

09/08/99

TIP PROJECT: U-5809

CONTRACT: C204935

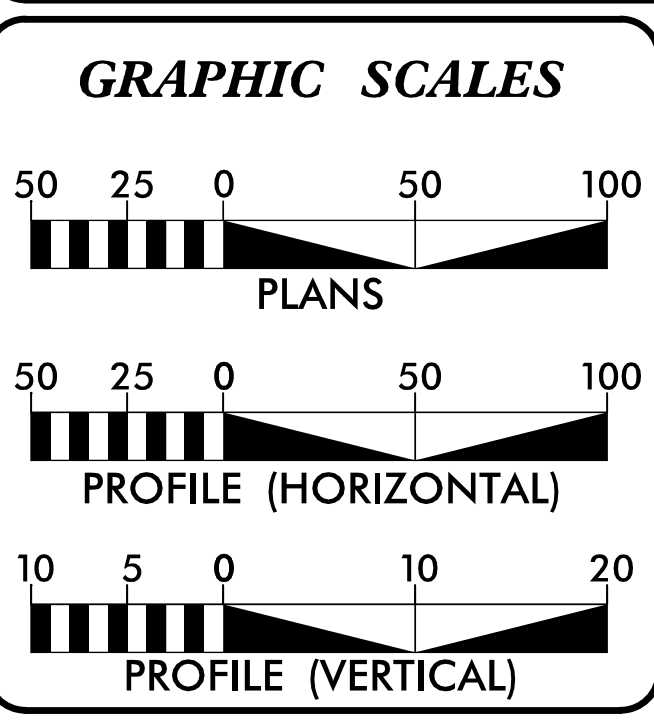
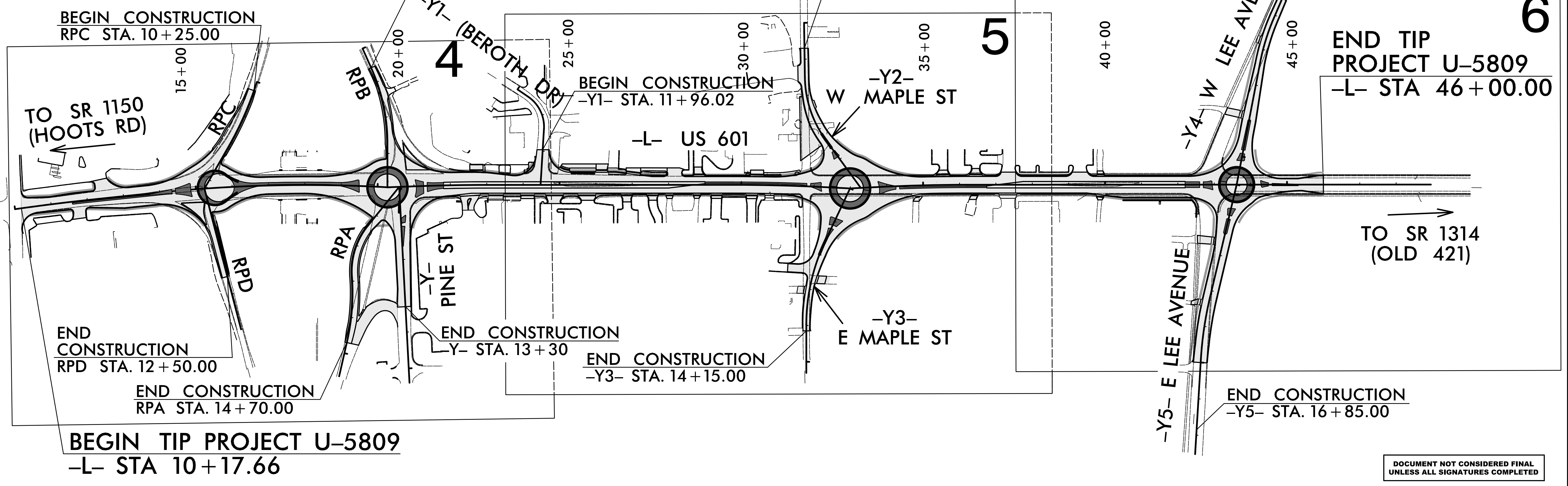
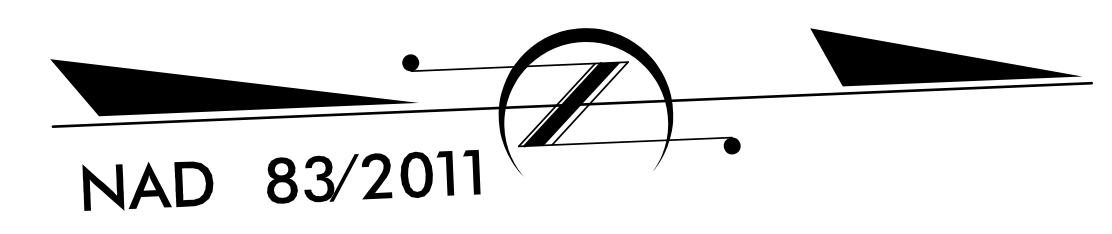
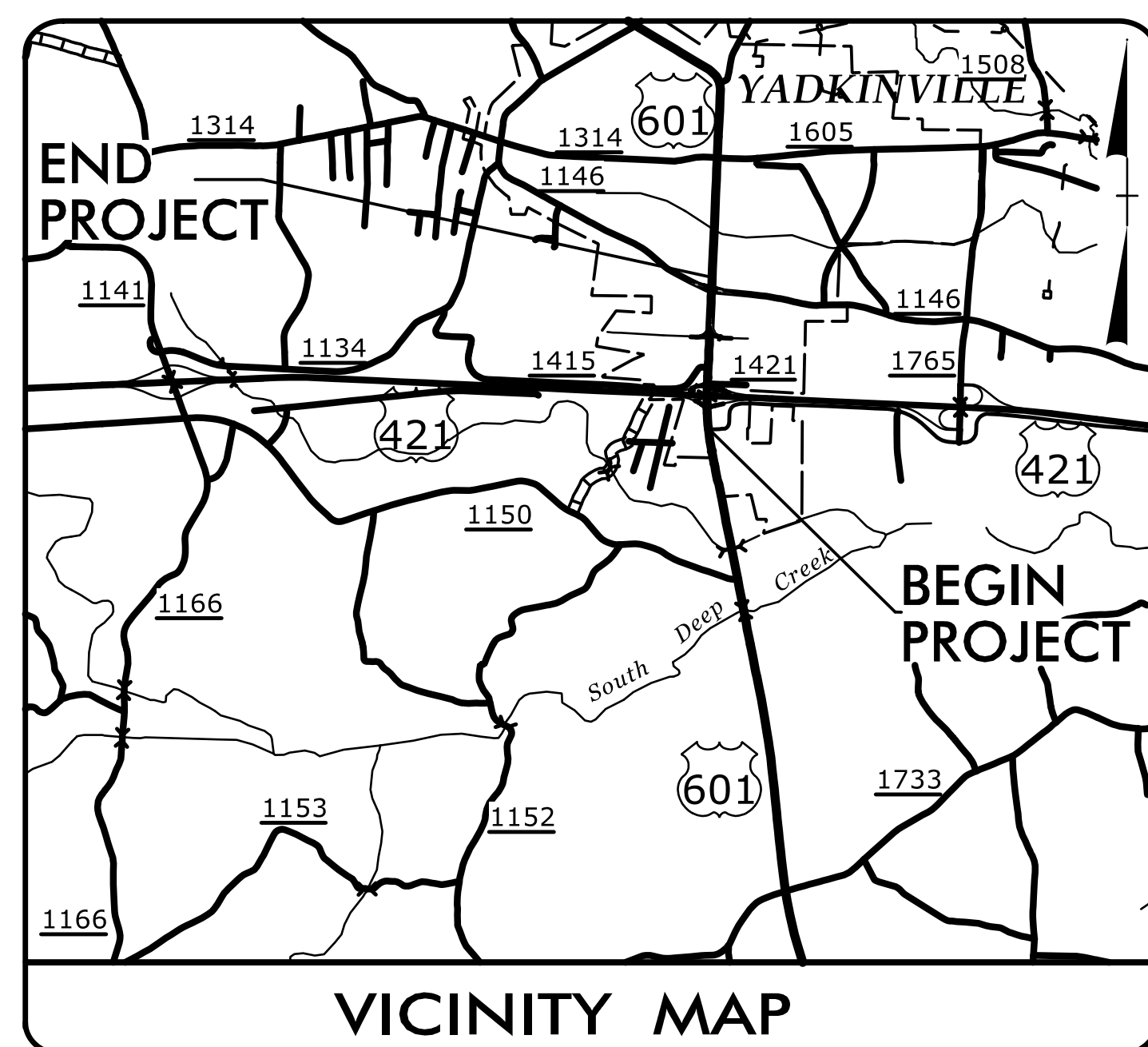
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

YADKIN COUNTY

LOCATION: US 601 FROM SR 1742 (SHARON DR.) TO SR 1146 (LEE AVENUE)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS AND RETAINING WALLS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5809	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44382.1.1	N/A	PE	
44382.2.1	N/A	R/W	
44382.2.2	N/A	UTIL.	
44382.3.1	4438201	CONST.	



DESIGN DATA

ADT 2024 =	18,700
ADT 2045 =	20,900
K =	7 %
D =	55 %
T =	4 % *
V =	40 MPH
* TTST =	2% DUAL = 2%
FUNC CLASS =	MINOR ARTERIAL
REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5809	=	0.678 MILES
TOTAL LENGTH TIP PROJECT U-5809	=	0.678 MILES

NCDOT CONTACT: RAMIE SHAW, PE

PLANS PREPARED BY: TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO. C-0275	PLANS PREPARED FOR: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION 11 801 Statesville Rd North Wilkesboro, NC 28659
RIGHT OF WAY DATE: DECEMBER 21, 2018	JIMMY L. TERRY, PE PROJECT ENGINEER
LETTING DATE: JUNE 18, 2024	SANDRA G. MELVIN PROJECT DESIGN ENGINEER

2024 STANDARD SPECIFICATIONS

HYDRAULICS ENGINEER

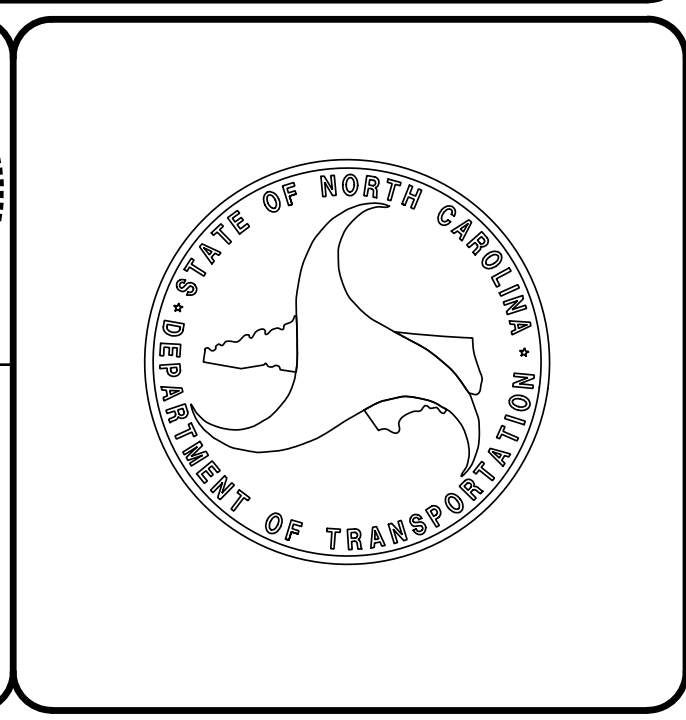
3/27/2024

DocuSigned by:
Benjamin J. Henegar
SIGNATURE: 437 P.E.

ROADWAY DESIGN ENGINEER

3/27/2024

DocuSigned by:
Jimmy Terry
SIGNATURE: 437 P.E.



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

3/27/2024
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User:cpruettt

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-4	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROADWAY DETAIL - CURVE DATA SHEET
2B-2 THRU 2B-3	ROADWAY DETAILS - ROUNDABOUT & CONCRETE ISLAND LAYOUTS
2C-1	SPECIAL DETAIL - CONCRETE STEPS WITH HANDRAIL
2D-1 THRU 2D-5	DRAINAGE DETAILS
3B-1	EARTHWORK, GUARDRAIL, AND ASPHALT PAVEMENT REMOVAL SUMMARIES
3D-1 THRU 3D-9	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 6	PLAN SHEETS
7 THRU 10	PROFILE SHEETS
RW-1 THRU RW-6	SURVEY CONTROL SHEETS
TMP-1 THRU TMP- 9	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-4	PAVEMENT MARKING PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-8	SIGNING PLANS
SIG-1.0 THRU SIG-8.2	SIGNAL PLANS
UC-1 THRU UC-19	UTILITIES CONSTRUCTION PLANS
UO-1 THRU UO-4	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION INDEX SHEET
X-1B	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-34	CROSS-SECTIONS
W1-1 THRU W1-2	RETAINING WALL #1

STANDARD DRAWINGS

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE	STD.NO.	TITLE
DIVISION 2 - EARTHWORK		DIVISION 8 - INCIDENTALS	
200.02	Method of Clearing - Method II	815.02	Subsurface Drain
225.02	Guide for Grading Subgrade - Secondary and Local	840.30	Driveway Drop Inlet
225.04	Method of Obtaining Superelevation - Two Lane Pavement	840.31	Concrete Junction Box - 12" thru 66" Pipe
225.06	Method of Grading Sight Distance at Intersections	840.32	Brick Junction Box - 12" thru 66" Pipe
DIVISION 3 - PIPE CULVERTS		840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
300.01	Method of Pipe Installation	840.45	Precast Drainage Structure
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS		840.46	Traffic Bearing Precast Drainage Structure
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II	840.66	Drainage Structure Steps
DIVISION 6 - ASPHALT BASES AND PAVEMENTS		840.71	Concrete and Brick Pipe Plug
654.01	Pavement Repairs	846.01	Concrete Curb, Gutter and Curb & Gutter
DIVISION 8 - INCIDENTALS		848.01	Concrete Sidewalk
840.00	Concrete Base Pad for Drainage Structures	848.02	Driveway Turnout - Radius Type
840.01	Brick Catch Basin - 12" thru 54" Pipe	848.04	Street Turnout
840.02	Concrete Catch Basin - 12" thru 54" Pipe	848.06	Curb Ramp
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin	852.01	Concrete Islands
840.14	Concrete Drop Inlet - 12" thru 30" Pipe	852.02	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
840.15	Brick Drop Inlet - 12" thru 30" Pipe	852.05	Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15	852.06	Method for Placement of Drop Inlets in Concrete Islands
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe	862.01	Guardrail Placement
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe	862.02	Guardrail Installation
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe	876.02	Guide for Rip Rap at Pipe Outlets
840.22	Frames and Wide Slot Sag Grates		
840.24	Frames and Narrow Slot Sag Grates		
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		

PROJECT REFERENCE NO. <i>U-5809</i>	SHEET NO. <i>1A</i>
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS EFFECTIVE: 01-16-2024 REVISED:

GRADE LINE: 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 II.

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

SHOULDER CONSTRUCTION: ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.02

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.

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 RADII OR RADII 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 RADII 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".

UTILITIES: UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, CENTURY LINK, YADTEL, SPECTRUM, FRONTIER NATURAL GAS, TOWN OF YADKINVILLE (WATER & SEWER)
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

CURB RAMPS CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.06.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
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	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A, B, C or D (Accuracy)

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 Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE - LOS A)*	
U/G Telephone Cable (SUE - LOS B)*	
U/G Telephone Cable (SUE - LOS C)*	
U/G Telephone Cable (SUE - LOS D)*	
U/G Telephone Conduit (SUE - LOS B)*	
U/G Telephone Conduit (SUE - LOS C)*	
U/G Telephone Conduit (SUE - LOS D)*	
U/G Fiber Optics Cable (SUE - LOS B)*	
U/G Fiber Optics Cable (SUE - LOS C)*	
U/G Fiber Optics Cable (SUE - LOS D)*	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE - LOS A)*	
U/G Water Line (SUE - LOS B)*	
U/G Water Line (SUE - LOS C)*	
U/G Water Line (SUE - LOS D)*	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE - LOS A)*	
U/G TV Cable (SUE - LOS B)*	
U/G TV Cable (SUE - LOS C)*	
U/G TV Cable (SUE - LOS D)*	
U/G Fiber Optic Cable (SUE - LOS B)*	
U/G Fiber Optic Cable (SUE - LOS C)*	
U/G Fiber Optic Cable (SUE - LOS D)*	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

SANITARY SEWER:




Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	

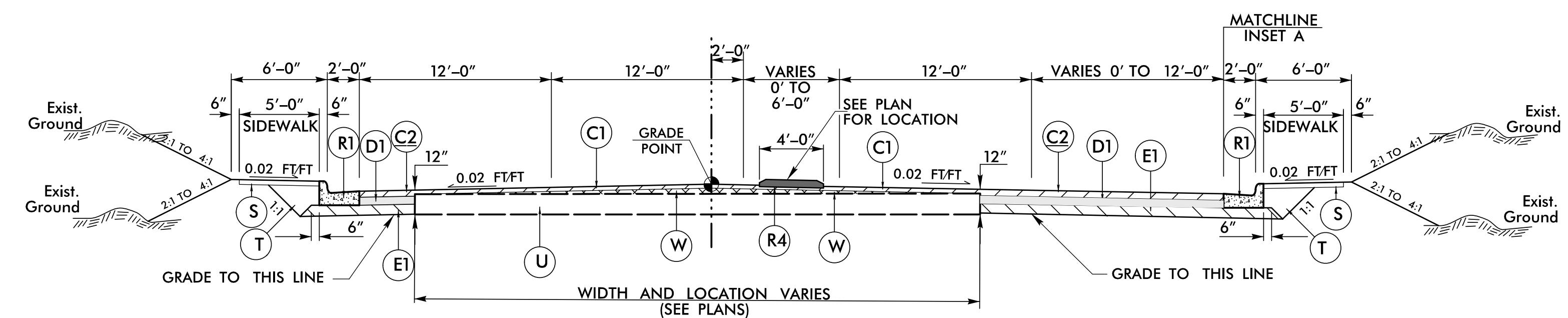
MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
Abandoned According to Utility Records	
End of Information	

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E.O.I.

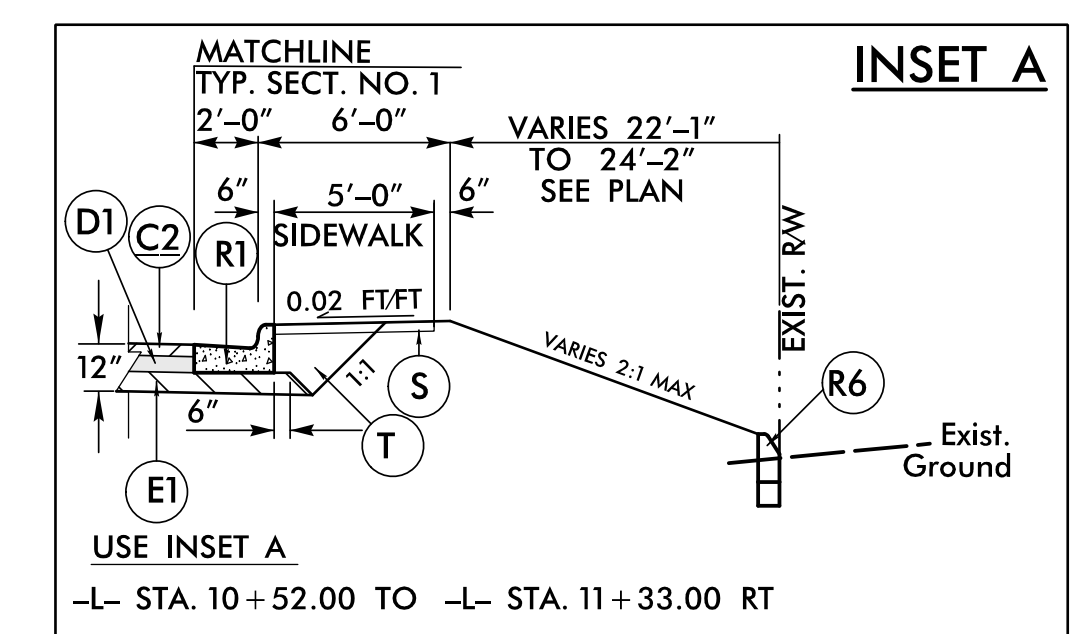
6/27/24

PROJECT REFERENCE NO. U-5809	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

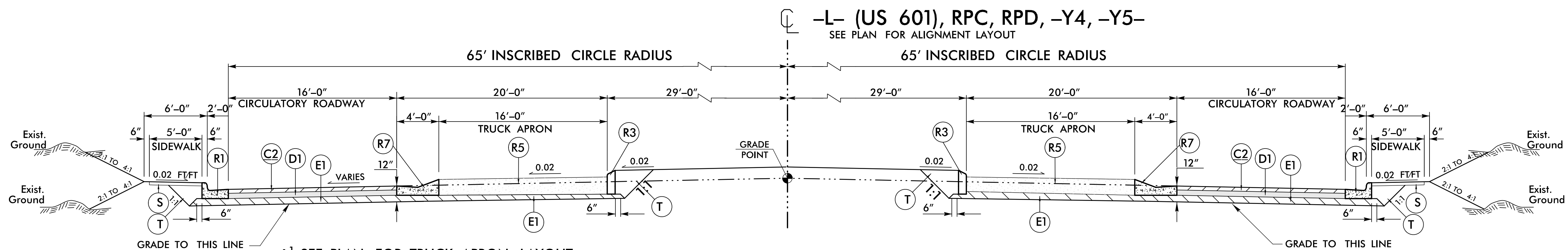


TYPICAL SECTION NO. 1
 USE TYPICAL SECTION NO. 1
 -L- STA. 10+17.66 TO -L- STA. 13+66.90

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 1 AND TYP. SECT. NO. 2 AS FOLLOWS:
 -L- STA. 13+66.90 TO -L- STA. 14+87.65



USE INSET A
 -L- STA. 10+52.00 TO -L- STA. 11+33.00 RT



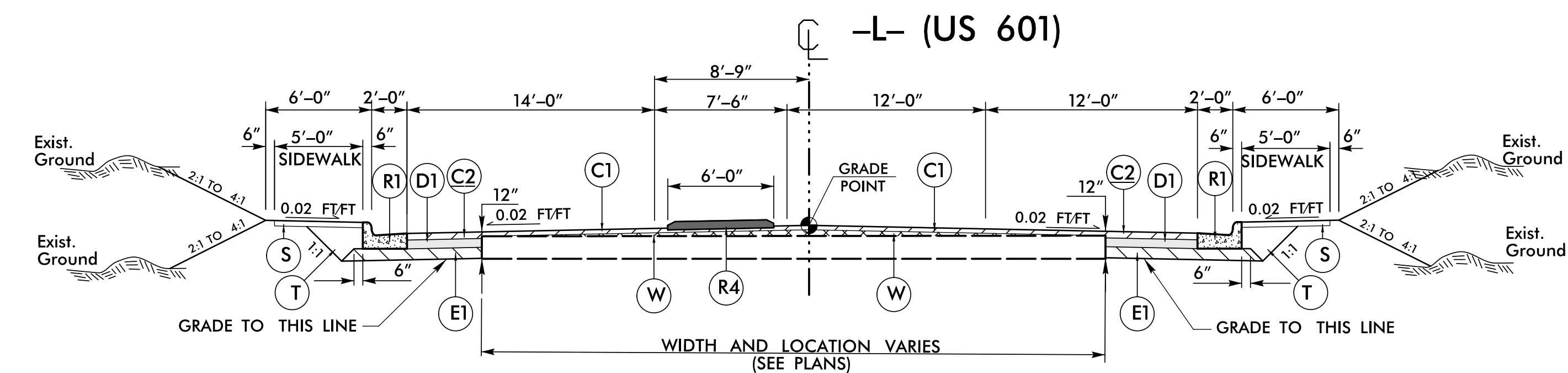
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
 -L- STA. 14+87.65 TO -L- STA. 16+17.65
 -L- STA. 42+96.72 TO -L- STA. 44+26.72
 RPC STA. 12+51.20 TO RPC STA. 13+27.64
 RPD STA. 10+00.00 TO RPD STA. 10+63.84
 -Y4- STA. 15+13.49 TO -Y4- STA. 15+78.49
 -Y5- STA. 10+00.00 TO -Y5- STA. 10+65.00

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 2 AND TYP. SECT. NO. 3 AS FOLLOWS:
 -L- STA. 16+17.65 TO -L- STA. 17+00.00

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 2 AND EXISTING AS FOLLOWS:
 -L- STA. 44+26.72 TO -L- STA. 46+00.00

*1 SEE PLAN FOR TRUCK APRON LAYOUT
 -L- STA. 14+87.65 TO 16+17.65



TYPICAL SECTION NO. 3
 USE TYPICAL SECTION NO. 3
 -L- STA. 17+00.00 TO -L- STA. 18+51.08

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 3 AND TYP. SECT. NO. 4 AS FOLLOWS:
 -L- STA. 18+51.08 TO -L- STA. 19+50.10

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R3	9" X 18" CONCRETE CURB
C2	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.	R4	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R5	12" CONCRETE TRUCK APRON.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R6	8" X 12" CONCRETE CURB
D2	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.	R7	EXPRESSWAY GUTTER
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	R8	2'-0" VALLEY GUTTER
E2	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.	S	CONCRETE SIDEWALK
J1	PROP. 6" AGGREGATE BASE COURSE.	T	EARTH MATERIAL.
R1	2'-6" CONCRETE CURB AND GUTTER.	U	EXISTING PAVEMENT.
R2	1'-6" CONCRETE CURB AND GUTTER.	V	INCIDENTAL MILLING, SEE SHEET 2A-4 FOR DETAIL
		W	WEDGING EXISTING PAVEMENT, SEE SHEET 2A-4 FOR DETAILS

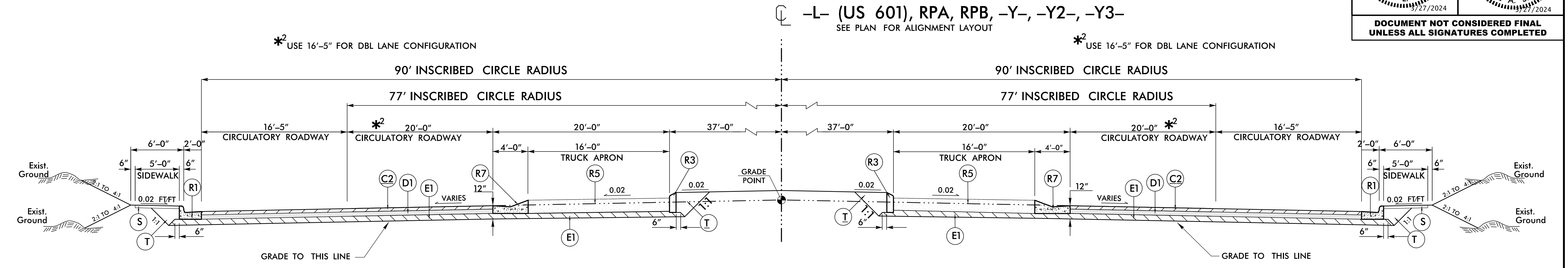
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

3/27/2024
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6/27/24

TGS ENGINEERS
 201 W. MARION ST, STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

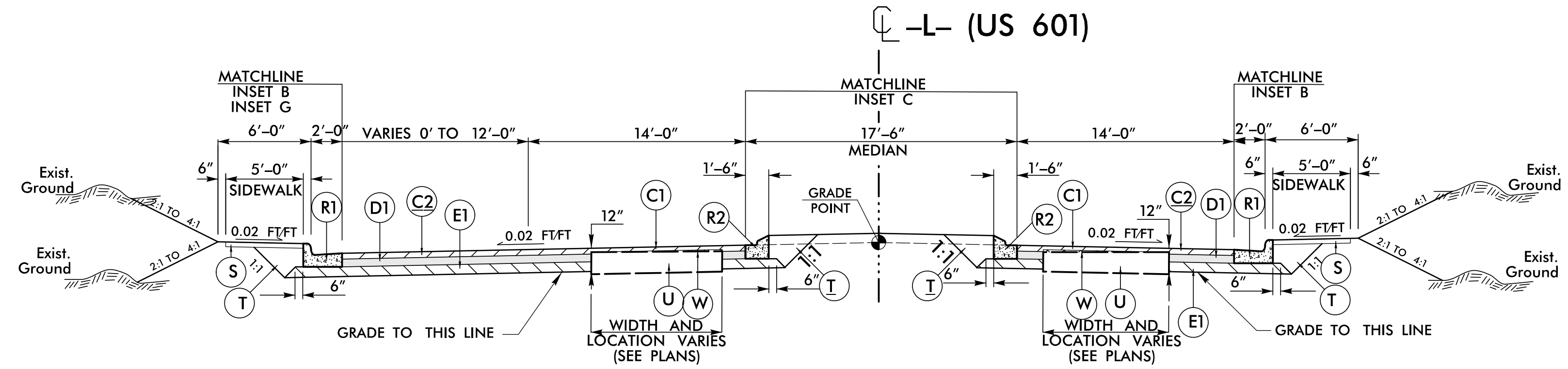
PROJECT REFERENCE NO. U-5809	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER JOSUALTON JOSEPH 35018	PAVEMENT DESIGN ENGINEER KAGE ALLAN 049851
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PAVEMENT SCHEDULE	
C1	1 1/2" S9.5C
C2	3" S9.5C
D1	4" I19.5C
E1	5" B25.0C
R1	2'-6" C & G
R2	1'-6" C & G
R3	9"x18" CURB
R4	5" MCI (KEYED-IN)
R5	12" CONCRETE TRUCK APRON
R6	8"x12" CURB
R7	EXPRESSWAY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

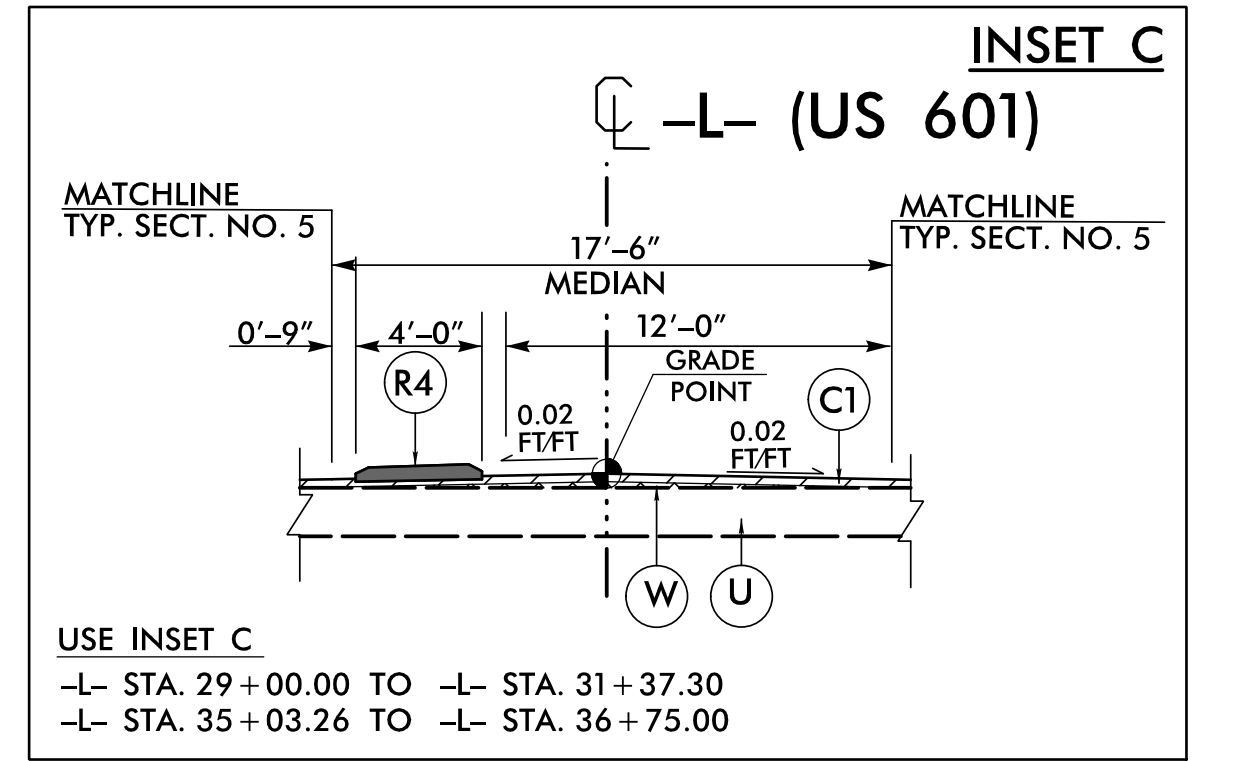
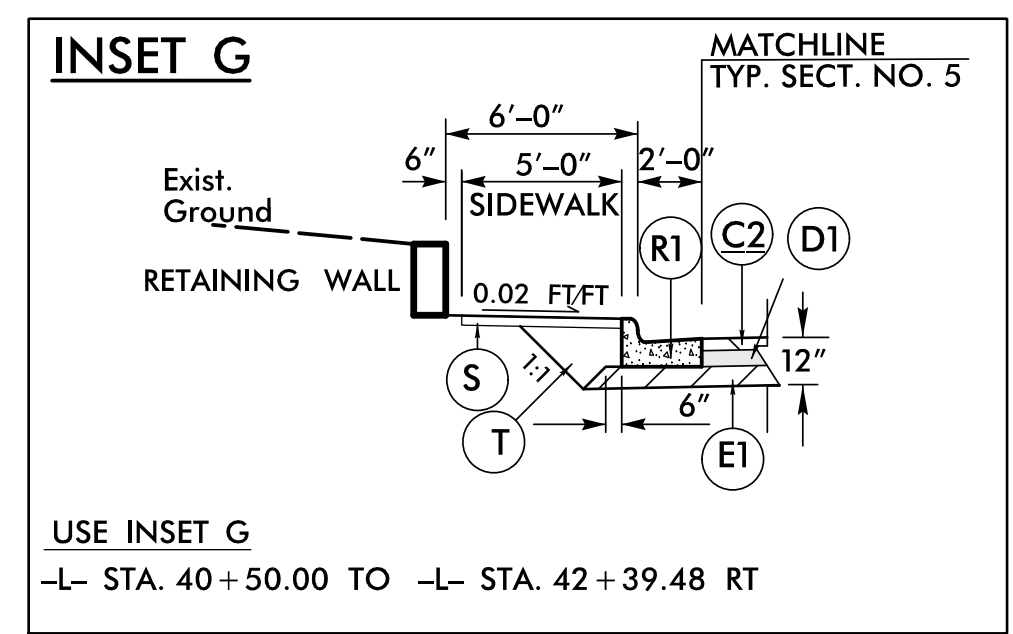
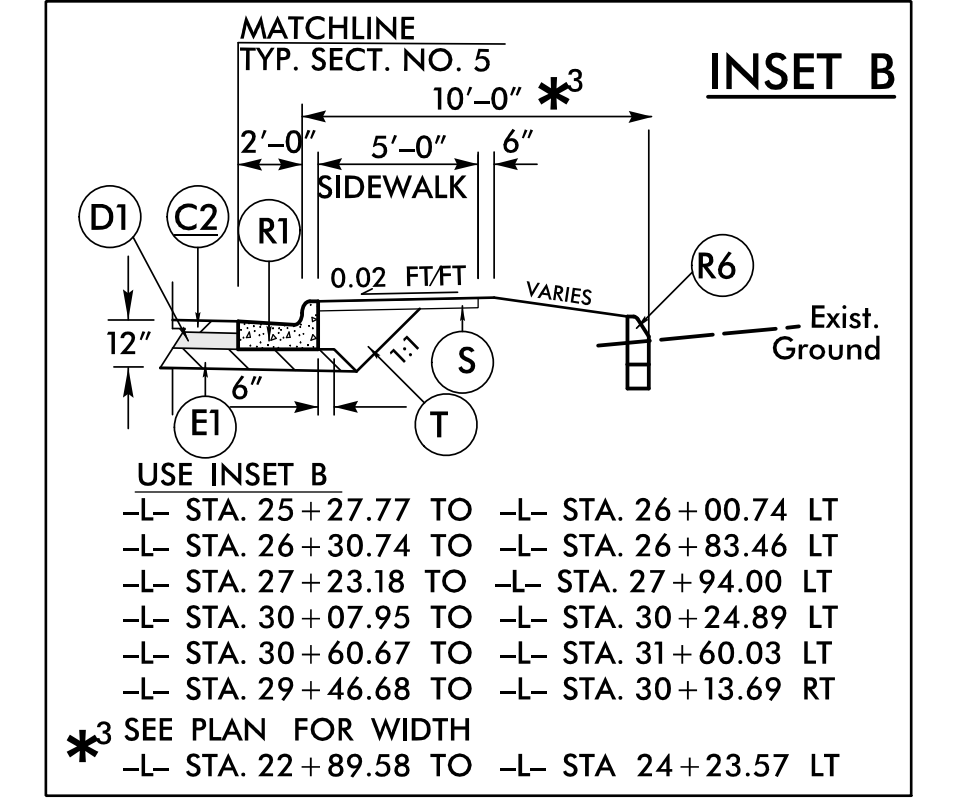
TYPICAL SECTION NO. 4
 USE TYPICAL SECTION NO. 4
 -L- STA. 19+50.10 TO -L- STA. 21+04.10
 -L- STA. 32+21.94 TO -L- STA. 33+75.94
 RPA STA. 10+00.00 TO RPA STA. 11+07.66
 RPB STA. 13+16.13 TO RPB STA. 13+93.13
 -Y- STA. 10+00.00 TO -Y- STA. 10+83.48
 -Y2- 13+95.05 TO -Y2- STA. 14+97.71
 -Y3- STA. 10+00.00 TO -Y3- STA. 10+90.00

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 4 AND TYP. SECT. NO. 5 AS FOLLOWS:
 -L- STA. 21+04.10 TO -L- STA. 21+91.06
 -L- STA. 31+37.30 TO -L- STA. 32+21.94
 -L- STA. 33+75.94 TO -L- STA. 35+03.26



TYPICAL SECTION NO. 5
 USE TYPICAL SECTION NO. 5
 -L- STA. 21+91.06 TO -L- STA. 31+37.30
 -L- STA. 35+03.26 TO -L- STA. 42+44.00 (MIRRORED)

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 5 AND TYP. SECT. NO. 2 AS FOLLOWS:
 -L- STA. 42+44.00 TO -L- STA. 42+96.72

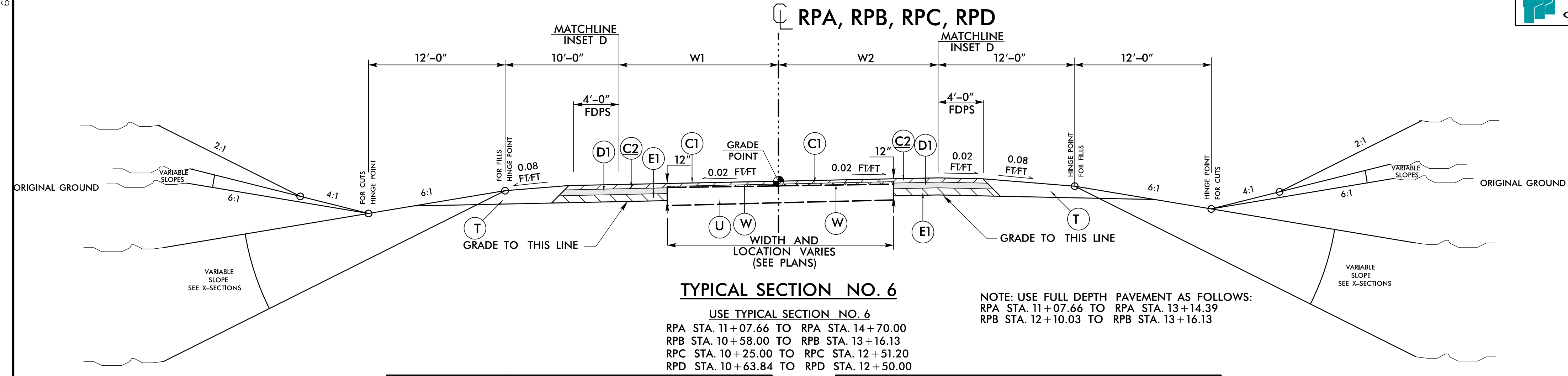


3/27/2024
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6/2/2024

TGS ENGINEERS
 201 W. MARION ST, STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO. U-5809	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER JIMMY L. TERRY	PAVEMENT DESIGN ENGINEER RAMIE L. SHAW
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
 RPA STA. 11+07.66 TO RPA STA. 14+70.00
 RPB STA. 10+58.00 TO RPB STA. 13+16.13
 RPC STA. 10+25.00 TO RPC STA. 12+51.20
 RPD STA. 10+63.84 TO RPD STA. 12+50.00

NOTE: USE FULL DEPTH PAVEMENT AS FOLLOWS:
 RPA STA. 11+07.66 TO RPA STA. 13+14.39
 RPB STA. 12+10.03 TO RPB STA. 13+16.13

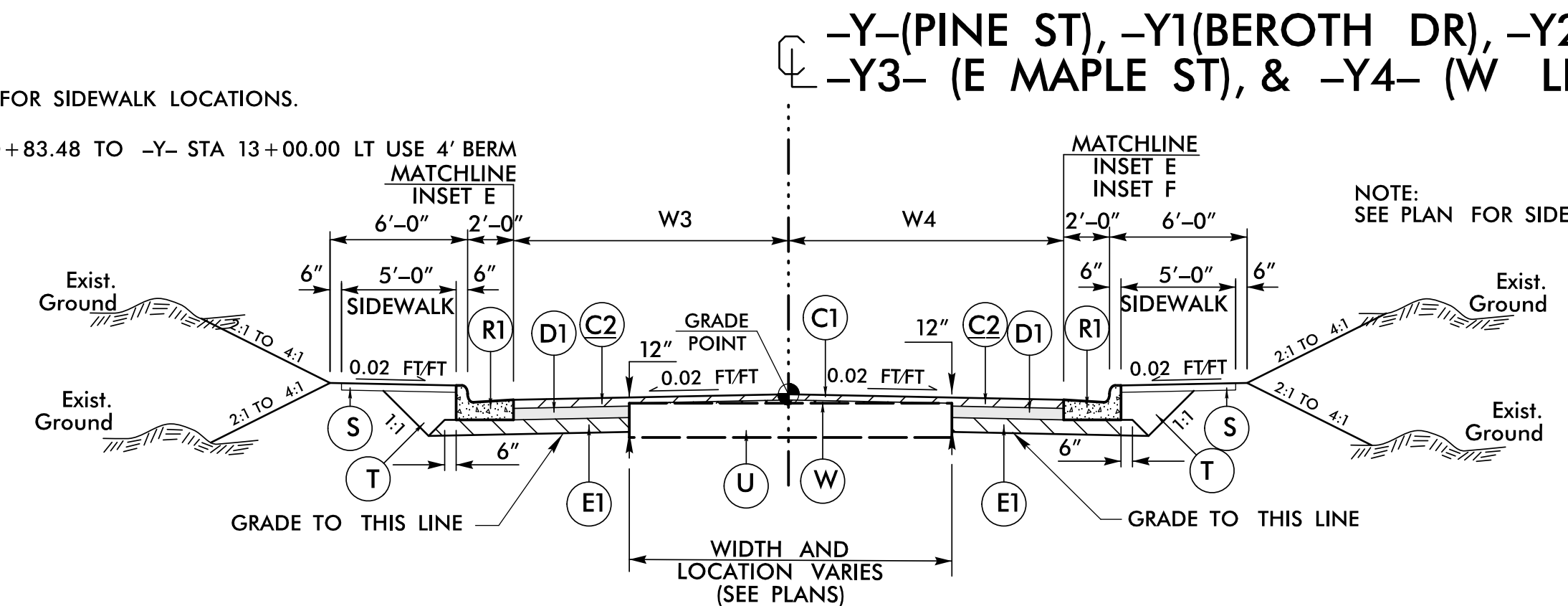
W1	STA. TO STA.
16'-0"	RPA STA. 11+07.66 TO RPA STA. 14+10.00
14'-0"	RPB STA. 11+13.00 TO RPB STA. 12+31.86 RPD STA. 11+39.65 TO RPD STA. 12+00.00
VARIES (SEE PLANS)	RPB STA. 12+31.86 TO RPB STA. 13+93.13 RPD STA. 10+63.84 TO RPD STA. 11+39.65
16'-0" TO EXISTING	RPA STA. 14+10.00 TO RPA STA. 14+70.00
14'-0" TO EXISTING	RPB STA. 10+58.00 TO RPB STA. 11+13.00 RPD STA. 12+00.00 TO RPD STA. 12+50.00
2'-0"	RPC STA. 10+55.00 TO RPC STA. 12+51.20 RPD STA. 10+63.84 TO RPD STA. 12+00.00
2'-0" TO EXISTING	RPC STA. 10+25.00 TO RPC STA. 10+55.00 RPD STA. 12+00.00 TO RPD STA. 12+50.00

W2	STA. TO STA.
2'-0"	RPA STA. 11+07.66 TO RPA STA. 14+10.00 RPB STA. 11+13.00 TO RPB STA. 13+93.13
2'-0" TO EXISTING	RPA STA. 14+10.00 TO RPA STA. 14+70.00 RPB STA. 10+58.00 TO RPB STA. 11+13.00
16'-0" TO 28'-0"	RPC STA. 10+55.00 TO RPC STA. 11+55.00
VARIES (SEE PLANS)	RPC STA. 11+55.00 TO RPC STA. 12+51.20
16'-0" TO EXISTING	RPC STA. 10+25.00 TO RPC STA. 10+55.00

PAVEMENT SCHEDULE

C1	1 1/2" S9.5C
C2	3" S9.5C
D1	4" I19.5C
E1	5" B25.0C
J1	6" ABC
R1	2'-6" C & G
R2	2'-0" VALLEY GUTTER
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

NOTE:
SEE PLAN FOR SIDEWALK LOCATIONS.
NOTE:
-Y- STA. 10+83.48 TO -Y- STA 13+00.00 LT USE 4' BERM



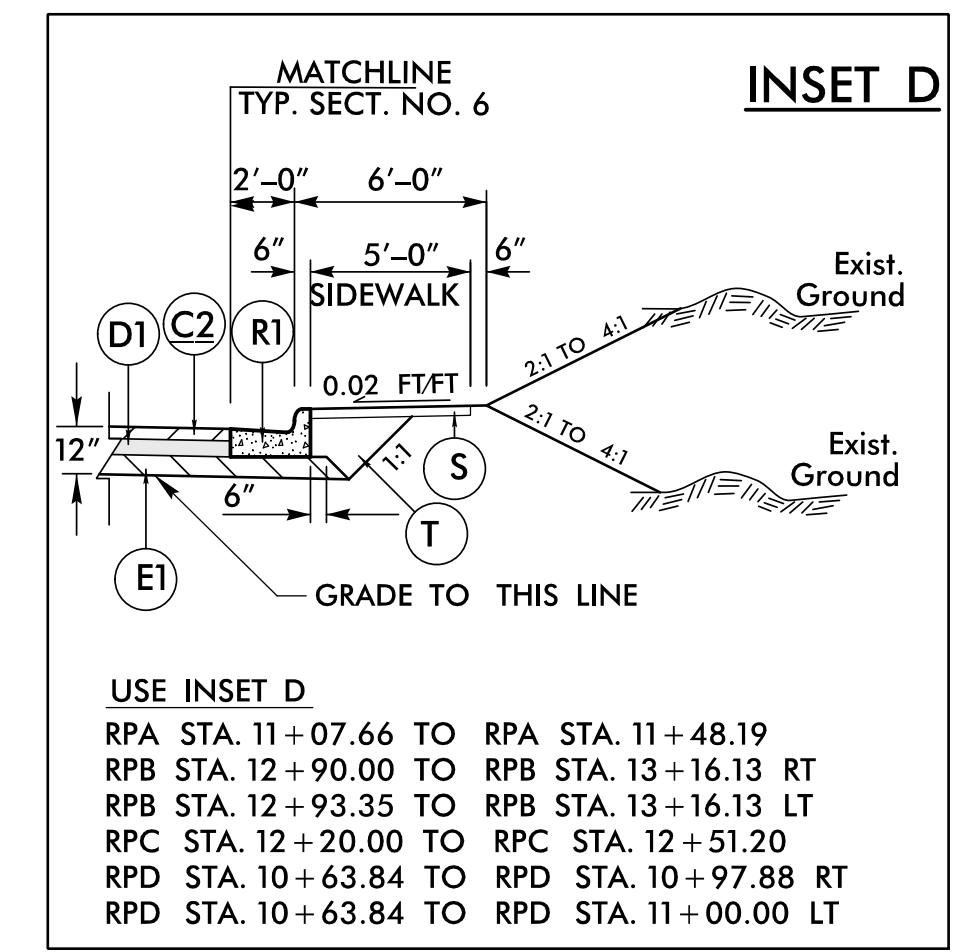
TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
 -Y- STA. 10+83.48 TO -Y- STA. 13+30.00
 -Y2- STA. 10+70.00 TO -Y2- STA. 13+95.05
 -Y3- STA. 10+90.00 TO -Y3- STA. 14+15.00
 -Y4- STA. 10+50.00 TO -Y4- STA. 15+13.49
 -Y5- STA. 10+65.00 TO -Y5- STA. 15+00.00

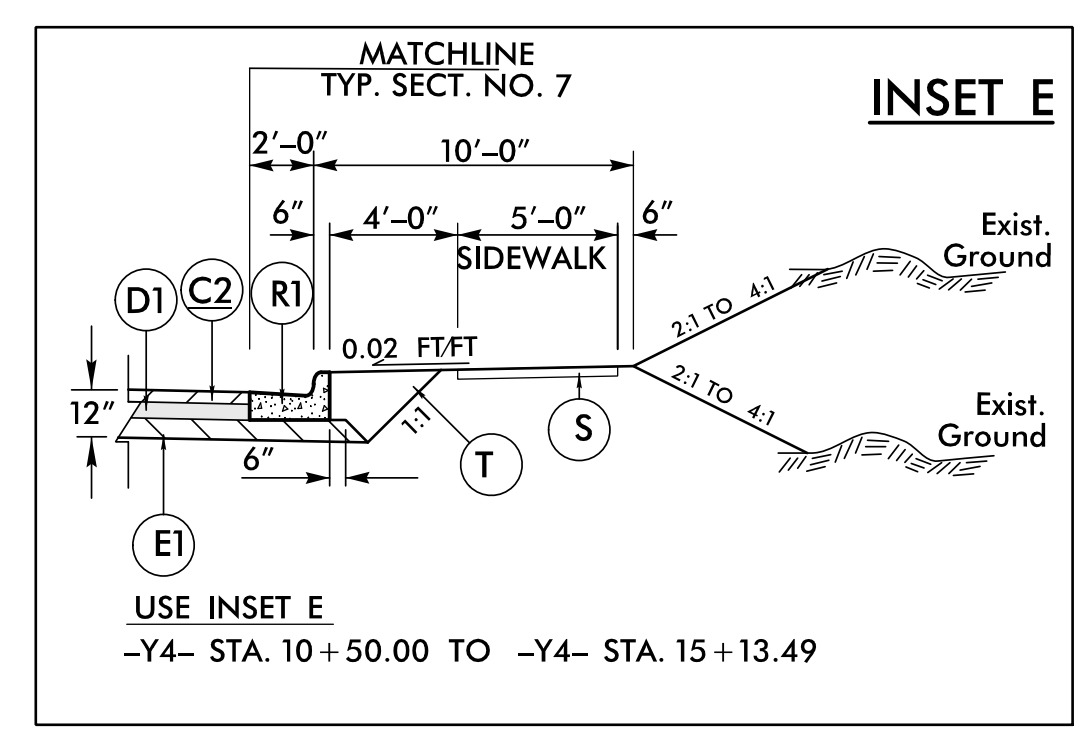
NOTE: USE FULL DEPTH PAVEMENT AS FOLLOWS:
 -Y2- STA. 12+68.70 TO -Y2- STA. 13+95.05
 -Y3- STA. 10+90.00 TO -Y3- STA. 12+45.00
 -Y4- STA. 13+37.26 TO -Y4- STA. 15+13.49

W3	STA. TO STA.
10'-0"	-Y2- STA. 11+94.26 TO -Y2- STA. 12+20.00 -Y3- STA. 12+90.00 TO -Y3- STA. 13+65.00
16'-0" TO 10'-0"	-Y3- STA. 12+00.00 TO -Y3- STA. 12+90.00
12'-0"	-Y4- STA. 11+00.00 TO -Y4- STA. 12+40.00
12'-0" TO 18'-0"	-Y4- STA. 12+40.00 TO -Y4- STA. 14+00.00
18'-0"	-Y- STA. 11+47.98 TO -Y- STA. 12+80.00
VARIES (SEE PLANS)	-Y- STA 10+83.48 TO -Y- STA. 11+47.98 -Y1- STA. 11+96.02 TO -Y1- STA. 12+70.30 -Y2- STA. 12+20.00 TO -Y2- STA. 13+95.05 -Y3- STA. 10+90.00 TO -Y3- STA. 12+00.00 -Y4- STA. 14+00.00 TO -Y4- STA. 15+13.49
10'-0" TO EXISTING	-Y2- STA. 10+70.00 TO -Y2- STA. 12+20.00 -Y3- STA. 13+65.00 TO -Y3- STA. 14+15.00
12'-0" TO EXISTING	-Y4- STA. 10+50.00 TO -Y4- STA. 11+00.00
18'-0" TO EXISTING	-Y- STA. 12+80.00 TO -Y- STA. 13+30.00

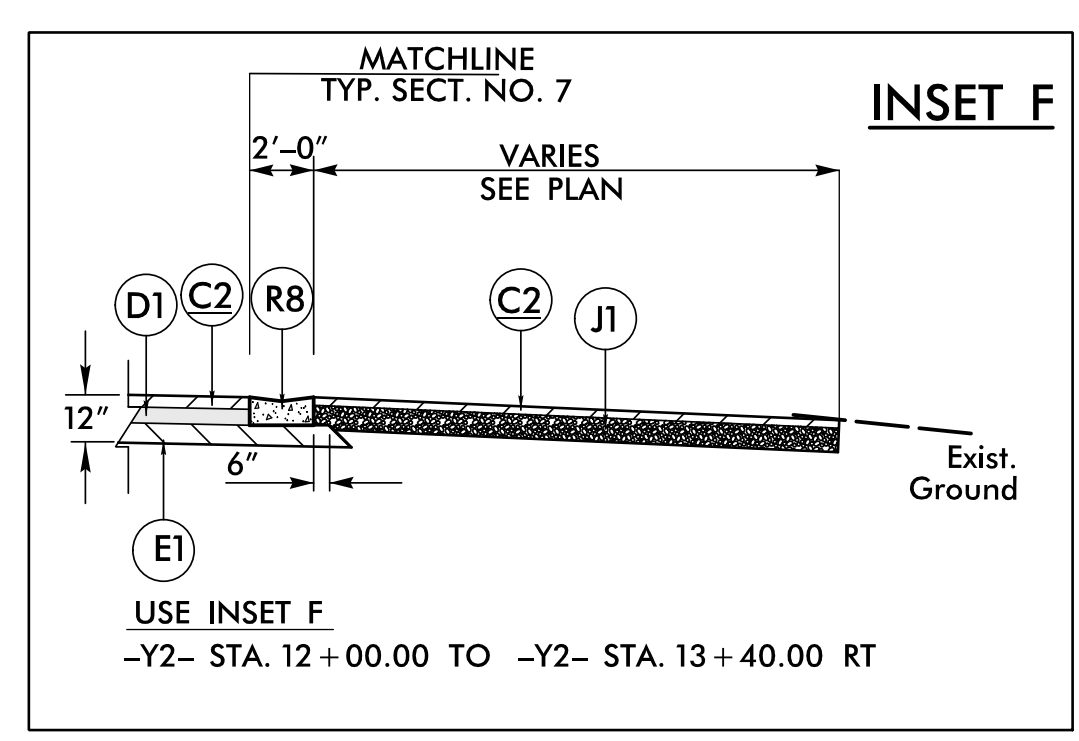
W4	STA. TO STA.
10'-0"	-Y2- STA. 11+94.26 TO -Y2- STA. 12+20.00 -Y3- STA. 12+90.00 TO -Y3- STA. 13+65.00
16'-0" TO 10'-0"	-Y3- STA. 12+00.00 TO -Y3- STA. 12+90.00
12'-0"	-Y4- STA. 11+00.00 TO -Y4- STA. 12+40.00
12'-0" TO 18'-0"	-Y4- STA. 12+40.00 TO -Y4- STA. 14+00.00
VARIES (SEE PLANS)	-Y- STA. 10+83.48 TO -Y- STA. 13+30.00 -Y1- STA. 11+96.02 TO -Y1- STA. 12+70.30 -Y2- STA. 12+20.00 TO -Y2- STA. 13+95.05 -Y3- STA. 10+90.00 TO -Y3- STA. 12+00.00 -Y4- STA. 14+00.00 TO -Y4- STA. 15+13.49
10'-0" TO EXISTING	-Y2- STA. 10+70.00 TO -Y2- STA. 12+20.00 -Y3- STA. 13+65.00 TO -Y3- STA. 14+15.00
12'-0" TO EXISTING	-Y4- STA. 10+50.00 TO -Y4- STA. 11+00.00



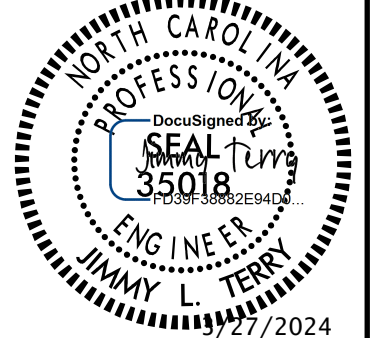


USE INSET D
 RPA STA. 11+07.66 TO RPA STA. 11+48.19
 RPB STA. 12+90.00 TO RPB STA. 13+16.13 RT
 RPB STA. 12+93.35 TO RPB STA. 13+16.13 LT
 RPC STA. 12+20.00 TO RPC STA. 12+51.20
 RPD STA. 10+63.84 TO RPD STA. 10+97.88 RT
 RPD STA. 10+63.84 TO RPD STA. 11+00.00 LT



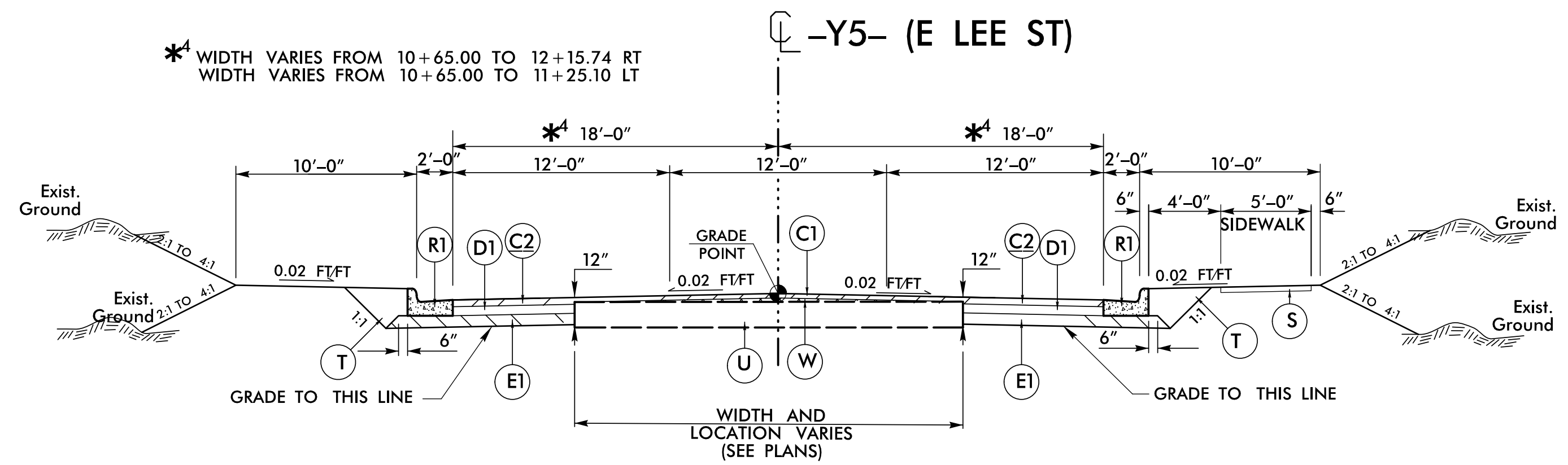
USE INSET E
 -Y4- STA. 10+50.00 TO -Y4- STA. 15+13.49



USE INSET F
 -Y2- STA. 12+00.00 TO -Y2- STA. 13+40.00 RT

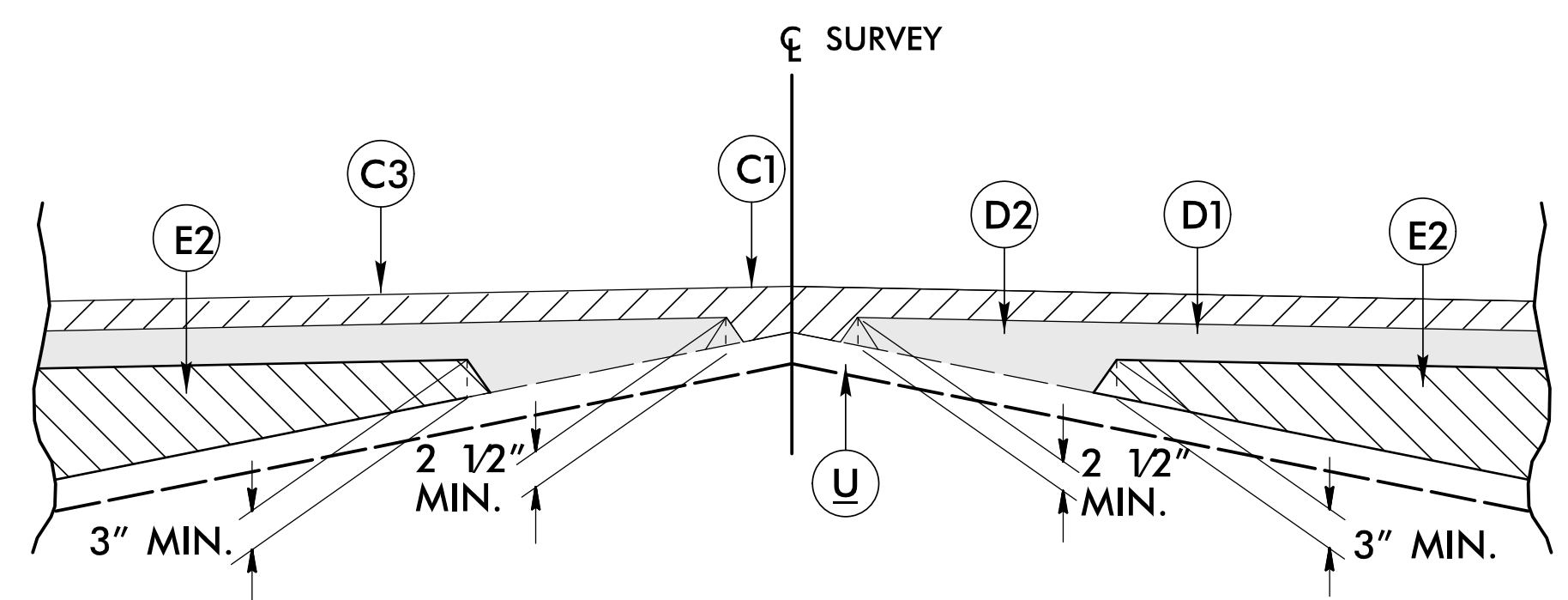
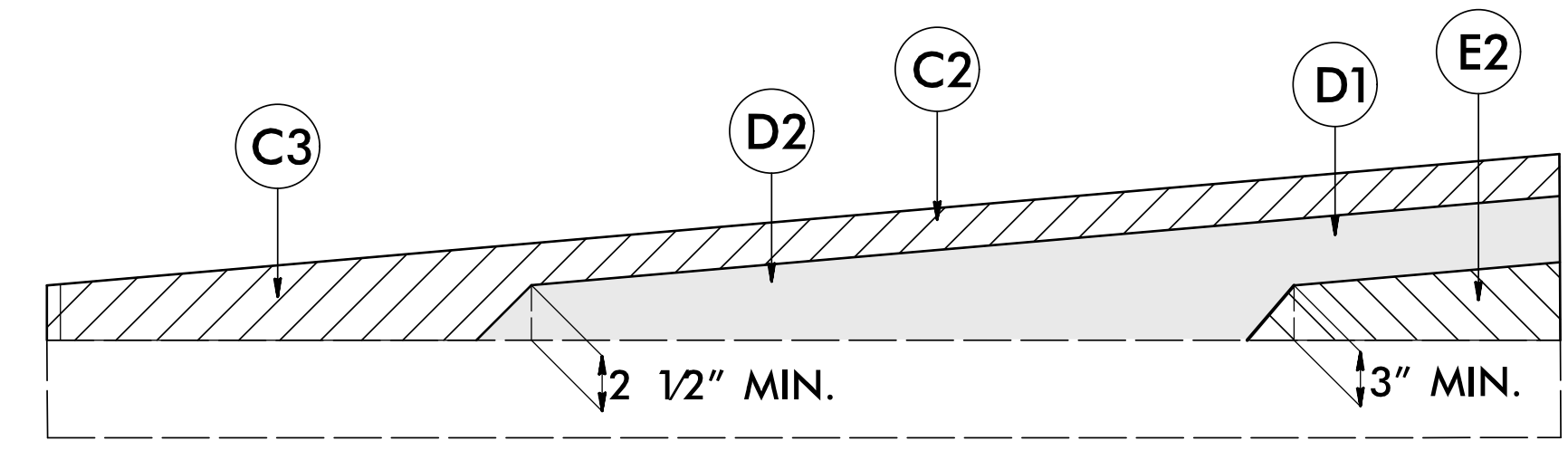
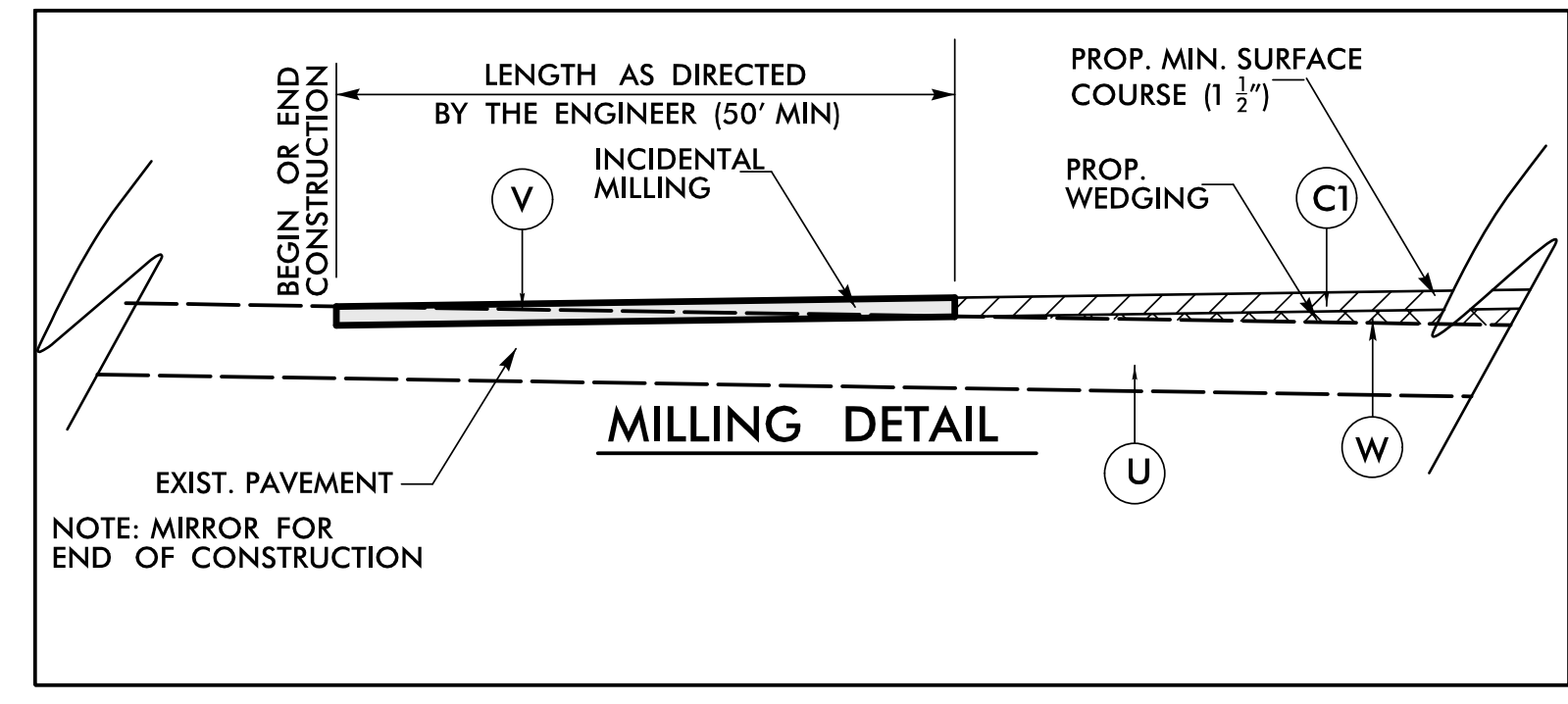
PROJECT REFERENCE NO. U-5809	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

PAVEMENT SCHEDULE	
C1	1 1/2" S9.5C
C2	3" S9.5C
C3	VAR. DEPTH S9.5C
D1	4" I19.5C
D2	VAR. DEPTH I19.5C
E1	5" B25.0C
E2	VAR. DEPTH B25.0C
R1	2'-6" C & G
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	WEDGING



NOTE: USE FULL DEPTH PAVEMENT AS FOLLOWS:
 -Y5- STA. 10+65.00 TO -Y5- STA. 11+92.52

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 8 AND EXISTING AS FOLLOWS:
 -Y5- STA. 14+50.00 TO -Y5- STA. 15+00.00



U-5809 CURVE DATA

PROJECT REFERENCE NO.	SHEET NO.
U-5809	2B-1

RW SHEET NO.

ROADWAY DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH: (704) 476-0003
CORP. LICENSE NO.: C-0275

-L- CURVE DATA

PI Sta 11+14.48 Δ = 2° 11' 10.3" (RT) D = 0° 57' 17.7" L = 228.94' T = 114.48' R = 6,000.00' SE = NC DS = 45 MPH	PI Sta 17+08.18 Δ = 9° 09' 22.0" (RT) D = 1° 25' 56.6" L = 639.22' T = 320.29' R = 4,000.00' SE = 0.02 DS = 40 MPH	PI Sta 22+10.34 Δ = 1° 57' 56.7" (RT) D = 1° 11' 37.2" L = 164.68' T = 82.35' R = 4,800.00' SE = NC DS = 40 MPH	PI Sta 30+98.99 Δ = 2° 51' 57.5" (RT) D = 1° 11' 37.2" L = 240.10' T = 120.08' R = 4,800.00' SE = NC DS = 40 MPH	PI Sta 34+98.94 Δ = 2° 51' 57.5" (RT) D = 1° 11' 37.2" L = 240.10' T = 120.08' R = 4,800.00' SE = NC DS = 40 MPH
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-RPA- CURVE DATA

PI Sta 12+16.11 Δ = 43° 03' 50.5" (LT) D = 28° 38' 52.4" L = 150.32' T = 78.91' R = 200.00' SE = 0.02 DS = <15 MPH	PI Sta 13+77.19 Δ = 16° 59' 53.1" (RT) D = 9° 32' 57.5" L = 178.00' T = 89.66' R = 600.00' SE = 0.04 DS = 40 MPH
---	---

-RPC- CURVE DATA

PI Sta 10+98.26 Δ = 12° 27' 39.6" (RT) D = 6° 21' 58.3" L = 195.74' T = 98.26' R = 900.00' SE = 0.03 DS = 30 MPH

-RPB CURVE DATA

PI Sta 11+68.65 Δ = 23° 50' 26.9" (RT) D = 11° 27' 33.0" L = 208.05' T = 105.55' R = 500.00' SE = 0.04 DS = <15 MPH
--

- 1- RPA PC 11+37.20
- 2- RPA PRC 12+87.52

-Y1- CURVE DATA

PI Sta 10+92.29 Δ = 59° 01' 50.2" (RT) D = 57° 17' 44.8" L = 103.03' T = 56.61' R = 100.00'
--

-Y2- CURVE DATA

PI Sta 12+45.35 Δ = 35° 15' 48.4" (LT) D = 19° 05' 54.9" L = 184.64' T = 95.35' R = 300.00' SE = 0.04 DS = 30 MPH
--

-Y3- CURVE DATA

PI Sta 12+81.60 Δ = 25° 13' 27.4" (LT) D = 10° 44' 58.8" L = 234.65' T = 119.26' R = 533.00' SE = 0.04 DS = 40 MPH

-Y4- CURVE DATA

PI Sta 11+73.56 Δ = 12° 16' 18.4" (LT) D = 9° 32' 57.5" L = 128.51' T = 64.50' R = 600.00' SE = 0.04 DS = 40 MPH

-Y5 CURVE DATA

PI Sta 14+04.68 Δ = 9° 49' 35.3" (LT) D = 5° 43' 46.5" L = 171.50' T = 85.96' R = 1,000.00' SE = 0.04 DS = 50 MPH
--

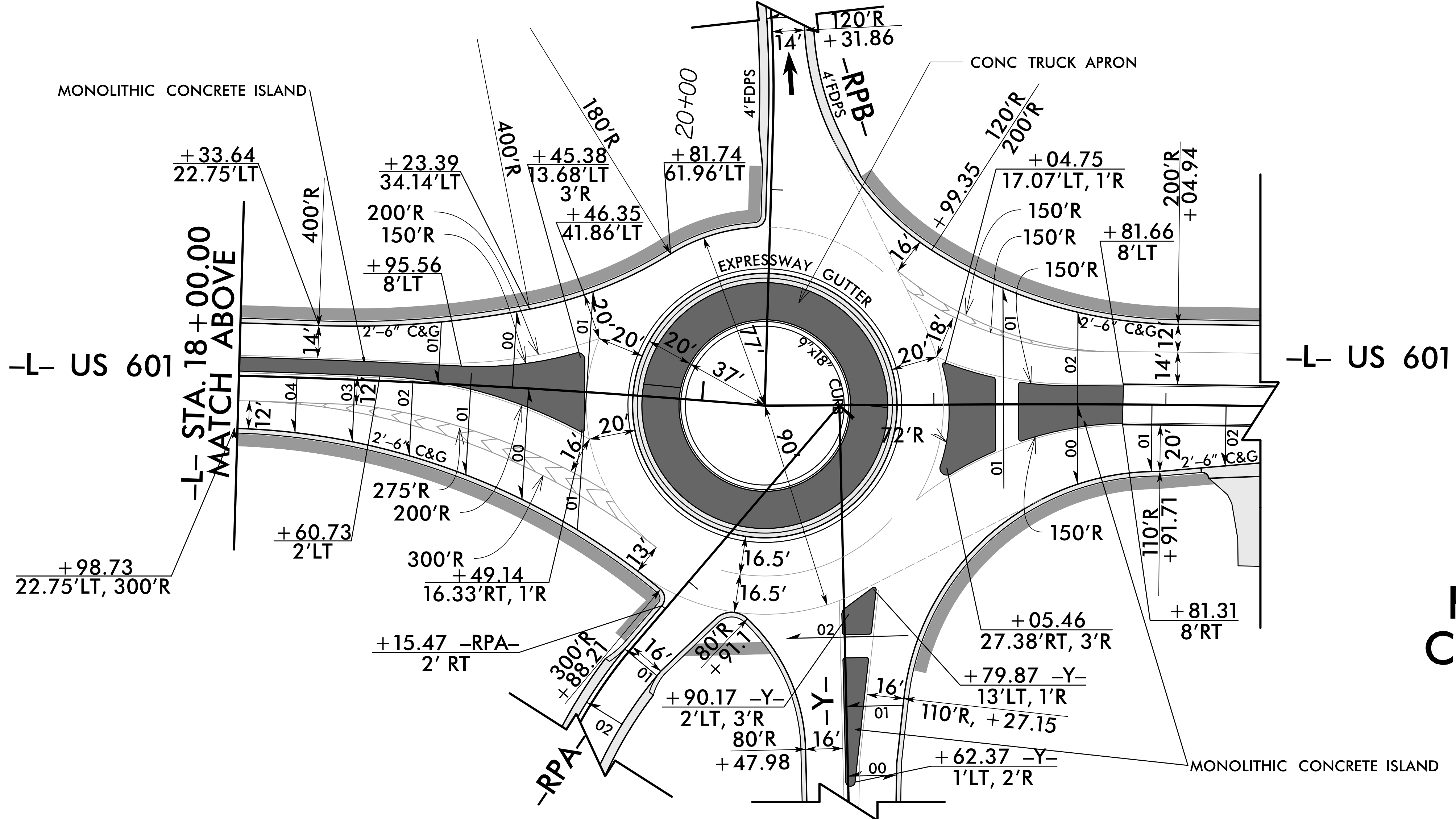
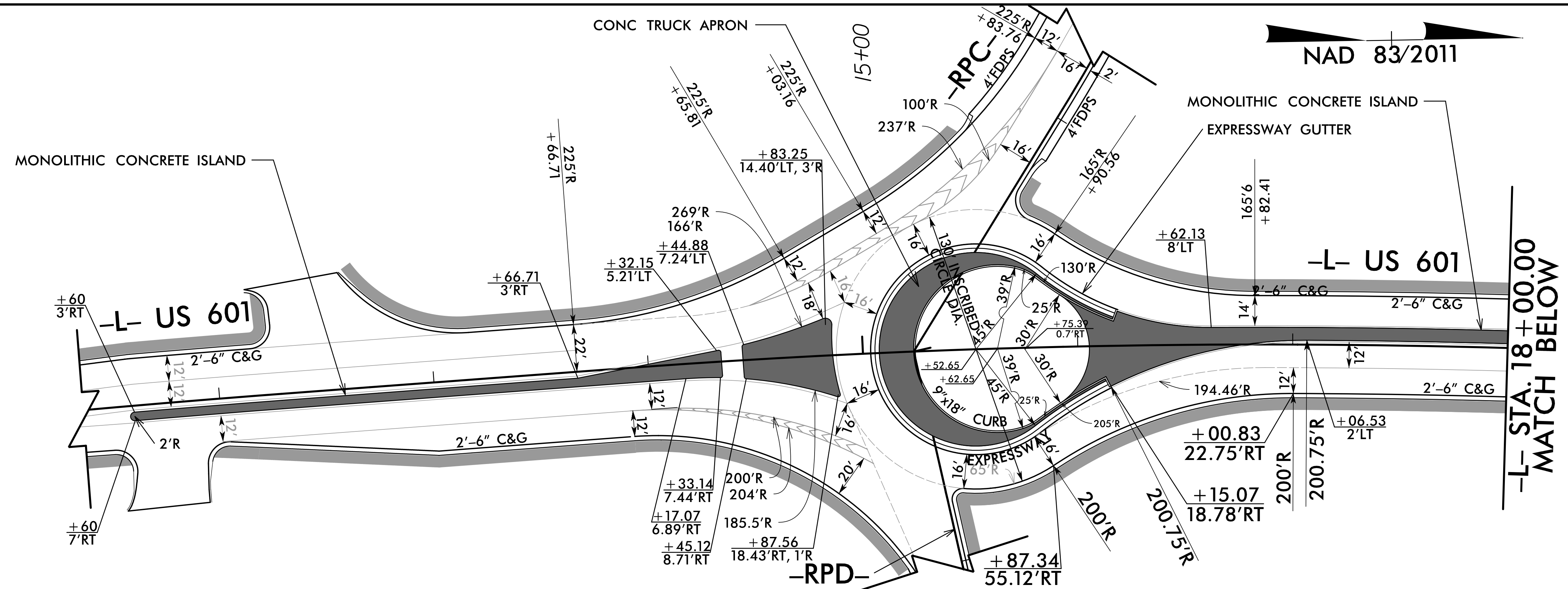
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REVISIONS

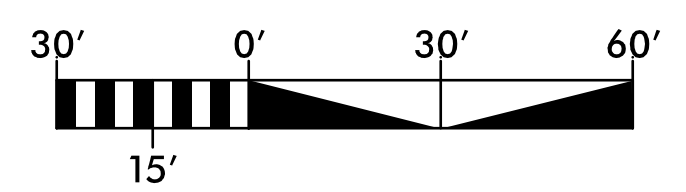
8/17/99

REVISIONS

2/22/2024
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ROUNDAABOUT & CONCRETE ISLAND LAYOUTS



PROJECT REFERENCE NO. U-5809	SHEET NO. 2B-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

8/17/99

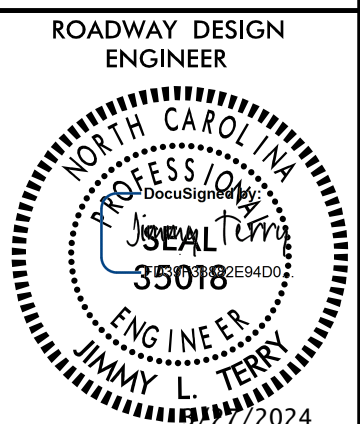
REVISIONS

2/22/2024
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NAD 83/2011

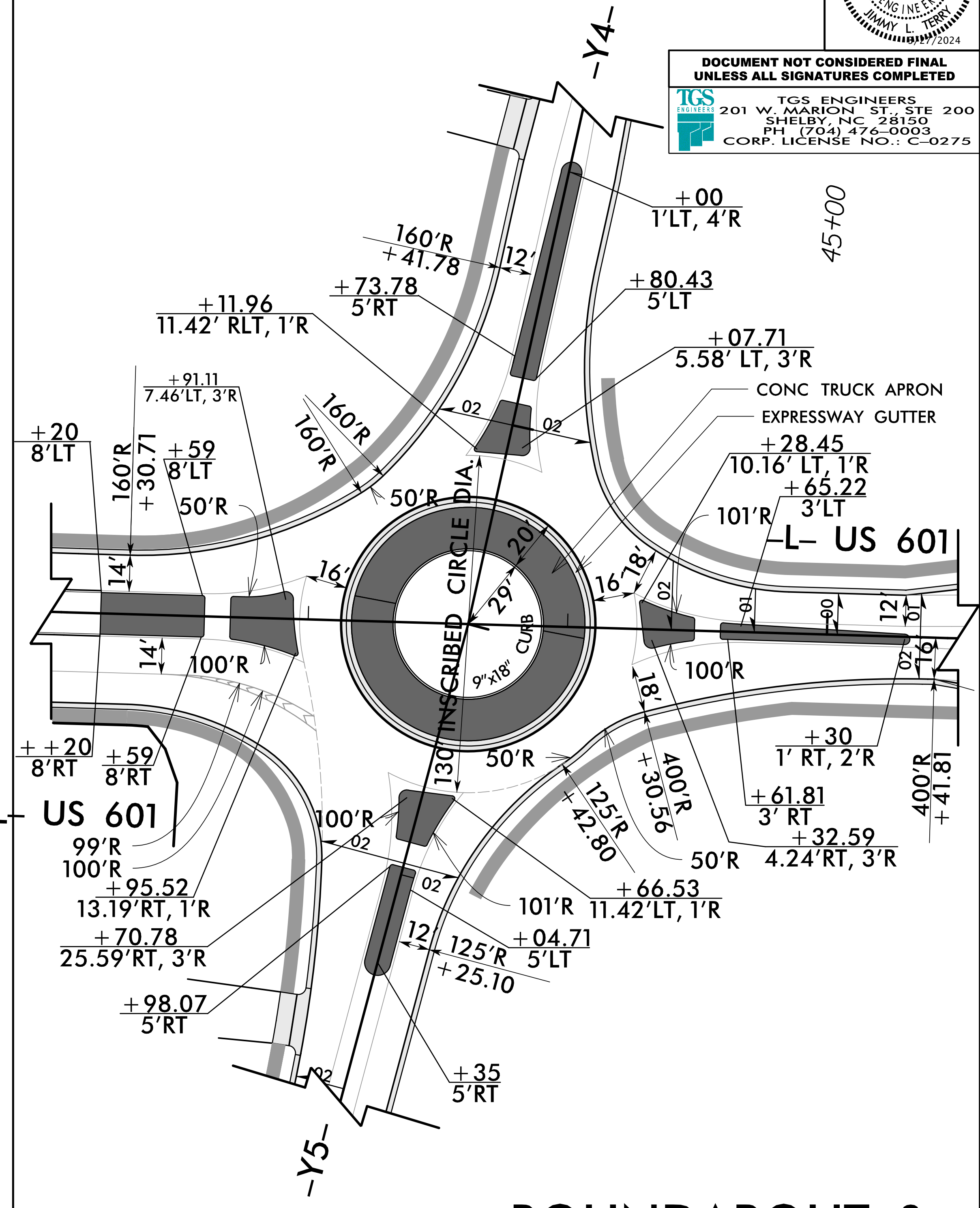
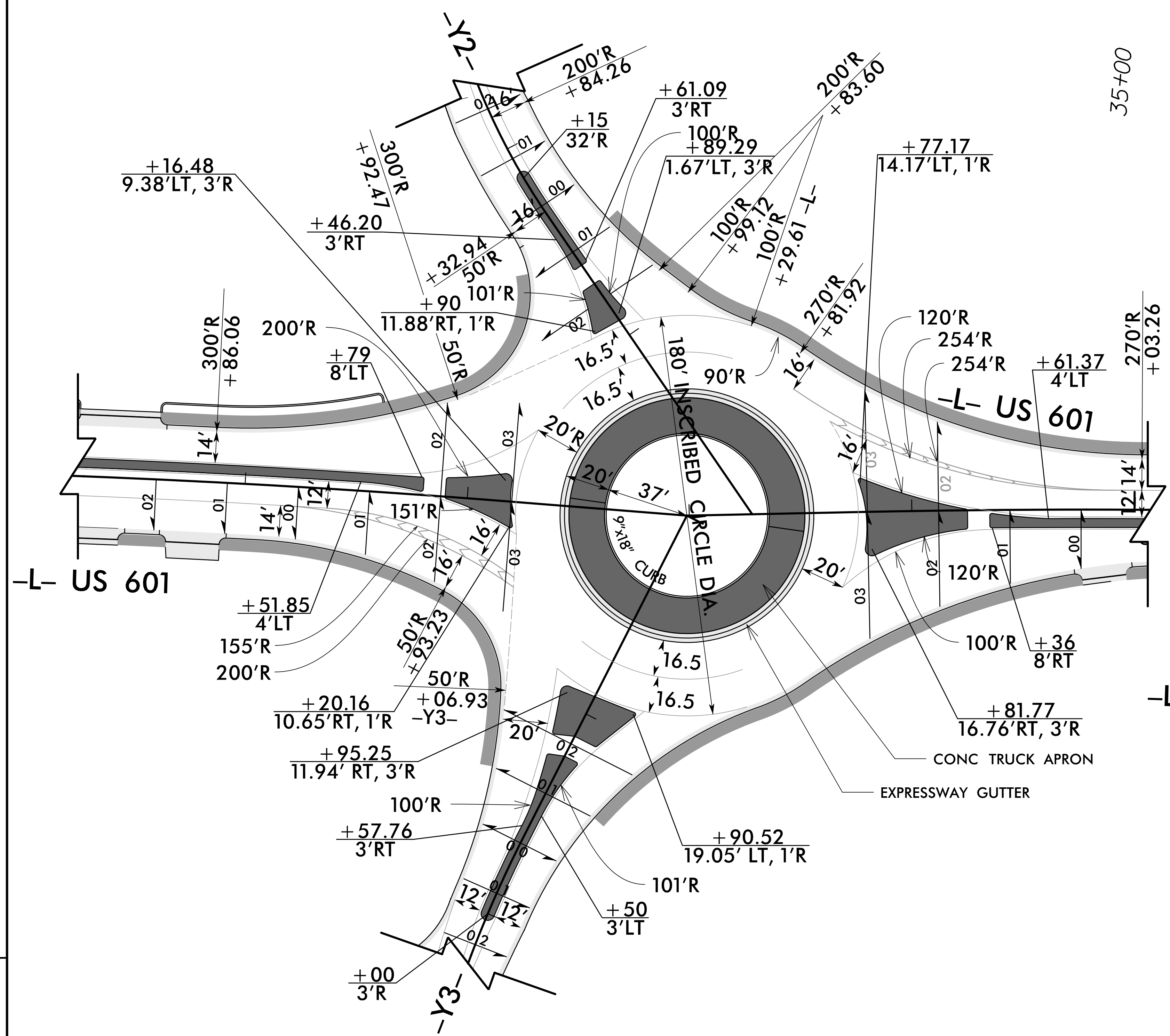
NAD 83/2011

PROJECT REFERENCE NO.	SHEET NO.
U-5809	2B-3
RW SHEET NO.	

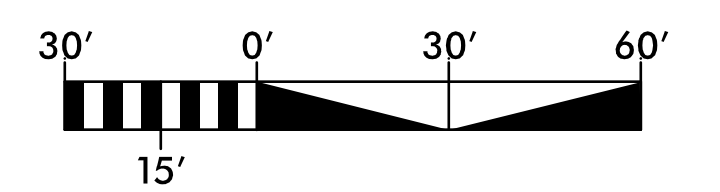


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
 201 W. MARION ST., STE 200
 SHELBY, NC 28150
 PH (704) 476-0003
 CORP. LICENSE NO.: C-0275



ROUNDBABOUT & CONCRETE ISLAND LAYOUTS



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

ENGLISH DETAIL DRAWING FOR
CONCRETE STEPS WITH HANDRAIL

SHEET 1 OF 1
844D01

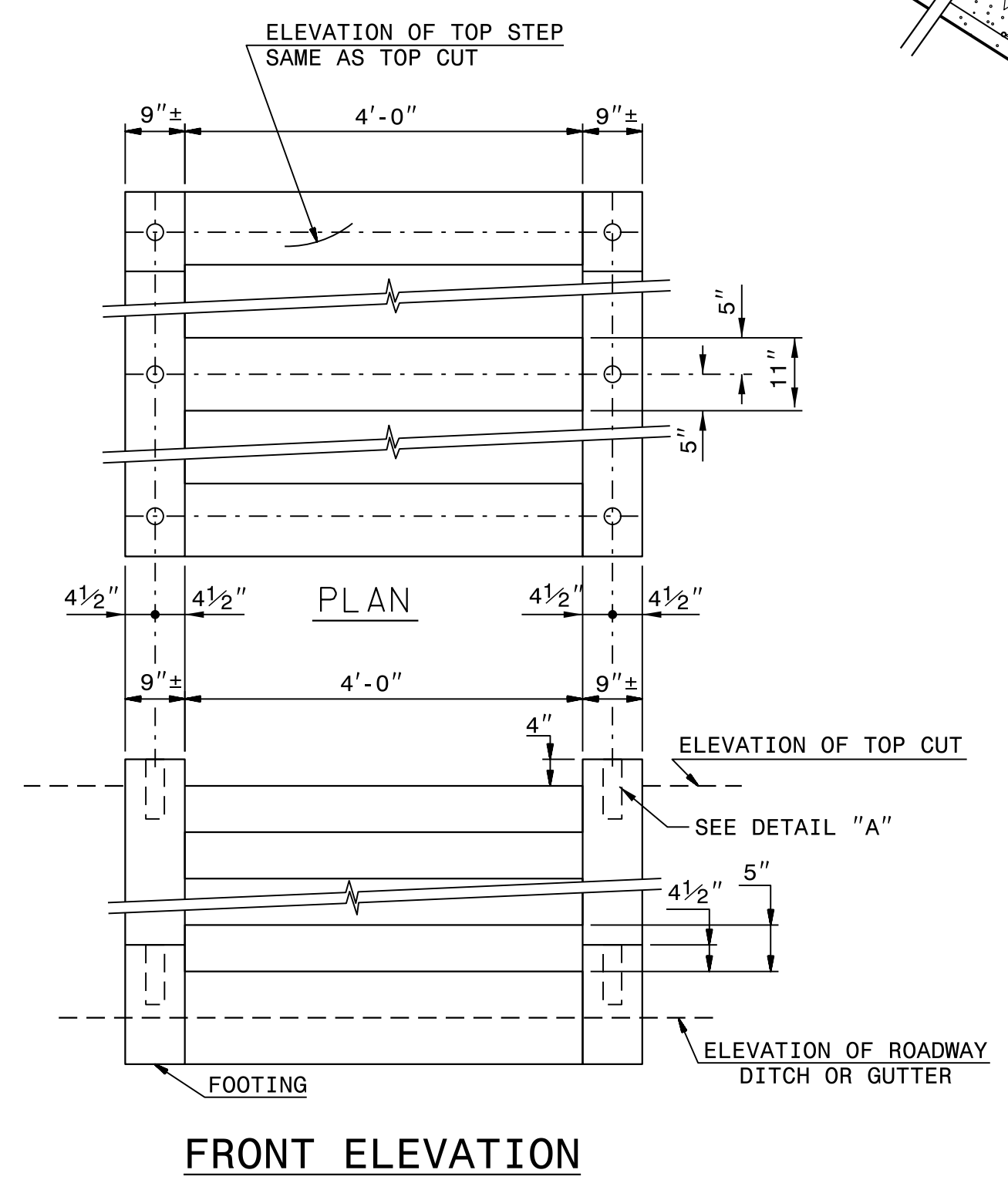
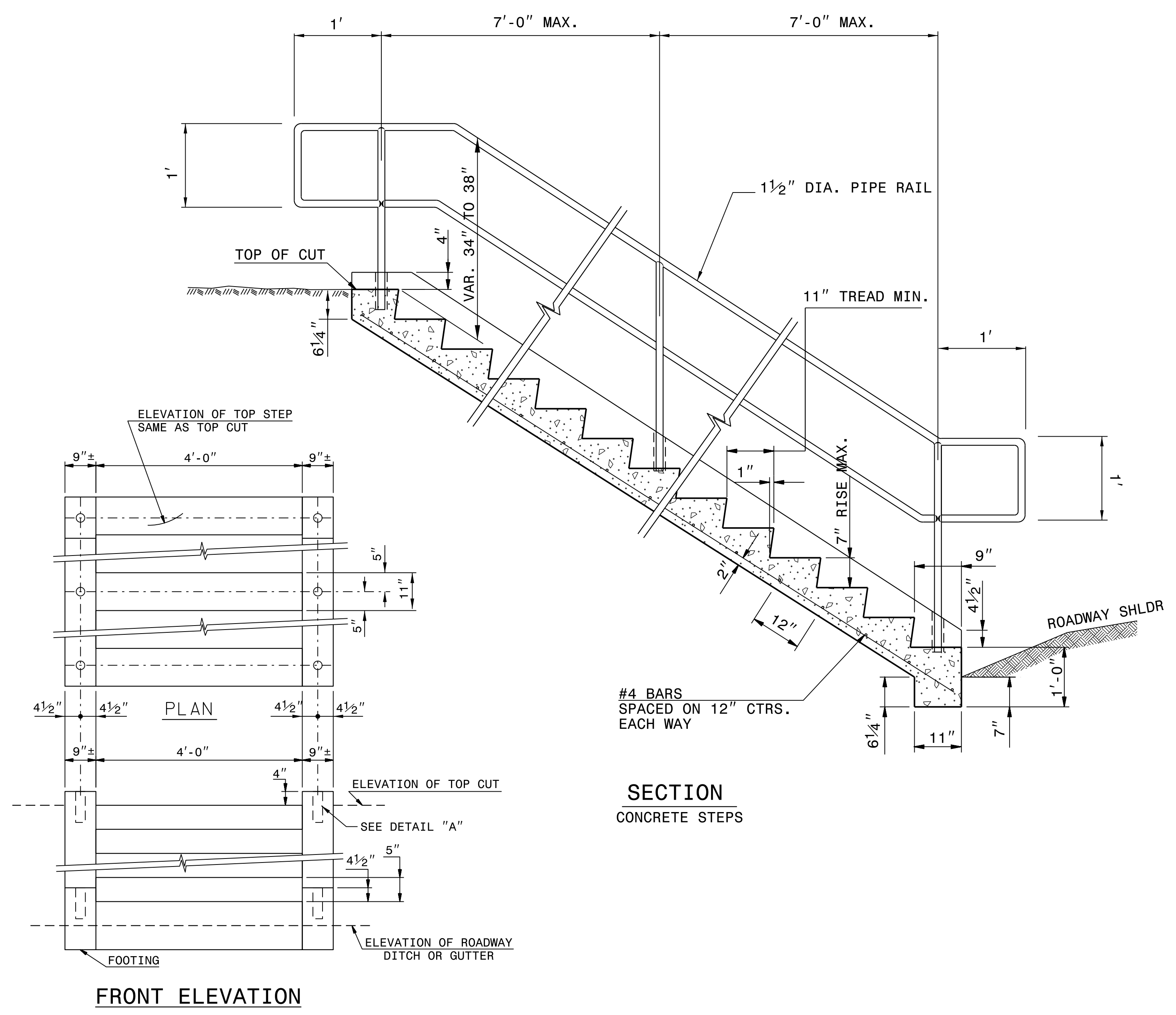
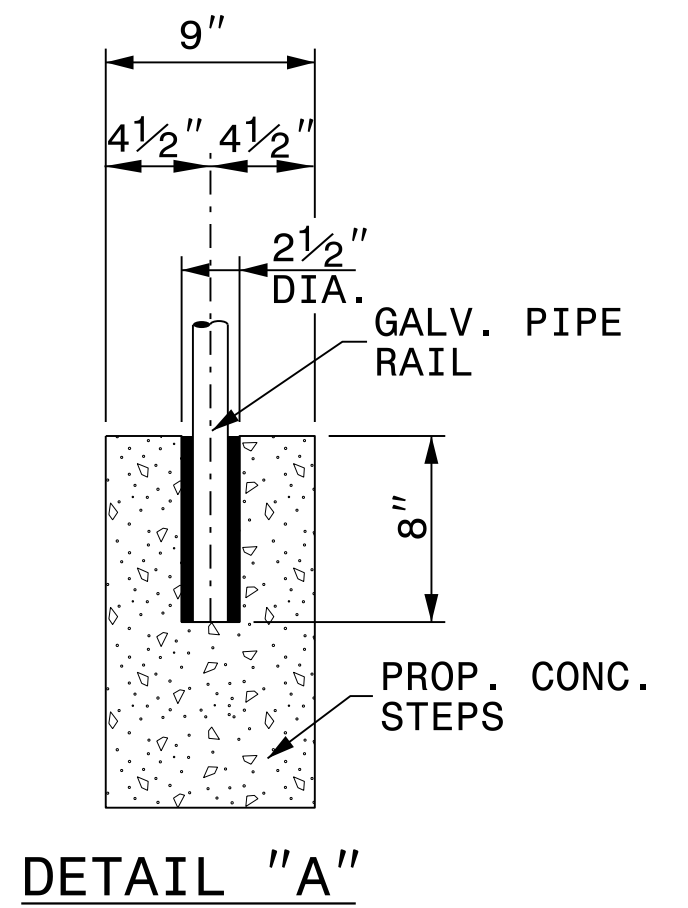
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE STEPS WITH HANDRAIL

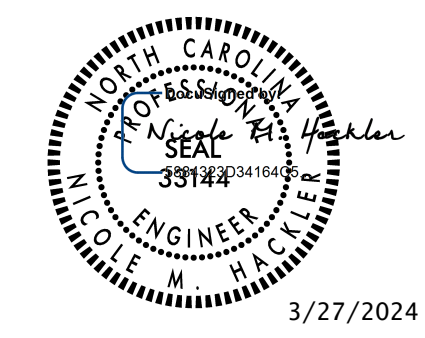
SHEET 1 OF 1
844D01

- GENERAL NOTES :
- CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53. EMBED PIPE RAIL 8" INTO PROPOSED STEPS WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.
 - USE A ROTARY DRILL FOR DRILLING THE HOLES FOR THE PIPE RAIL. NO IMPACT DRILLS ALLOWED.
 - USE CLASS "B" CONCRETE THROUGHOUT FOR CONCRETE STEPS.
 - LOCATION AND QUANTITIES SHOWN ARE APPROXIMATE ONLY. EXACT LOCATION AND QUANTITIES WILL BE DETERMINED BY THE ENGINEER.
 - ALL WORK AS DIRECTED BY THE ENGINEER.
 - REPAIR OF GALVANIZING IN ACCORDANCE WITH SCT.1076 OF THE STANDARD SPECIFICATIONS.
 - WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.
 - 2" CLEAR SPACING ON ALL REINFORCING BARS.
 - EXTEND HORIZONTAL REINFORCING BARS UPWARD INTO SIDE WALLS.
 - ALL HANDRAILS AND STEPS MUST COMPLY WITH ADA STANDARDS FOR ACCESSIBLE DESIGN.

CUBIC YARDS IN STANDARD CONCRETE STEPS					
NO. OF STEPS	4' WIDE	5' WIDE	6' WIDE	7' WIDE	ADDITIONAL CU. YDS. PER 1' WIDTH
2	0.4	0.5	0.5	0.6	0.1
3	0.6	0.7	0.8	0.9	0.1
4	0.8	0.9	1.0	1.2	0.1
5	1.0	1.2	1.3	1.4	0.1
6	1.2	1.4	1.5	1.7	0.2
7	1.4	1.6	1.8	2.0	0.2
8	1.6	1.8	2.0	2.3	0.2
9	1.8	2.0	2.3	2.6	0.3
10	2.0	2.3	2.5	2.8	0.3
ADDITIONAL STEP INCREMENT	0.2	0.2	0.2	0.3	0.1



07-FEB-2018 10:06
 S:\Contracts\Contractors\Special Details\Howerton\844d01e Concrete Steps with Handrail.dgn
 Howerton A1 CS0-232595



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UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119
SEE PLATE FOR TITLE
 ORIGINAL BY: T. Spell DATE: Oct. 7, 1998
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: s:\usr\details\stand\844d01e.dgn

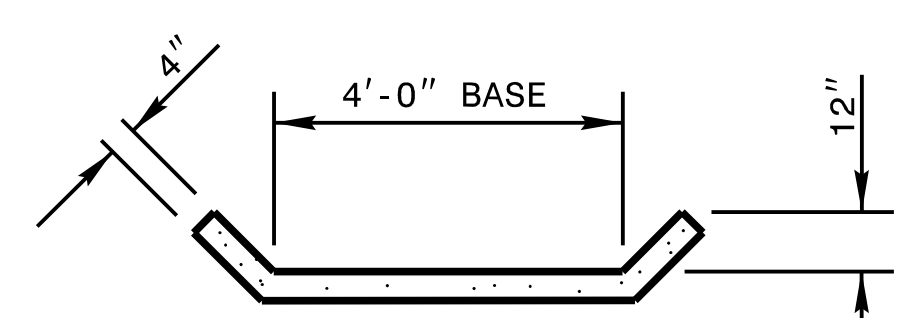
5/14/99

GENERAL NOTES:

WIDTH AND SHAPE OF PROPOSED CONCRETE FLUME AND ETC. SHALL BE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

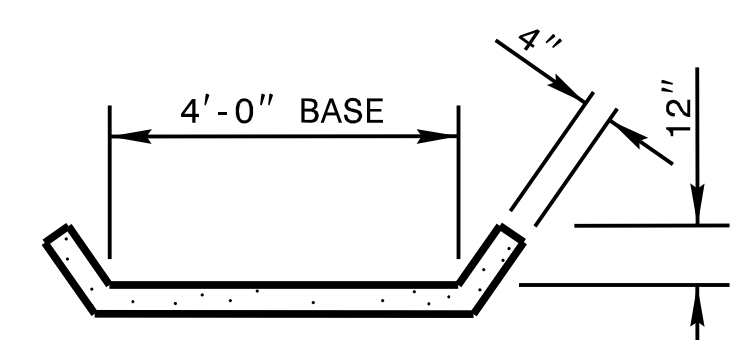
REINFORCING BARS ARE TO BE ASTM A615, GRADE 60.

THE FOLLOWING SHALL BE CONSTRUCTED IN ACCORDANCE WITH N.C. ROADWAY SPECIFICATIONS, CONCRETE CURB AND GUTTER-SECTION 846, CONCRETE FLUME COVER (TO BE CONSTRUCTED UNDER SIDEWALK SPECIFICATIONS) SECTION 848, CONCRETE PAVED DITCH- SECTION 850.



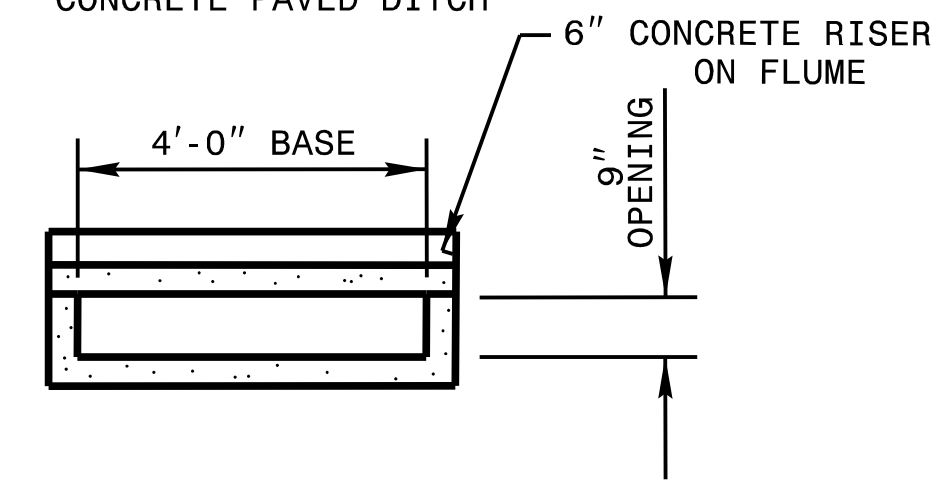
SECTION D-D

*CONCRETE PAVED DITCH



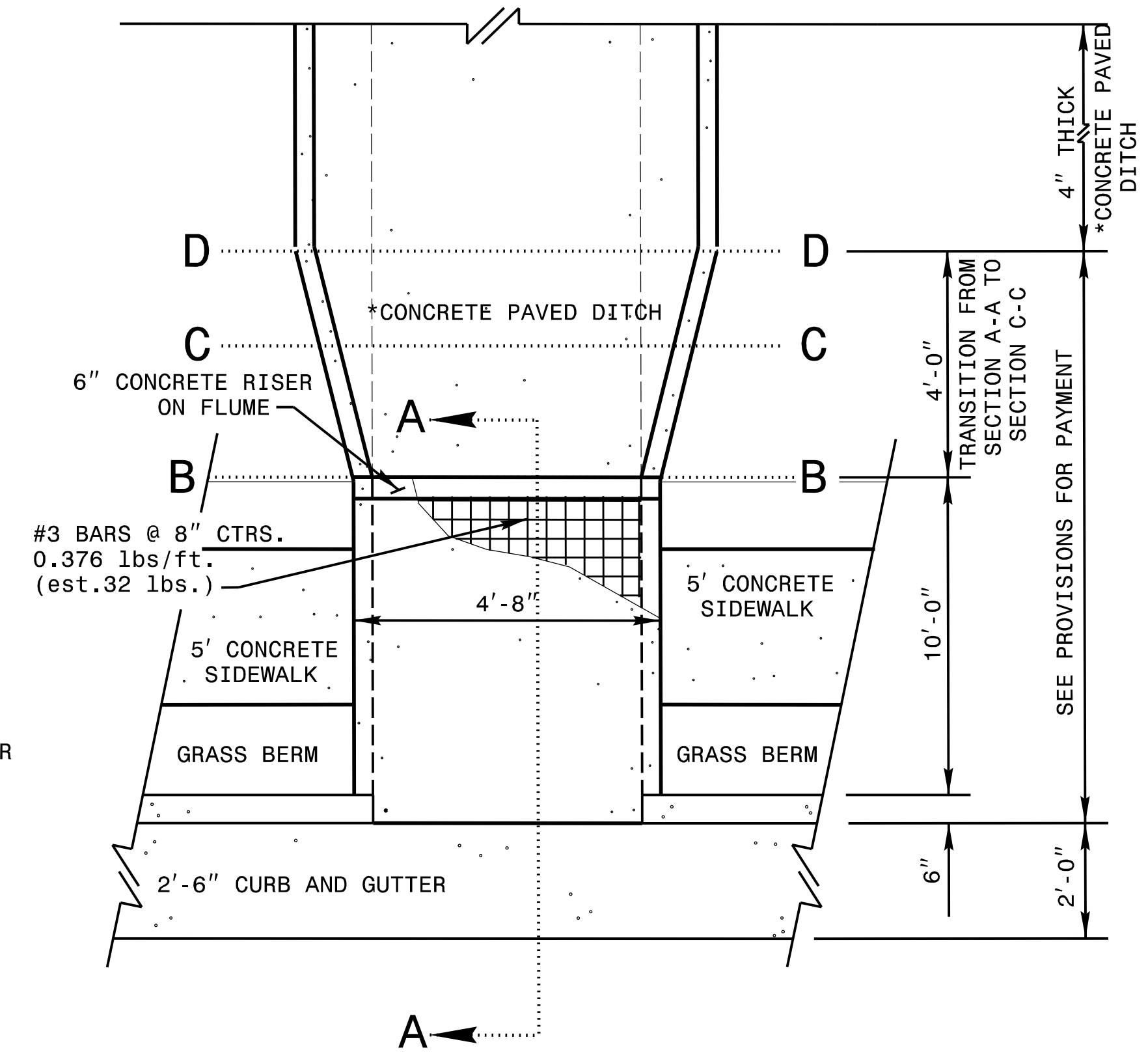
SECTION C-C

*CONCRETE PAVED DITCH

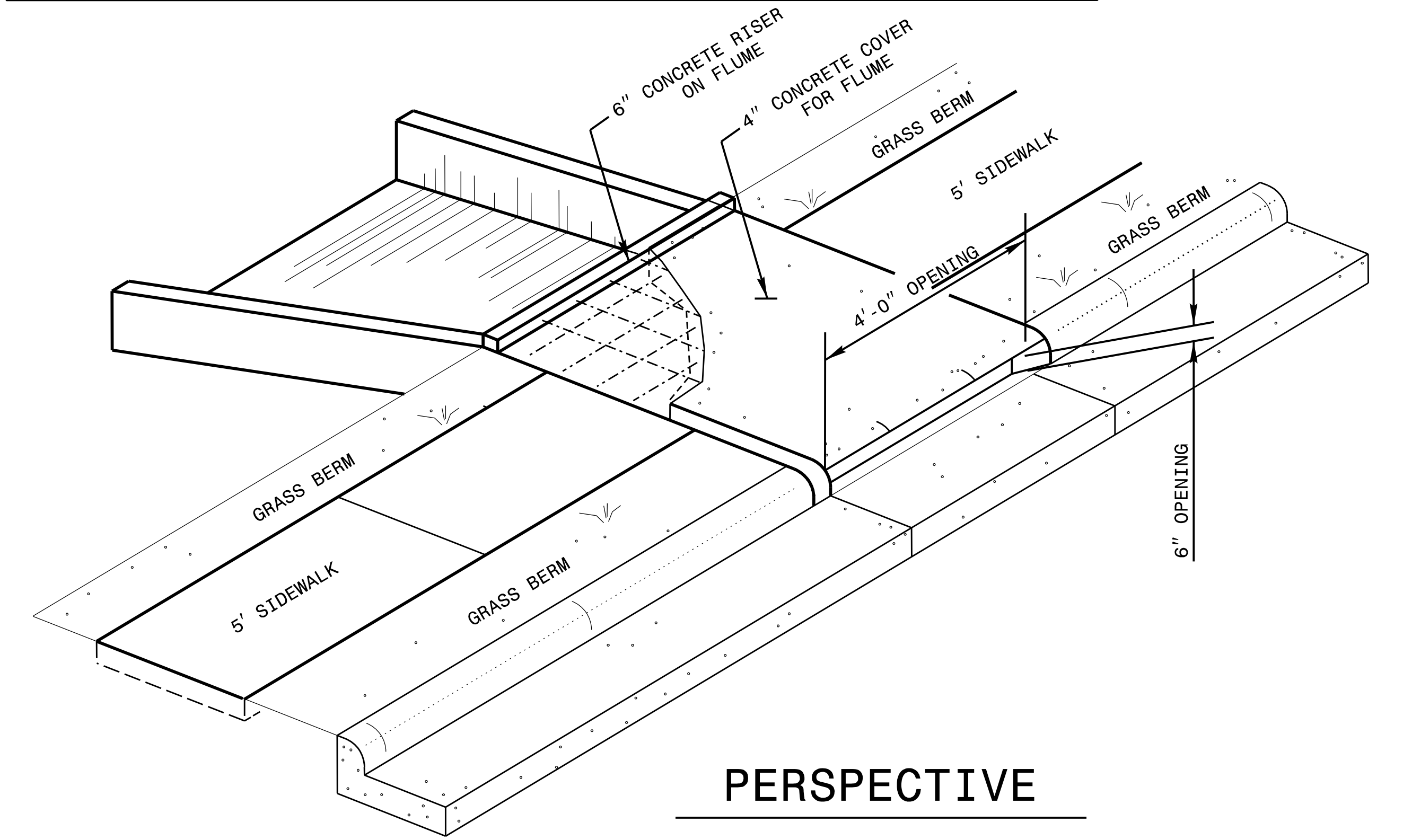


SECTION B-B

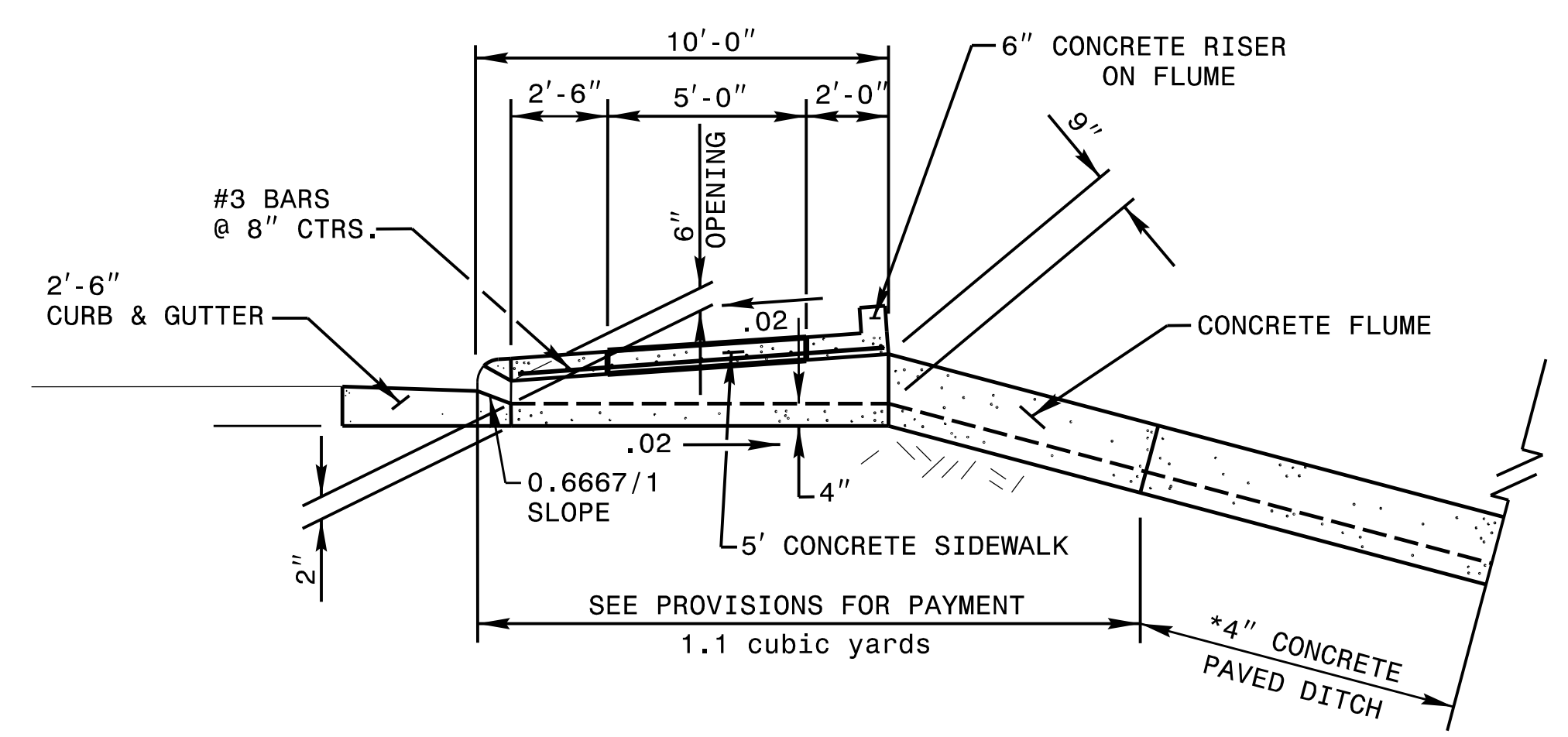
CONCRETE PAVED DITCH
CONCRETE FLUME



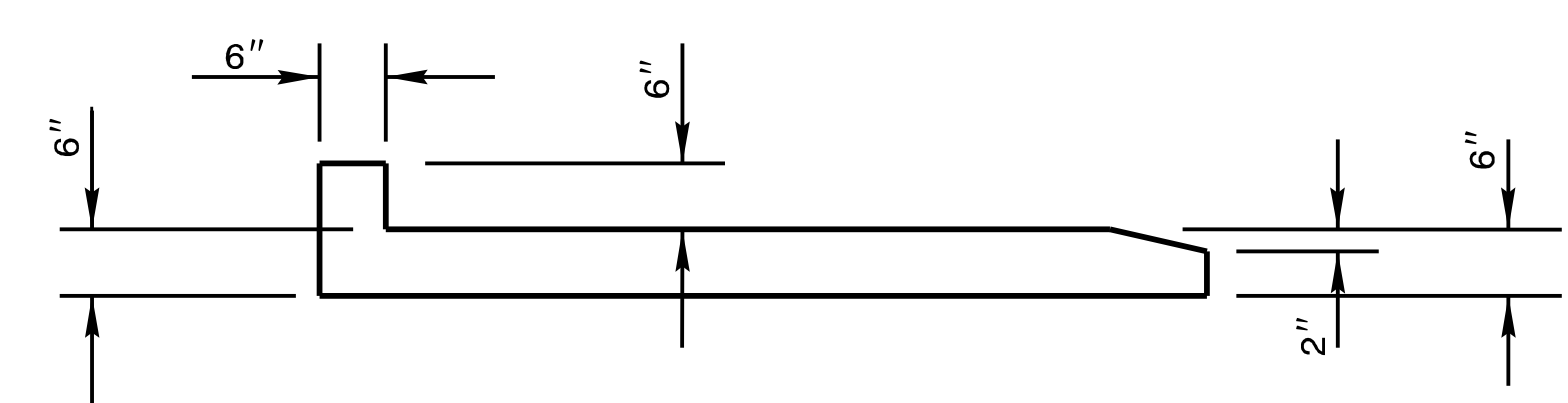
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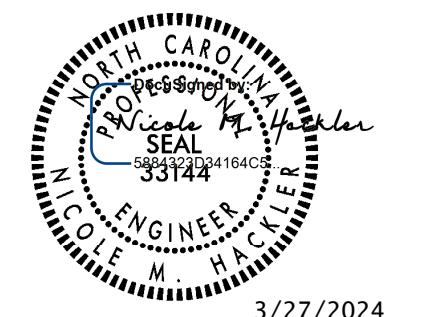
PERSPECTIVE



ELEVATION



SECTION A-A



3/27/2024

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STANDARDS AND SPECIAL DESIGN**
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CONCRETE FLUME DETAIL

ORIGINAL BY: rnbritt DATE: 03-27-12
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE SPEC.: details/nbritt/english/urban/u3615aconcreteflume.dgn

*RIP RAP LINED DITCH MAY BE USED IN LIEU OF A CONCRETE PAVED DITCH.

STATE OF
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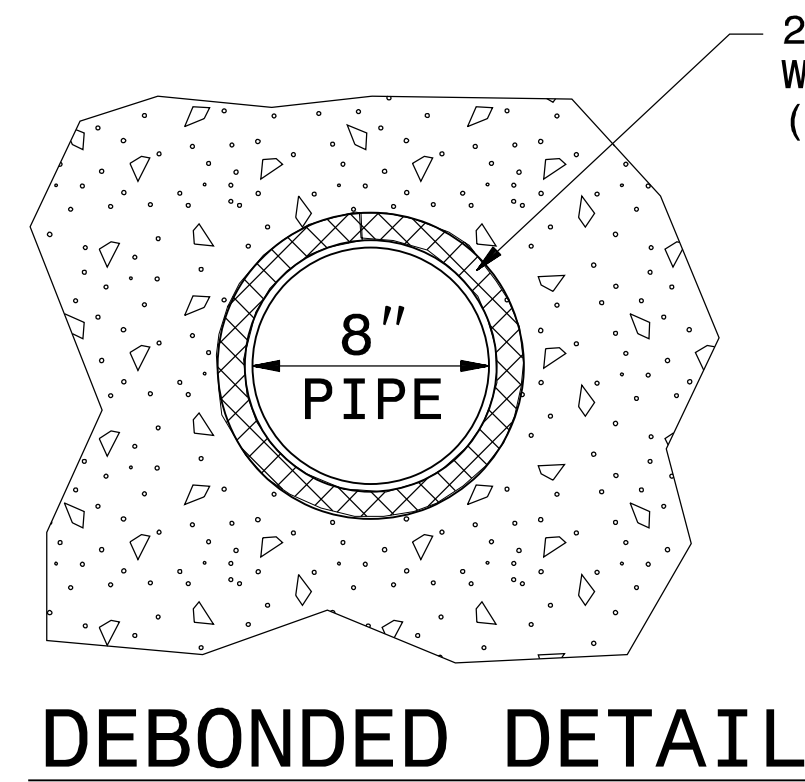
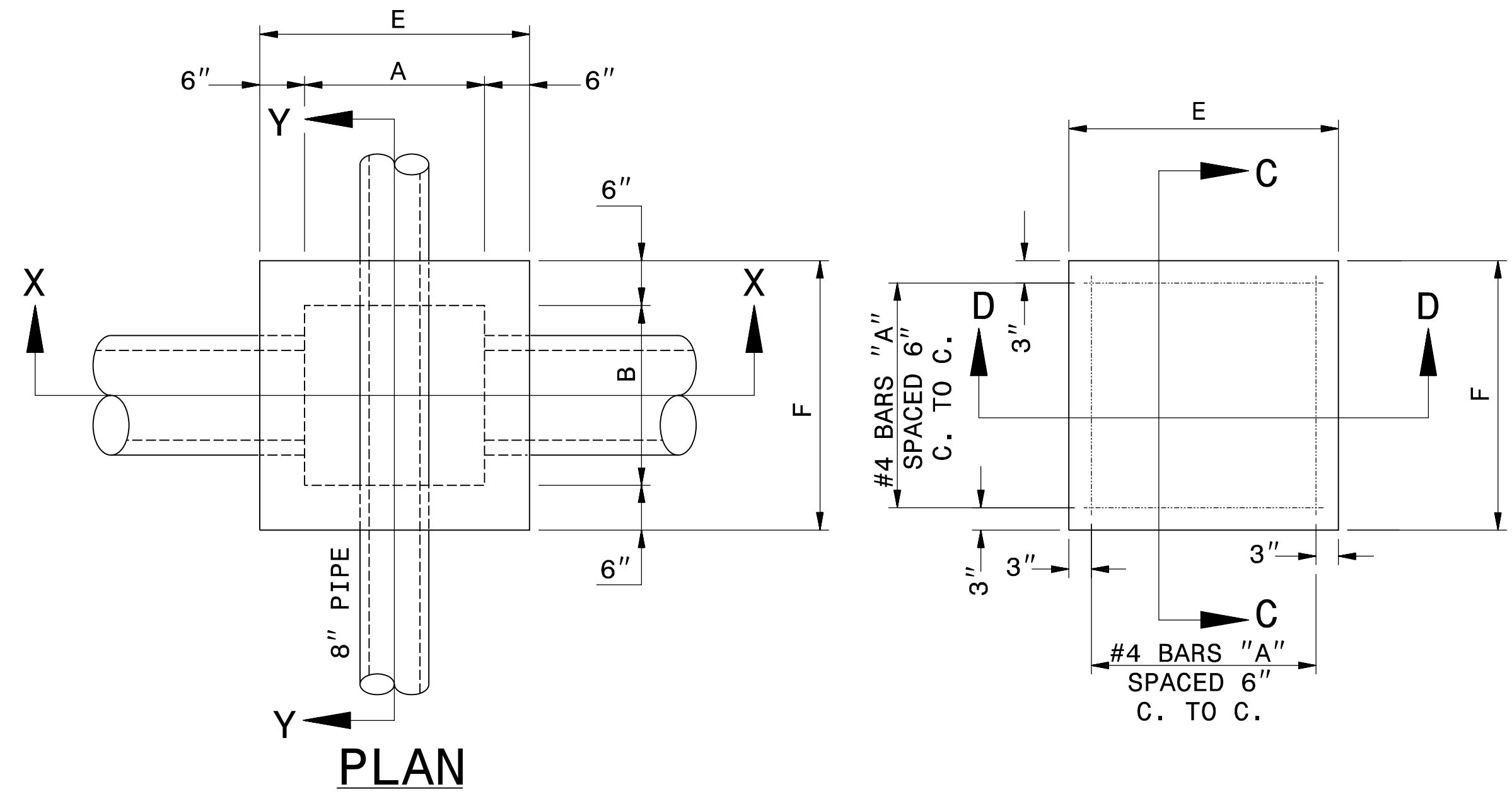
ENGLISH DETAIL DRAWING FOR
**CONCRETE JUNCTION BOX WITH
8" PIPE PASSING THRU
12" THRU 66" PIPE**

SHEET 1 OF 1
840D31

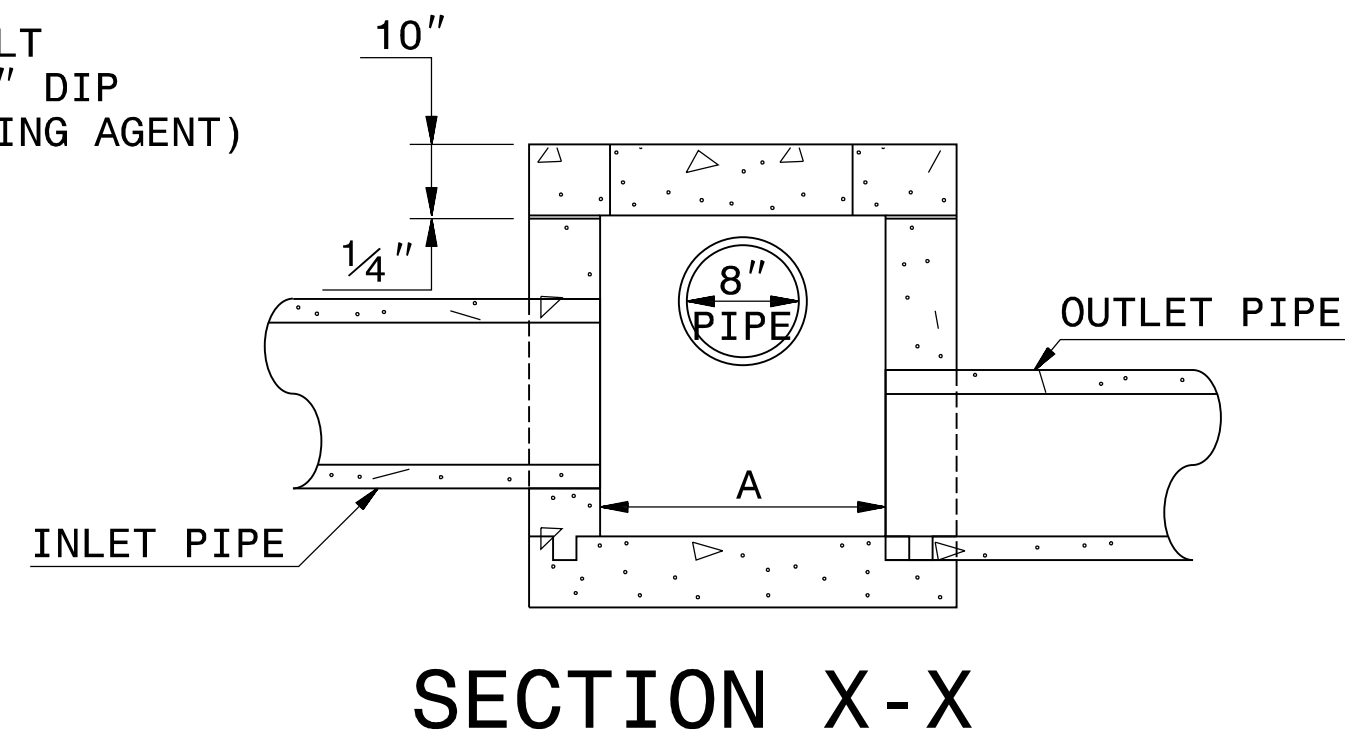
STATE OF
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RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**CONCRETE JUNCTION BOX WITH
8" PIPE PASSING THRU
12" THRU 66" PIPE**

SHEET 1 OF 1
840D31

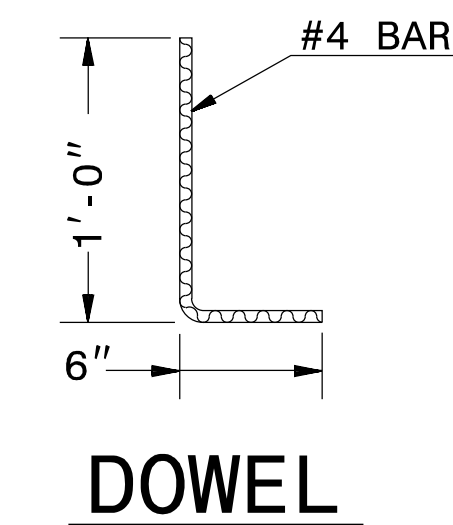
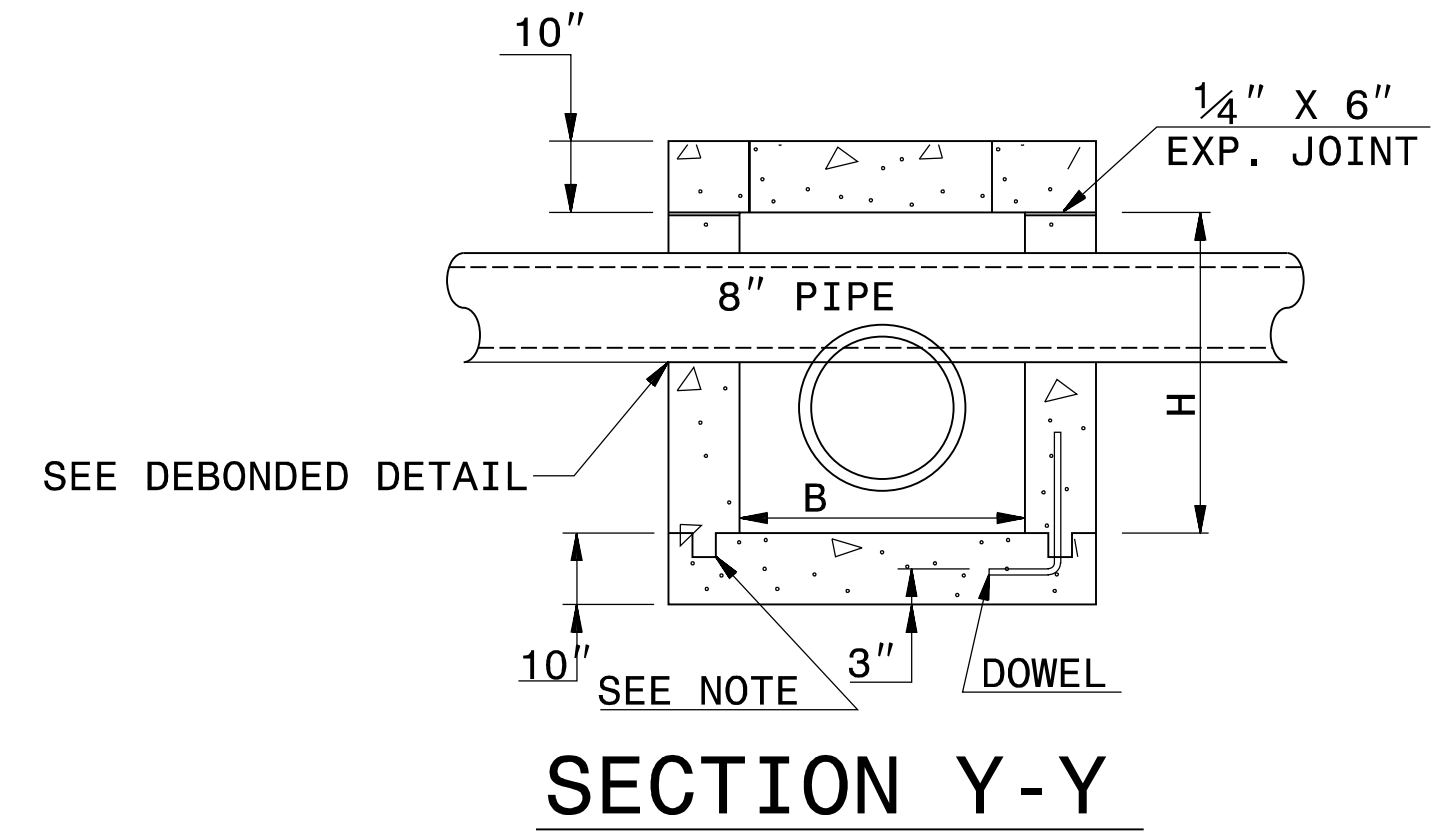


2 PIECES 30 lb FELT
WRAPPED AROUND 10" DIP
(USED AS A DEBONDING AGENT)

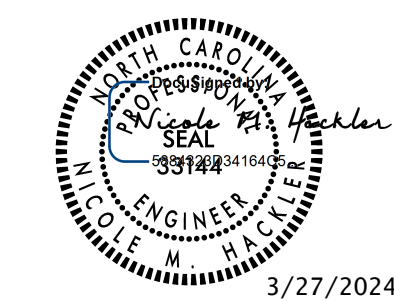


GENERAL NOTES:

- 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 TO CONSTRUCT THE BOTTOM SLAB.
- IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
- REFER TO R.S.D.N. 840.31 FOR PLACEMENT OF MANHOLE COVER IN JUNCTION BOX.



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES															
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		COVER DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND COVER		DEDUCTIONS FOR ONE PIPE CU.YDS.		
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	COVER	FLOOR	WALL/ FT. OF HT.	LBS. REINF.	CU. YDS. MIN. "H"	C.S.	R.C.	
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.222	0.222	0.185	22	0.750	0.015	0.024	
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.261	0.261	0.204	24	0.902	0.023	0.036	
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.302	0.302	0.222	30	1.065	0.033	0.049	
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.395	0.395	0.259	40	1.434	0.059	0.091	
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.500	0.500	0.296	51	1.860	0.092	0.138	
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.617	0.617	0.333	64	2.341	0.132	0.196	
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.747	0.747	0.370	77	2.878	0.180	0.284	
48"	5'-0"	5'-0"	5'-3"	24	5'-9"	6'-0"	6'-0"	0.889	0.889	0.407	92	3.471	0.235	0.364	
54"	5'-6"	5'-6"	5'-9"	26	6'-3"	6'-6"	6'-6"	1.043	1.043	0.444	109	4.283	0.297	0.440	
60"	6'-0"	6'-0"	6'-3"	28	6'-9"	7'-0"	7'-0"	1.210	1.210	0.481	127	5.090	0.367	0.546	
66"	6'-6"	6'-6"	6'-9"	30	7'-3"	7'-6"	7'-6"	1.389	1.389	0.518	146	5.917	0.444	0.655	



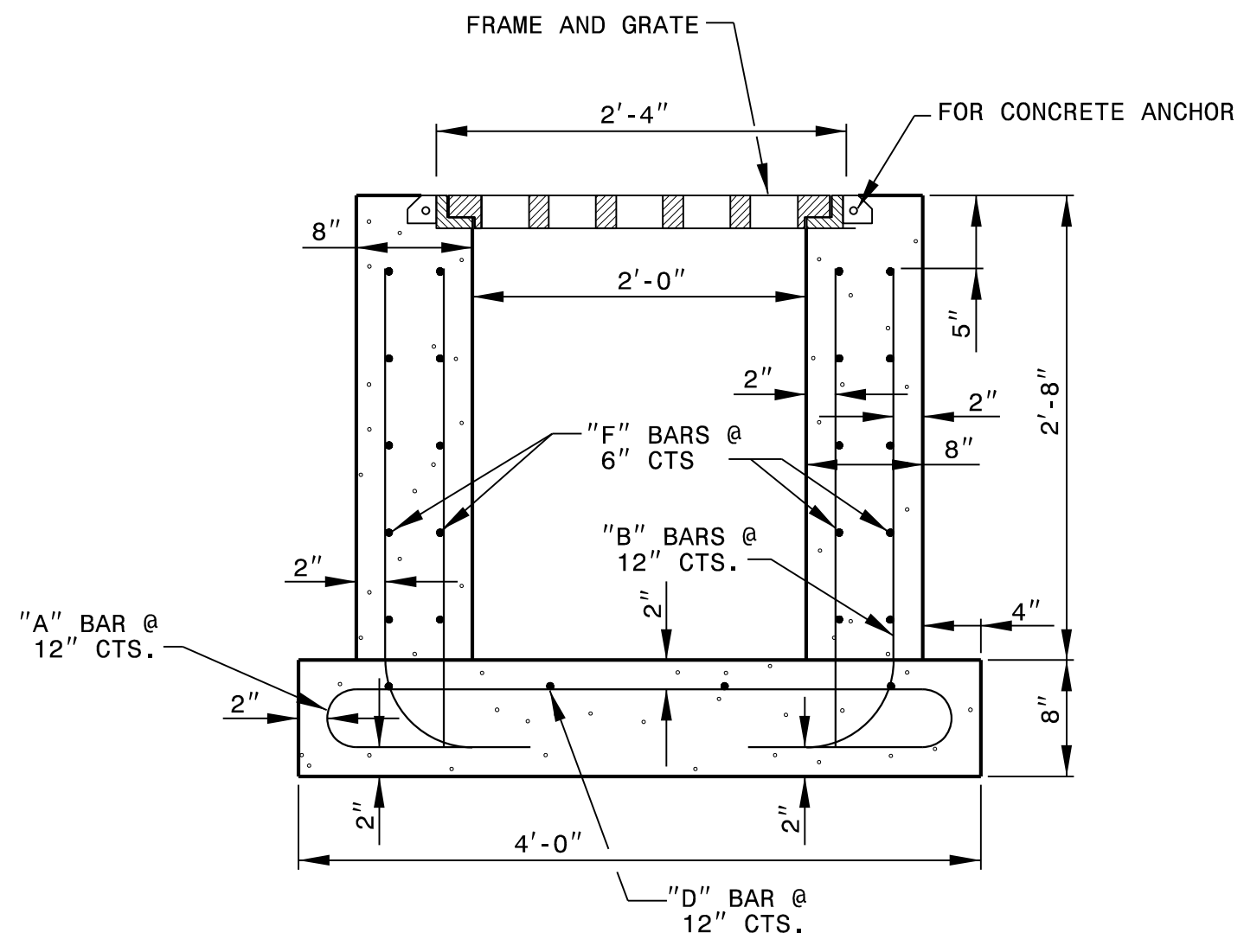
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SEE PLATE FOR TITLE

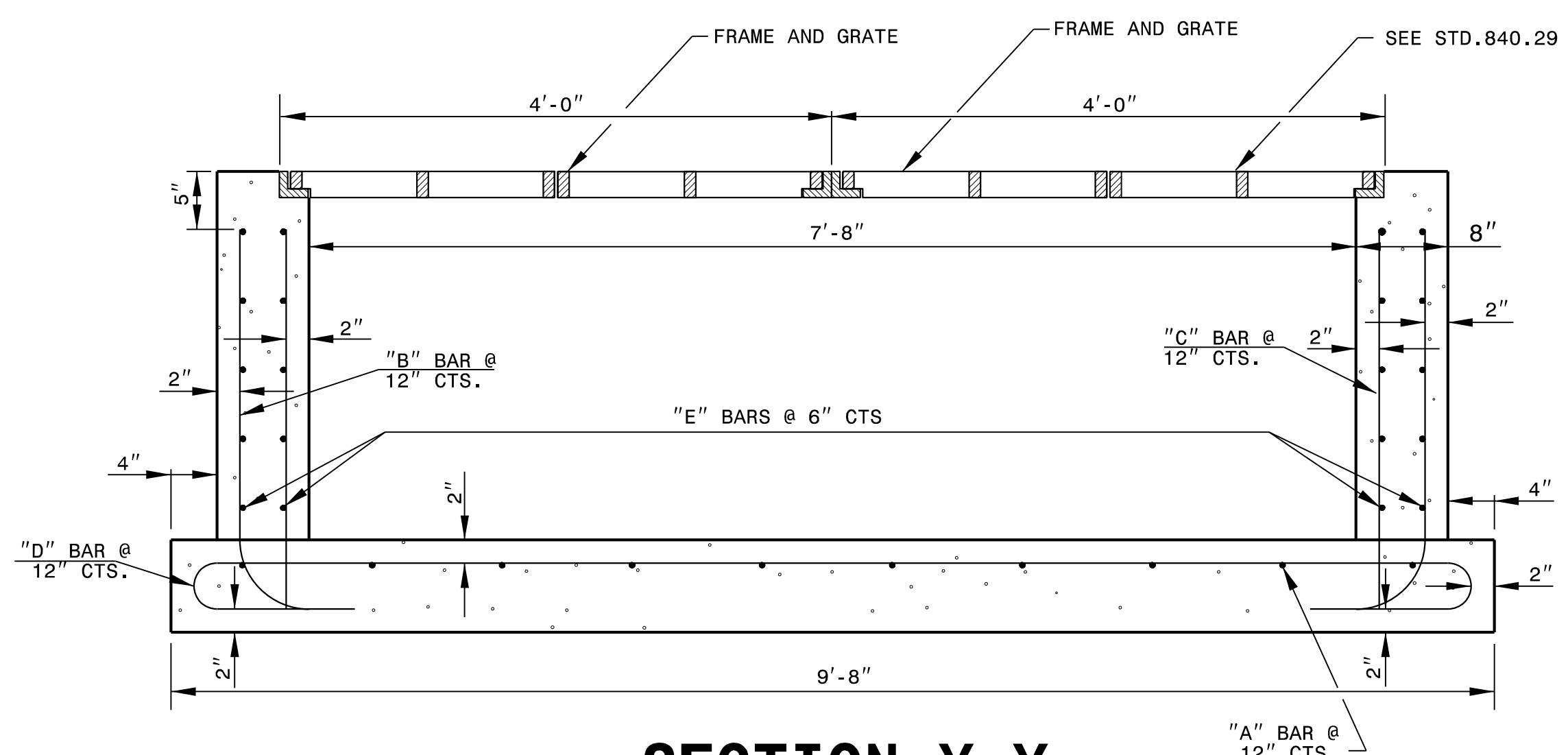
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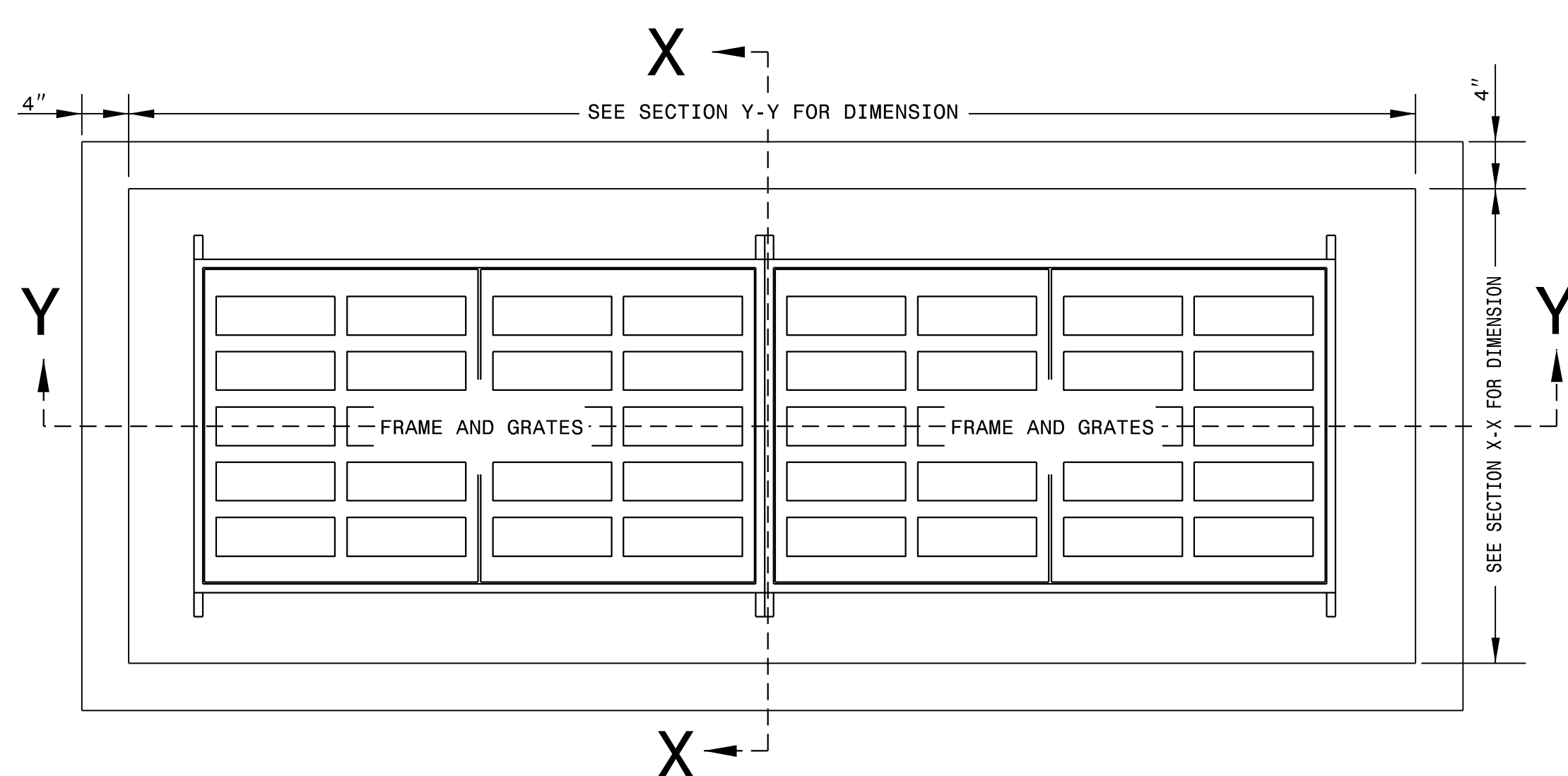


SECTION X-X

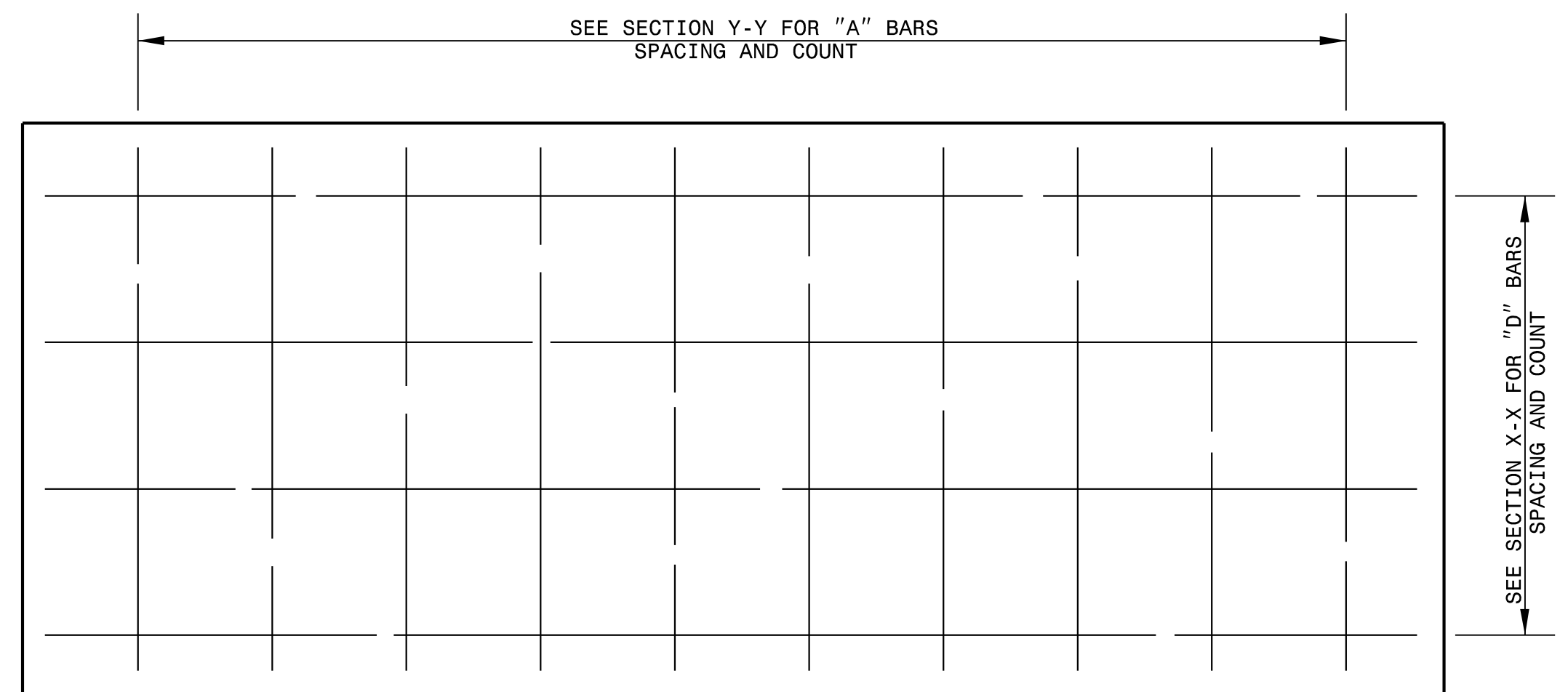


SECTION Y-Y

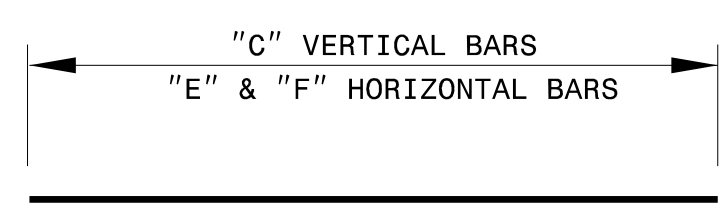
GENERAL NOTES:
 -ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 1".
 -FORMS SHALL BE USED TO CONSTRUCT THE BOTTOM SLAB.
 -IF PIPES ARE SET IN THE BASE SHALL FOLLOW CONSTRUCTION PROCEDURE SHOWN BY STD. DWG. 840.00.
 -PRECAST UNITS MADE OF CLASS "AA" CONCRETE MAY BE USED IN LIEU OF BRICK MASONRY CONSTRUCTION.
 -REINFORCING STEEL COST SHALL BE INCLUSIVE IN THE UNIT OR PER METER BID PRICE FOR "MASONRY DRAINAGE STRUCTURE".
 -REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
 -DROP INLETS OVER 3'-6" DEEP SHALL BE PROVIDED WITH STEPS AS DIRECTED BY STD. DWG. 840.66.
 -FRAME AND GRATES SHALL BE SEPARATE CONTRACT ITEM.
 -HORIZONTAL AND VERTICAL DIMENSION MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGN REQUIRE.
 -MAXIMUM HEIGHT FOR THIS STRUCTURE SHALL BE 15'.
 -ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.
 -DEPTH OF STEEL GRATE WILL REQUIRE DEEPER SEAT ALONG SHORT WALLS.



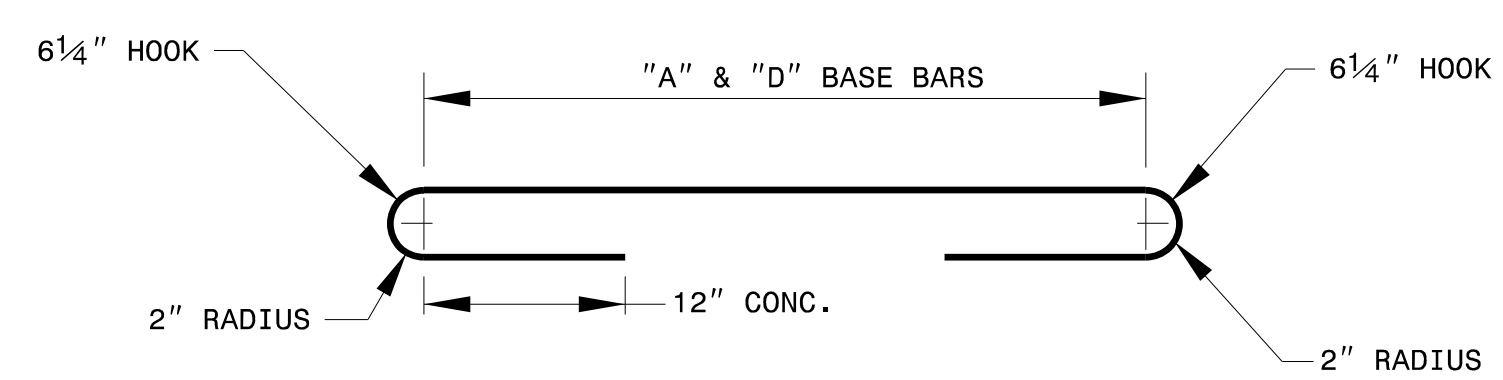
PLAN



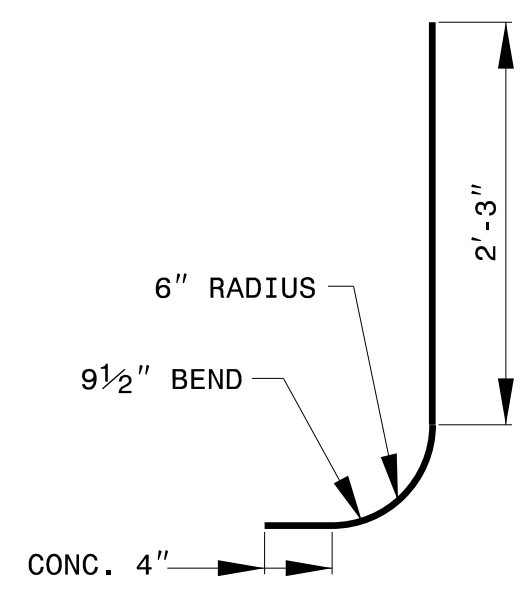
PLAN OF BASE



STRAIGHT BARS

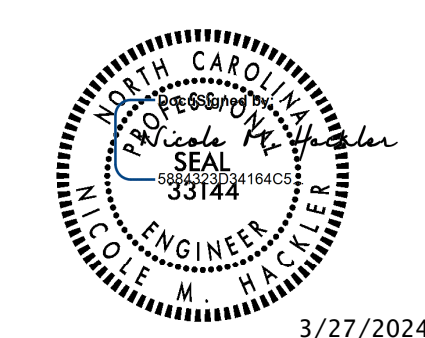


BASE BARS



CORNER BARS

BILL OF MATERIALS				
COMMON		CONCRETE ALT.		
BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#5	6'-4 1/2"	10	67
B	#5	3'-4 1/2"	24	84
C	#5	2'-8"	24	67
D	#5	12'-6"	4	22
E	#5	3'-0"	20	62
F	#5	8'-6"	20	179
REINF. STEEL (TOTAL WEIGHT LBS.)				481
CONCRETE IN BASE (CU.YDS.)				0.93
CONCRETE IN WALLS (CU.YDS.)				1.42
CONCRETE TOTAL (CU.YDS.)				2.35
CONC. CU.YDS. PER WALL/FOOT OF HEIGHT				1.74
LBS. OF REINF. STEEL IN WALL/FOOT OF HEIGHT				494



3/27/2024

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TRAFFIC BEARING 4GI

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: rnbritt DATE: 6-15-16
 CHECKED BY: _____ DATE: _____
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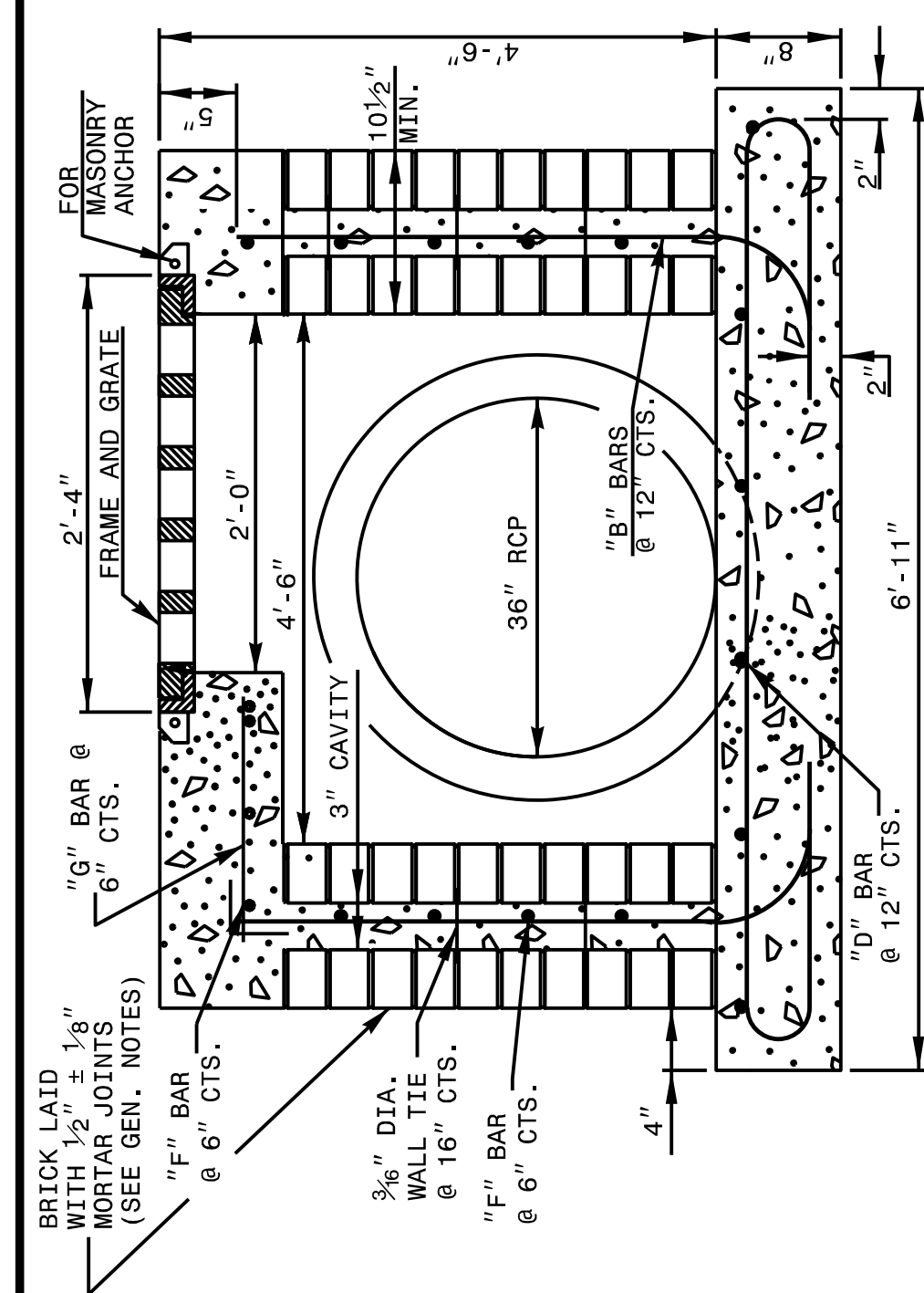
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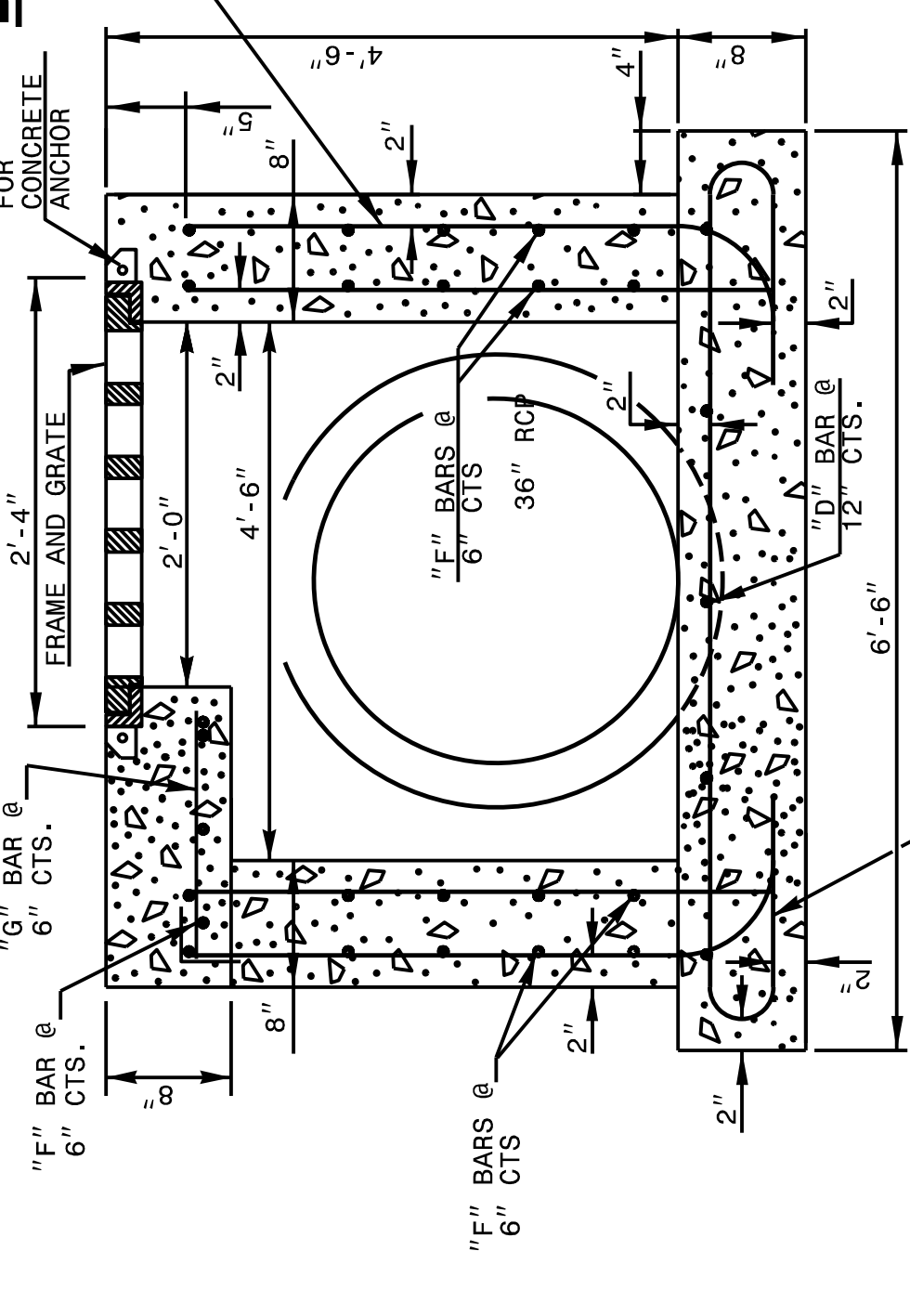
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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
 FOR DOUBLE FRAME AND GRATES

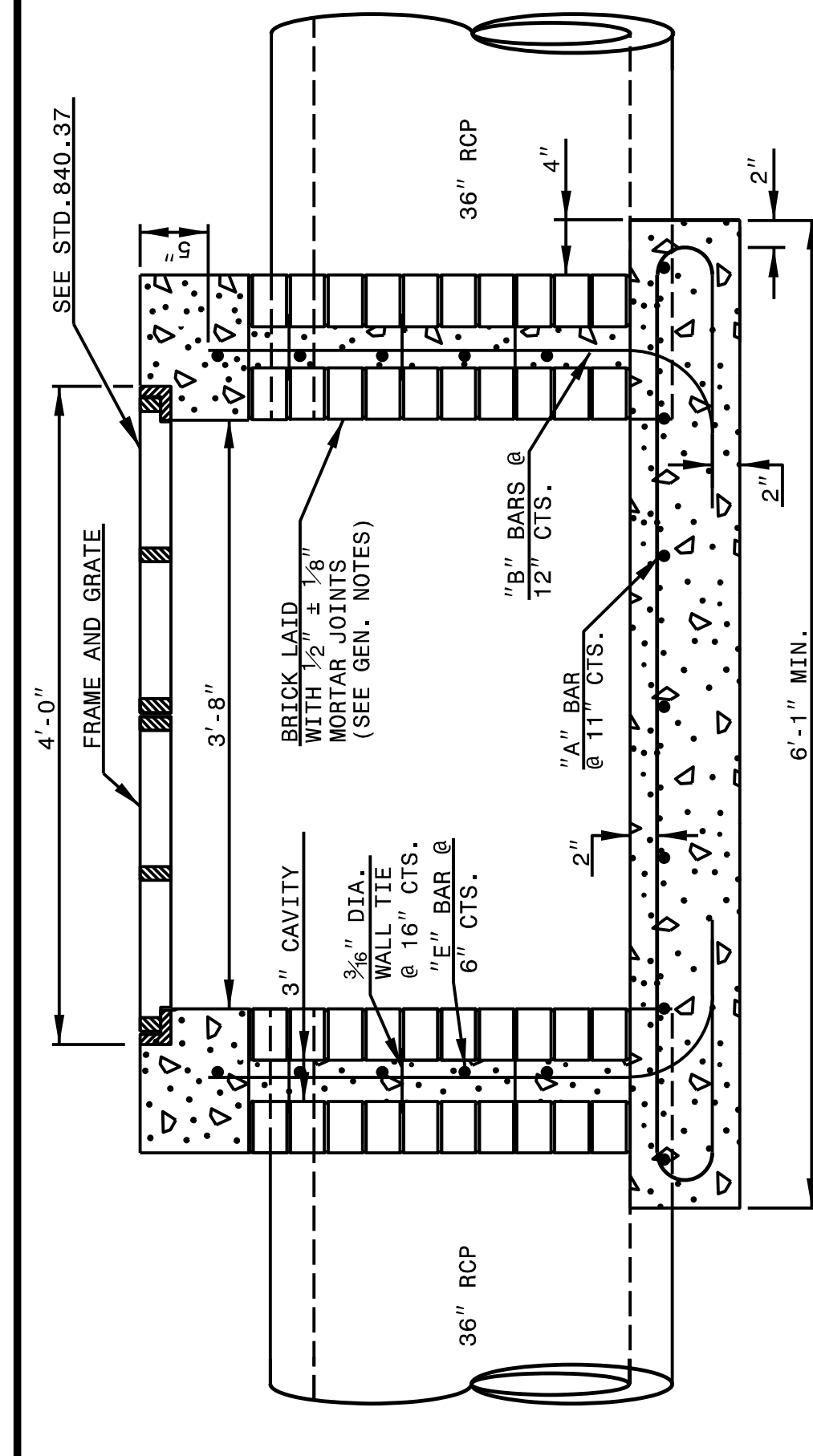
SHEET 1 OF 2
840D35



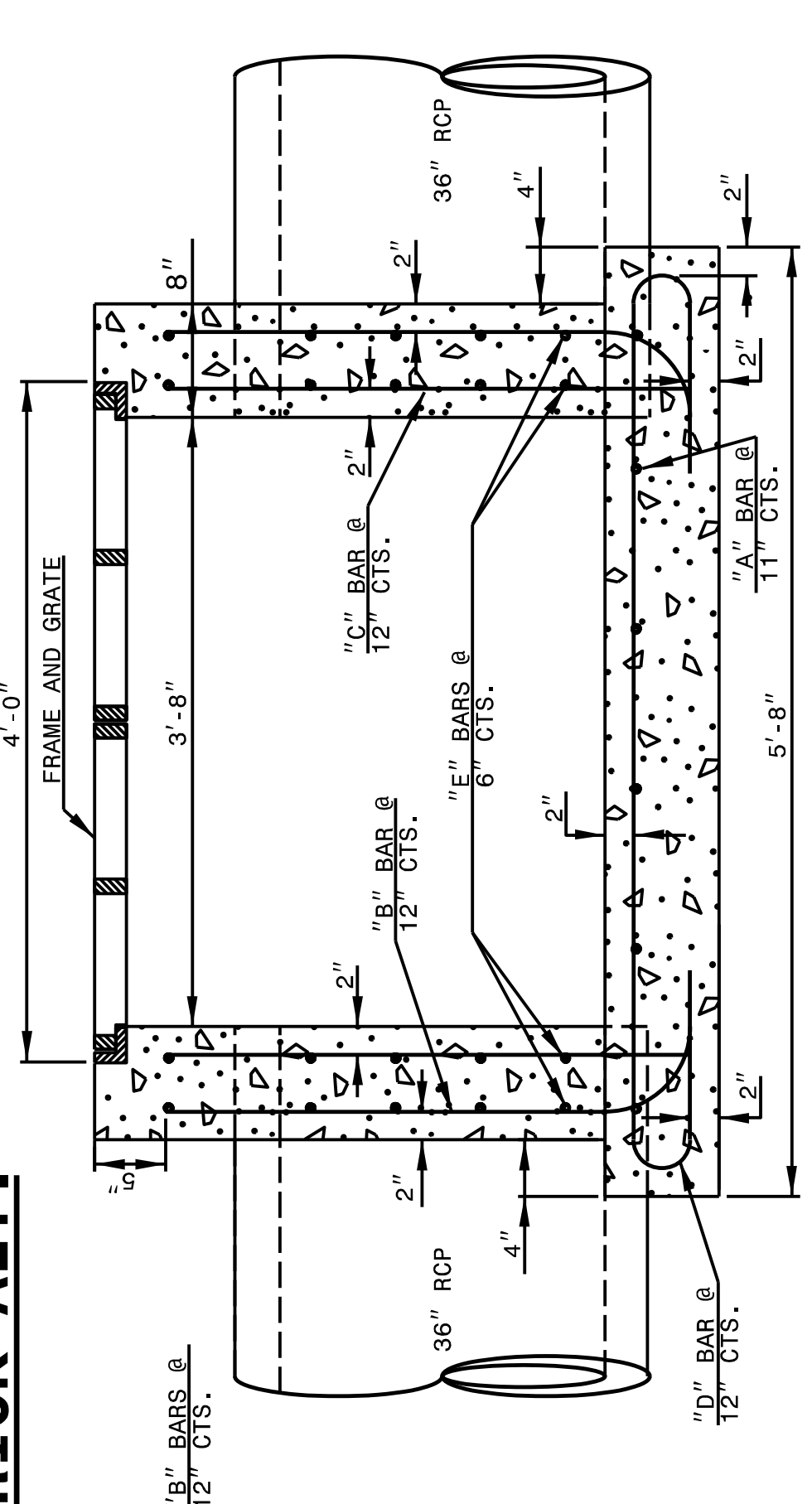
SECTION X-X



SECTION X-X



SECTION Y-Y



SECTION Y-Y

CONCRETE ALT.

NOTES:
 -HORIZONTAL AND VERTICAL DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGN REQUIRE.
 -MAXIMUM HEIGHT FOR THIS STRUCTURE SHALL BE 14'-0".
 -ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.
 -DEPTH OF STEEL GRATE WILL REQUIRE DEEPER SEAT ALONG SHORT WALLS.

SHEET 1 OF 2
840D35

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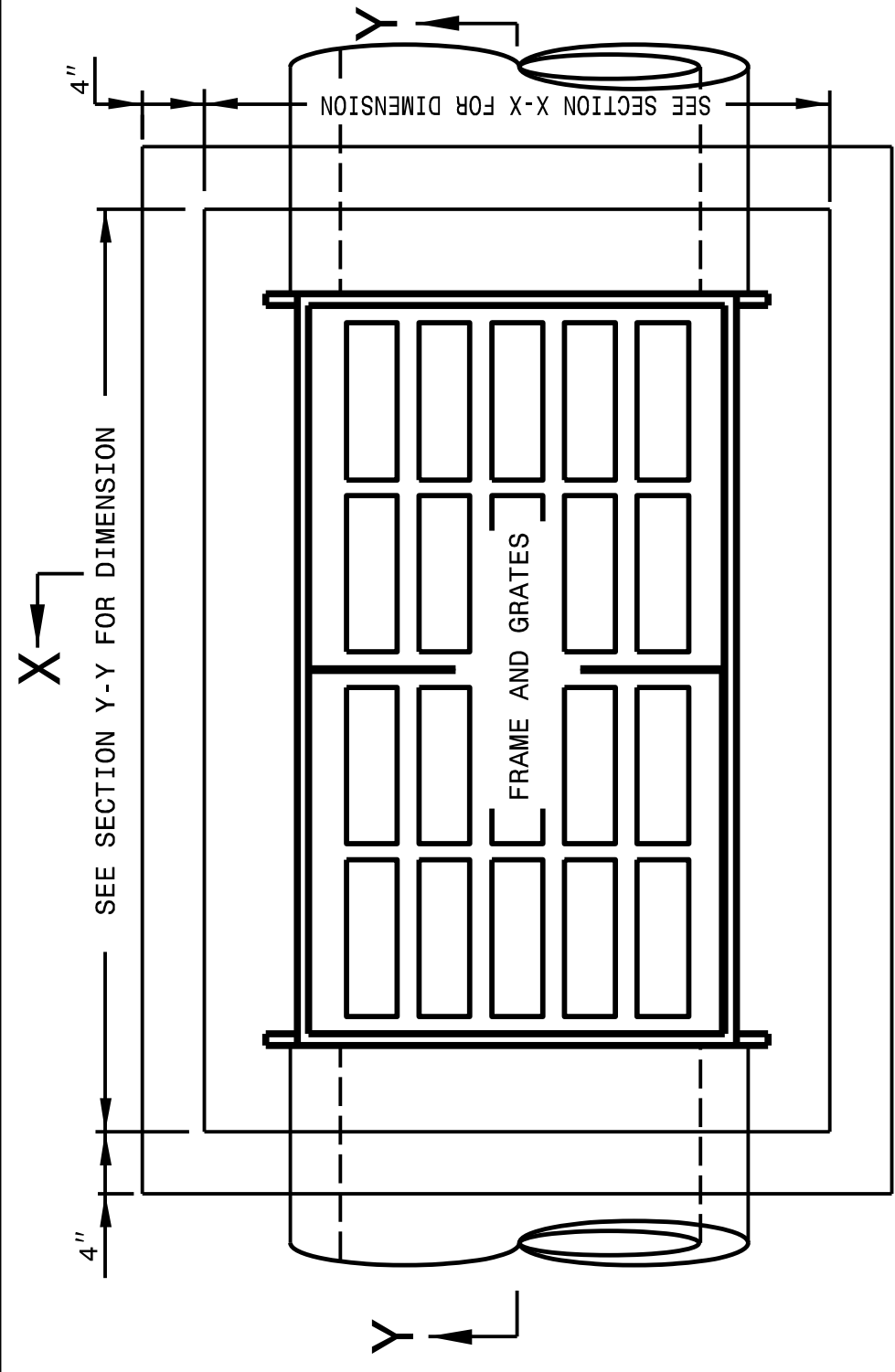
ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
 FOR DOUBLE FRAME AND GRATES

SHEET 1 OF 2
840D35

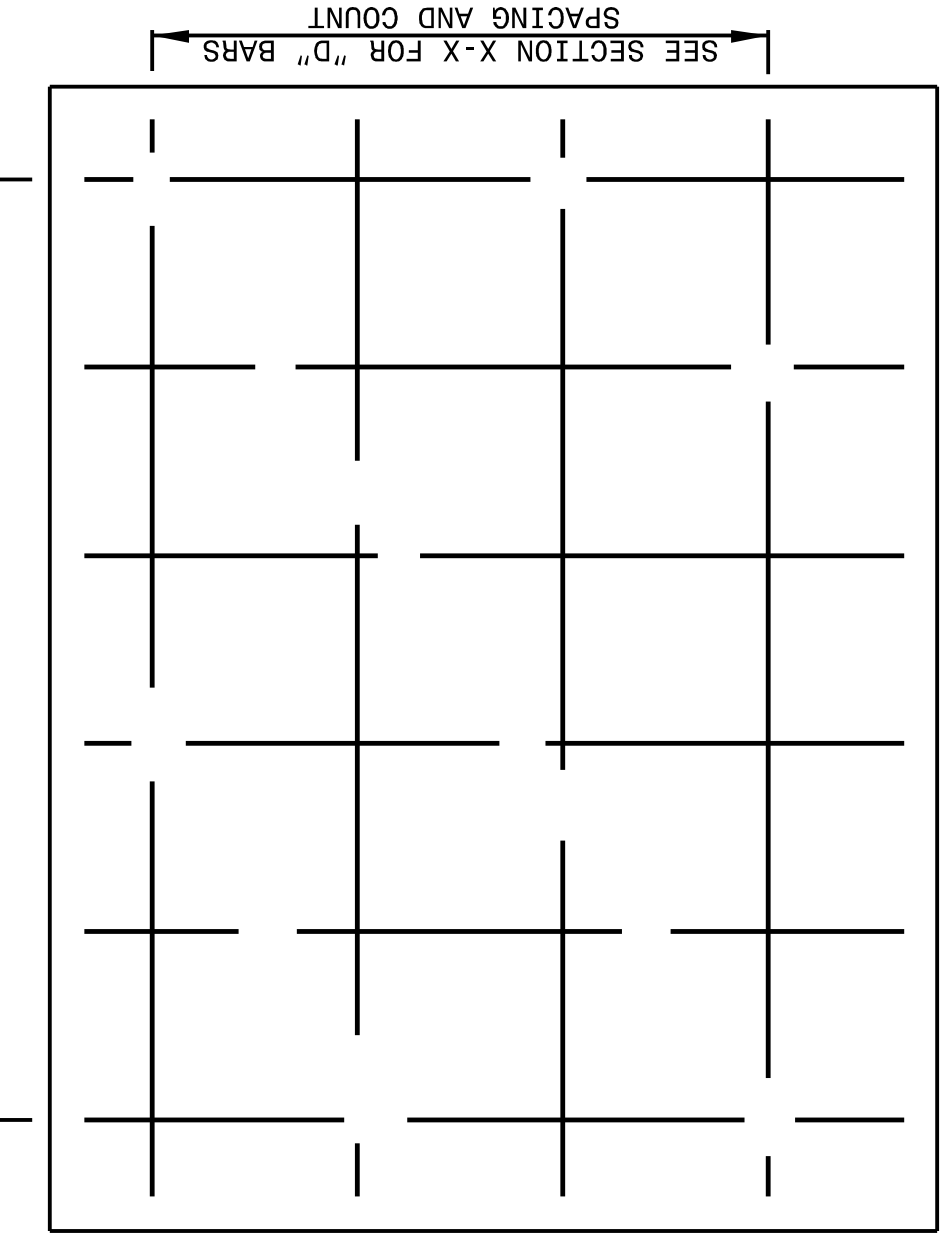
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ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
 FOR DOUBLE FRAME AND GRATES

SHEET 2 OF 2
840D35



PLAN

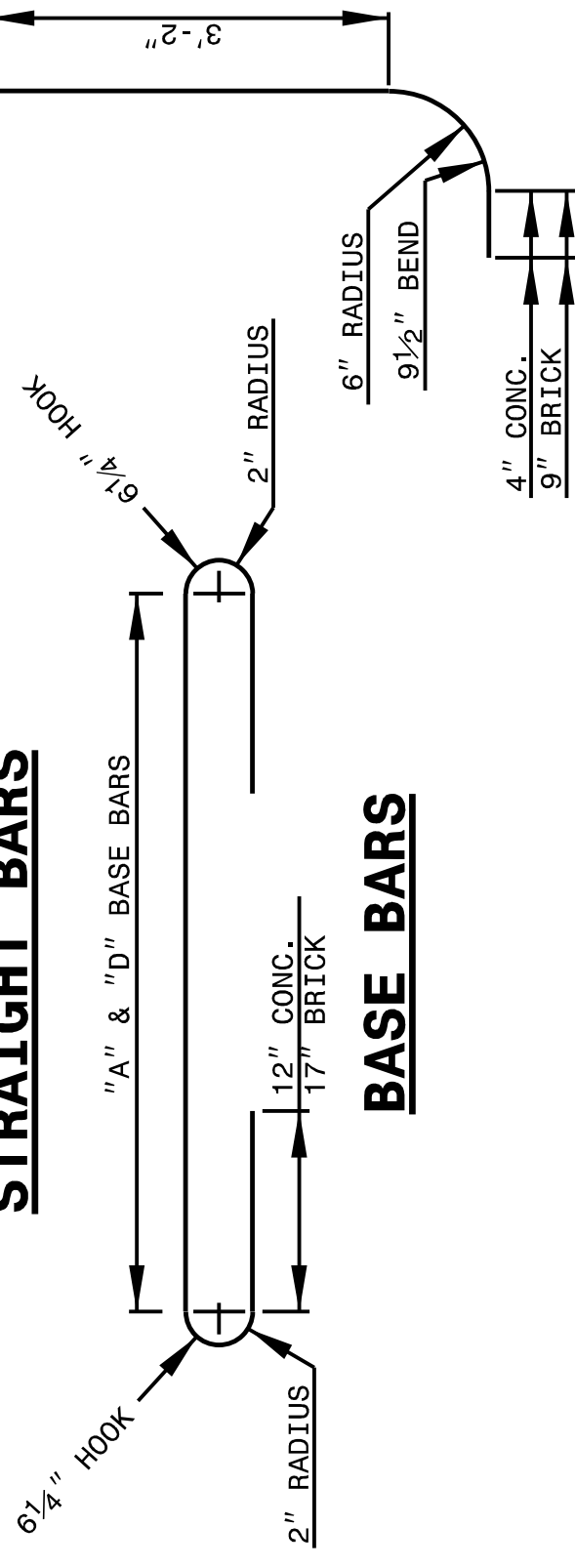


PLAN OF BASE

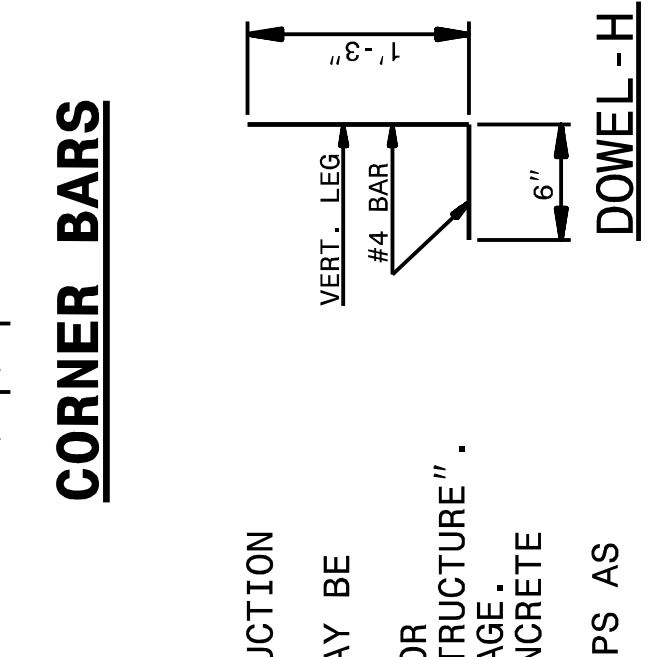
COMMON		CONCRETE ALT.		BRICK ALT.	
BAR	SIZE	LENGTH	QUANTITY	LENGTH	QUANTITY
A	#5	8'-10"	6	53	6
B	#5	5'-9"	12	5'-4 1/2"	12
C	#5	4'-7"	12	57	76
D	#5	8'-0"	6	0	0
E	#5	5'-6"	24	9'-3 1/2"	6
F	#5	4'-8"	24	138	12
G	#5	3	7	117	4
H	#4	1'-9"	5	2'-3 1/2"	12
REINF. STEEL (TOTAL WEIGHT LBS.)		505		6	
CONCRETE IN TOP SLAB (CU.YDS.)		0.31		0.33	
CONCRETE IN BASE (CU.YDS.)		0.89		1.02	
CONCRETE IN WALLS (CU.YDS.)		2.22		0.80	
BRICK IN WALLS (CU.YDS.)		-0-		0.90	
CONCRETE TOTAL (CU.YDS.)		3.42		2.15	
BRICK & CONCRETE TOTAL (CU.YDS.)		3.42		3.05	
CONC. CU.YDS. IN WALL/FOOT OF HEIGHT		0.35		0.11	
BRICK CU.YDS. IN WALL/FOOT OF HEIGHT		-0-		0.15	
LBS. OF REINF. STEEL IN WALL/FOOT OF HEIGHT		103.2		72.0	

"C" VERTICAL BARS
 "E", "F" & "G" HORIZONTAL BARS

STRAIGHT BARS



BASE BARS



CORNER BARS

GENERAL NOTES:
 -CHAMFER ALL EXPOSED CONCRETE CORNERS 3".
 -USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 -IF PIPES ARE SET IN THE BASE, FOLLOW CONSTRUCTION PROCEDURES SHOWN BY STD. DWG. 840.00.
 -PRECAST UNITS MADE OF CLASS "AA" CONCRETE MAY BE USED IN LIEU OF BRICK MASONRY CONSTRUCTION.
 -INCLUDE REINFORCING STEEL COST IN THE UNIT OR PER METER BID PRICE FOR "MASONRY DRAINAGE STRUCTURE".
 -REFERENCE STD. DWG. 840.25 FOR FRAME ANCHORAGE.
 -CONCRETE BRICK, JUMBO BRICK AND 4" SOLID CONCRETE BLOCK WILL BE PERMITTED.
 -PROVIDE DROP INLETS OVER 3'-6" DEEP WITH STEPS AS DIRECTED BY STD. DWG. 840.66.
 -FRAME AND GRATES SHALL BE SEPARATE CONTRACT ITEM.

SHEET 2 OF 2
840D35

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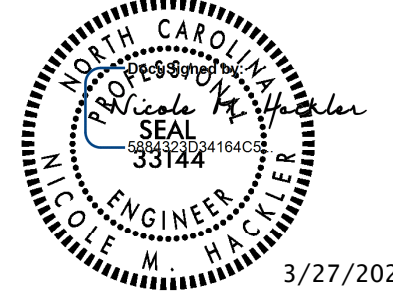
ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
 FOR DOUBLE FRAME AND GRATES

SHEET 2 OF 2
840D35

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ORIGINAL BY: T.S.Spell DATE: Sept. 2000
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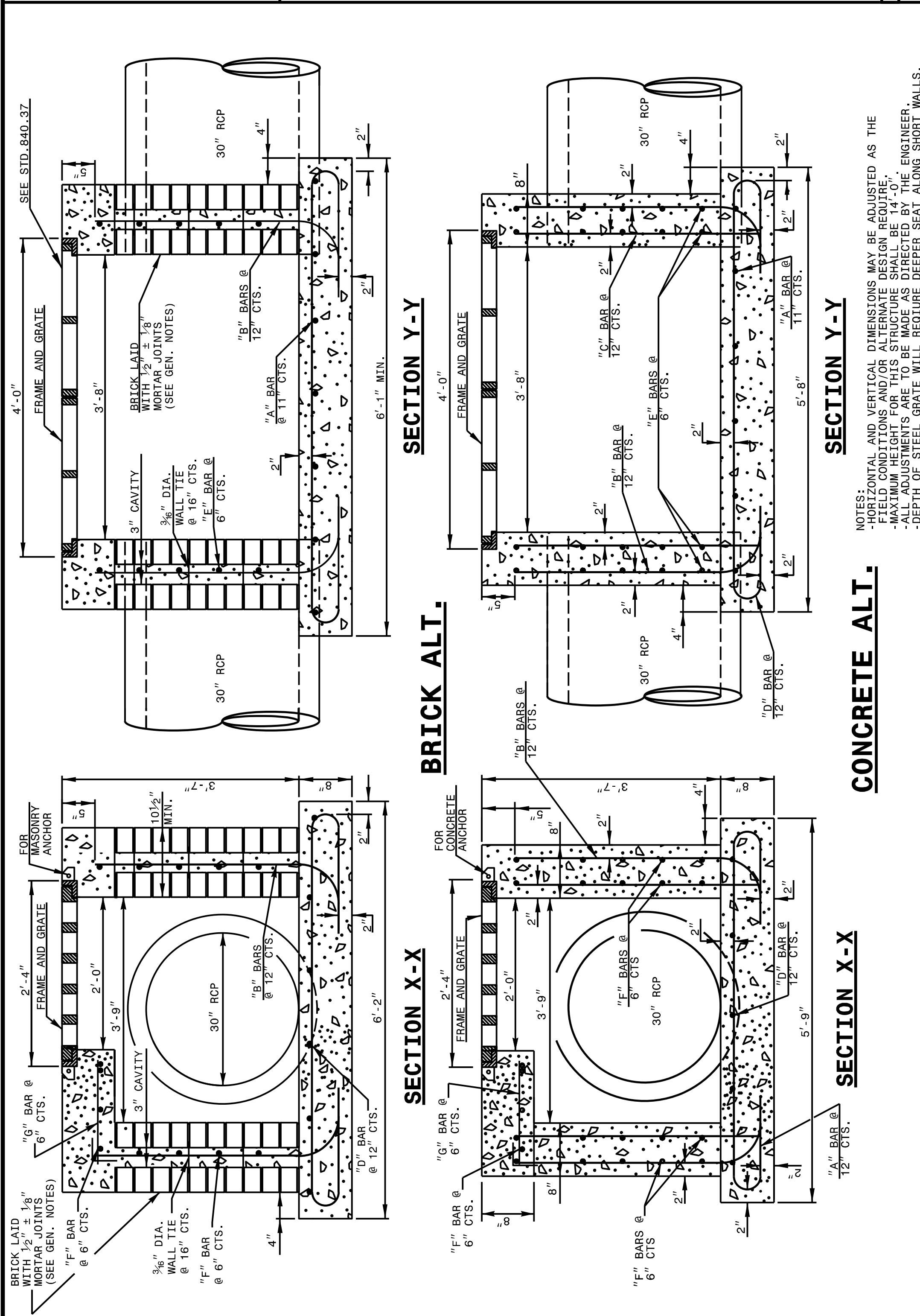


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ENGLISH DETAIL DRAWING FOR
TRAFFIC BEARING DROP INLET
FOR DOUBLE FRAME AND GRATES

SHEET 1 OF 2
840D35



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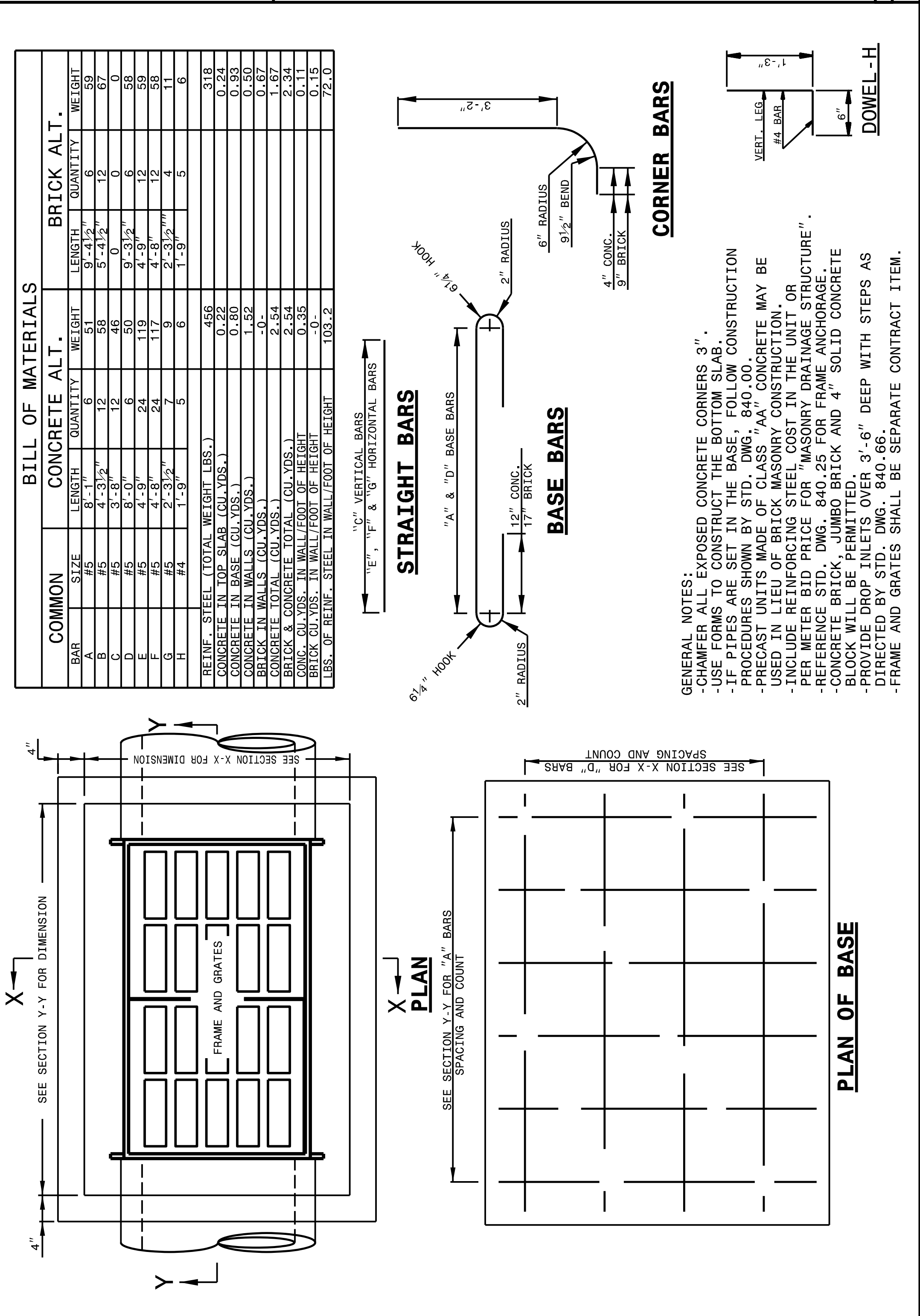
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SHEET 2 OF 2
840D35

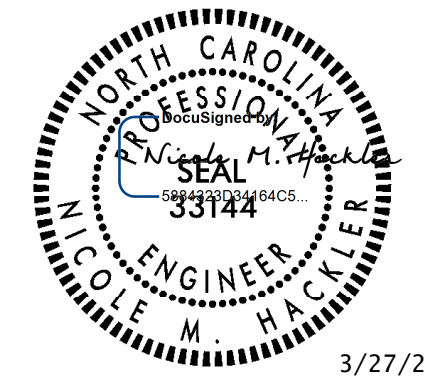


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ENGLISH DETAIL DRAWING FOR
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FOR DOUBLE FRAME AND GRATES

SHEET 2 OF 2
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ORIGINAL BY: T.S. Spell DATE: Sept. 2000
MODIFIED BY: DATE:
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COMPUTED BY: SGM DATE: 2/18/2024
 CHECKED BY: JLT DATE: 2/22/2024

PROJECT NO. U-5809 SHEET NO. 3B-1

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 10+17.66	-L- 16+00.00	259	1,013	754	
-RPC- 10+25.00	-RPC- 12+51.20	285	128		157
-RPD- 10+63.84	-RPD- 12+50.00	50	15		35
SUBTOTALS # 1:		594	1,156	754	192
-L- 16+00.00	-L- 21+50.00	278	1,096	818	
-RPA- 11+07.66	-RPA- 14+70.00	924	743		181
-RPB- 10+58.00	-RPB- 13+16.13	265	21		244
-Y- 10+83.48	-Y- 13+30.00	69	89	20	
SUBTOTALS # 2:		1,536	1,949	838	425
-L- 21+50.00	-L- 34+00.00	1,164	1,075		89
-Y2- 10+70.00	-Y2- 13+95.05	183	238	55	
-Y3- 10+90.00	-Y3- 14+15.00	623	164		459
SUBTOTALS # 3:		1,970	1,477	55	548
-L- 34+00.00	-L- 46+00.00	1,334	707		627
-Y4- 10+50.00	-Y4- 15+13.49	572	519		53
-Y5- 10+65.00	-Y5- 15+00.00	600	506		94
SUBTOTALS # 3:		2,506	1,732	0	774
TOTALS:		6,606	6,314	1,647	1,939
MATERIAL FOR SHOULDER CONSTRUCTION			782	782	
LOSS DUE TO CLEARING & GRUBBING		-350		350	
WASTE IN LIEU OF BORROW				-1,939	-1,939
PROJECT TOTALS:		6,256	7,096	840	0
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				42	
GRAND TOTALS:		6,256	7,096	882	
SAY:		6,500		1,000	

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

Note: Earthwork quantities are calculated by TGS Engineers. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EST. DDE = 100 CUBIC YARDS
 SHALLOW UNDERCUT = 300 CUBIC YARDS
 SELECT GRANULAR MATERIAL = 750 CUBIC YARDS
 PER GEOTECH RECOMMENDATION, ESTIMATED 750 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

PAVEMENT REMOVAL SUMMARY IN SQUARE YARDS

Survey Line	Station	Station	Loc	Asphalt Removal
-L-	10+26	11+10	LT	8.90
-L-	12+98	14+31	LT	56.42
-L-	14+88	16+18	CL	1,382.09
-L-	16+29	19+31	LT	434.95
-L-	16+34	18+79	RT	318.33
-L-	19+50	21+04	CL	1,982.71
-L-	21+82	29+00	CL	1,330.48
-L-	25+99	30+73	RT	102.67
-L-	32+22	33+76	CL	814.84
-L-	34+58	37+15	LT	53.01
-L-	36+75	42+20	CL	993.06
-L-	37+55	39+10	LT	3.17
-L-	39+51	42+31	LT	46.19
-L-	42+97	44+27	CL	693.58
-L-	44+27	45+87	LT	90.58
-L-	44+66	45+96	RT	69.09
RPA	10+96	14+08	LT	866.19
RPB	10+58	11+45	RT	33.79
RPB	10+58	11+20	LT	15.75
RPB	11+44	13+53	LT	733.44
RPC	10+25	10+69	RT	8.69
PRC	10+25	12+44	LT	72.95
RPD	10+11	12+50	RT	299.71
RPD	10+68	10+86	LT	7.56
-Y2-	11+61	13+68	RT	448.46
-Y3-	10+79	12+49	RT	518.74
-Y3-	12+60	13+63	RT	73.05
-Y4-	11+25	15+78	RT	1,505.38
-Y5-	10+38	15+00	RT	1,661.27
TOTAL:				14,616.15
SAY:				14,630

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST.	TOTAL SHOUL	FLARE LENGTH		W		ANCHORS			TERMI		IMPACT		REMO VE	REMARKS	
				STRAIGHT	SHOP	DOUBLE	APPROAC	TRAILING			APPRO	TRAILI	APPRO	TRAILI	TL-3	III	CAT-1	G	NG					
US 421 WB			RT	193.75																		20.0	REMOVE EXIST GUARDRAIL ANCHOR	
-L-	16+49.00	17+35.00	RT																			86.0		
-L-	18+35.00	19+20.00	LT																			85.0		
SUB-TOTAL				193.75																			191.0	
LESS ANCHOR DEDUCTIONS																								
	TYPE CAT-1	1 @ 6.25		6.25																				
ANCHOR TOTALS				6.25																				
GRAND TOTALS				187.50																			191	
SAY				187.5																			191	

ADDITIONAL GUARDRAIL POST: 3 EA

COMPUTED BY: BJH DATE: 03-26-24
CHECKED BY: REL DATE: 03-26-24

PROJECT NO. U-5809 SHEET NO. 3D-5

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, R.C. Pipe Class (III, IV, V), Quantities for Drainage Structures, Frame/Grates/Hood, Concrete Transitional Section, and Abbreviations. 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

COMPUTED BY: DMB DATE: 1/05/24
 CHECKED BY: REK DATE: 1/05/24

(2-3-23)

PROJECT NO.	SHEET NO.
U-5809	3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

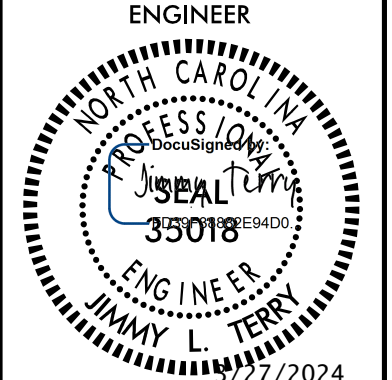
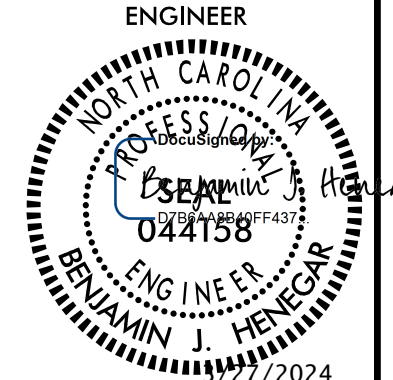

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
			CONTINGENCY	SD	500
				TOTAL LF:	500

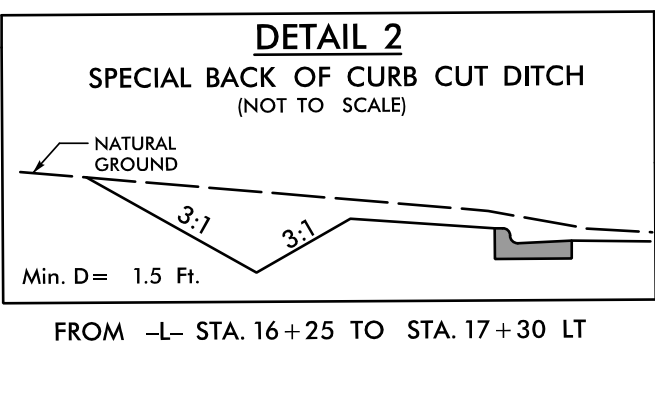
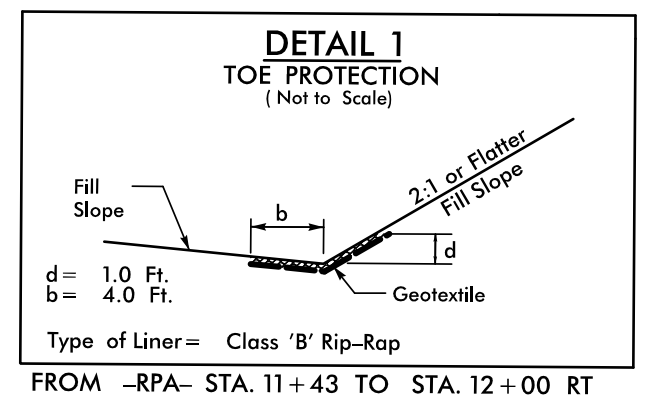
*UD = Underdrain
 *BD = Blind Drain
 *SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS		
			CONTINGENCY	ASU 1	12	300	590	900			
						TOTAL CY/TONS/SY:	300	590**	900**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

PROJECT REFERENCE NO. U-5809		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 TGS ENGINEERS 201 W. MARION ST. STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			



BEGIN TIP PROJECT U-5809
-L- STA 10+17.66

1
YADKINVILLE INVESTMENTS, LLC
ROCK HILL LAND & DEVELOPMENT, LLC
DB 829 PG 380

ARC SBYLNCOO, LLC
DB 1085 PG 125

STARWOOD INVESTMENTS
DB 358 PG 839

ROBERT A. GEIST
DB 295 PG 613

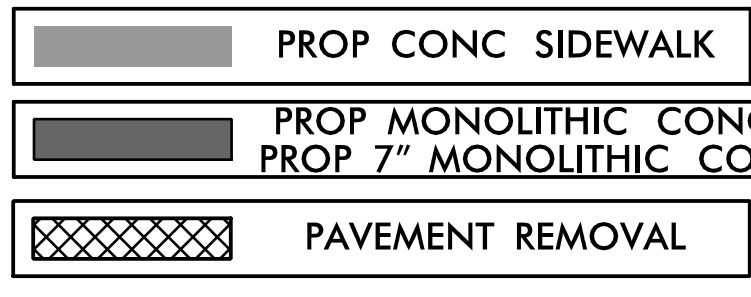
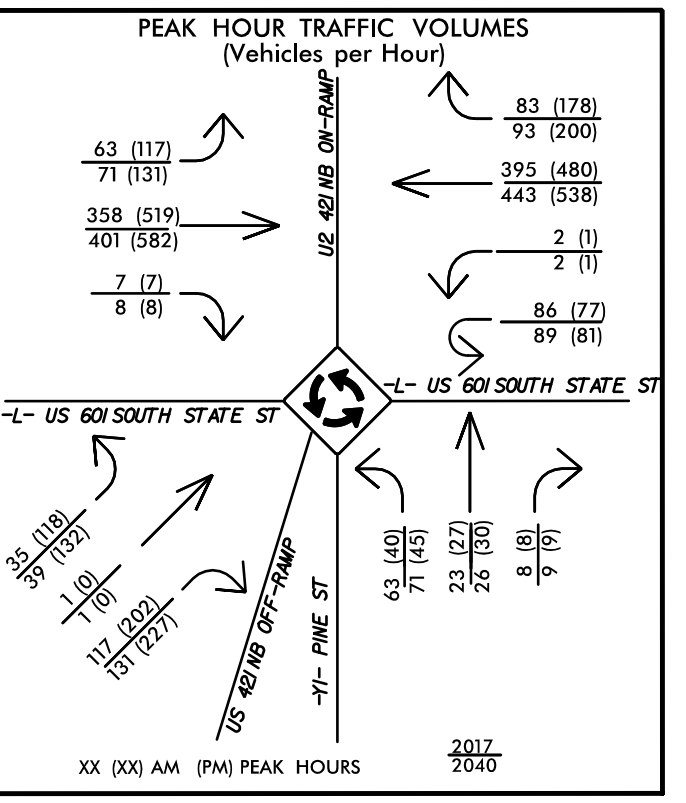
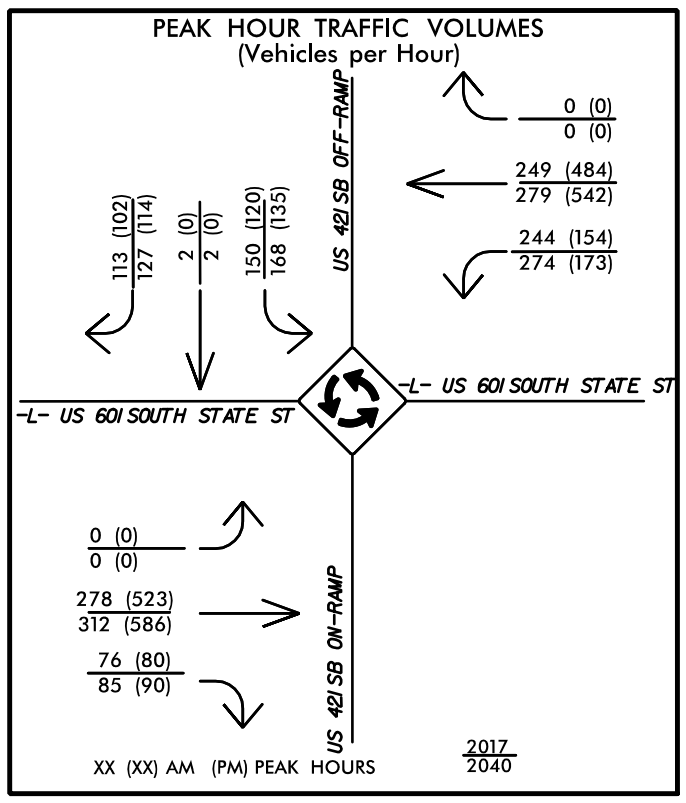
-L- POC 15+23.65 =
RPC POT 13+27.64
RPD POT 10+00.00

4
TRIAD MUNICIPAL
ABC BOARD
DB 842 PG 478
PB 10 PG 55

VB&G, LLC
DB 965 PG 89
PB 10 PG 55

5
JEFFERSON/RAY ASSOCIATES
DB 247 PG 452
PB 1PG 120A

6
J.C. FAW
DB 617 PG 472
PB 1PG 120A



FOR -L- PROFILE, SEE SHEET NO. 7
FOR -RPA- PROFILE, SEE SHEET NO. 8
FOR -RPC- PROFILE, SEE SHEET NO. 9
FOR -RPD- PROFILE, SEE SHEET NO. 9
FOR -Y- PROFILE, SEE SHEET NO. 9

END CONSTRUCTION
RPD STA 12+50.00

END CONSTRUCTION
RPA STA 14+70.00

END CONSTRUCTION
-Y- STA 13+30.00

- NOTES:**
- UNLESS OTHERWISE NOTED ALL DRIVES ARE ASPHALT DRIVES.
 - UNLESS OTHERWISE NOTED ALL CHANNELIZATION CURB IS 8" X 12" CONCRETE CURB.
 - FOR CURVE DATA SEE DETAIL SHEET 2B-1
 - SEE DETAIL SHEETS 2B-2 THRU 2B-3 FOR ROUNDABOUT & CONCRETE ISLAND LAYOUTS LAYOUTS.

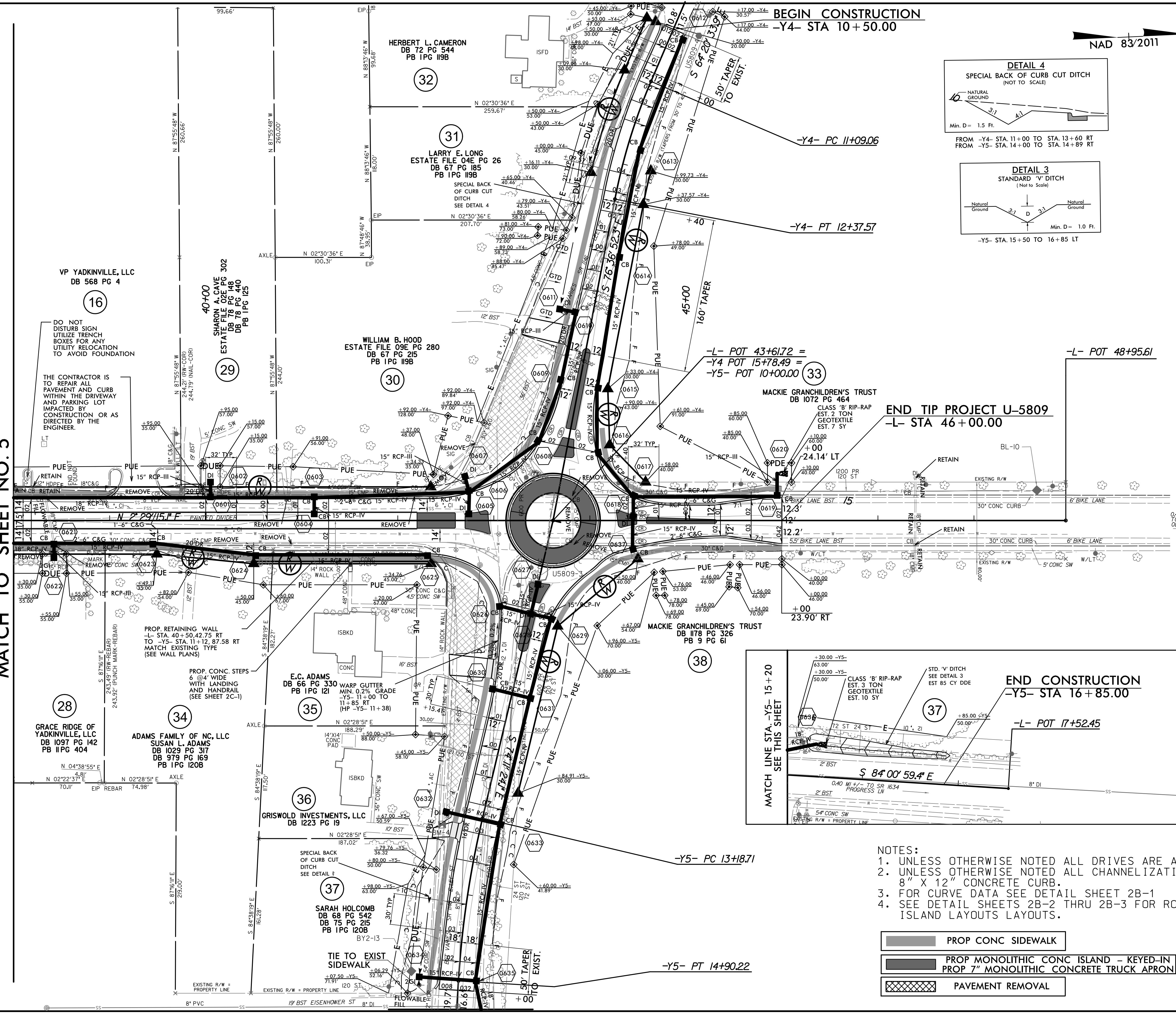
MATCH LINE STA. -L- 24+00.00
MATCH TO SHEET NO. 5

8/17/24

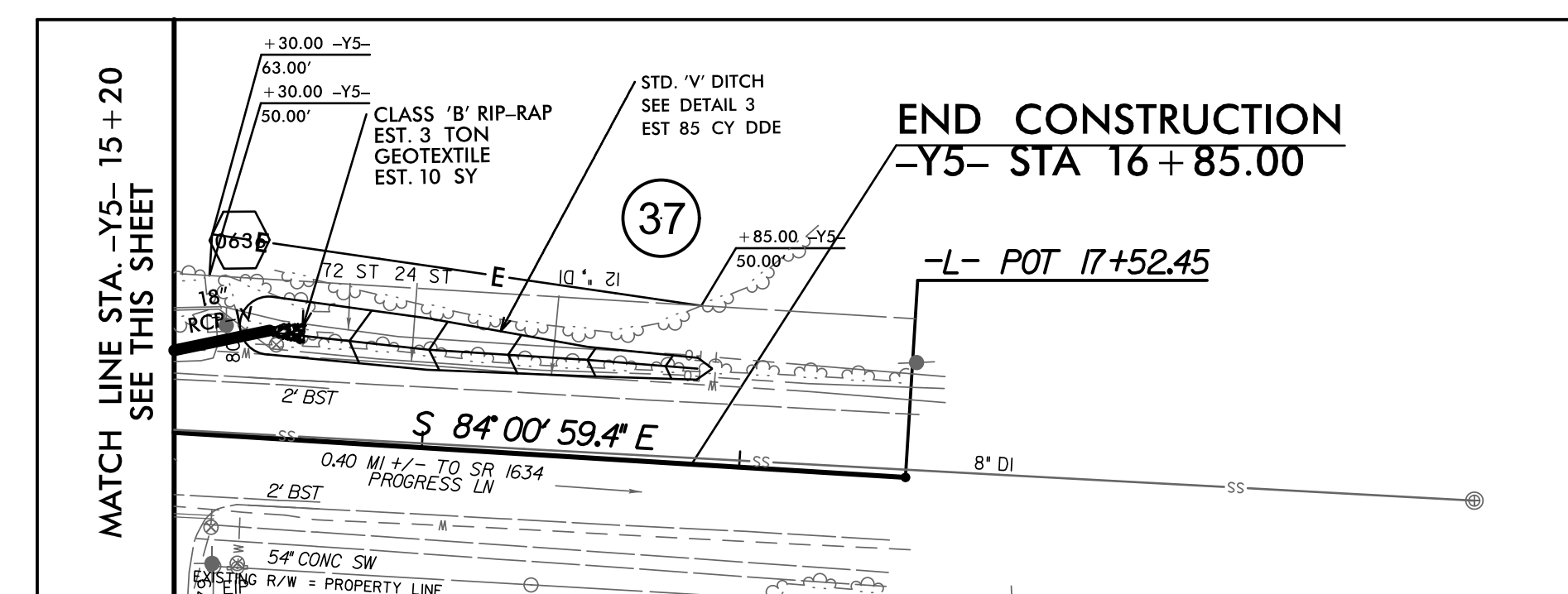
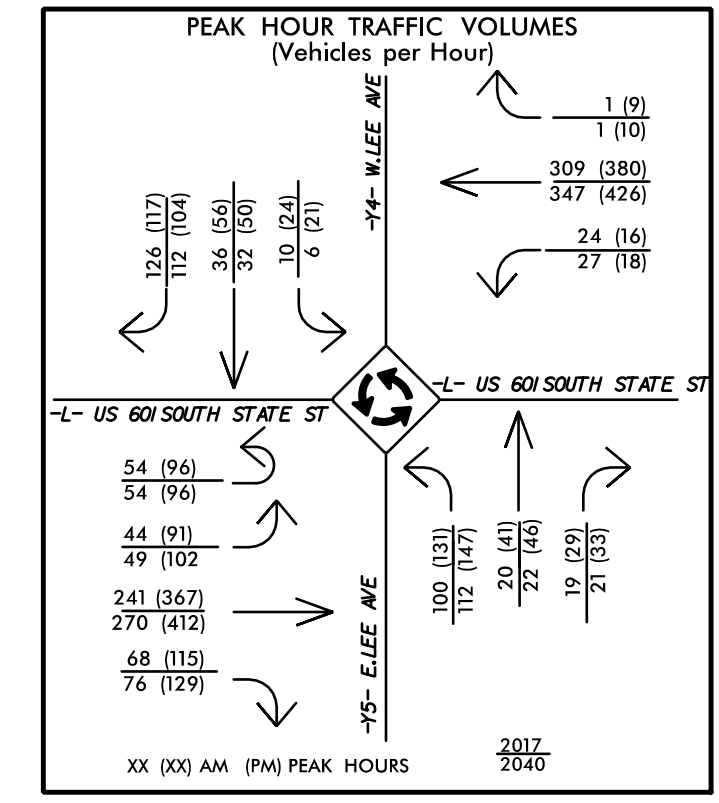
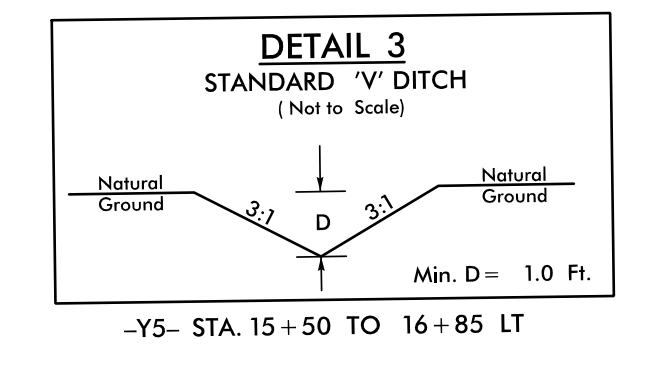
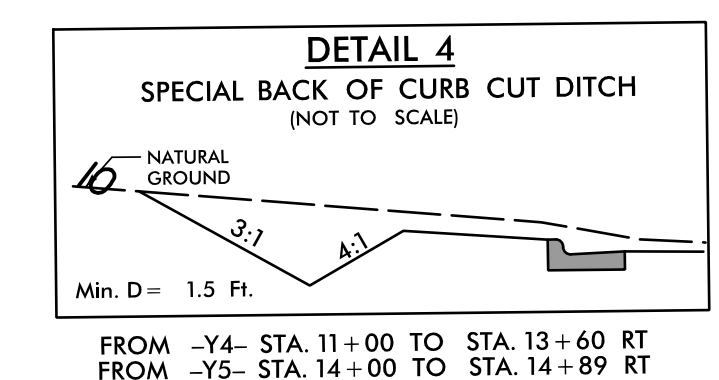
REVISIONS

MATCH LINE STA. -L- 38+00.00
MATCH TO SHEET NO. 5

3/21/2024
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NAD 83/2011




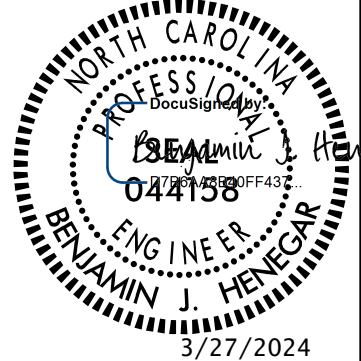

- NOTES:
- UNLESS OTHERWISE NOTED ALL DRIVES ARE ASPHALT DRIVES.
 - UNLESS OTHERWISE NOTED ALL CHANNELIZATION CURB IS 8" X 12" CONCRETE CURB.
 - FOR CURVE DATA SEE DETAIL SHEET 2B-1
 - SEE DETAIL SHEETS 2B-2 THRU 2B-3 FOR ROUNDABOUT & CONCRETE ISLAND LAYOUTS.

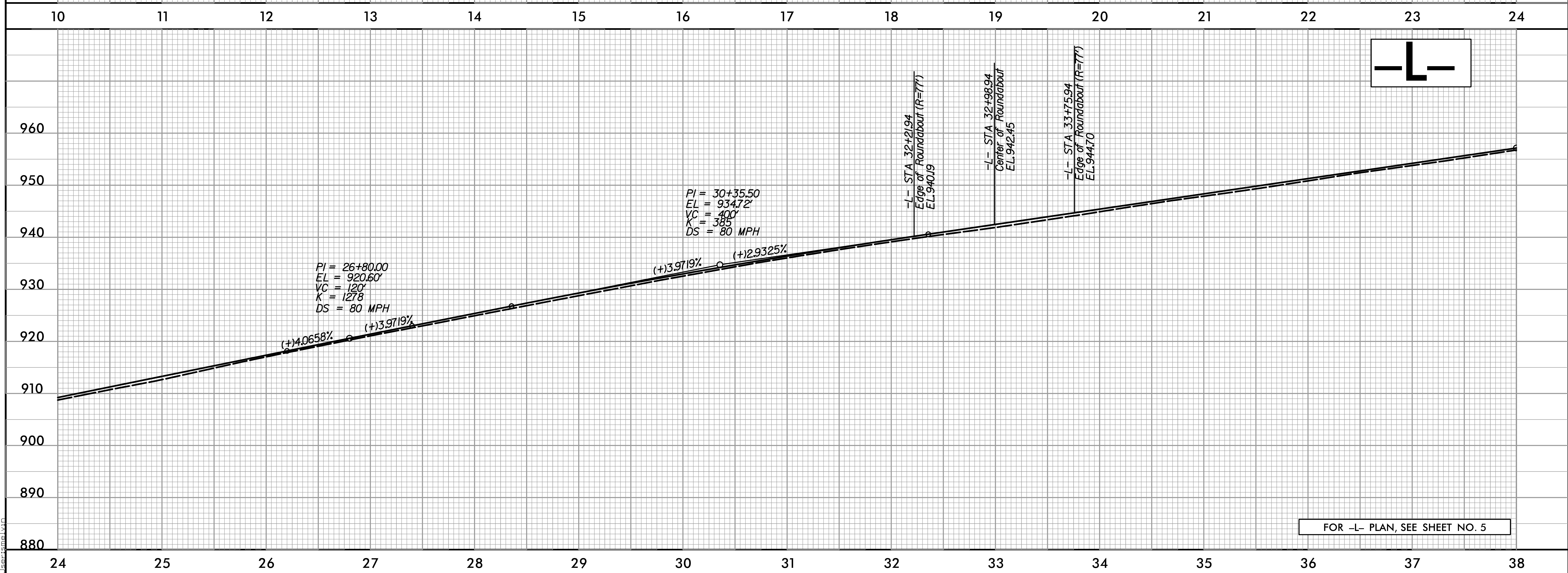
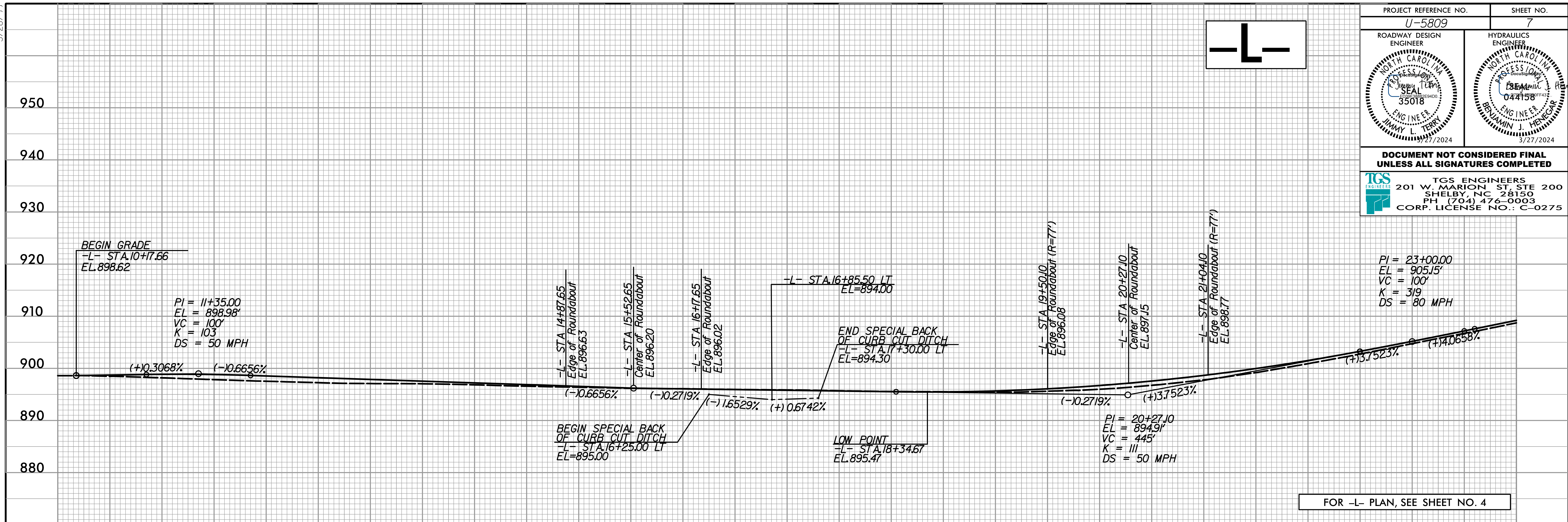
- PROP CONC SIDEWALK
- PROP MONOLITHIC CONC ISLAND - KEYED-IN PROP 7" MONOLITHIC CONCRETE TRUCK APRON
- PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEET NO. 8
 FOR -Y4- PROFILE, SEE SHEET NO. 10
 FOR -Y5- PROFILE, SEE SHEET NO. 10

PROJECT REFERENCE NO. U-5809	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST, STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

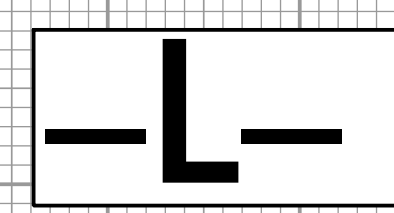
5/28/24

PROJECT REFERENCE NO. U-5809	SHEET NO. 7
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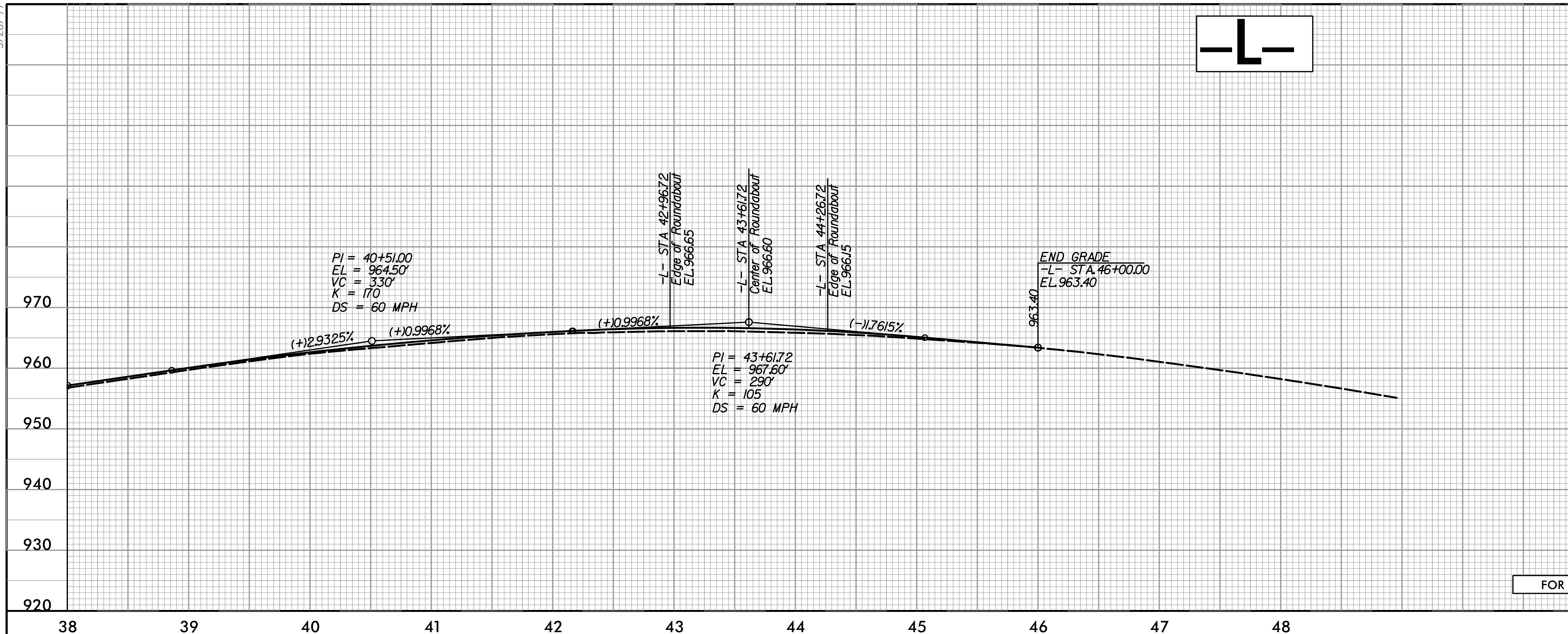


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5/28/24



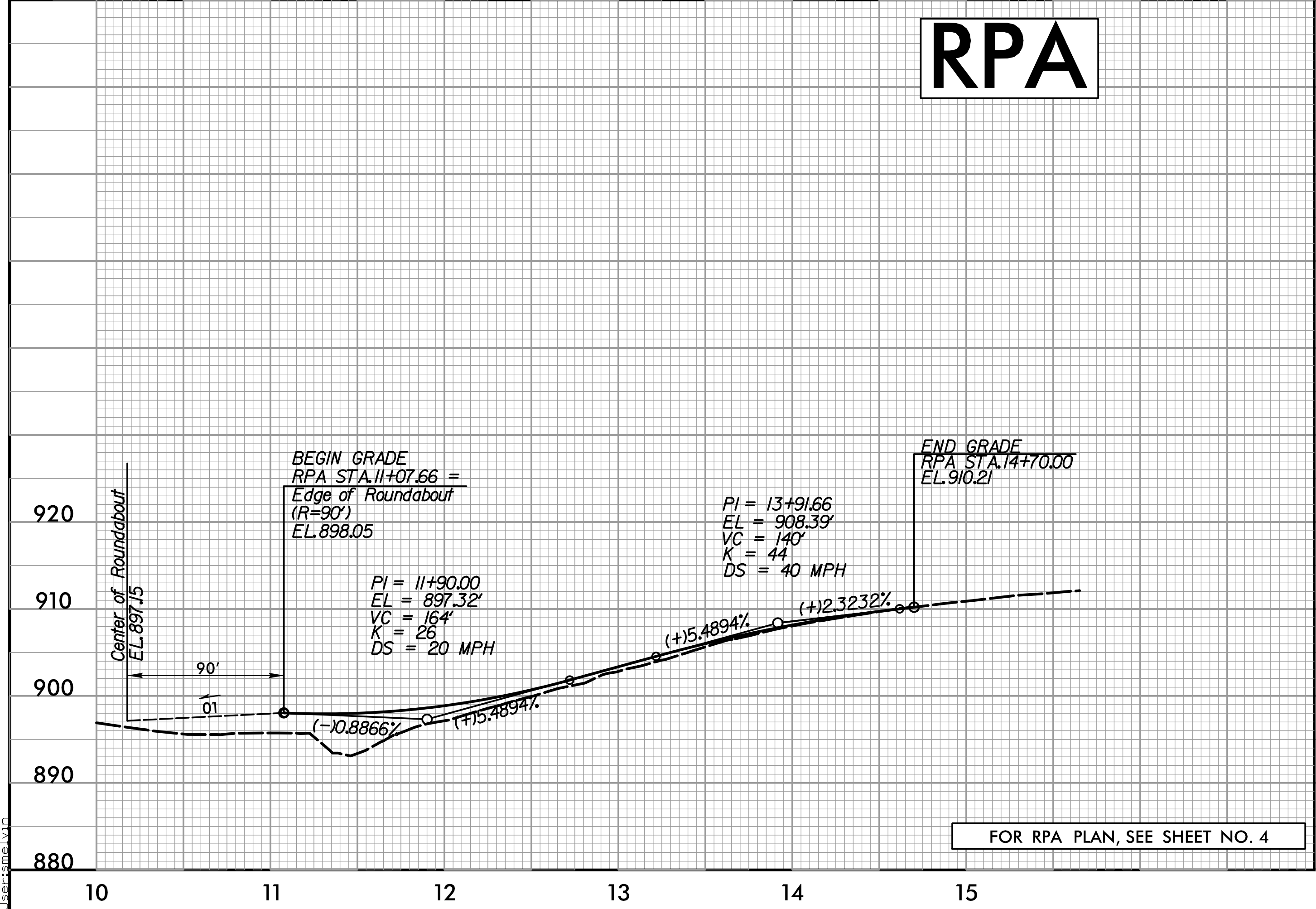
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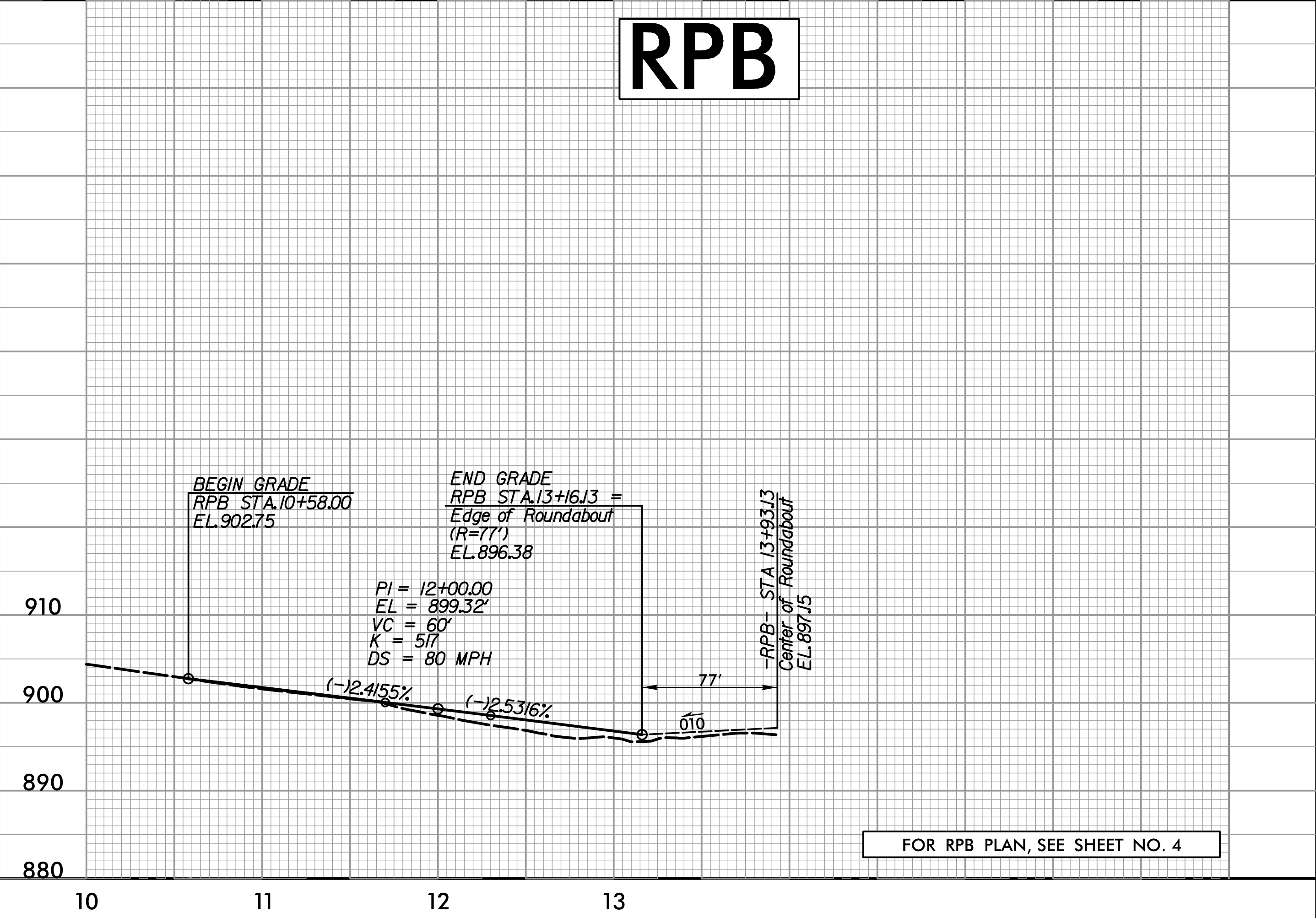
FOR -L- PLAN, SEE SHEET NO. 6

RPA

RPB



FOR RPA PLAN, SEE SHEET NO. 4



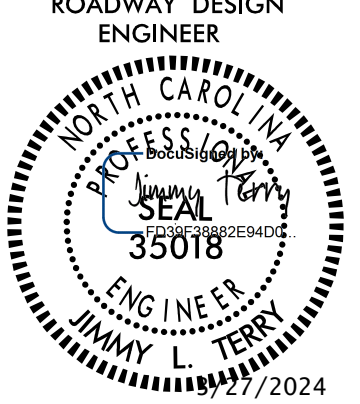
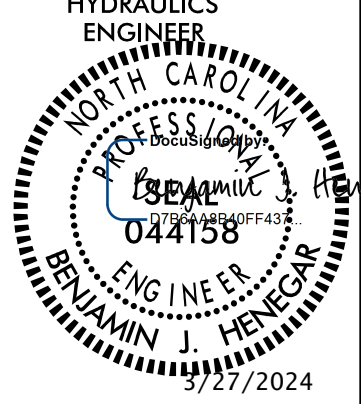

FOR RPB PLAN, SEE SHEET NO. 4

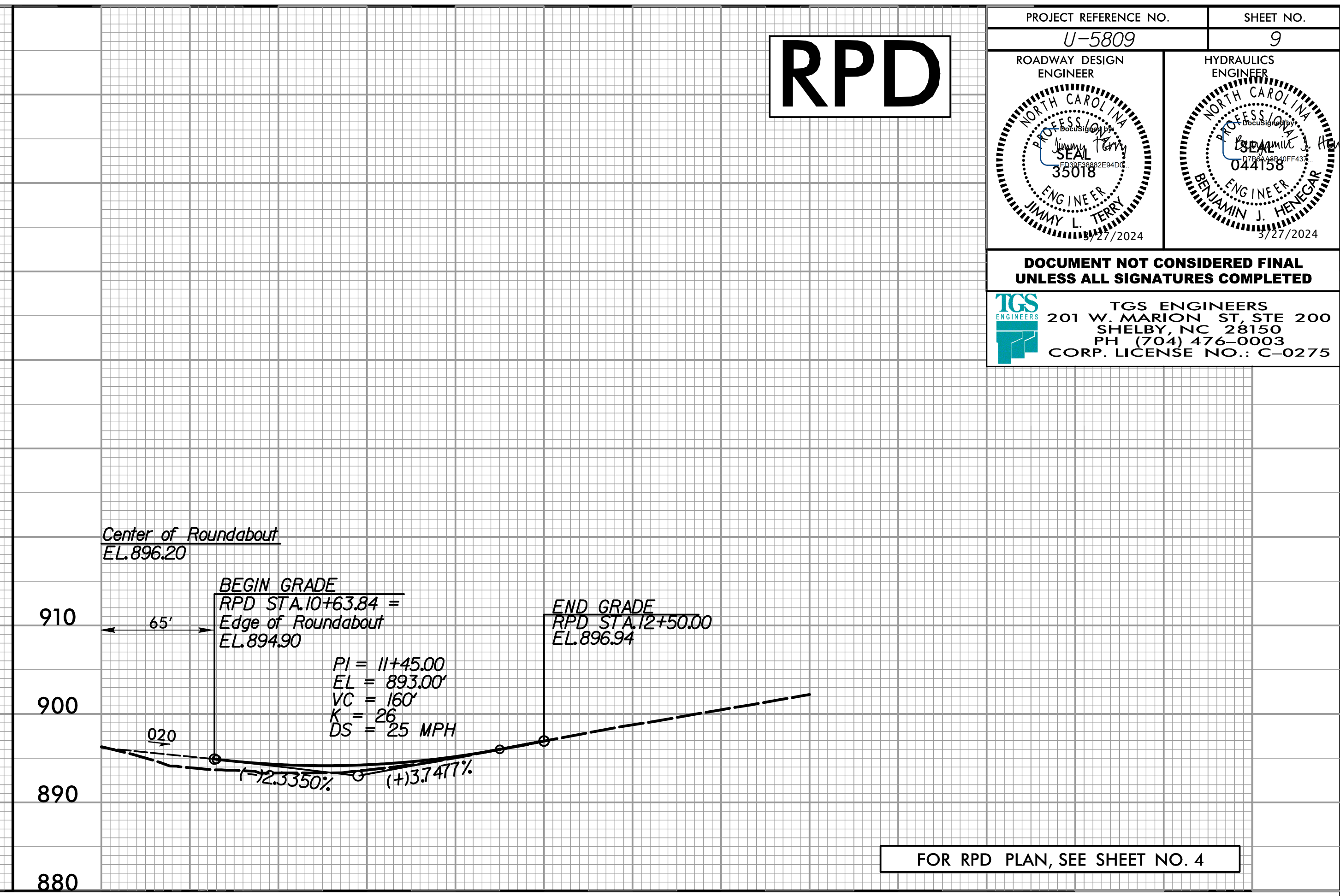
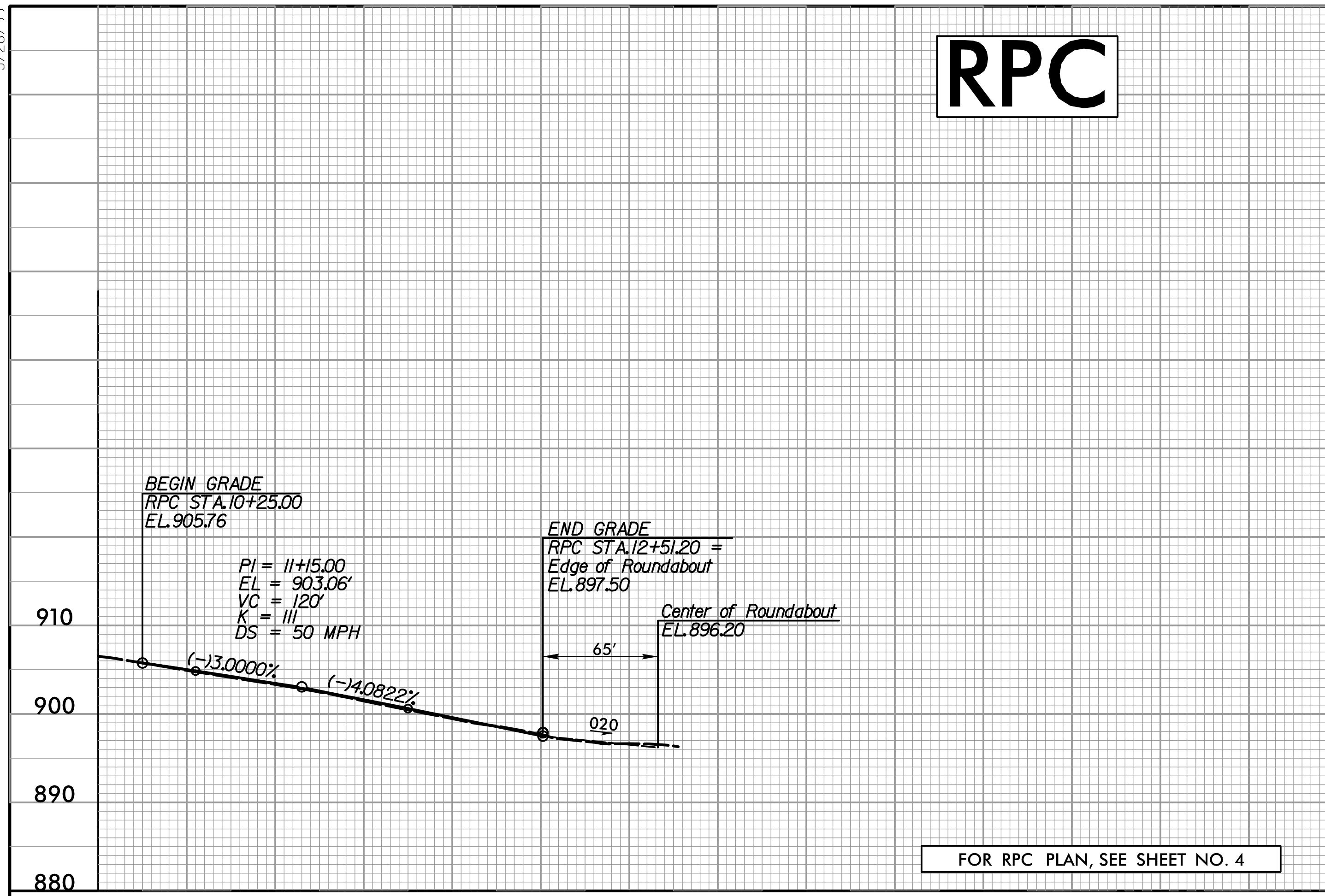
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5/28/24

RPC

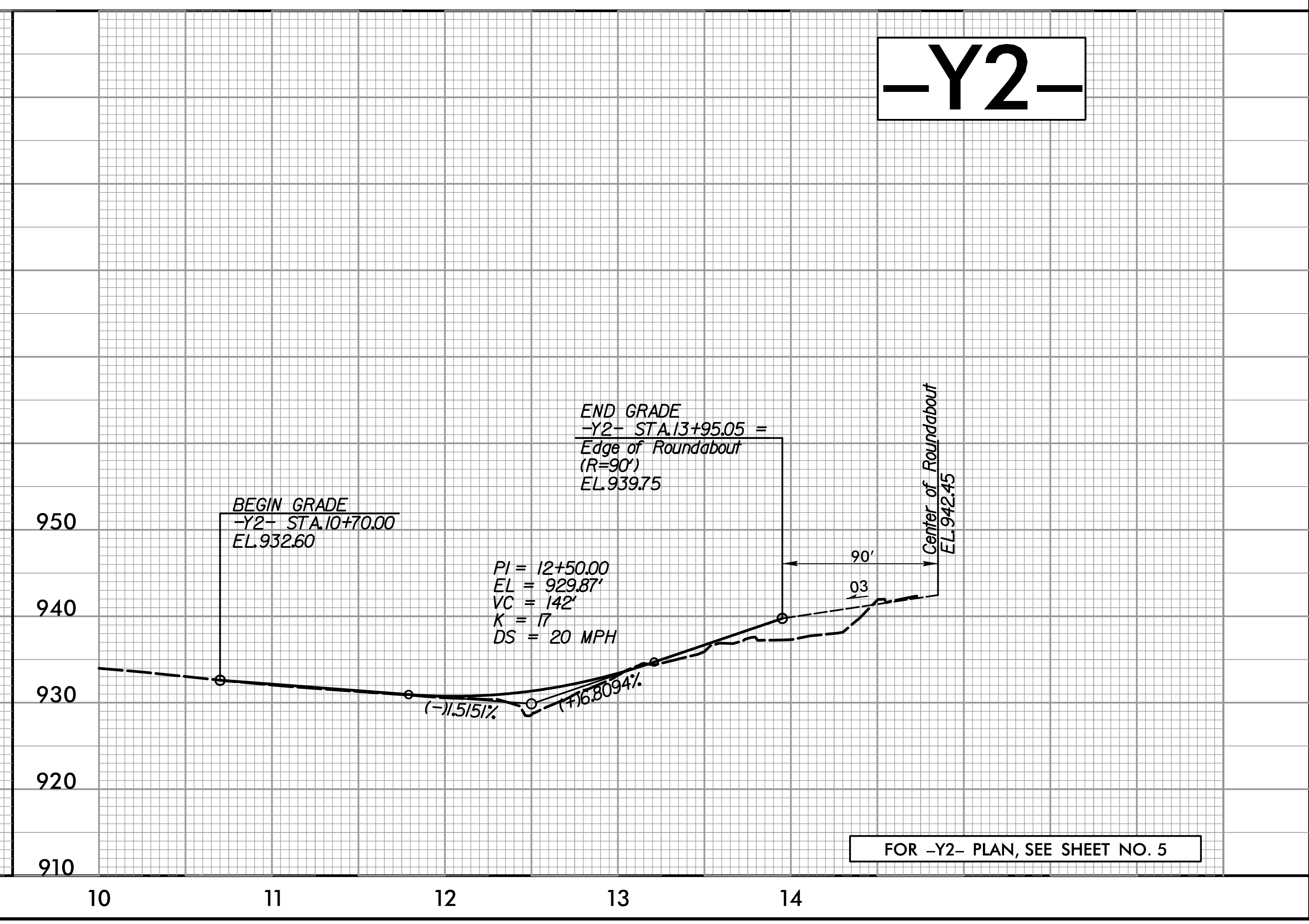
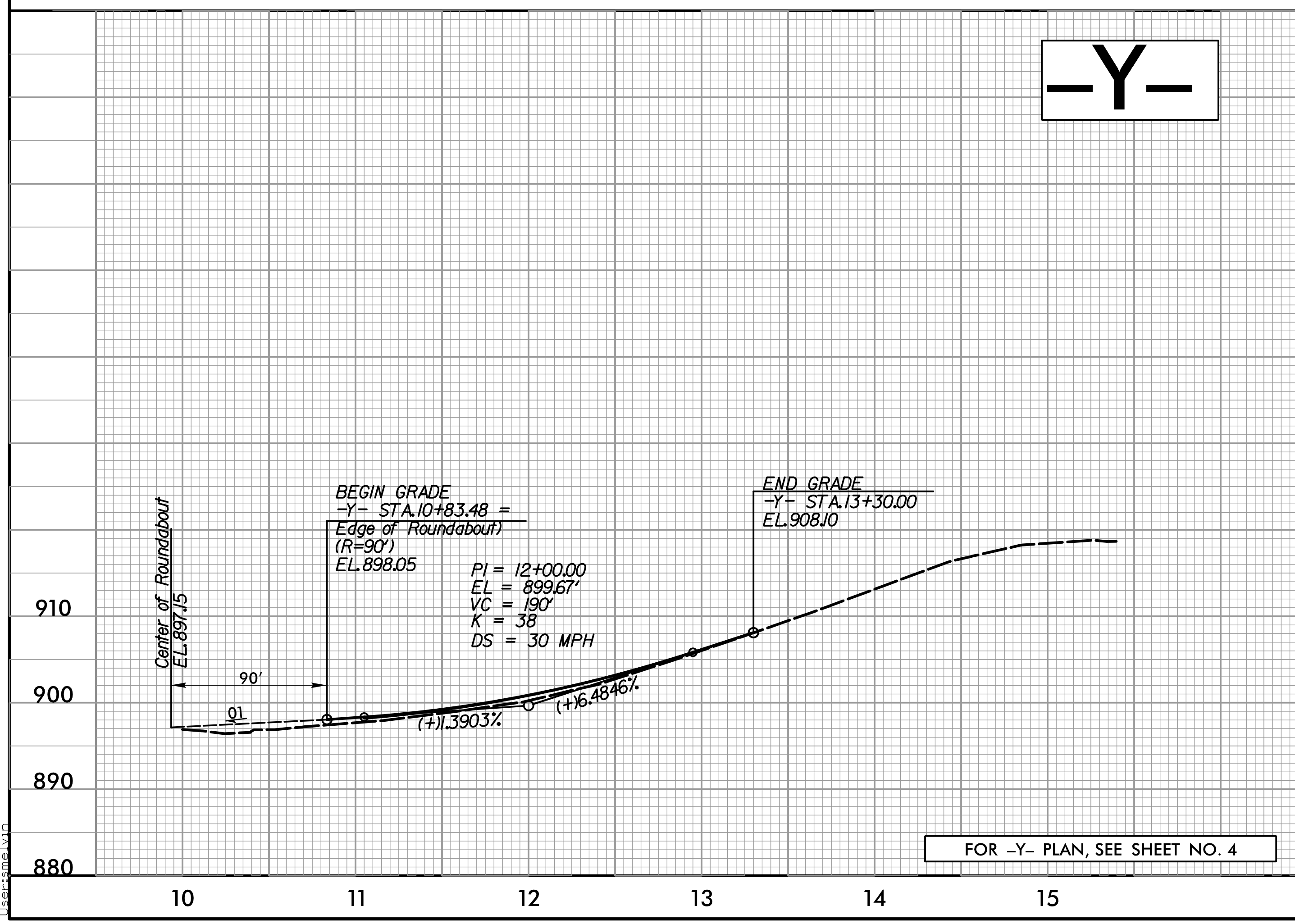
RPD

PROJECT REFERENCE NO. U-5809	SHEET NO. 9
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
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-Y-

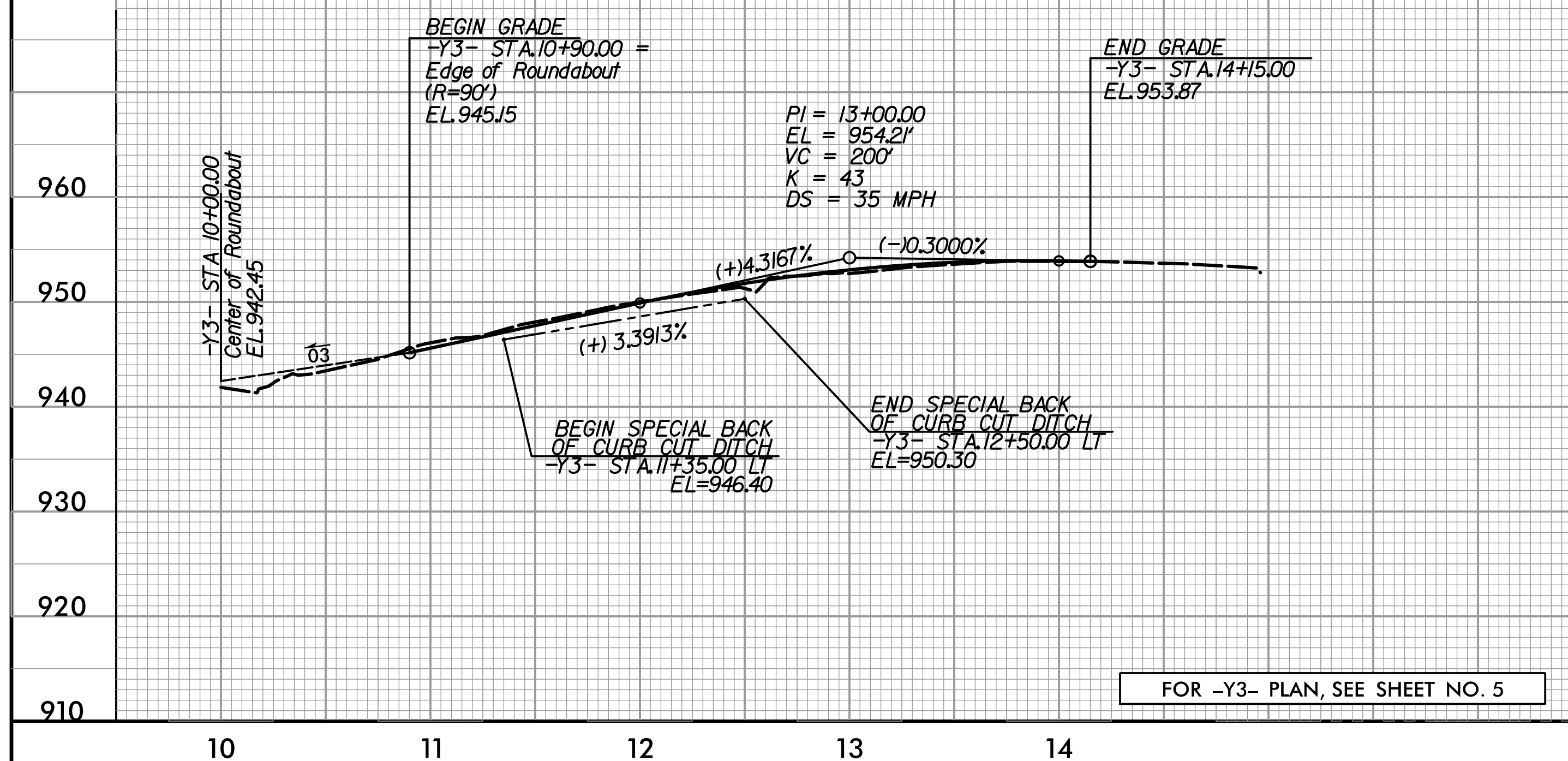
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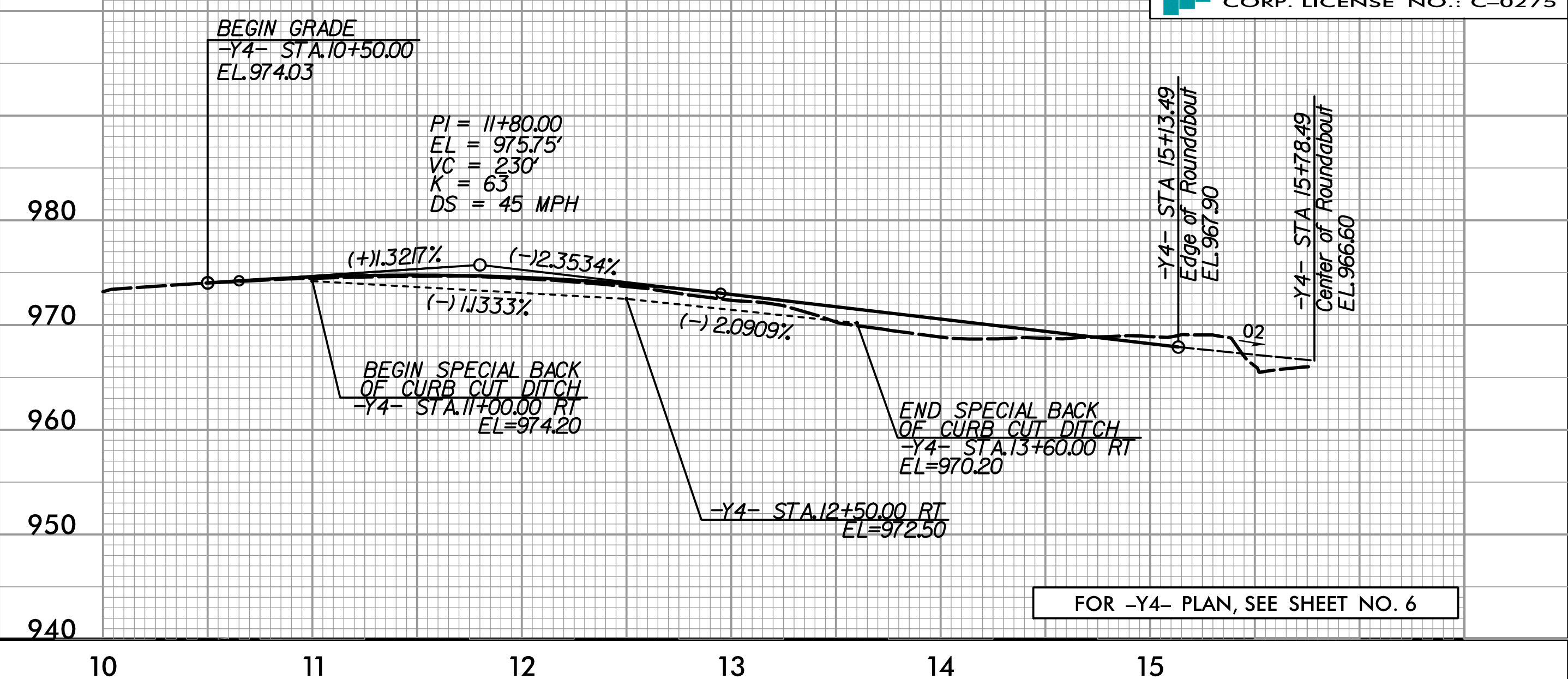
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5/28/24

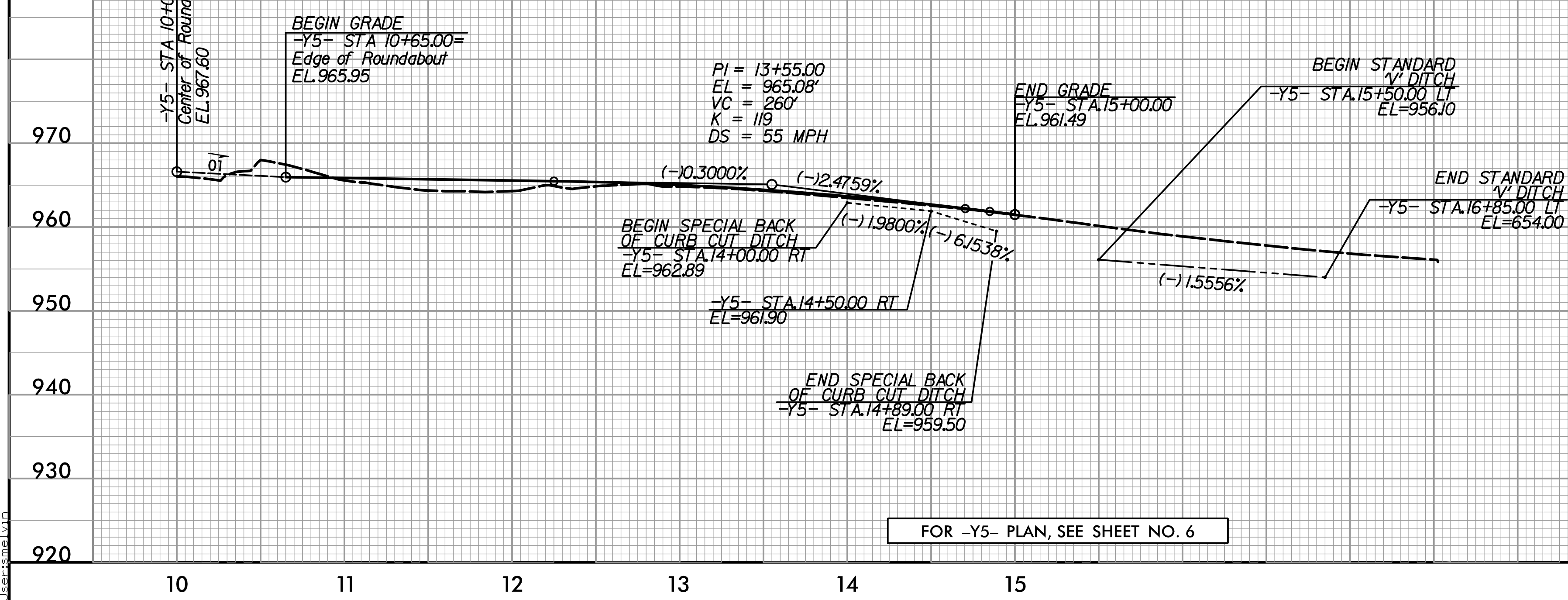
-Y3-



-Y4-



-Y5-



PROJECT REFERENCE NO. U-5809	SHEET NO. 10
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