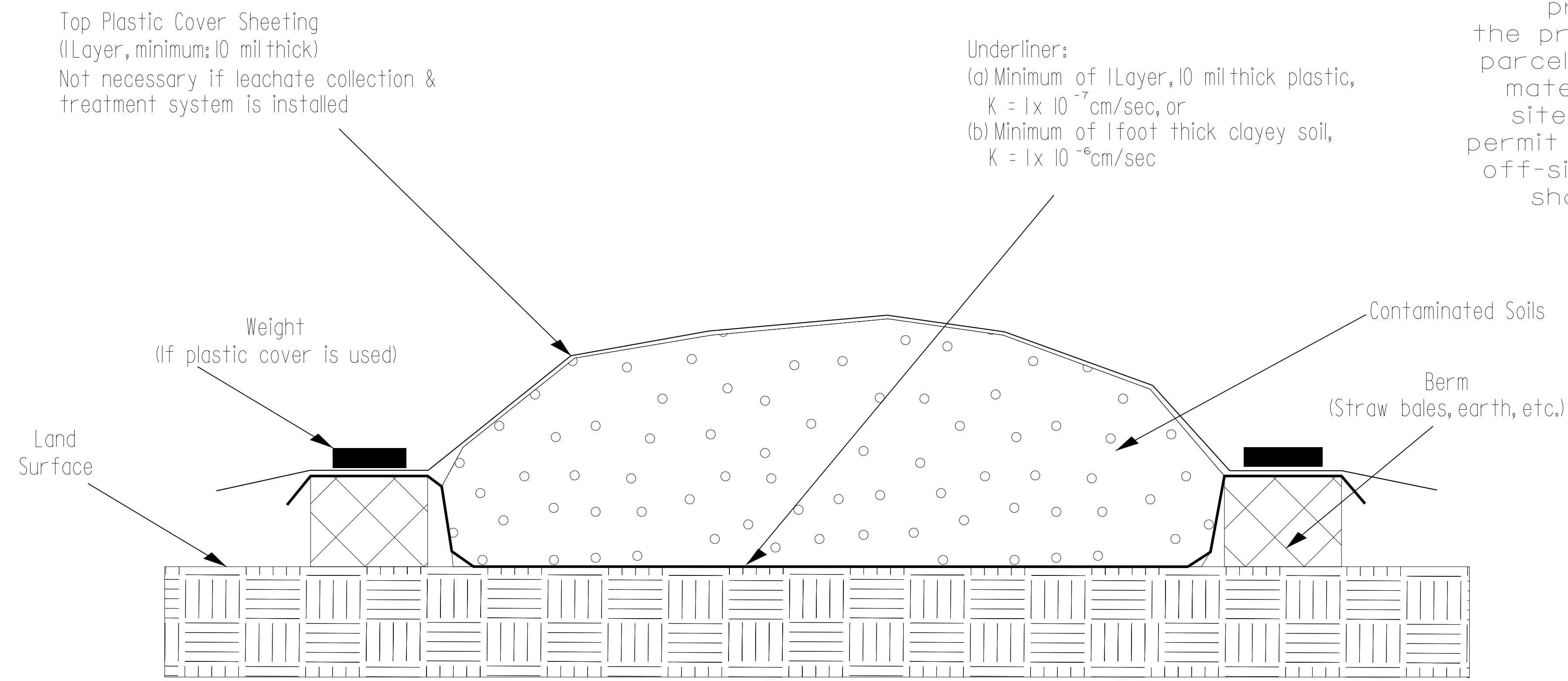
STANDARD DETAIL NO. 1801.02

STANDARD  
TEMPORARY WALL  
SHEET 3 OF 3

<b>PROJECT REFERENCE NO.</b> R-3825B		<b>SHEET</b> 2H-1
GEOENVIRONMENTAL ENGINEER		ENGINEER
		
DocuSigned by: <i>Cyrus Parker</i> 7/8/2016		
_____ SIGNATURE	_____ DATE	_____ SIGNATURE

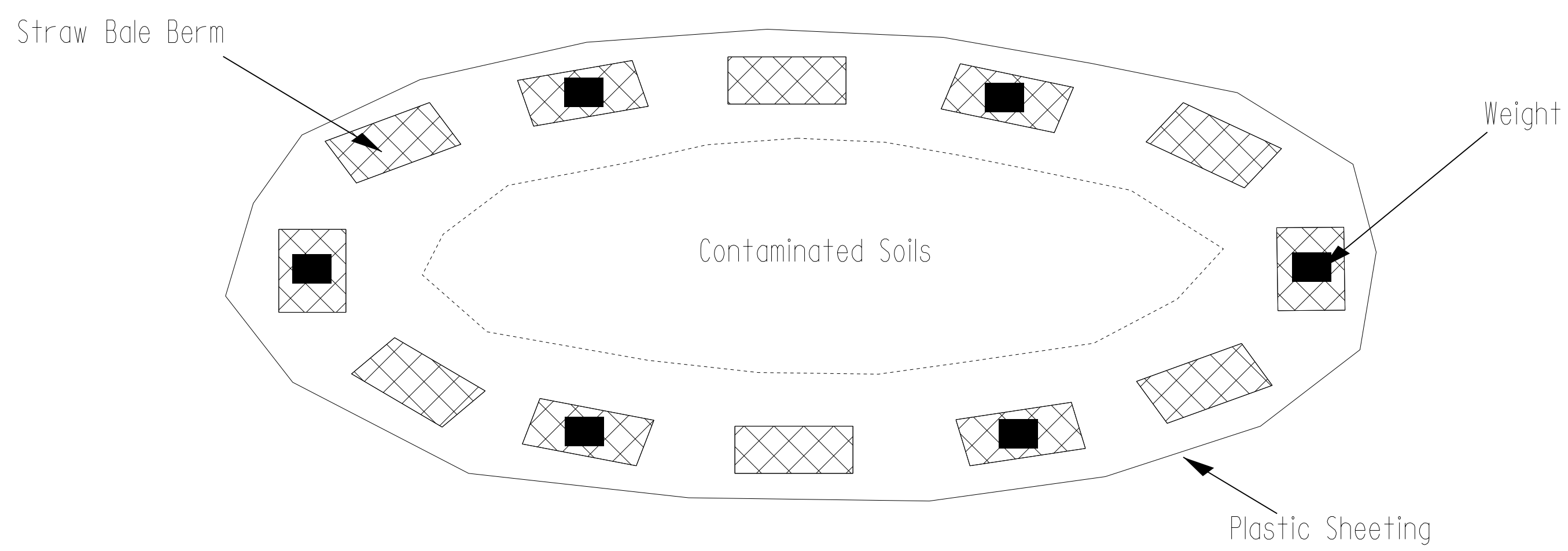
## Detail for Temporary Containment of Contaminated Soil

### Cross-Section View



**NOTE:**  
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDEQ UST Section for off-site temporary storage. Stockpile shall be removed within 45 days.

### Map View



**GEOTECHNICAL ENGINEERING UNIT**

EASTERN REGIONAL OFFICE  
 WESTERN REGIONAL OFFICE  
 CONTRACT OFFICE

**STATE OF NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**  
**RALEIGH**

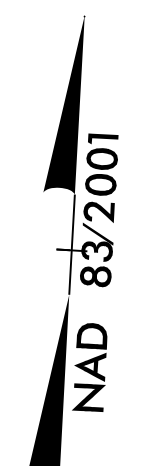
### STOCKPILE CONTAINMENT DETAIL

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

PREPARED BY:	DATE:
REVIEWED BY:	DATE:

5/28/99

# NOISE WALL -NW2A-

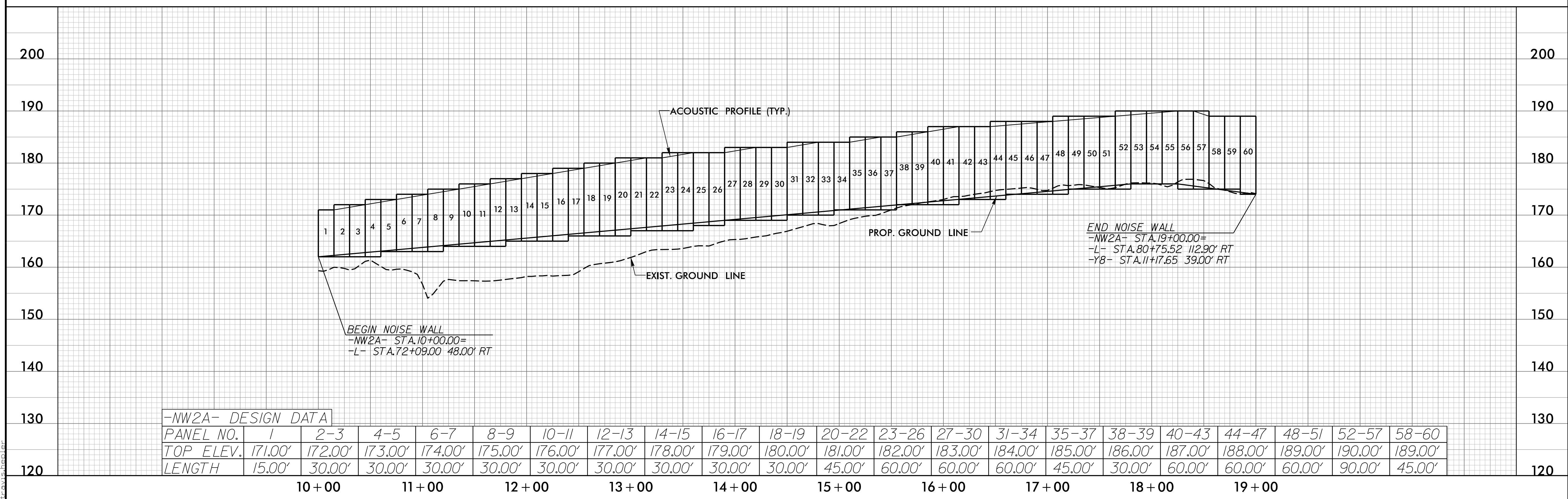
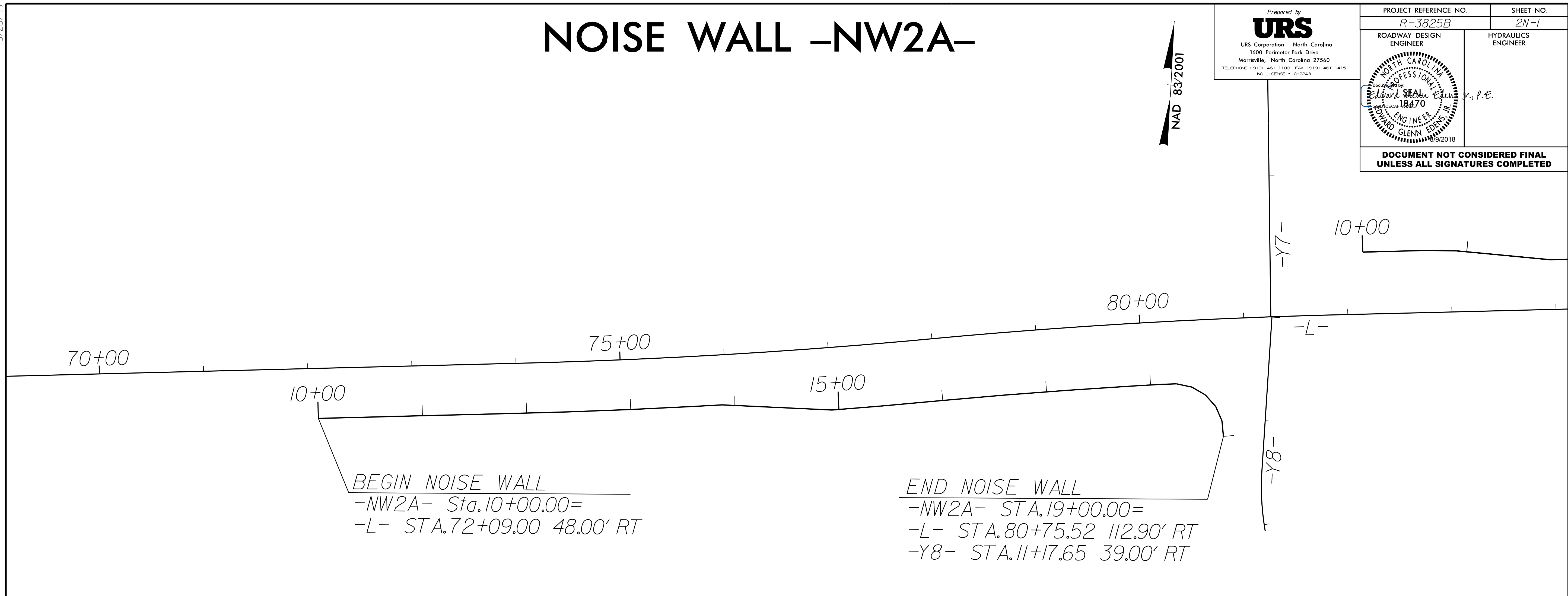


Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE 1 919 461-1100 FAX 1 919 461-1415  
 NC LICENSE # C-2843

PROJECT REFERENCE NO. R-3825B	SHEET NO. 2N-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Professional Engineer Seal: Edward S. Eders, P.E., License No. 18470, State of North Carolina, expires 9/2018.

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**



-NW2A- DESIGN DATA	
PANEL NO.	1    2-3    4-5    6-7    8-9    10-11    12-13    14-15    16-17    18-19    20-22    23-26    27-30    31-34    35-37    38-39    40-43    44-47    48-51    52-57    58-60
TOP ELEV.	171.00'    172.00'    173.00'    174.00'    175.00'    176.00'    177.00'    178.00'    179.00'    180.00'    181.00'    182.00'    183.00'    184.00'    185.00'    186.00'    187.00'    188.00'    189.00'    190.00'    189.00'
LENGTH	15.00'    30.00'    30.00'    30.00'    30.00'    30.00'    30.00'    30.00'    30.00'    30.00'    45.00'    60.00'    60.00'    60.00'    45.00'    30.00'    60.00'    60.00'    60.00'    90.00'    45.00'
	10+00    11+00    12+00    13+00    14+00    15+00    16+00    17+00    18+00    19+00

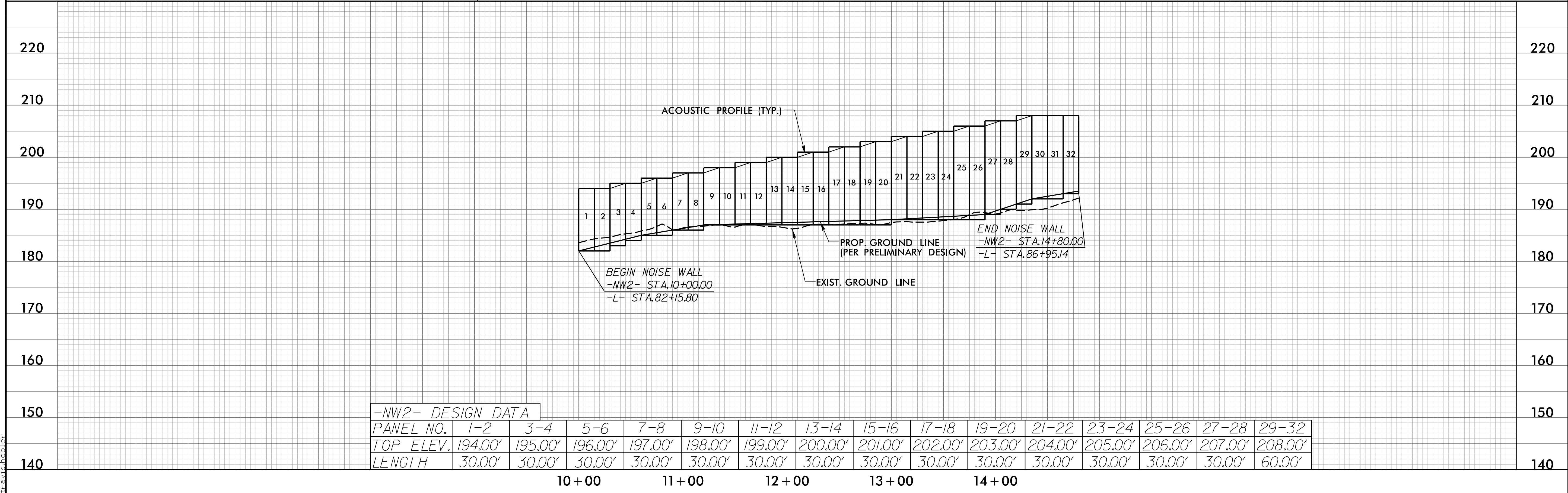
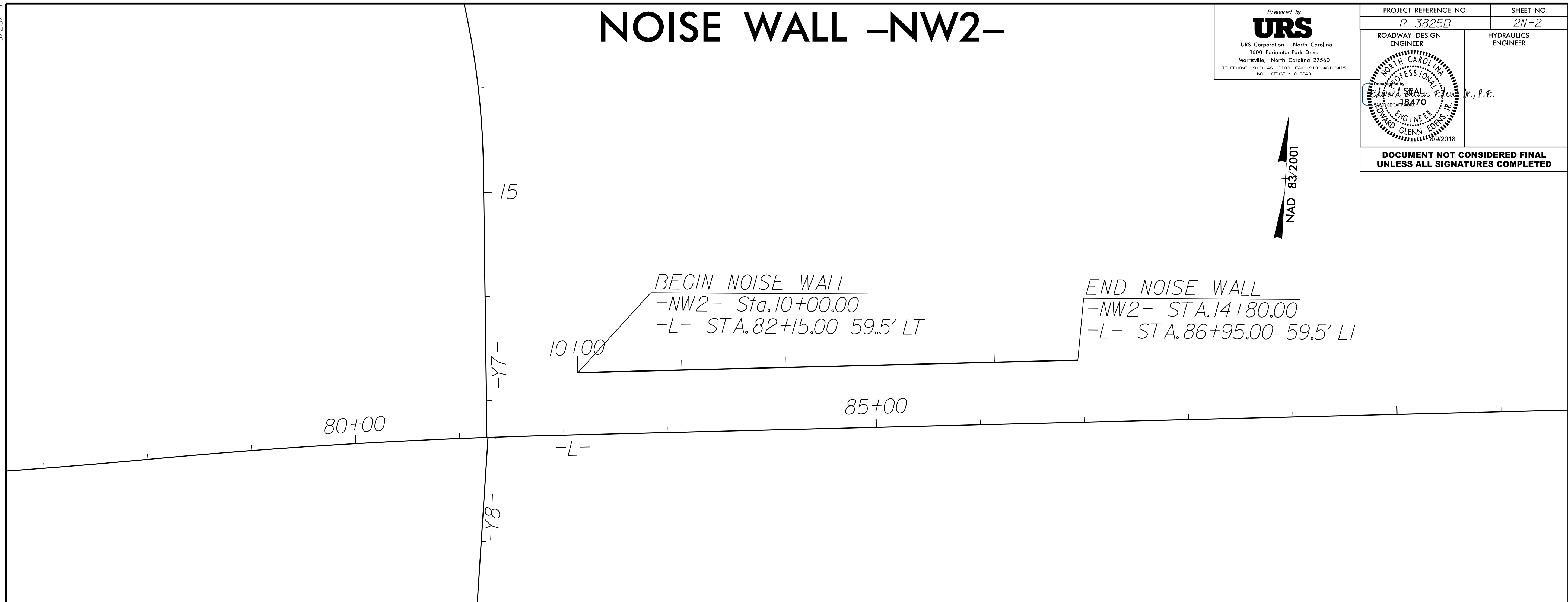
8/9/2016  
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 Edward S. Eders, P.E.  
 License No. 18470

5/28/19

# NOISE WALL -NW2-

Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE 1 919 461-1100 FAX 1 919 461-1415  
 NC LICENSE # C-2843

PROJECT REFERENCE NO. R-3825B	SHEET NO. 2N-2
ROADWAY DESIGN ENGINEER Edward SEA... Professional Seal 18470 Edward Glenn Edgington, P.E. 9/2018	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



8/9/2018 R:\Projects\2018\Noise\193825B\193825B\_NW\_01.dgn DNR\193825B\_Rdy\_psh\_02N\_2.dgn

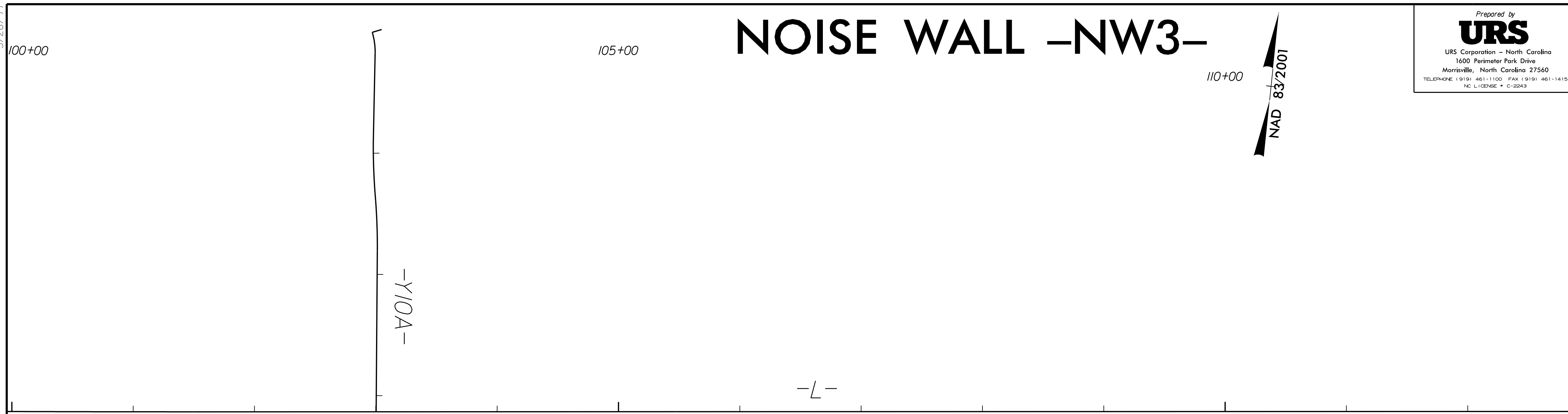


5/28/19

# NOISE WALL -NW3-

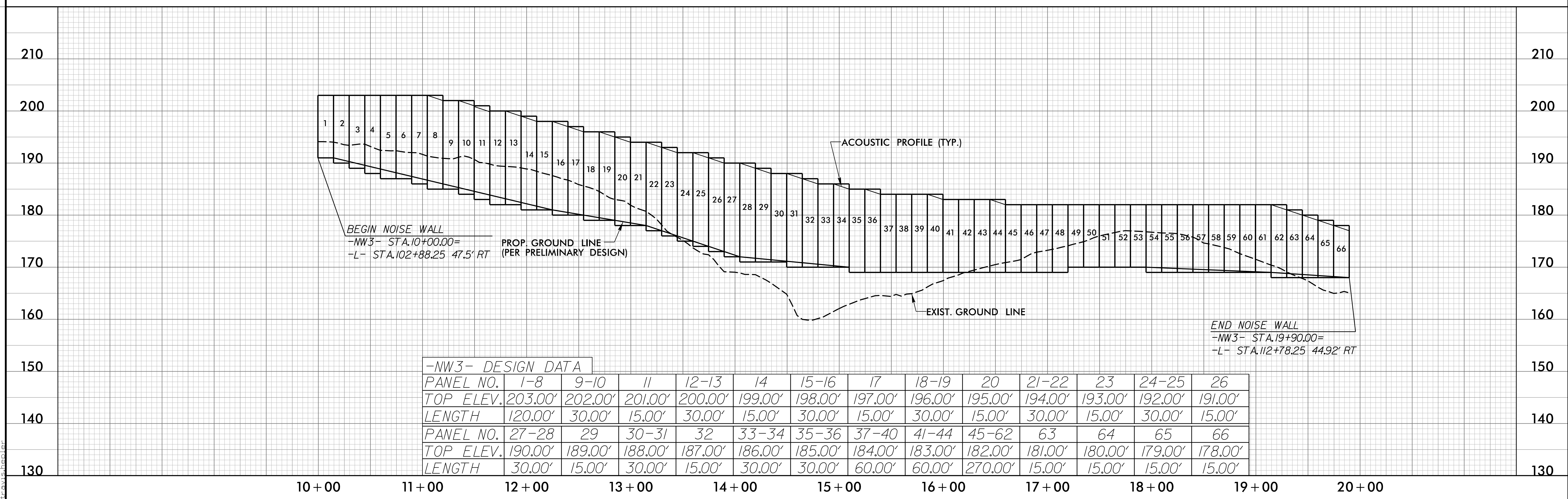
Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE 1 919 461-1100 FAX 1 919 461-1415  
 NC LICENSE # C-2843

PROJECT REFERENCE NO. <i>R-3825B</i>	SHEET NO. <i>2N-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<i>Edward S. ...</i>	<i>... P.E.</i>
<b>DOCUMENT NOT CONSIDERED FINAL                  UNLESS ALL SIGNATURES COMPLETED</b>	



*BEGIN NOISE WALL*  
 -NW3- Sta.10+00.00=  
 -L- Sta.102+88.25 47.5' RT

*END NOISE WALL*  
 -NW3- Sta.19+90.00=  
 -L- Sta.112+78+25 44.92' RT



PANEL NO.	1-8	9-10	11	12-13	14	15-16	17	18-19	20	21-22	23	24-25	26
TOP ELEV.	203.00'	202.00'	201.00'	200.00'	199.00'	198.00'	197.00'	196.00'	195.00'	194.00'	193.00'	192.00'	191.00'
LENGTH	120.00'	30.00'	15.00'	30.00'	15.00'	30.00'	15.00'	30.00'	15.00'	30.00'	15.00'	30.00'	15.00'
PANEL NO.	27-28	29	30-31	32	33-34	35-36	37-40	41-44	45-62	63	64	65	66
TOP ELEV.	190.00'	189.00'	188.00'	187.00'	186.00'	185.00'	184.00'	183.00'	182.00'	181.00'	180.00'	179.00'	178.00'
LENGTH	30.00'	15.00'	30.00'	15.00'	30.00'	30.00'	60.00'	60.00'	270.00'	15.00'	15.00'	15.00'	15.00'

8/9/2018  
 C:\Users\...  
 ...  
 ...

COMPUTED BY: TLH DATE: 6/6/18  
 CHECKED BY: KVM DATE: 6/7/18

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. R-3825B SHEET NO. 3B-1

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

SUMMARY OF EARTHWORK  
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT +%	BORROW	WASTE
-L- 16+00.00 (LEFT) TO 45+00.00 (LEFT)	5,937	1,565	30,400	24,463	1,565
-L- 16+00.00 (RIGHT) TO 45+00.00 (RIGHT)	14,783	435	9,230		5,988
-LDET- 35+50.00 TO 43+53.59	272		351	79	
-Y4- 10+50.00 TO 12+75.00	1,971		7		1,964
-Y4DET- 0+50.00 TO 3+75.00	854		54		800
SUB-TOTAL	23,815	2,000	40,042	24,542	10,316
-L- 45+00.00 (LEFT) TO 62+32.00 (LEFT)	6,881	56	16,228	9,347	56
-L- 45+00.00 (RIGHT) TO 62+32.00 (RIGHT)	24,194	2,744	35,872	11,678	2,744
BRIDGE					
-Y5- 10+50.00 TO 14+22.00	6,358		19		6,339
-Y5DET- 0+50.00 TO 5+50.13	672		206		466
SUB-TOTAL	38,105	2,800	52,325	21,025	9,605
BRIDGE					
-L- 66+08.00 (LEFT) TO 96+50.00 (LEFT)	3,989	6	10,554	7,136	577
-L- 66+08.00 (RIGHT) TO 96+50.00 (RIGHT)	1,706	294	23,000	21,477	477
-Y6- 10+60.00 TO 17+50.00	2,242		1,206		1,036
-Y7- 15+00.00 TO 16+50.00	467	600	592	249	724
-Y8- 10+50.00 TO 11+30.00	54		74	20	
-Y9- 11+73.15 TO 17+50.00	1,976		78		1,898
-Y10- 10+50.00 TO 11+11.65	58		2		56
SUB-TOTAL	10,492	900	35,506	28,882	4,768
-L- 96+50.00 (LEFT) TO 126+50.00 (LEFT)	8,508	250	23,894	15,386	250
-L- 96+50.00 (RIGHT) TO 126+50.00 (RIGHT)	5,516	400	27,906	22,390	400
-Y10A- 11+10.00 TO 12+50.00	14		1,820	1,806	
-Y10B- 11+70.00 TO 12+50.00	24		124	100	
SUB-TOTAL	14,062	650	53,744	39,682	650
-L- 126+50.00 (LEFT) TO 156+50.00 (LEFT)	12,291	300	20,971	8,680	300
-L- 126+50.00 (RIGHT) TO 156+50.00 (RIGHT)	11,033		21,910	10,877	
-Y10C- 12+05.00 TO 14+00.00	201		78		123
-Y11- 10+50.00 TO 11+37.75	265		2		263
SUB-TOTAL	23,790	300	42,961	19,557	686
-L- 156+50.00 (LEFT) TO 186+50.00 (LEFT)	11,060		22,671	11,631	20
-L- 156+50.00 (RIGHT) TO 186+50.00 (RIGHT)	15,356	2,500	41,506	26,316	2,667
-DR1- 10+50.00 TO 11+45.00	375				375
-Y11A- 10+50.00 TO 12+85.00	87		1,225	1,138	
-Y11B- 10+50.00 TO 11+76.00	49		544	495	
SUB-TOTAL	26,928	2,500	65,946	39,580	3,062
-L- 186+50.00 (LEFT) TO 216+50.00 (LEFT)	3,952		13,273	9,321	
-L- 186+50.00 (RIGHT) TO 216+50.00 (RIGHT)	21,030		6,705		14,325
-Y11C- 10+50.00 TO 12+17.42	297		1		296
-Y12- 11+31.56 TO 17+00.00	1,432		12,438	11,006	
SUB-TOTAL	26,710		32,417	20,327	14,620
-L- 216+50.00 (LEFT) TO 246+50.00 (LEFT)	3,408		7,000	3,736	144
-L- 216+50.00 (RIGHT) TO 246+50.00 (RIGHT)	7,129		15,418	9,736	1,446
-Y12A- 12+25.00 TO 12+50.00	93				93
-Y12B- 10+41.28 TO 11+00.00	88		2		86
-Y13- 16+23.49 TO 34+29.28	1,644		3,863	2,249	30
SUB-TOTAL	12,362		26,283	15,721	1,800
-L- 246+50.00 (LEFT) TO 257+50.00 (LEFT)	2,291		413		1,878
-L- 246+50.00 (RIGHT) TO 257+50.00 (RIGHT)	497		734	245	8
SUB-TOTAL	2,788		1,147	245	1,886
PROJECT TOTALS	179,053	9,150	350,371	209,561	47,393
MATERIAL FOR SHOULDER CONSTRUCTION			4,688		4,688
LOSS DUE TO CLEARING & GRUBBING	-20,000				20,000
ADDITIONAL UNDERCUT		3,500	4,375	4,375	3,500
WASTE IN LIEU OF BORROW				-34,743	-34,743
PROJECT TOTALS	159,053	12,650	359,434	203,881	16,150
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				10,194	
GRAND TOTALS	159,053	12,650	359,434	214,075	16,150
SAY	161,000	12,650		216,000	

PAVEMENT STRUCTURE VOLUME: 50,022 CY -L-

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH OR AREA	YD
L	21+72.62	22+21.96	LT	47	5.22
L	28+72.13	29+70.04	CL	704	78.22
L	33+34.48	38+87.76	CL	7335	815.00
Y5	10+32.98	11+68.13	RT	3105	345.00
L	75+27.58	76+13.03	CL	207	23.00
L	95+55.70	114+65.11	CL	38793	4310.33
L	120+10.11	125+25.01	CL	10643	1182.56
L	150+48.15	150+96.21	RT	610	67.78
L	151+20.21	151+44.19	RT	120	13.33
L	153+22.00	163+93.57	CL	23213	2579.22
L	164+47.28	176+20.34	LT	8206	911.78
L	168+08.04	171+16.31	CL	2804	311.56
L	176+66.15	189+58.30	CL	22266	2474.00
L	194+80.16	216+43.97	CL	44309	4923.22
Y12	12+77.32	15+62.72	LT	5290	587.78
Y12	15+79.21	18+26.71	LT	6949	772.11
Y12	19+00.71	20+47.95	LT	6119	679.89
L	226+78.00	231+07.38	CL	8764	963.78
L	236+59.28	240+84.98	CL	10394	1154.89
			TOTAL:		22,198.67
			SAY:		22,200

SHOULDER BERM GUTTER

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH
L	26+78.00	29+46.00	LT	268.0
L	48+77.00	50+98.00	LT	243.0
L	57+26.25	62+07.50	LT	481.3
L	57+08.25	62+07.50	RT	499.3
L	66+32.50	67+38.75	RT	106.3
L	66+32.50	67+42.00	LT	110.0
L	104+01.91	107+85.00	LT	383.1
L	112+97.00	115+10.00	RT	232.0
L	127+05.00	128+98.00	RT	193.0
L	127+96.00	129+53.09	LT	158.0
L	133+35.00	137+03.00	RT	368.0
L	135+12.00	138+05.00	LT	293.0
L	154+75.00	158+68.00	RT	393.0
L	155+12.00	159+05.00	LT	393.0
L	166+30.00	173+34.00	LT	702.0
L	193+01.04	194+00.00	LT	99.0
L	200+22.00	202+65.00	LT	243.0
L	200+70.00	203+38.00	RT	268.0
Y12	17+02.23	20+46.28	RT	355.0
			TOTAL:	5787.8
			SAY:	5790

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USA3L2177006

COMPUTED BY: \_\_\_\_\_ AECOM DATE: 07/02/2018
CHECKED BY: \_\_\_\_\_ AECOM DATE: 07/02/2018

PROJECT NO. R-3825B SHEET NO. 3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC), C. S. PIPE, R. C. PIPE CLASS IV, WELDED STEEL PIPE GRADE B 0.5" THICK, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE OR TRANSITIONAL SECTION, and REMARKS.



USRA3L1T7006

COMPUTED BY: AECOM DATE: 07/02/2018  
CHECKED BY: AECOM DATE: 07/02/2018

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

PROJECT NO. SHEET NO.  
R-3825B 3D-3

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

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

Table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Minimum Required Slope, Pipe Material (Drainage Pipe, C.S. Pipe, R.C. Pipe, Welded Steel Pipe), Quantities for Drainage Structures, Frame, Grates, and Hood, and Remarks. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS table listing codes like C.A.A., C.B., C.S., etc. and their corresponding material names.

REMARKS









USRA\31177006

COMPUTED BY: AECOM DATE: 07/02/2018  
CHECKED BY: AECOM DATE: 07/02/2018

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

PROJECT NO. R-3825B SHEET NO. 3D-7

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

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

Main data table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Pipe Type (Drainage, C.S., R.C., Welded Steel), Thickness, Quantities for Drainage Structures, Frame/Grates, and Remarks. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS table listing codes like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S. and their corresponding material descriptions.

REMARKS

USRA\31177006

COMPUTED BY: AECOM DATE: 07/02/2018  
CHECKED BY: AECOM DATE: 07/02/2018

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

PROJECT NO. R-3825B  
SHEET NO. 3D-8

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

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

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, Drainage Pipe, C. S. PIPE, R. C. PIPE, WELDED STEEL PIPE, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE OR DETAIL SHEET, DRAINAGE STRUCTURE, GRADE TYPE, and REMARKS.

SHEET TOTALS

728 364 144

324 184 356

22 1.0

1

2

16

5

14

3

1

1

3

1

1

1

Leave boxes low with steel plate and pave, then adjust height for final grade.







USA312177006

COMPUTED BY: AECOM DATE: 07/02/2018  
CHECKED BY: AECOM DATE: 07/02/2018

PROJECT NO. R-3825B SHEET NO. 3D-12

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

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

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

Table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Minimum Required Slope, Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC), C.S. Pipe, R.C. Pipe Class IV, Welded Steel Pipe (Grade B, 0.5" Thick), Quantities for Drainage Structures, Frame, Grates, and Hood, and Remarks. Includes a 'SHEET TOTALS' row at the bottom.

ABBREVIATIONS  
C.A.A. CORRUGATED ALUMINIUM ALLOY  
C.B. CATCH BASIN  
C.S. CORRUGATED STEEL  
D.I. DROP INLET  
G.D.I. GRATED DROP INLET  
H.D.P.E. HIGH DENSITY POLYETHYLENE  
J.B. JUNCTION BOX  
M.H. MANHOLE  
N.S. NARROW SLOT  
P.V.C. POLYVINYL CHLORIDE  
R.C. REINFORCED CONCRETE  
T.B.D.I. TRAFFIC BEARING DROP INLET  
T.B.J.B. TRAFFIC BEARING JUNCTION BOX  
W.S. WIDE SLOT

















COMPUTED BY: Jinyoung Park DATE: 3/26/2018  
 CHECKED BY: Jamey Batts DATE: 3/26/2018

(3-26-18)

PROJECT NO. R-3825B SHEET NO. 3G-1

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
L	41+75	43+25	RT	SD	150
L	75+25	76+25	LT	SD	150
L	79+75	82+25	LT AND RT	SD	500
L	110+25	113+25	LT AND RT	SD	600
L	234+25	236+25	LT AND RT	SD	400
L	243+75	248+75	LT AND RT	SD	1000
L	251+00	253+25	LT AND RT	SD	450
L	255+25	257+75	LT AND RT	SD	500
Y7	14+75	16+50	LT AND RT	SD	350
CONTINGENCY					
				SD	2000
				<b>TOTAL LF:</b>	<b>6100</b>

\*UD = Underdrain  
 \*BD = Blind Drain  
 \*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
L	81+75	83+75	ASU	12	50	100	300		
L	89+75	94+75	ASU	12	350	600	1000		
L	177+25	180+25	ASU	12	200	350	650		
L	220+25	222+25	ASU	12	200	375	600		
L	223+25	224+75	ASU	12	150	250	400		
L	242+75	246+75	ASU	12	600	1100	2000		
L	251+25	253+25	ASU	12	200	400	600		
Y6	13+75	15+75	ASU	12	100	100	200		
Y13	20+25	22+75	ASU	12	100	175	400		
CONTINGENCY									
			ASU	12	1000	1500	3000		
			<b>TOTAL CY/TONS/SY:</b>		<b>2950</b>	<b>4950</b>	<b>9150**</b>	<b>0</b>	<b>0</b>

\*ASU = Aggregate Subgrade  
 \*AST = Aggregate Stabilization  
 \*\*Total square yards of "Geotextile for Soil Stabilization" is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	2.5:1	200+25 ±	2.5:1	202+75 ±	LT	2	1	1400
-L-	2.5:1	229+75 ±	2.5:1	231+75 ±	LT	2	1	550
-L-	2.5:1	231+25 ±	2.5:1	232+75 ±	RT	2	1	600
<b>TOTAL SY:</b>								<b>2550</b>

\*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	Station	Station	OFFSET	SY
L	24+00.00	29+50.00	LT	2322.00
L	37+00.00	39+00.00	LT	844.00
L	48+75.00	50+25.00	LT	767.00
L	48+75.00	49+75.00	RT	622.00
L	57+75.00	62+50.00	RT	2428.00
L	66+25.00	67+25.00	RT	622.00
L	105+00.00	108+50.00	LT	1906.00
L	107+00.00	109+00.00	RT	756.00
L	112+75.00	115+25.00	RT	1528.00
L	127+25.00	129+00.00	LT, RT	833.00
L	134+75.00	137+50.00	LT, RT	2750.00
L	155+00.00	158+00.00	LT, RT	2467.00
L	165+25.00	169+00.00	RT	1875.00
L	200+25.00	203+00.00	LT	1161.00
L	201+25.00	204+00.00	RT	978.00
L	230+00.00	232+25.00	LT	625.00
L	230+00.00	232+50.00	RT	778.00
<b>TOTAL SY</b>				<b>23262</b>

# DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA **PARCEL INDEX SHEET**

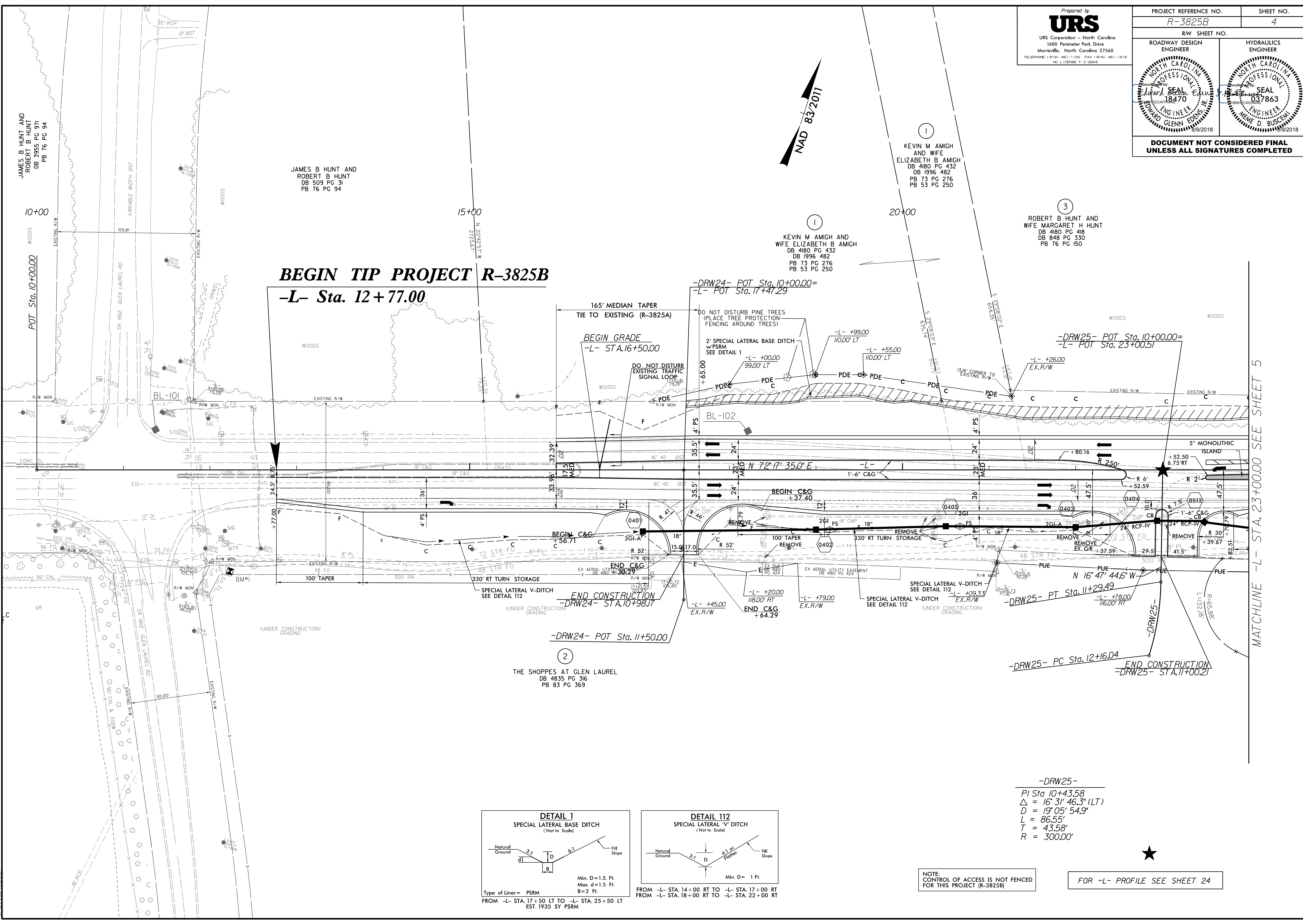
PARCEL No.	SHEET No.	PROPERTY OWNER INFORMATION
1	4	KEVIN M AMIGH AND WIFE ELIZABETH B AMIGH
2	4,5	THE SHOPPES AT GLEN LAUREL
3	4,5	ROBERT B HUNT AND WIFE MARGARET H HUNT
4	4,5,6	PINES AT GLEN LAUREL, LLC
5	5,6,7	FALCON HAMLET LLC
6	7,8	RIVER MEWS ESTATE LLC
7	6	STEVENSON E WILSON AND WIFE MAJORIE WILSON
8	6	KEVIN T HAMILTON
9	6	CHRISTY L HOBBY
10	6	JASON A WILLIAMS AND JOSEPH T LORENZO
11	6,7	TODD NARRON
12	6	ALVIN BROUGHTON JR AND WIFE CAROL BROUGHTON
13	7	KLAUS J KALLAS AND WIFE MARY H KALLAS
14	7	WALTER S DAVIS AND WIFE SYLVIA DAVIS
15	7,8	REBECCA D FLOWERS
16	8	JOHNSTON COUNTY BOARD OF EDUCATION
17	8,9	COUNTY OF JOHNSTON
18	8,9	REBECCA FLOWERS FINCH
19	8	AQUA NORTH CAROLINA INC.
21	9	CARE OF CLAYTON, LLC
22	9	WOODARD INSURANCE, INC
23	9	REBECCA FLOWERS FINCH
24	9,10	GEORGE EDWARD NICHOLDS
25	9,10	BHH, LLC
26	10	PRAZE PROPERTIES, LLC
27	10	JERAULD G. THELIN AND WIFE SANDRA M. THELIN
28	10	CLAYTON 99, LLC
29	10	SUSO 4 FLOWERS LP
30	10	RICHARD ALLEN LEE AND WIFE LISA JEANINE BOYKIN
31	10	JAMES A. JOY II AND WIFE CHRISTINE C. JOY
32	10	AQUA NORTH CAROLINA, INC FORMALLY (HEATER UTILITIES, INC)
33	10	CAROLINA TELEPHONE AND TELEGRAPH CO.
34	10	ALBERT HARVEY WALSTON AND JEAN TURNER MURRAY
35	11	CLAYTON 99, LLC
36	11	CLAYTON 99, LLC
37	11	THE GARDENS AT FLOWERS PLANTATION ASSOCIATION
39	11	AQUA NORTH CAROLINA, INC FORMALLY (HEATER UTILITIES, INC)
40	11	CHARLES RAY WILLIAMS
41	11	INSPIRED, LLC
42	11	IRENE V. DAVUDOVA-FORQUER
43	11	AQUA NORTH CAROLINA, INC
44	11	BRADLEY SCOTT SIMMONS AND WIFE JILL DAVIS SIMMONS
45	11	RICHARD TODD STUTTS
46	11,12	PETER JOSEPH BIGNESS AND CINDY JOHNSON BIGNESS
47	12	NEUSE PARK DEVELOPMENT CO., LLC
48	12,13	CENTEX HOMES
49	12	M. ANDREW JONES, JR. AND WIFE NANCY S. JONES
50	12	MARSHALL H. MALPASS AND WIFE ROBIN M. MALPASS
51	12	CHRISTOPHER V. CIPRIANI AND WIFE PATRICIA S. CIPRIANI
52	12,13	RODNEY GEOHAGAN, JR.
53	13	EUGENE V. BERTOCCHI AND SPOUSE ROBERTA T. BERTOCCH
54	13	ANDREW J. BOND
55	13	HARRISON N. MWAURA AND BEATRICE W. CHEGE
56	13	CREESHA D. HOGAN
57	13	ERICA L. SETH
58	13,14,15	42 EAST, LLC
60	13	SOARD FAMILY LLC

PARCEL No.	SHEET No.	PROPERTY OWNER INFORMATION
62	13,14,15	NEUSE COLONY ASSOCIATION INC. ACQUISITION OF WHITE VINYL FENCE LOCATED ON PARCEL 24-59
63	14	WILLIAM R. JAMESON
64	14	SHANNON L. HILL AND WIFE REGINA HILL
67	15,16	GERRY LYNCH
68	15	CHRISTIE TRIPP MINGA
69	15	42 EAST, LLC
70	15	JOYCE I. ARMSTRONG
71	15	GREG R. DUNSTON AND WIFE, TAKICEY M. DUNSTON
72	15,16	GEORGE P. MEREWETHER AND WIFE, MARIAN L. MEREWETHER
73	16	JOHN T. SHULER AND WIFE, CATHIE G. SHUKER
74	16	GREG C. JONES AND WIFE, ANGELA V. JONES
75	16,17,18	PEGGY ANNE FLOWERS
76	16	42 EAST LLC
77	16,17	42 EAST LLC
80	17	42 EAST LLC
81	17	42 EAST LLC
82	17,18	PEGGY FLOWERS BENSON
83	18	JANA GUERTLER
84	18,19	PAMELA DENISE FLOWERS
85	18	ALLIE TEW-DECEASED EST. 05E1387-WAKE CO.
86	18	JIMMY ROGERS FLOWERS
87	18,19	REBECCA D FLOWERS
88	19	LARRY B SWANEY AND WIFE LYNN R SWANEY
89	19	COUNTY OF JOHNSTON
90	19	CHRISTOPHER M FORD AND WIFE MELANIE P FORD
91	19	JAMES M WILCOX AND WIFE ELAINE B WILCOX
92	19	RAYMOND B WORTHINGTON AND WIFE PEBBLES L WORTHINGTON
93	19	RICHARD M PREUSS AND WIFE LOUISE F MAISENHALDER
94	19,20	DWF DEVELOPMENT INC
95	19,20	PEGGY ANN FLOWERS
97	20	MARK DAVEY AND WIFE MITZI DAVEY
98	20	SWEETGRASS AT FLOWERS PLANTATION
99	20,21	REBECCA D FLOWERS
100	20,21,22,23	REBECCA D FLOWERS
102	21	REBECCA D FLOWERS
103	21,22,23	FLOWERS PLANTATION COMMERCIAL, LLC
105	22	FPC DRUGSTORE OUTPARCEL LLC
106	22	PERCY FLOWERS STORE LLC
107	22,23	REBECCA D FLOWERS
108	22,23	REBECCA FLOWERS FINCH
112	22,23	REBECCA D FLOWERS
114	22,23	REBECCA FLOWERS FINCH
116	23	FPC PHASE, ILLC
117	23	FPC MENAGERIE OUTLOT, LLC



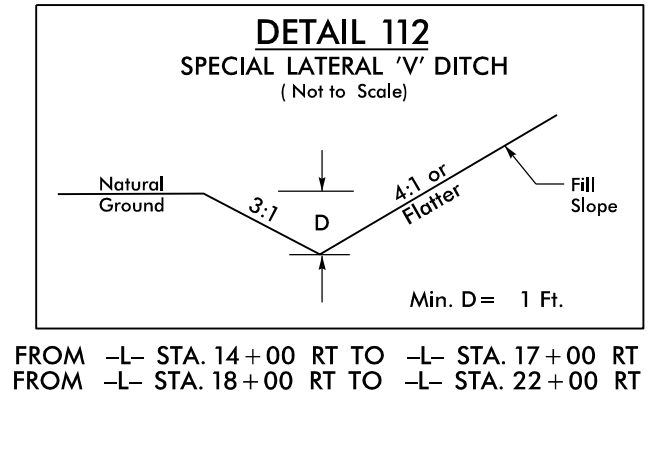
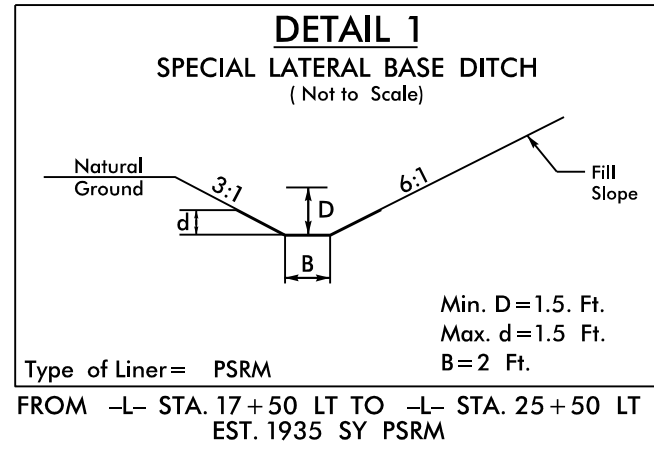
Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC LICENSE # C-22943

PROJECT REFERENCE NO. <b>R-3825B</b>		SHEET NO. <b>4</b>	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			



8/17/99  
8/9/2018  
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revised

MATCHLINE -L- STA. 23+00.00 SEE SHEET 5



NOTE:  
CONTROL OF ACCESS IS NOT FENCED  
FOR THIS PROJECT (R-3825B)

FOR -L- PROFILE SEE SHEET 24

-DRW25-  
PI Sta 10+43.58  
 $\Delta = 16^{\circ} 31' 46.3''$  (LT)  
D =  $19^{\circ} 05' 54.9''$   
L = 86.55'  
T = 43.58'  
R = 300.00'



Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE (919) 461-1100 FAX (919) 461-1415  
 NC LICENSE # C-22943

PROJECT REFERENCE NO.  
**R-3825B**

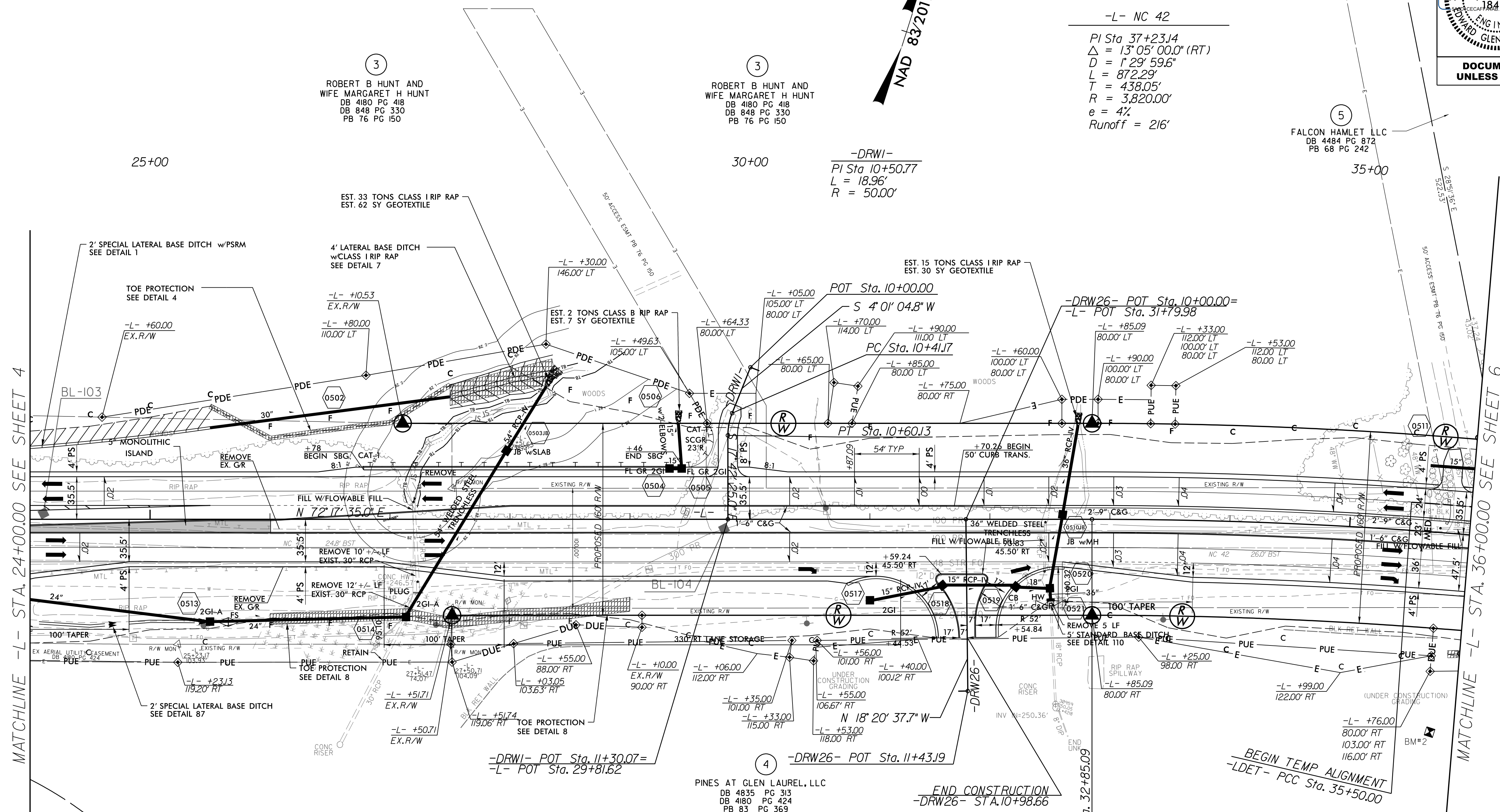
SHEET NO.  
**5**

R/W SHEET NO.

ROADWAY DESIGN ENGINEER  
 PROFESSIONAL SEAL  
 JOHN GLENN EDWARDS  
 18470  
 09/2018

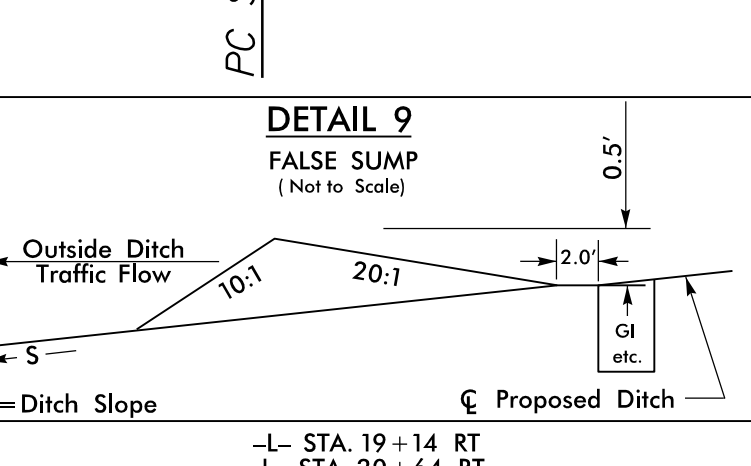
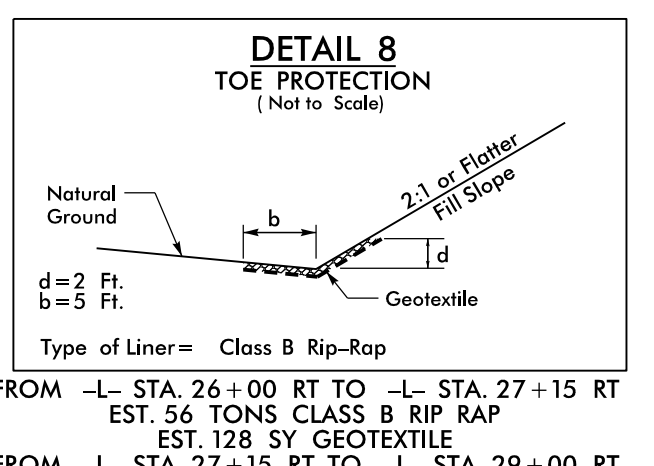
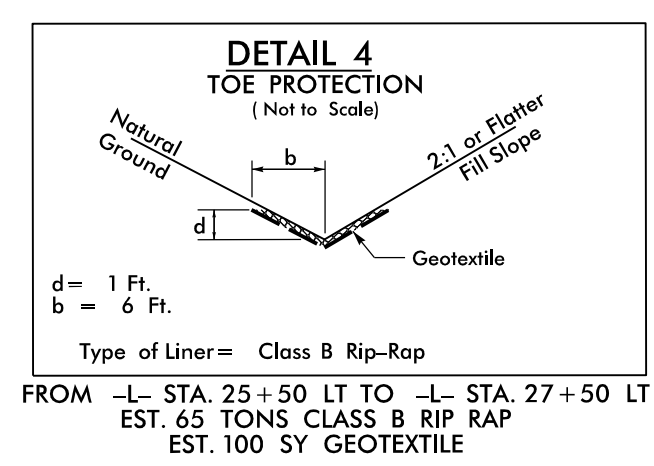
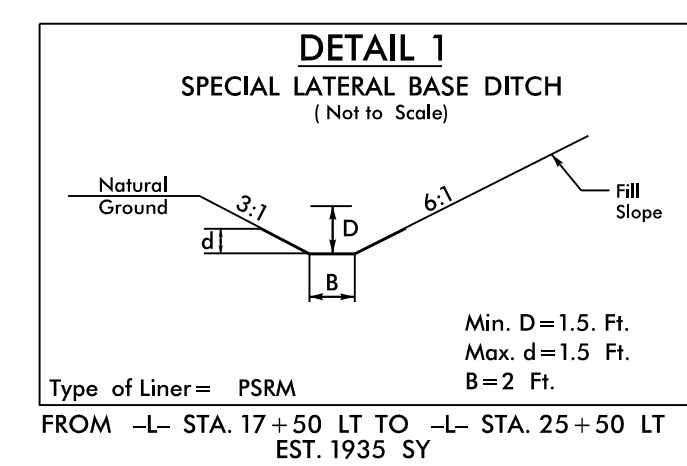
HYDRAULICS ENGINEER  
 PROFESSIONAL SEAL  
 NEMIE D. BUSCENI  
 037863  
 09/2018

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**



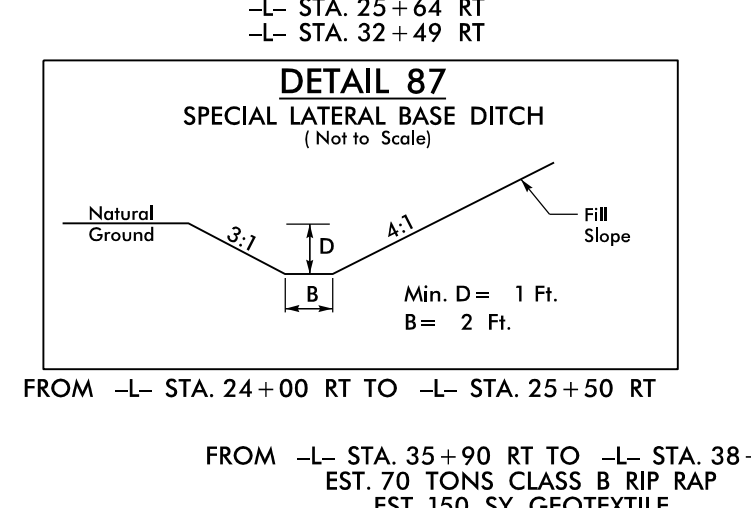
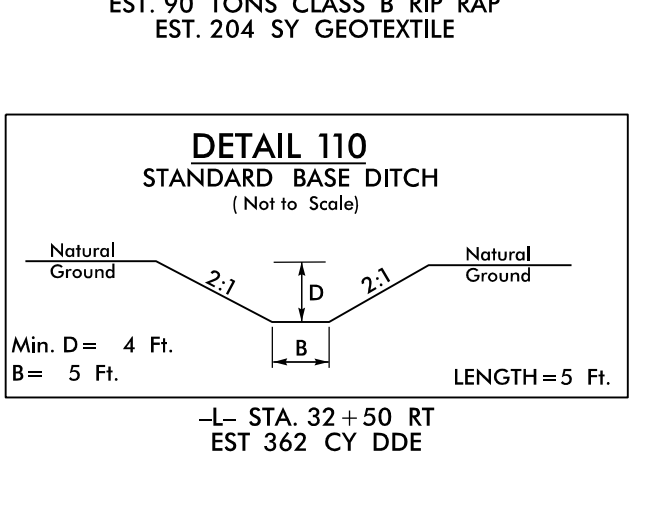
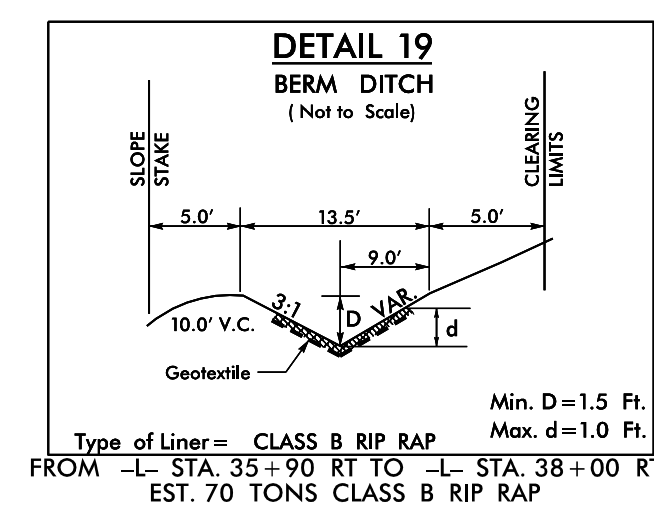
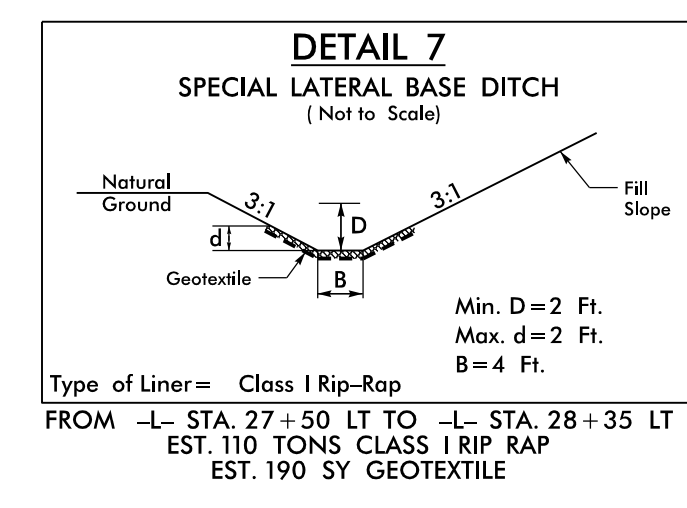
MATCHLINE -L- STA. 24+00.00 SEE SHEET 4

MATCHLINE -L- STA. 36+00.00 SEE SHEET 6



2

THE SHOPPES AT GLEN LAUREL  
 DB 4835 PG 316  
 PB 83 PG 369



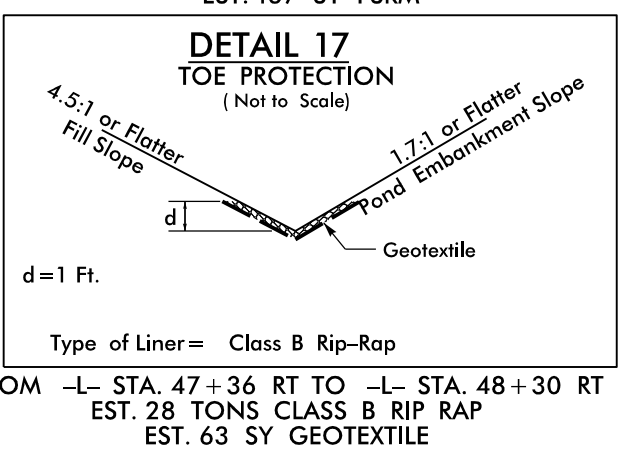
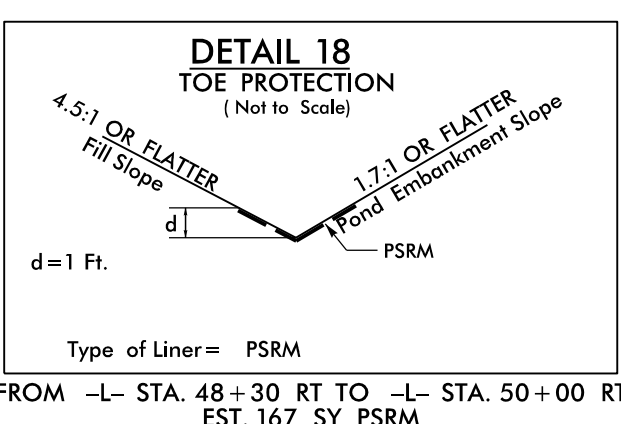
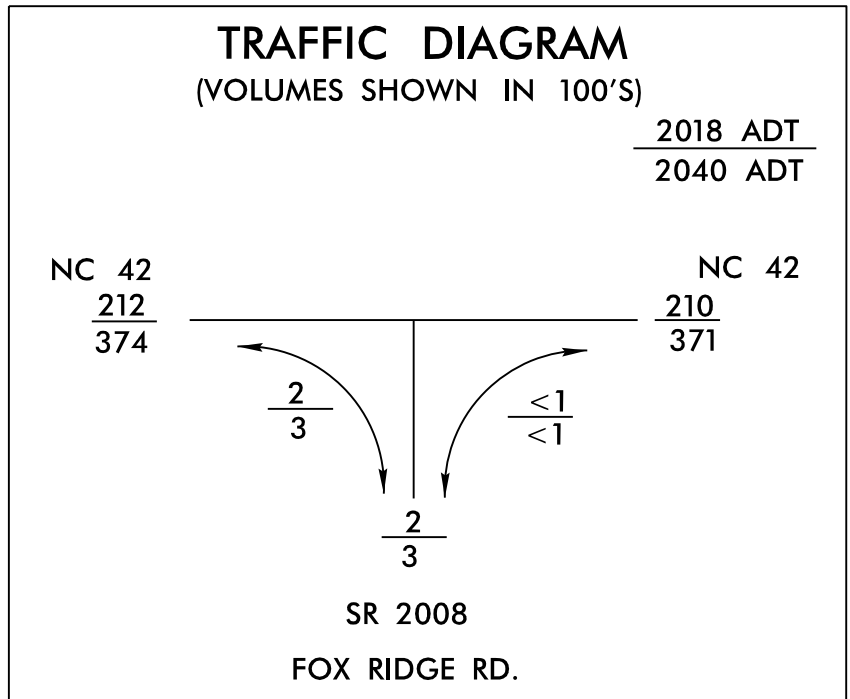
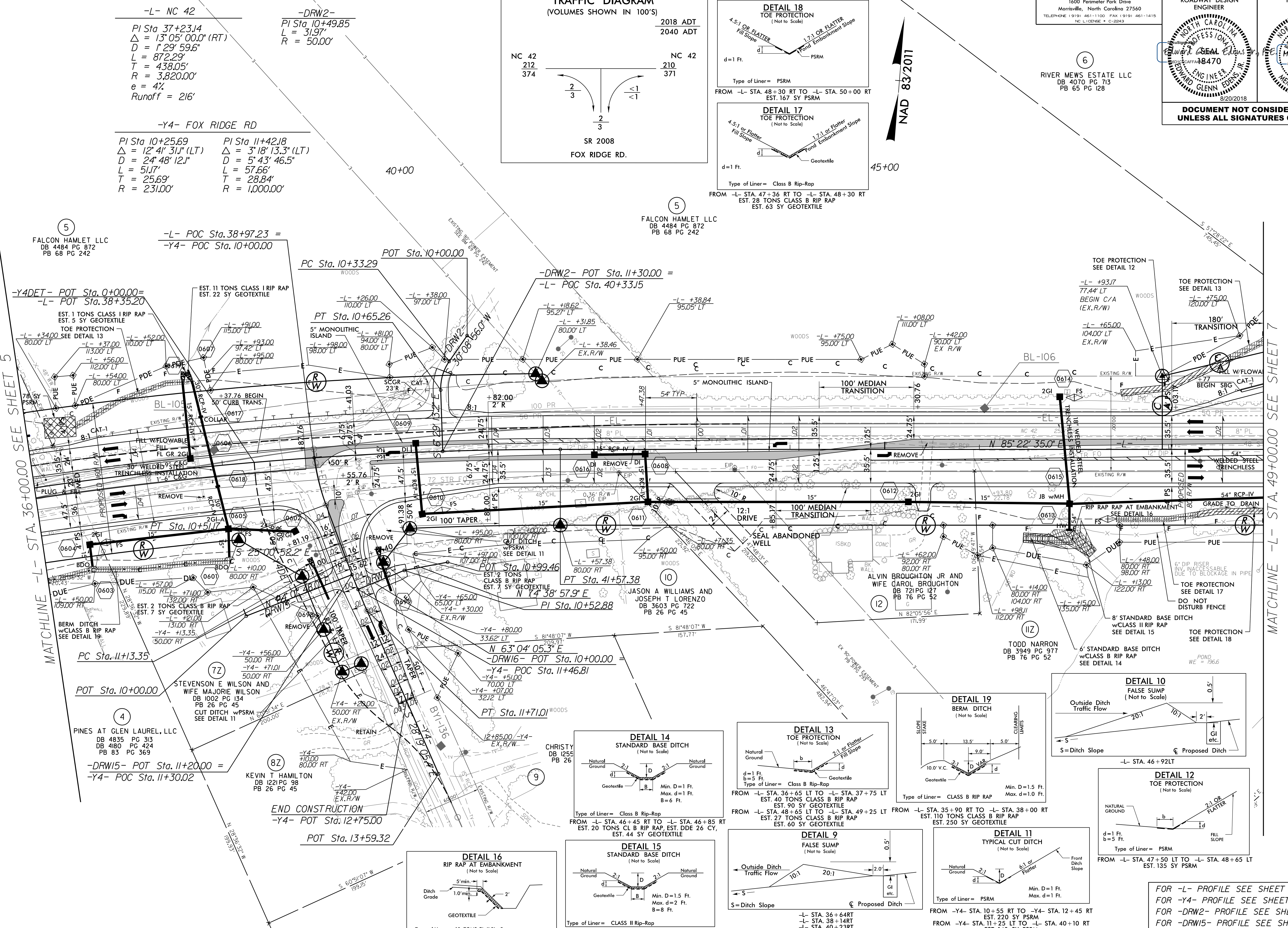
FOR -L- PROFILE SEE SHEET 24  
 FOR -DRWI- PROFILE SEE SHEET 38  
 FOR -DRW26- PROFILE SEE SHEET 41  
 FOR -LDET- PLAN SEE SHEET 2B-1

8/9/2018  
 R:\Roadway\Proj\NR3825B\_r\dj\_psh05.dgn  
 ravishester

8/17/19

Prepared by  
**URS**  
 URS Corporation - North Carolina  
 1600 Perimeter Park Drive  
 Morrisville, North Carolina 27560  
 TELEPHONE 1 919 461 1100 FAX 1 919 461 1415  
 NC L12026E - C-2243

PROJECT REFERENCE NO. R-3825B	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L- NC 42  
 PI Sta 37+23.14  
 $\Delta = 13^{\circ}05'00.0''$  (RT)  
 $D = 129^{\circ}59.6'$   
 $L = 872.29'$   
 $T = 438.05'$   
 $R = 3,820.00'$   
 $e = 4\%$   
 Runoff = .216'

-DRW2-  
 PI Sta 10+49.85  
 $\Delta = 3^{\circ}18'13.3''$  (LT)  
 $D = 5^{\circ}43'46.5''$   
 $L = 57.66'$   
 $T = 28.84'$   
 $R = 1,000.00'$

-Y4- FOX RIDGE RD  
 PI Sta 10+25.69  
 $\Delta = 12^{\circ}41'31.1''$  (LT)  
 $D = 24^{\circ}48'12.1''$   
 $L = 51.17'$   
 $T = 25.69'$   
 $R = 231.00'$

PI Sta 11+42.18  
 $\Delta = 3^{\circ}18'13.3''$  (LT)  
 $D = 5^{\circ}43'46.5''$   
 $L = 57.66'$   
 $T = 28.84'$   
 $R = 1,000.00'$

(5)  
 FALCON HAMLET LLC  
 DB 4484 PG 872  
 PB 68 PG 242

(5)  
 FALCON HAMLET LLC  
 DB 4484 PG 872  
 PB 68 PG 242

-Y4DET- POT Sta. 0+00.00 =  
 -L- POT Sta. 38+35.20

-L- POC Sta. 38+97.23 =  
 -Y4- POC Sta. 10+00.00

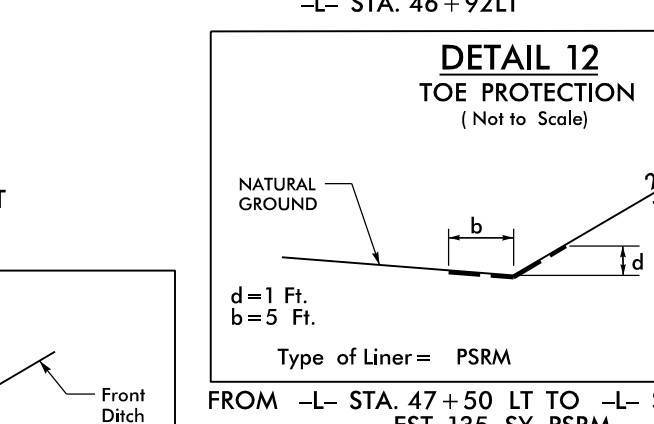
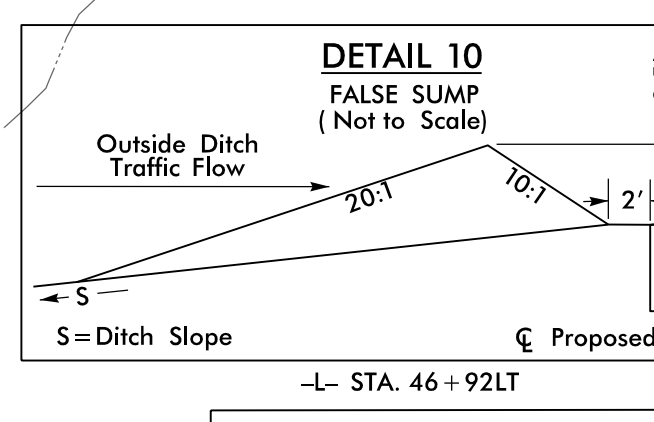
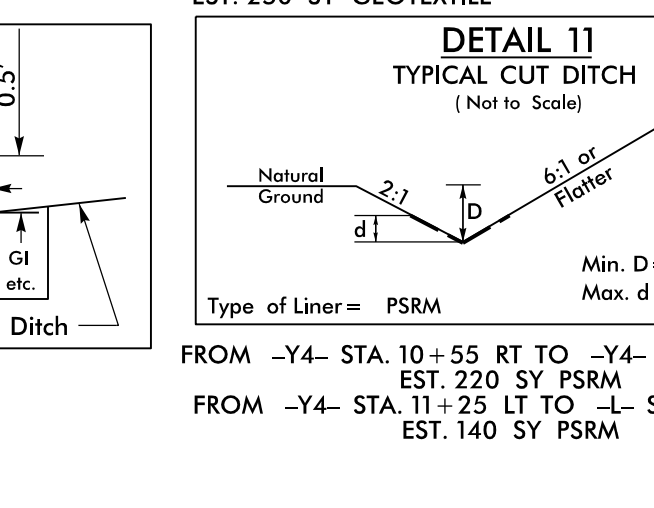
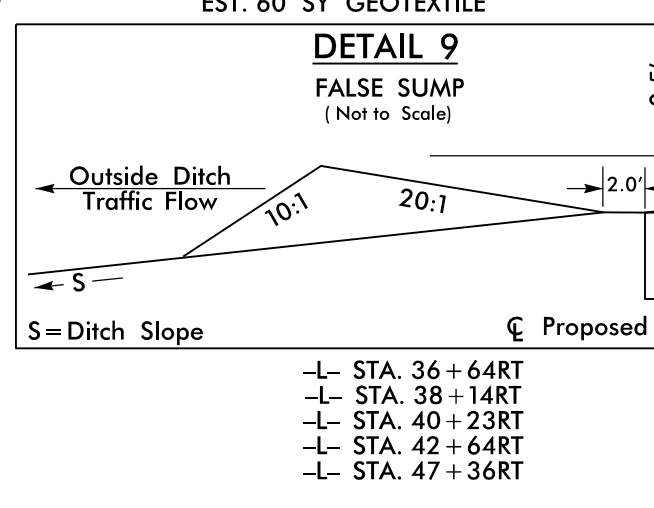
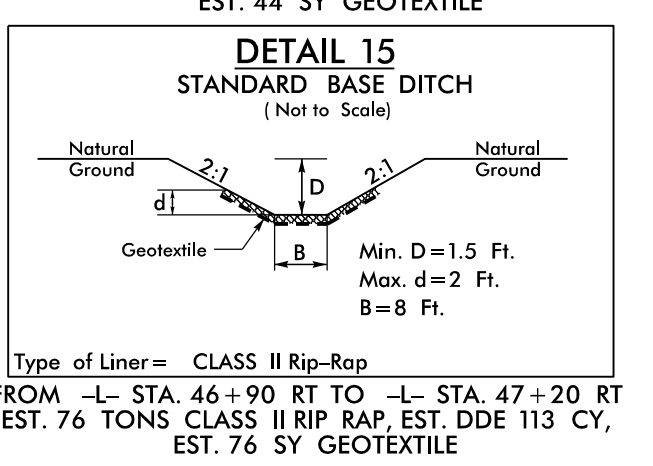
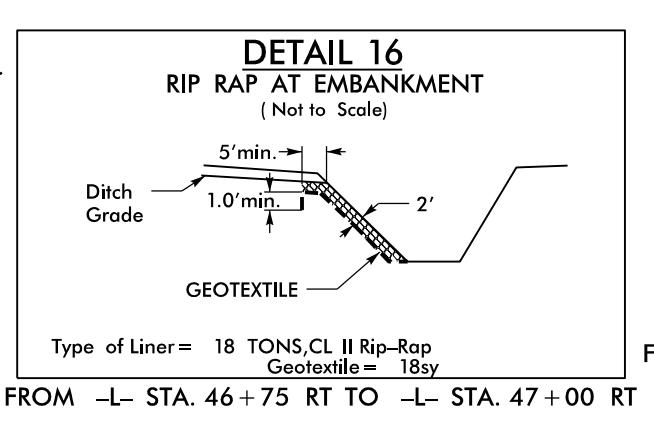
-DRW2- POT Sta. 11+30.00 =  
 -L- POC Sta. 40+33.15

(4)  
 PINES AT GLEN LAUREL, LLC  
 DB 4835 PG 313  
 DB 4180 PG 424  
 PB 83 PG 369

(4)  
 PINES AT GLEN LAUREL, LLC  
 DB 4835 PG 313  
 DB 4180 PG 424  
 PB 83 PG 369

-DRW15- POT Sta. 11+20.00 =  
 -Y4- POC Sta. 11+30.02

(8Z)  
 KEVIN T HAMILTON  
 DB 1221 PG 98  
 PB 26 PG 45



FOR -L- PROFILE SEE SHEET 25  
 FOR -Y4- PROFILE SEE SHEET 33  
 FOR -DRW2- PROFILE SEE SHEET 38  
 FOR -DRW15- PROFILE SEE SHEET 39  
 FOR -DRW16- PROFILE SEE SHEET 40  
 FOR CONG. ISLAND DETAILS SEE SHEET 2B-4

MATCHLINE -L- STA. 36+00.00 SEE SHEET 5

MATCHLINE -L- STA. 49+00.00 SEE SHEET 7

8/17/2018 P:\o\193825B\_r.dwg psh06.dgn