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See Sheet 1-A For Index of Sheets

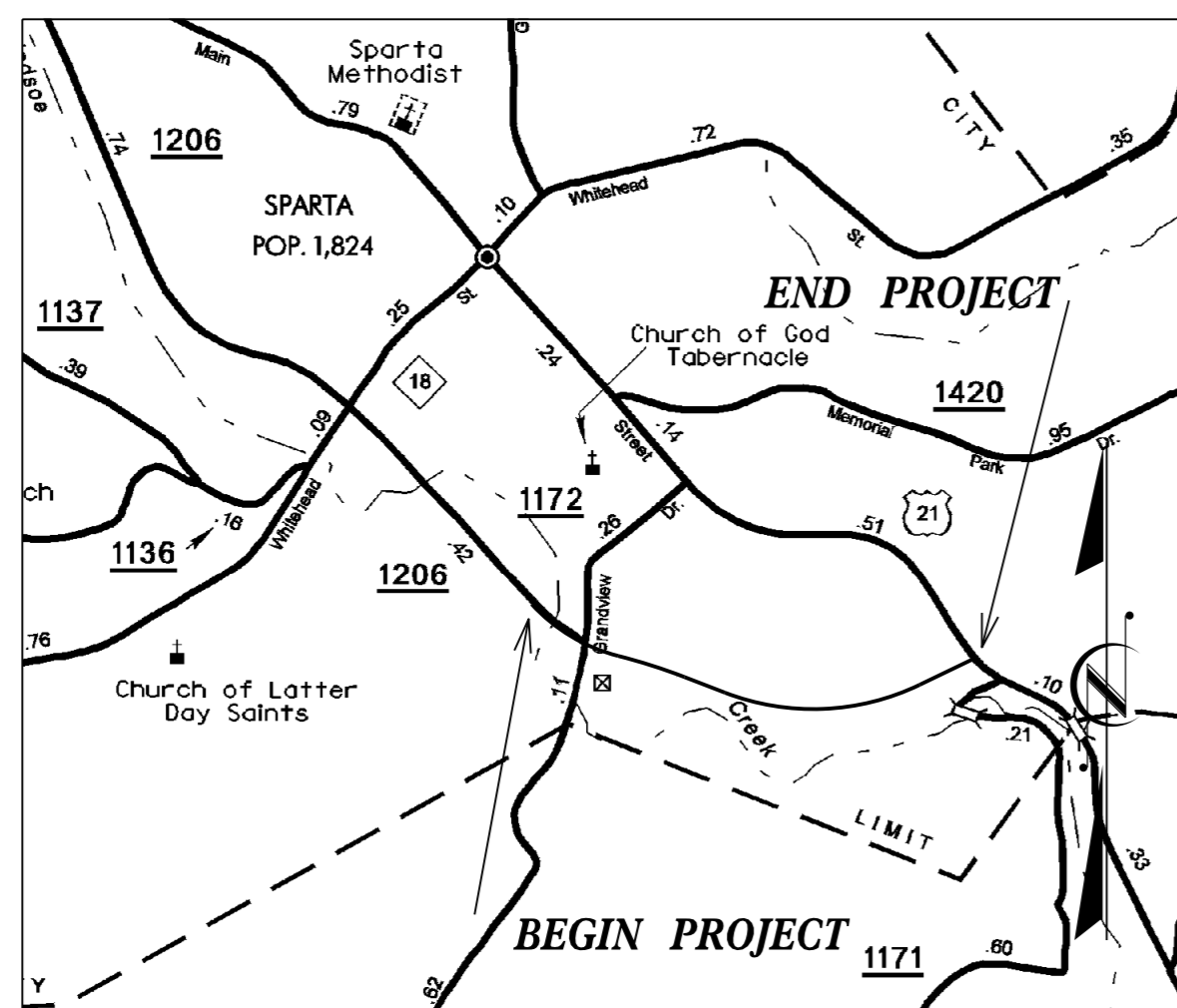
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**ALLEGHANY COUNTY**

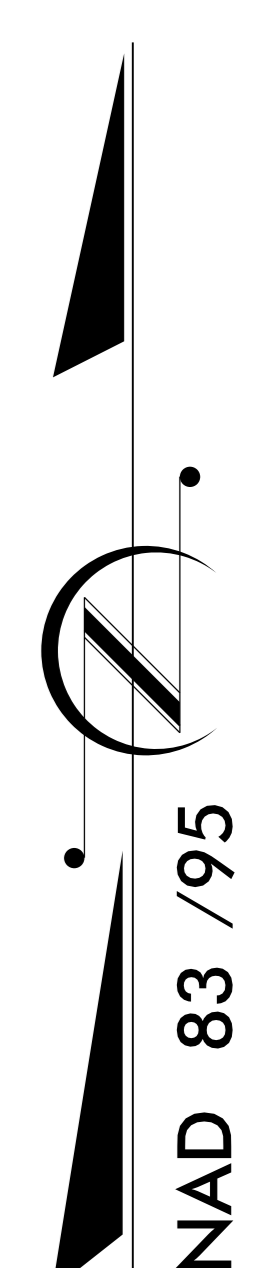
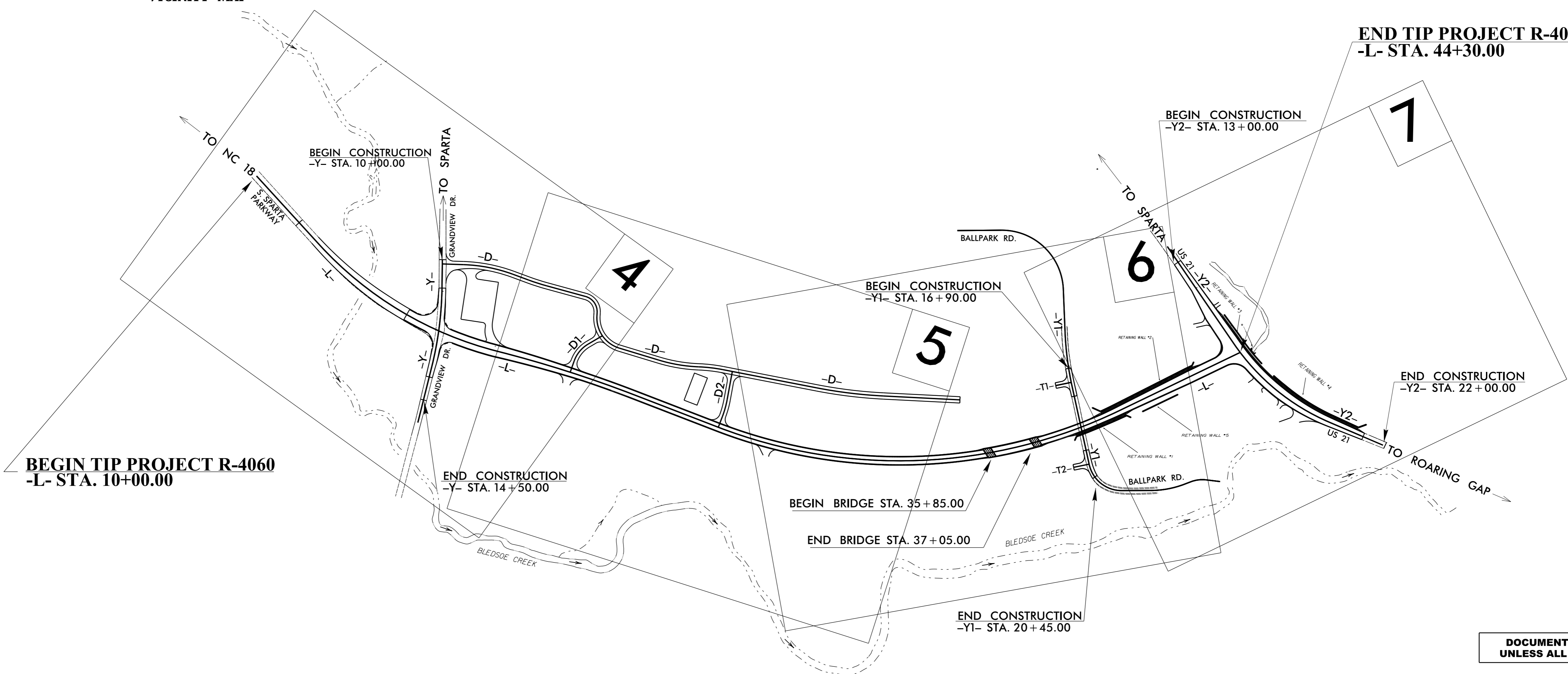
LOCATION: US 21 (SPARTA WESTERN LOOP) FROM  
SR 1172 (GRANDVIEW DR.) TO US 21

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RETAINING WALLS,  
AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4060	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34605.1.2		PE	
34605.2.2		RW	
34605.2.RU1		UTIL	
34605.3.2		CONST	

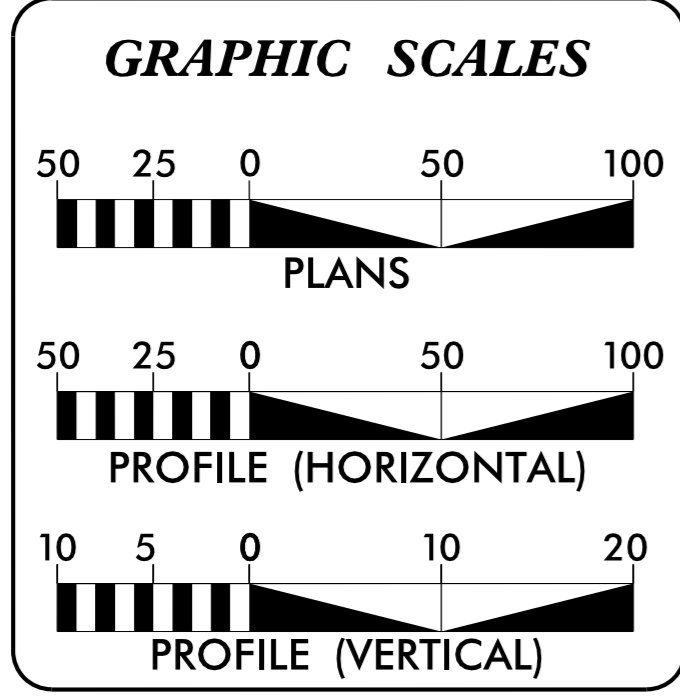


VICINITY MAP



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

CONTRACT: C203821 TIP PROJECT: R-4060



**DESIGN DATA**

ADT 2016 =	6,200
ADT 2030 =	8,800
DHV =	10 %
D =	55 %
T =	7 % *
V =	50 MPH
* TTST =	2 DUAL 5

**REGIONAL TIER DESIGN  
FUNCTIONAL CLASSIFICATION:  
RURAL COLLECTOR**

**PROJECT LENGTH**

<b>PROJECT R-4060 ROADWAY LENGTH =</b>	<b>0.627 MI</b>
<b>PROJECT R-4060 BRIDGE LENGTH =</b>	<b>0.023 MI</b>
<b>PROJECT R-4060 TOTAL LENGTH =</b>	<b>0.650 MI</b>

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
801 STATESVILLE ROAD, NORTH WILKESBORO, N.C. 28659

2012 STANDARD SPECIFICATIONS	<b>DIVISION ENGINEER</b> M.A. PETTYJOHN, PE
<b>RIGHT OF WAY DATE:</b> August 21, 2015	DocuSigned by: <i>M.A. Pettyjohn</i> 6/21/2016 P.E.
<b>LETTING DATE:</b> August 16, 2016	SIGNATURE DATE

**HYDRAULICS ENGINEER**  
MARC T. SHOWN, PE

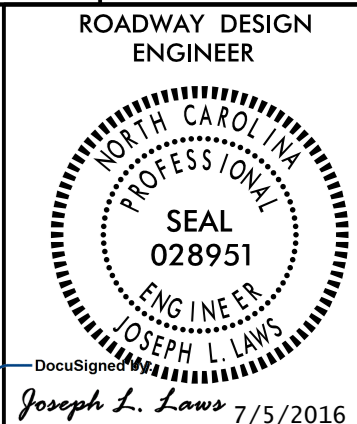
DocuSigned by:  
*Marc T. Shown*  
6/21/2016 P.E.

**DIVISION PROJECT MANAGER**  
JOSEPH L. LAWS, PE

DocuSigned by:  
*Joseph L. Laws*  
6/21/2016 P.E.

21-JUN-2016 09:56 R:\R4060\Roadway - Revised\1-r-4060-ddc-fsh.dgn \$\$\$\$USERNAME\$\$\$

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS INDEX OF SHEETS



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Table with 2 columns: SHEET NUMBER and SHEET. Lists sheets 1 through W-1 and their corresponding titles.

GENERAL NOTES: 2012 SPECIFICATIONS EFFECTIVE: 01-17-2012 REVISED: 10-31-2014. 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. 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. 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. 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. GUARDRAIL: THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. 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 TOWN OF SPARTA - WATER & SANITARY SEWER, BLUE RIDGE - EMC, POWER, SKYLINE - TELEPHONE/CABLE TV. 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. ROCK: ROCK IS ANTICIPATED BETWEEN -Y2- 13+00 - 14+50 RT. -Y2- 17+50 - 21+00 LT. BLASTING MAY BE REQUIRED FOR EXCAVATION ON THE PROJECT. SEE SECTION 220 OF THE STANDARD SPECIFICATIONS AND IF APPLICABLE, ROCK BLASTING PROVISION.

2012 ROADWAY ENGLISH STANDARD DRAWINGS. The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans: STD. NO. TITLE DIVISION 2 - EARTHWORK 200.02 Method of Clearing - Method II 225.02 Guide for Grading Subgrade - Secondary and Local 225.04 Method of Obtaining Superelevation - Two Lane Pavement 225.06 Method of Grading Sight Distance at Intersections 240.01 Guide for Berm Ditch Construction DIVISION 3 - PIPE CULVERTS 300.01 Method of Pipe Installation 310.10 Driveway Pipe Construction DIVISION 4 - MAJOR STRUCTURES 422.10 Reinforced Bridge Approach Fills 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 815.02 Subsurface Drain 840.00 Concrete Base Pad for Drainage Structures 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 840.24 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 840.29 Frames and Narrow Slot Flat Grates 840.35 Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates 840.45 Precast Drainage Structure 840.66 Drainage Structure Steps 840.71 Concrete and Brick Pipe Plug 846.01 Concrete Curb, Gutter and Curb & Gutter 846.02 Drop Inlet Installation in Expressway Gutter 850.01 Concrete Paved Ditches 850.10 Guide for Berm Drainage Outlet - 15" and 18" Pipe 857.01 Precast Reinforced Concrete Barrier - 41" Single Faced 862.01 Guardrail Placement 862.02 Guardrail Installation 862.04 Anchoring End of Guardrail - B-77 and B-83 Anchor Units 876.02 Guide for Rip Rap at Pipe Outlets

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

*Note: Not to Scale* \*S.U.E. = *Subsurface Utility Engineering*

04/05/15

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	----->
Property Monument	□ EDM
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	-----
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	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	□

### HYDROLOGY:

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

### RAILROADS:

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

### RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	----- RW
Proposed Right of Way Line with Iron Pin and Cap Marker	----- RW
Proposed Right of Way Line with Concrete or Granite R/W Marker	----- RW
Proposed Control of Access Line with Concrete CA Marker	----- CA

Existing Control of Access	----- CA
Proposed Control of Access	----- CA
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Drainage / Utility Easement	----- DUE
Proposed Permanent Utility Easement	----- PUE
Proposed Temporary Utility Easement	----- TUE
Proposed Aerial Utility Easement	----- AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	----- C
Proposed Slope Stakes Fill	----- F
Proposed Curb Ramp	----- CR
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	⊙
Storm Sewer	----- S

### 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.*)	----- T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- T FO

### 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:

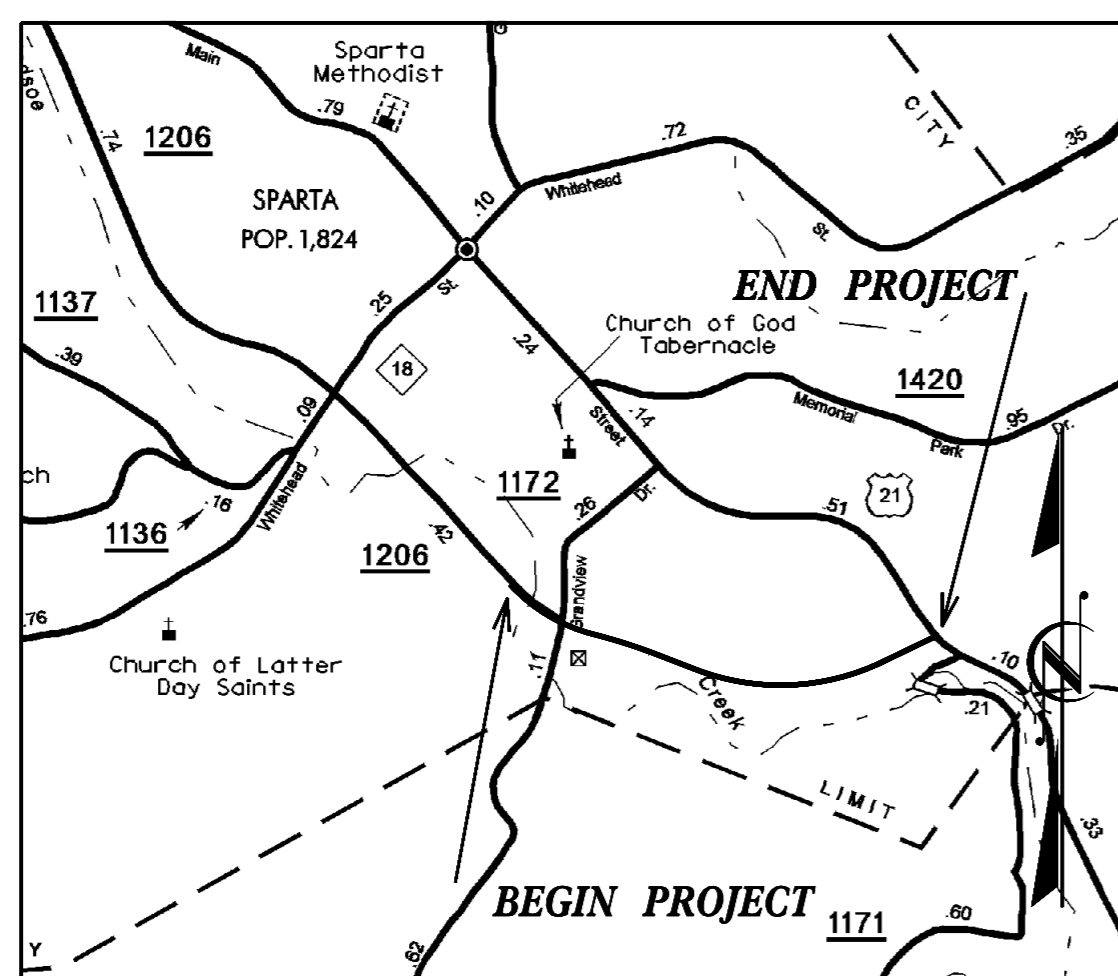
Sanitary Sewer Manhole	⊙
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	----- SS
Above Ground Sanitary Sewer	----- A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*)	----- FSS
SS Forced Main Line LOS C (S.U.E.*)	----- FSS
SS Forced Main Line LOS D (S.U.E.*)	----- FSS

### MISCELLANEOUS:

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

# SURVEY CONTROL SHEET R-4060

PROJECT REFERENCE NO.	SHEET NO.
R-4060	1C-1
Location and Surveys	



VICINITY MAP

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
R40602	GPS R4060-2	1007235.1110	1376947.6230	2795.85	13+34.45	19.55 RT
BL5	BL-5	1006886.7540	1377344.2750	2810.32	18+35.58	97.09 RT
BL6	BL-6	1006897.8710	1377641.0200	2837.71	21+10.26	2.06 RT
BL7	BL-7	1006566.7710	1378450.0300	2835.17	29+76.15	57.87 RT
BL8	BL-8	1006534.4370	1378951.0460	2840.48	34+60.80	69.01 RT
BL9	BL-9	1006699.7990	1379356.2800	2825.94	38+85.30	4.84 RT
BL10	BL-10	1006732.6180	1379474.5350	2821.78	40+05.83	22.12 RT
BL11	BL-11	1006887.8450	1379861.8160	2780.92	44+22.10	50.43 RT

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
BY12	BY-12	1007472.1880	1377315.6580	2825.05	OUTSIDE PROJECT LIMITS	
BY13	BY-13	1006886.7540	1377344.2750	2810.32	13+33.41	54.03 LT
BY14	BY-14	1006473.0730	1377168.4900	2803.73	OUTSIDE PROJECT LIMITS	

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
BY115	BY1-15	1006922.7150	1379285.8980	2848.13	16+51.48	13.49 RT
BY116	BY1-16	1006699.7990	1379356.2800	2825.94	18+83.14	12.31 LT
BY117	BY1-17	1006503.4650	1379409.7900	2795.13	20+85.39	13.53 RT
BY118	BY1-18	1006492.4750	1379605.5690	2766.58	22+75.74	10.14 RT

BY2 POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
BY219	BY2-19	1007261.1710	1379646.6410	2789.34	12+65.64	18.67 LT
BY220	BY2-20	1006887.8450	1379861.8160	2780.92	16+93.23	19.28 RT
BY221	BY2-21	1006708.3600	1380093.3540	2777.60	19+79.88	21.54 RT

.....  
 BM\*1 ELEVATION = 2801.73'  
 N 1007114. E 1377265.  
 BY STATION 8+55.00 68' RIGHT  
 8" SPIKE IN ROOT OF 12" WILD CHERRY  
 .....

.....  
 BM\*2 ELEVATION = 2795.14'  
 N 1006373. E 1379222.  
 BL STATION 28+91.00 252' RIGHT  
 8" SPIKE IN ROOT OF 10" WILD CHERRY  
 .....

.....  
 BM\*3 ELEVATION = 2770.85'  
 N 1007014. E 1379952.  
 BY2 STATION 8+67.00 141' LEFT  
 8" SPIKE IN ROOT OF 12" MAPLE  
 .....

NC DOT STATION R4060-1  
 LOCALIZED PROJECT COORDINATES  
 N = 1008229.0310  
 E = 1376039.7990

BEGIN TIP PROJECT R-4060  
 -L- POT STA. 10+00.00  
 N = 1007495.2864  
 E = 1376735.5464

NC DOT STATION R4060-2  
 LOCALIZED PROJECT COORDINATES  
 N = 1007235.1110  
 E = 1376947.6230

BEGIN TIP PROJECT R-4060  
 -Y- POT STA. 10+00.00  
 N = 1007230.4214  
 E = 1377323.3753

END TIP PROJECT R-4060  
 -Y- POT STA. 14+50.00  
 N = 1006786.2858  
 E = 1377263.6047

BEGIN TIP PROJECT R-4060  
 -Y1- POC STA. 16+90.00  
 N = 1006886.1674  
 E = 1379304.5946

BEGIN TIP PROJECT R-4060  
 -Y2- POT STA. 13+00.00  
 N = 1007222.2675  
 E = 1379650.6398

END TIP PROJECT R-4060  
 -Y2- POC STA. 22+00.00  
 N = 1006640.4818  
 E = 1380304.7313

NC DOT STATION R4060-3  
 LOCALIZED PROJECT COORDINATES  
 N = 1004443.4930  
 E = 1381348.2630

NC DOT STATION R4060-4  
 LOCALIZED PROJECT COORDINATES  
 N = 1003619.0960  
 E = 1382478.8190

END TIP PROJECT R-4060  
 -L- POT STA. 44+30.00  
 N = 1006936.7057  
 E = 1379847.0298

END TIP PROJECT R-4060  
 -Y- POC STA. 20+45.00  
 N = 1006542.2129  
 E = 1379387.4105

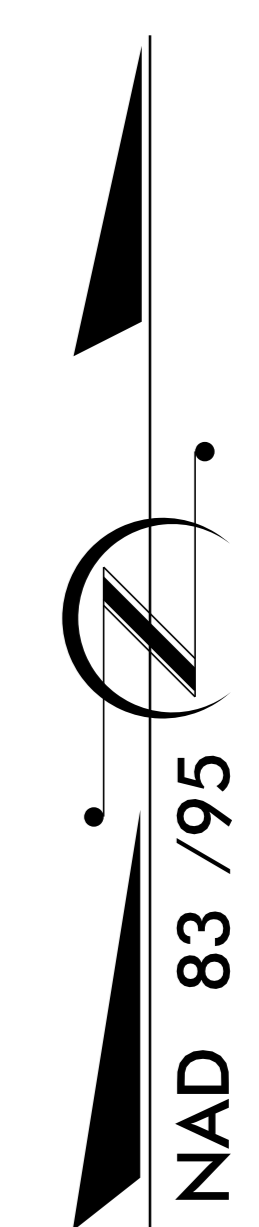
## DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R4060-2" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 1007235.1111(ft) EASTING: 1376947.6231(ft) ELEVATION: 2795.85(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99997752 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R4060-2" TO -L- STATION 10+00.00 IS N 39°11'04" W 335.66'

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

NOTE: DRAWING NOT TO SCALE

- NOTES:**
- THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC), GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
  - 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:  
 R4060\_IS\_GPSCALIB.HTML  
 R4060\_IS\_CONTROL.TXT  
 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.  
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION  
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.



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# SURVEY CONTROL SHEET R-4060

## GPS Calibration Report

Project : R4060

User name	rgmiller	Date & Time	11:48:56 AM 3/5/03
Coordinate System	US State Plane 1983(at ground)	Zone	North Carolina 3200
Project Datum	NAD 1983 (Comus)	Geoid Model	Geoid99 NC Sub Grid
Vertical Datum	NAVD 88		
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

### Contents

- [Datum Transformation Parameters](#)
- [Updated Default Projection Definition](#)
- [Horizontal Adjustment Parameters](#)
- [Vertical Adjustment Parameters](#)
- [Geoid Model Definition](#)
- [Residual Differences Between GPS And Known Coordinates](#)

### Datum Transformation Parameters

Datum Transformation computation not requested

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### Updated Default Projection (Transverse Mercator) Definition

Updated default projection not requested

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### Horizontal Adjustment Parameters

Northing coordinate of rotation center	1008002.157sft
Easting coordinate of rotation center	1375454.266sft
Rotation about the center point	0°00'00"
Translation north	0.006sft
Translation east	0.011sft
Scale factor	0.99999991

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### Vertical Adjustment Parameters

Northing coordinate of origin point	993220.572sft
Easting coordinate of origin point	1360135.659sft
Vertical separation at origin	-0.004sft
Slope north	2.645ppm
Slope east	5.310ppm

### DATUM DESCRIPTION

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

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### Geoid Model Definition

Geoid99 NC Sub Grid

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### Residual Differences Between GPS And Known Coordinates

Summary			
	Maximum error	Root Mean Square error	Point
Horizontal	0.015sft	0.003	V 87_GPS
Vertical	0.118sft	0.027	V 87_GPS
Three-dimensional	0.119sft	0.019	V 87_GPS

Point Residuals					
GPS point		Calculated point		Control point	
Point	R4060-1_GPS	Northing	1008229.034sft	Point	R4060-1
Latitude	36°30'06.20405"N	Easting	1376039.802sft	Northing	1008229.031sft
Longitude	81°07'21.96357"W	Elevation	2820.019sft	Easting	1376039.799sft
Height	2715.207sft	Horizontal error	0.005sft	Elevation	?
		Vertical error	?	Type	Horizontal
		3D error	0.005sft	Point quality	Adjusted quality
Point	R4060-2_GPS	Northing	1007235.113sft	Point	R4060-2
Latitude	36°29'56.57124"N	Easting	1376947.627sft	Northing	1007235.111sft
Longitude	81°07'10.58873"W	Elevation	2795.988sft	Easting	1376947.623sft
Height	2691.125sft	Horizontal error	0.005sft	Elevation	?
		Vertical error	?	Type	Horizontal
		3D error	0.005sft	Point quality	Adjusted quality
Point	R4060-3_GPS	Northing	1004443.491sft	Point	R4060-3
Latitude	36°29'29.90241"N	Easting	1381348.259sft	Northing	1004443.493sft
Longitude	81°06'15.98647"W	Elevation	2867.227sft	Easting	1381348.263sft
Height	2762.150sft	Horizontal error	0.005sft	Elevation	?
		Vertical error	?	Type	Horizontal
		3D error	0.005sft	Point quality	Adjusted quality
Point	R4060-4_GPS	Northing	1003619.090sft	Point	R4060-4
Latitude	36°29'21.99012"N	Easting	1382478.816sft	Northing	1003619.096sft
Longitude	81°06'01.93258"W	Elevation	2903.159sft	Easting	1382478.819sft
Height	2798.023sft	Horizontal error	0.006sft	Elevation	?
		Vertical error	?	Type	Horizontal
		3D error	0.006sft	Point quality	Adjusted quality
Point	V 87_GPS	Northing	993220.572sft	Point	V 87
Latitude	36°27'34.44534"N	Easting	1360135.659sft	Northing	993220.565sft
Longitude	81°10'32.65583"W	Elevation	3034.646sft	Easting	1360135.646sft
Height	2930.079sft	Horizontal error	0.015sft	Elevation	3034.528sft
		Vertical error	0.118sft	Type	Horz and Vert
		3D error	0.119sft	Point quality	Control quality
Point	TURKEY_GPS	Northing	1028776.458sft	Point	TURKEY

Latitude	36°33'21.57739"N	Easting	1340519.438sft	Northing	1028776.452sft
Longitude	81°14'42.53635"W	Elevation	2905.564sft	Easting	1340519.437sft
Height	2802.018sft	Horizontal error	0.006sft	Elevation	2905.680sft
		Vertical error	0.116sft	Type	Horz and Vert
		3D error	0.116sft	Point quality	Control quality
Point	VA 11_GPS	Northing	1052529.762sft	Point	VA 11
Latitude	36°37'22.82300"N	Easting	1370097.765sft	Northing	1052529.766sft
Longitude	81°08'46.44303"W	Elevation	2684.655sft	Easting	1370097.777sft
Height	2580.600sft	Horizontal error	0.013sft	Elevation	2684.607sft
		Vertical error	0.047sft	Type	Horz and Vert
		3D error	0.049sft	Point quality	Control quality
Point	BRYANT RM 4_GPS	Northing	965963.778sft	Point	BRYANT RM 4
Latitude	36°23'16.59198"N	Easting	1416066.856sft	Northing	965963.786sft
Longitude	80°59'01.53496"W	Elevation	3099.019sft	Easting	1416066.857sft
Height	2991.451sft	Horizontal error	0.008sft	Elevation	3099.069sft
		Vertical error	0.049sft	Type	Horz and Vert
		3D error	0.050sft	Point quality	Control quality

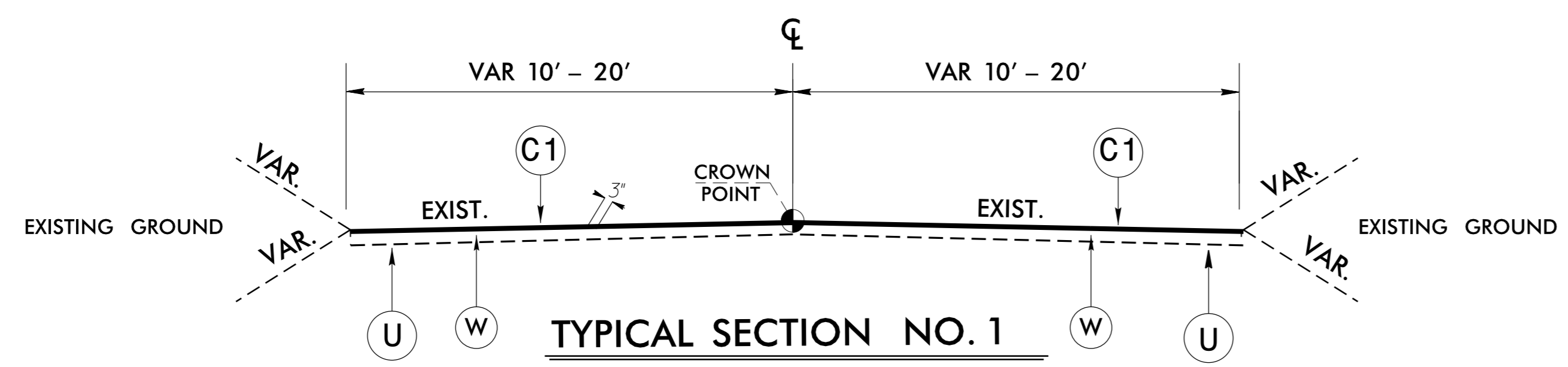
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#### NOTES:

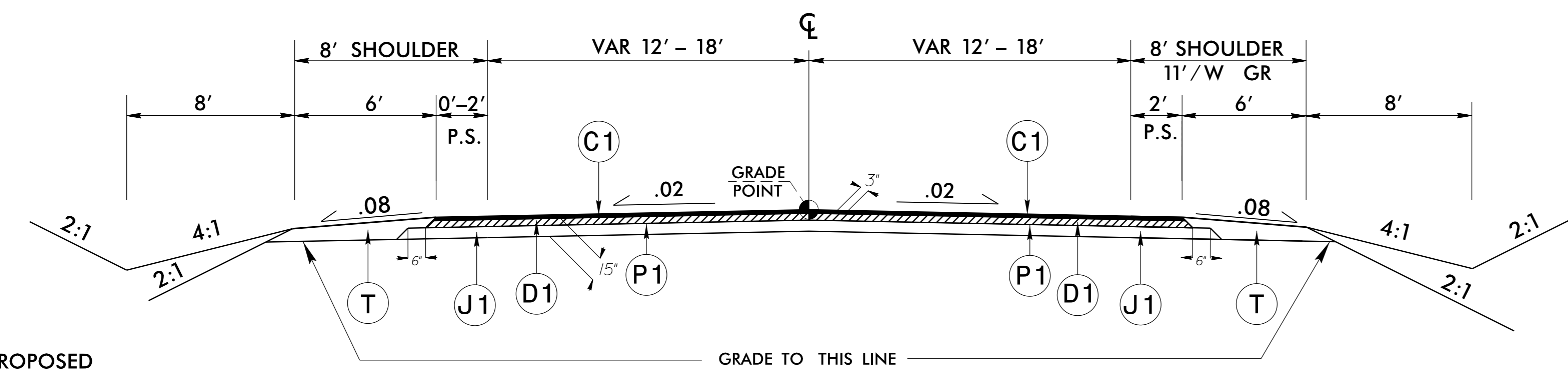
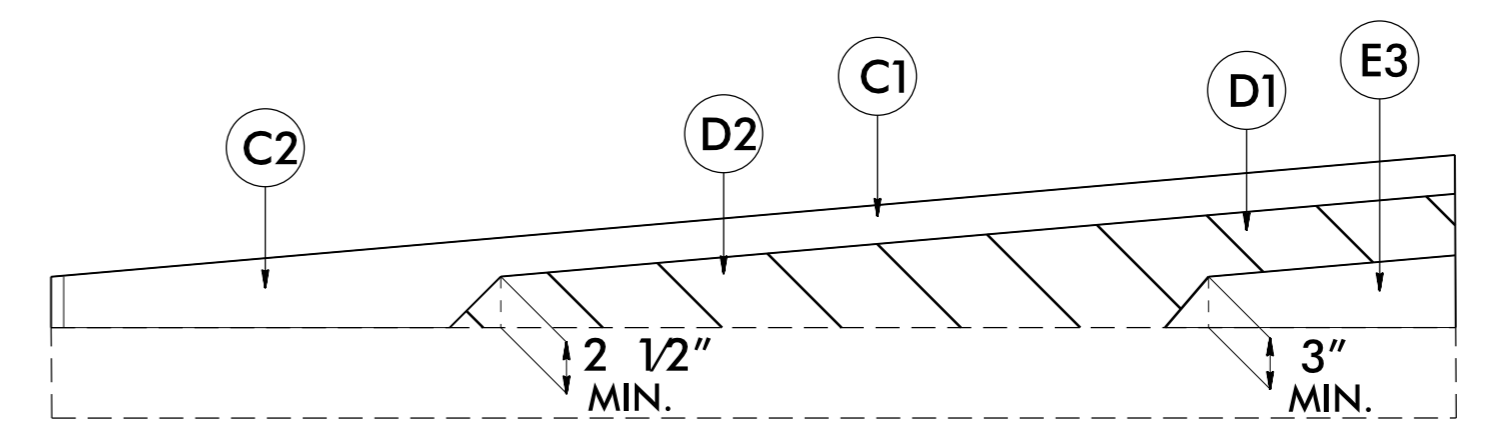
- THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
  - 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:  
R4060\_LS\_GPSCALIB.HTML  
R4060\_LS\_CONTROL.TXT  
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.  
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION  
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE





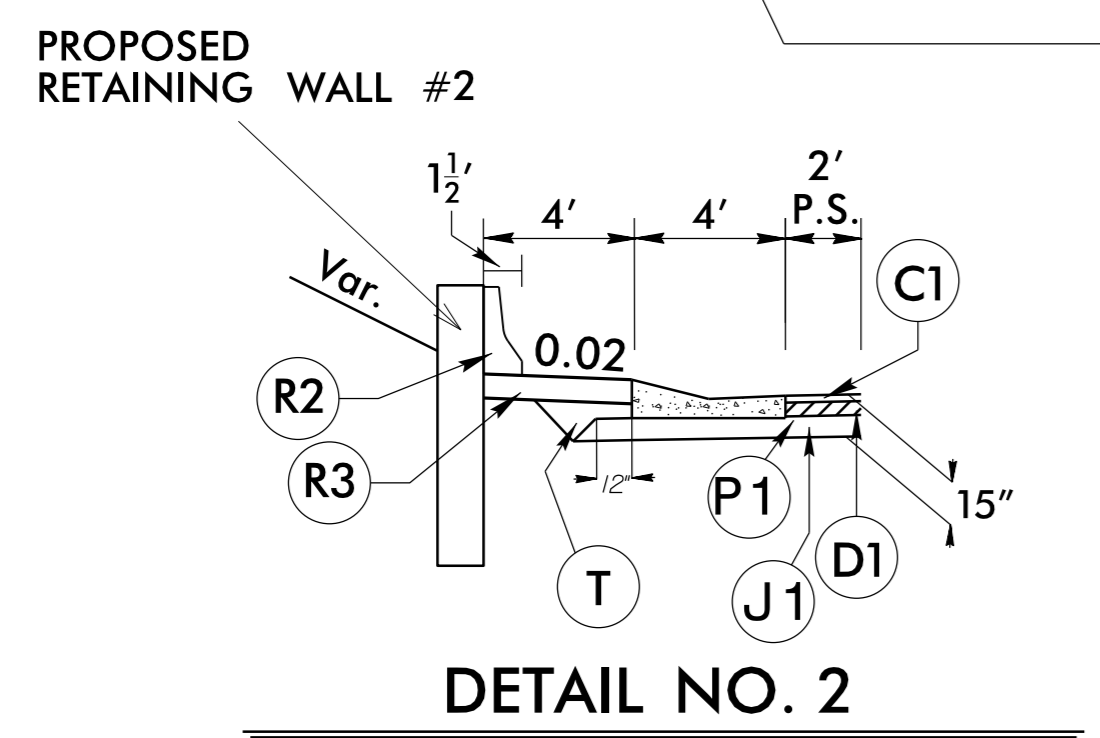
- L- STA. 12+00.00 TO STA. 16+50.00 (RESURFACE)
- Y- STA. 10+00.00 TO STA. 10+70.00 (RESURFACE)
- Y- STA. 13+75.00 TO STA. 14+50.00 (RESURFACE)
- Y1- STA. 16+90.00 TO STA. 17+80.00 (RESURFACE)
- Y1- STA. 19+55.00 TO STA. 20+45.00 (RESURFACE)
- Y2- STA. 21+25.00 TO STA. 22+00.00 (RESURFACE)



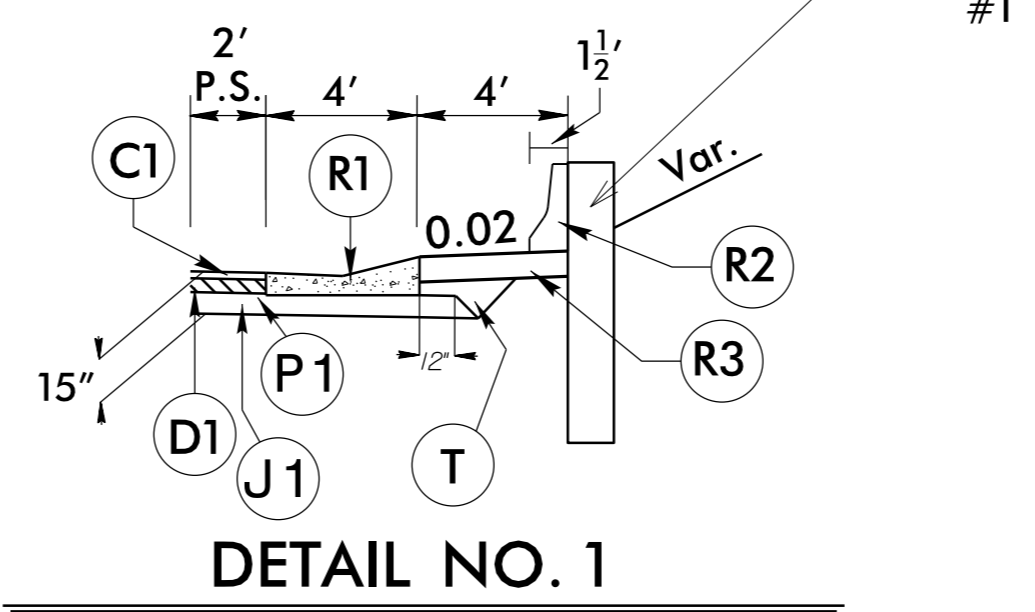
**TYPICAL SECTION NO. 2**

\*\*L- STA. 19+50.00 TO STA. 22+50.00

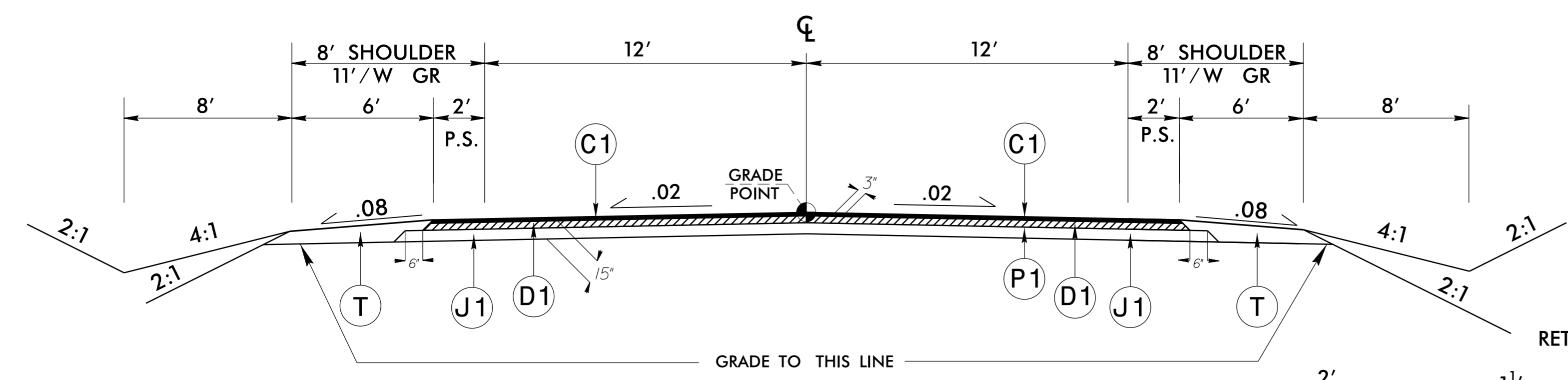
\*L- STA. 39+50.00 TO STA. 42+50.00



\*L- STA. 39+50.00 LT. TO STA. 42+50.00 LT.



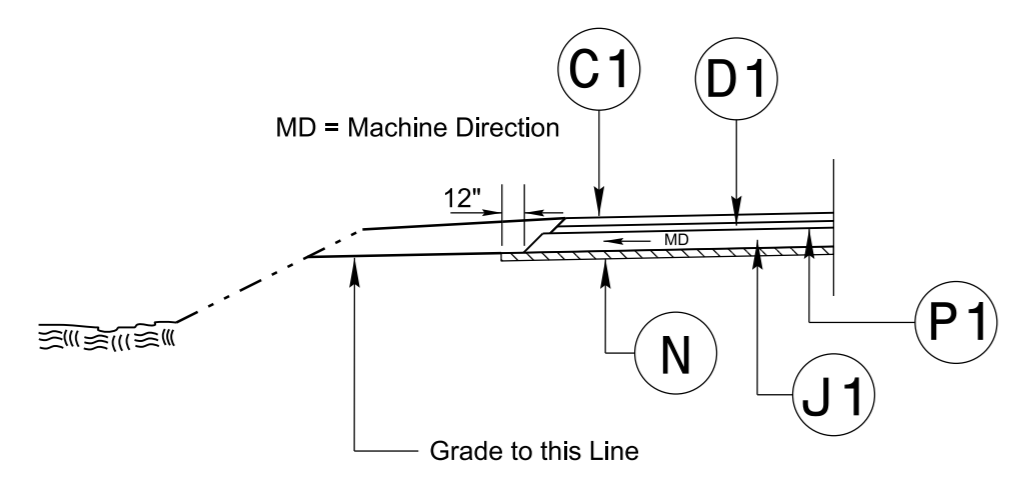
\*L- STA. 39+50.00 RT. TO STA. 40+20.00 RT.



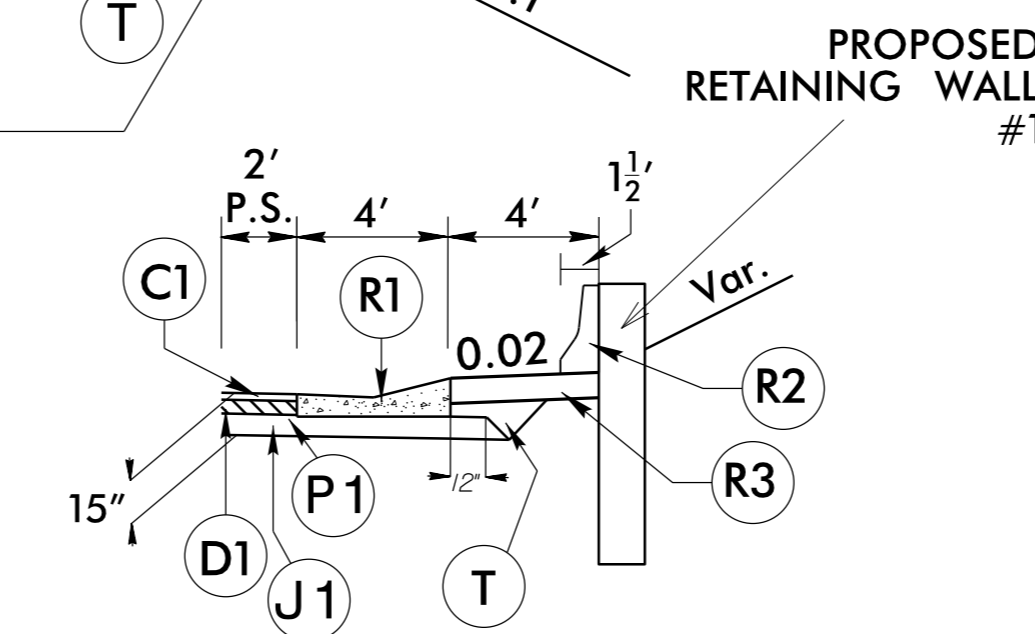
**TYPICAL SECTION NO. 3**

\*\*L- STA. 22+50.00 TO STA. 35+85.00

\*L- STA. 37+05.00 TO STA. 39+50.00



\*\*L- STA. 22+00.00 TO STA. 28+00.00



\*L- STA. 38+50.00 RT. TO STA. 39+50.00 RT.

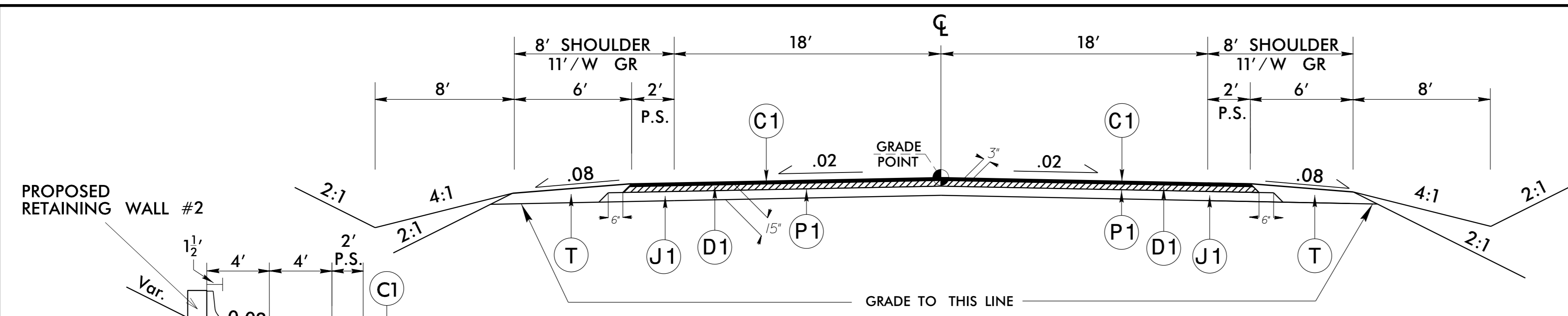
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, 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" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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.
N	GEOTEXTILE FOR PAVEMENT STABILIZATION
R1	4' EXPRESSWAY GUTTER
R2	SINGLE FACED CONCRETE BARRIER
R3	4' WIDE X 6" DEEP CONCRETE PAD
J1	PROP. 8" AGGREGATE BASE COURSE.
P1	PRIME COAT AT THE RATE OF .35 GAL PER SQ. YARD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVING (SEE WEDGING DETAIL)

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

6/2/09

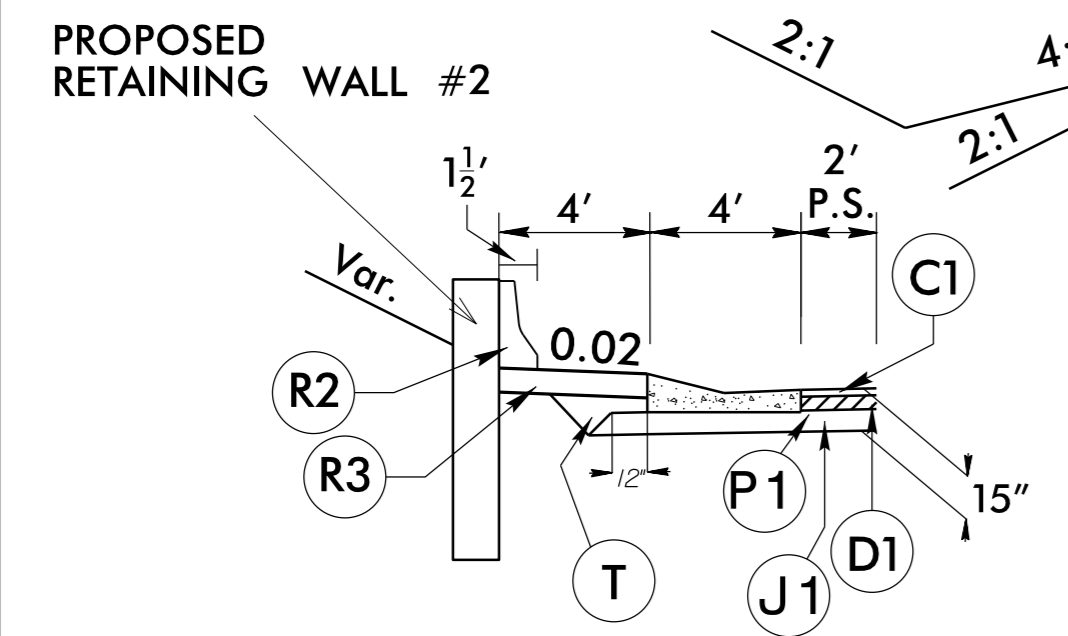
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 - Revised \r-4060.txd.dgn





**TYPICAL SECTION NO. 4**

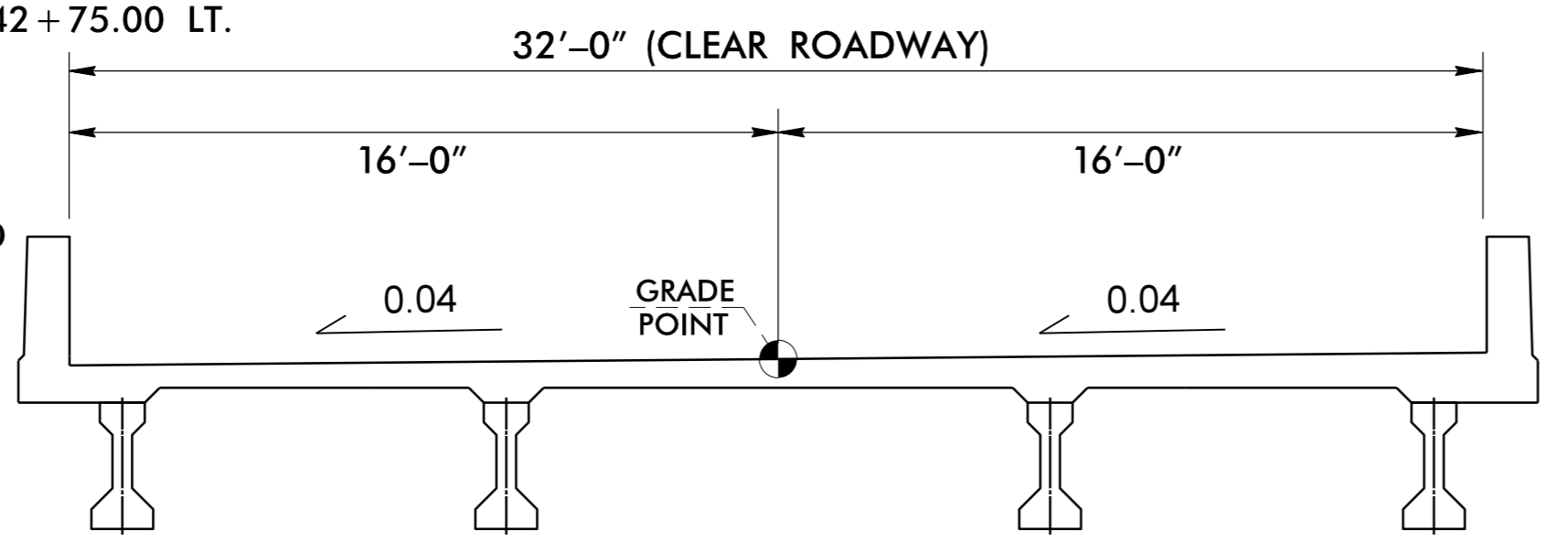
-L- STA. 16+50.00 TO STA. 19+50.00  
\*L- STA. 42+50.00 TO STA. 44+00.00



**DETAIL NO. 2**

\*-L- STA. 42+50.00 LT. TO STA. 42+75.00 LT.

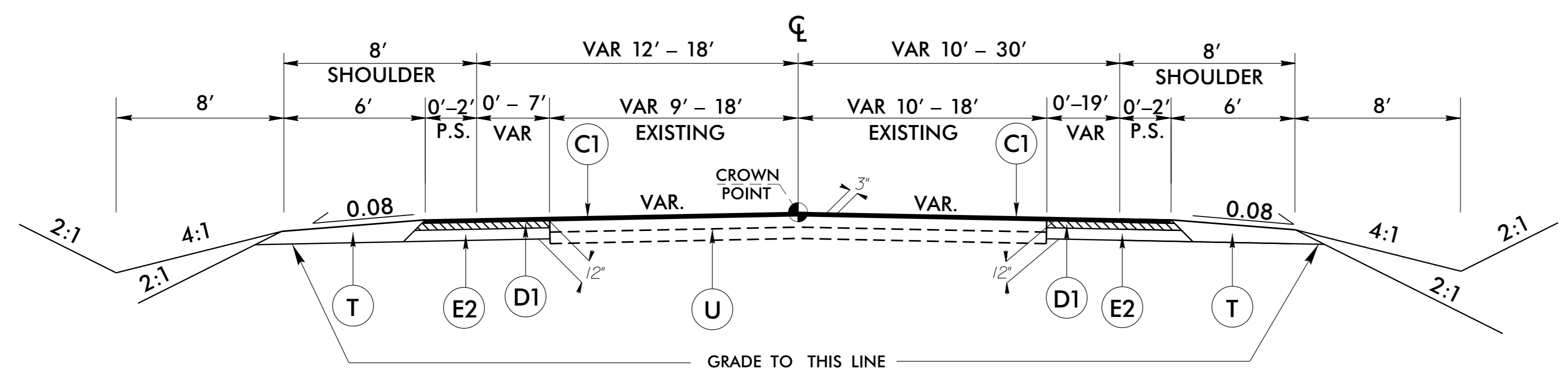
NOTE: BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT



**SUPERSTRUCTURE BRIDGE #1  
TYPICAL SECTION NO. 5**

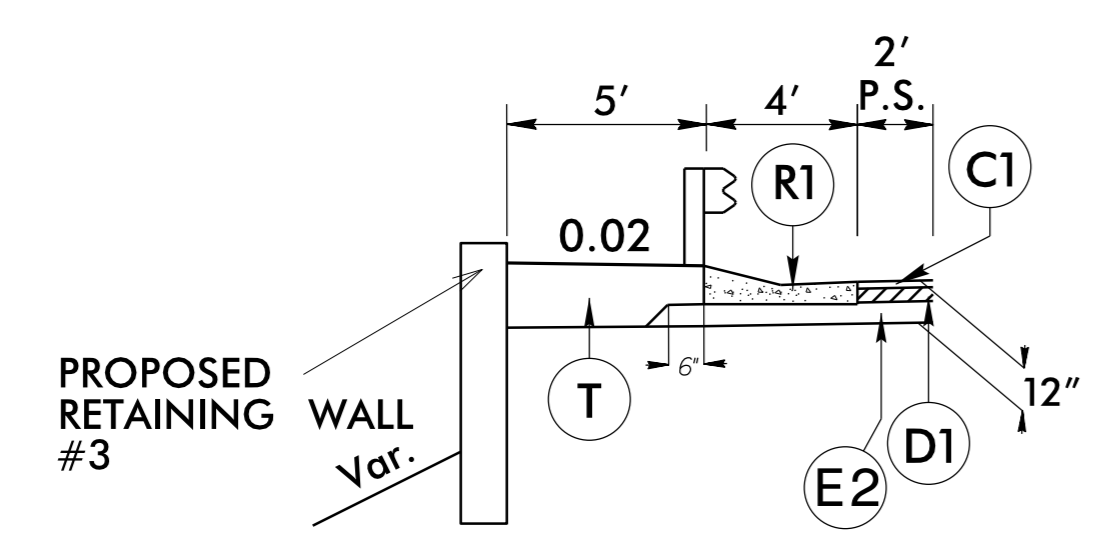
-L- STA. 35+85.00 TO -L- STA. 37+05.00

NOTE: BRIDGE RAIL TO BE DETERMINED BY STRUCTURE DESIGN UNIT



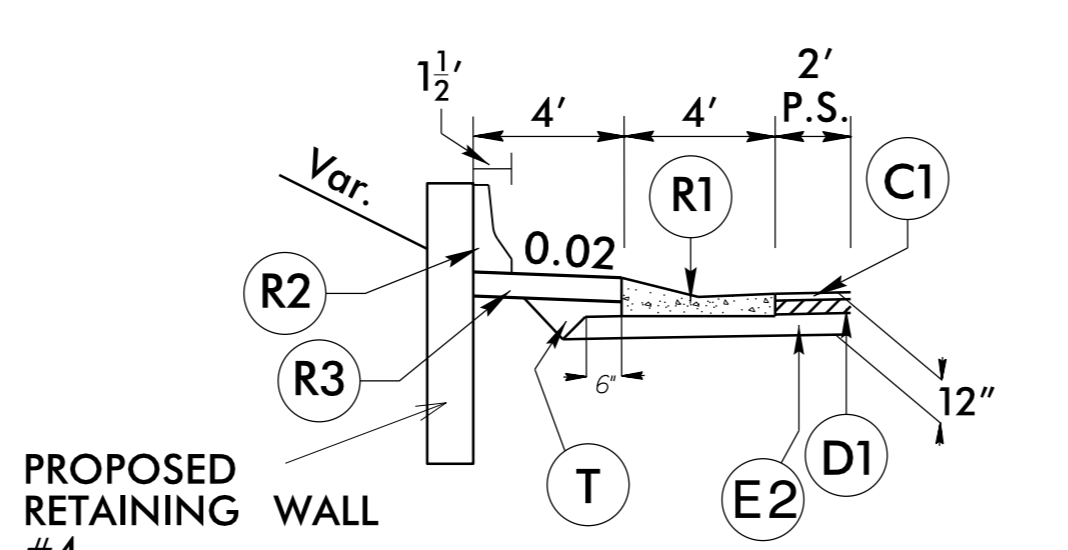
**TYPICAL SECTION NO. 6**

\*-Y2- STA. 13+00.00 TO STA. 21+25.00



**DETAIL NO. 3**

\*-Y2- STA. 15+19.60 LT. TO STA. 17+20.00 LT.



**DETAIL NO. 4**

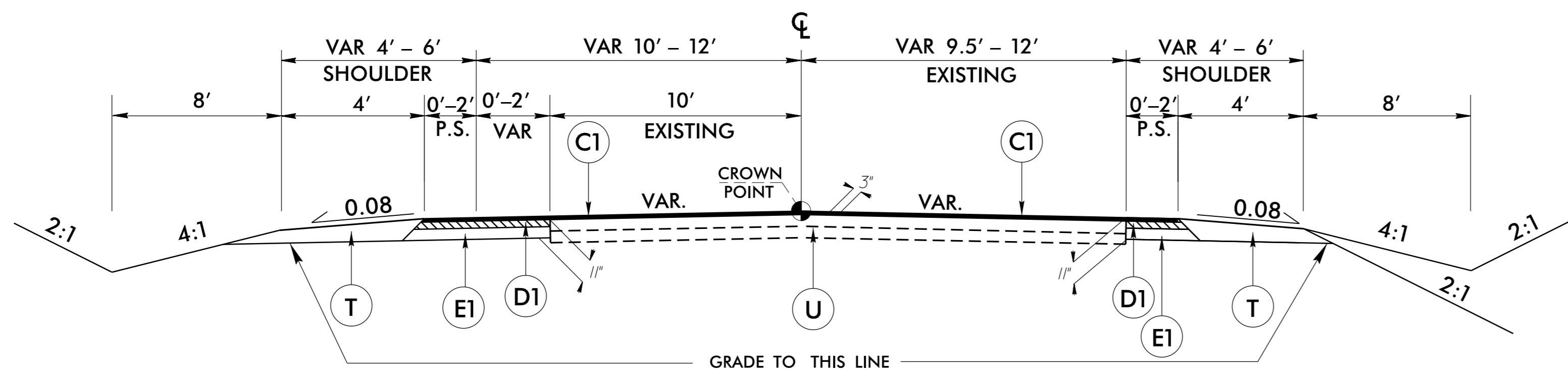
\*-Y2- STA. 17+75.00 LT. TO STA. 21+00.00 LT.

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

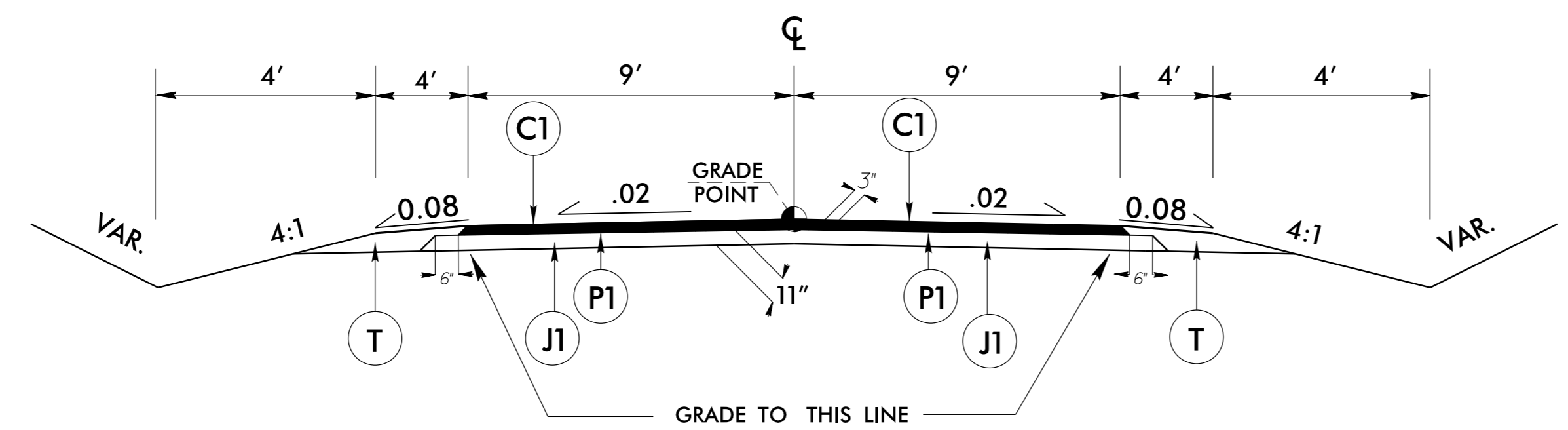
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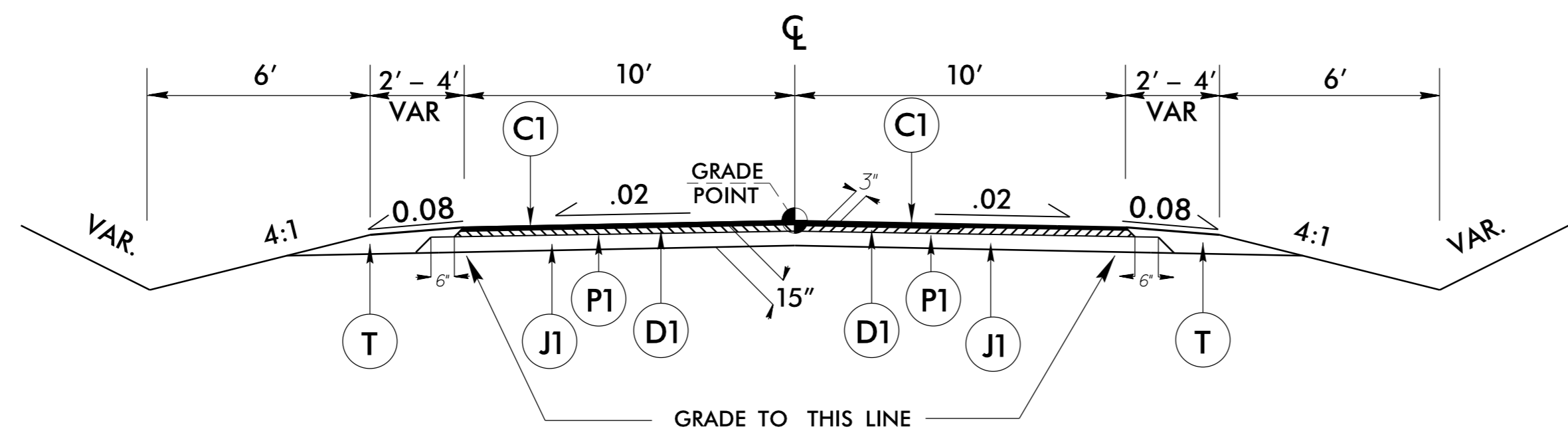
**TYPICAL SECTION NO. 7**

-Y- STA. 10+70.00 TO STA. 12+05.00  
-Y- STA. 12+44.00 TO STA. 13+75.00



**TYPICAL SECTION NO. 8**

-T1- STA. 10+10.00 TO STA. 10+50.00  
-T2- STA. 10+10.00 TO STA. 10+50.00



**TYPICAL SECTION NO. 9**

-D- STA. 10+11.50 TO STA. 27+72.39  
-D1- STA. 10+10.00 TO STA. 11+46.00  
-D2- STA. 10+10.00 TO STA. 11+69.00

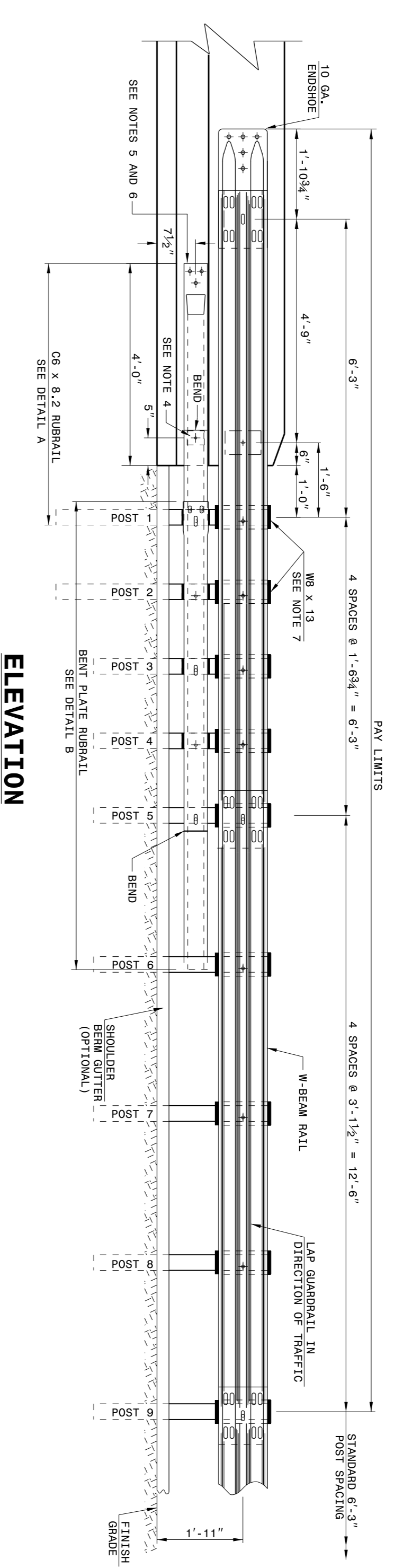
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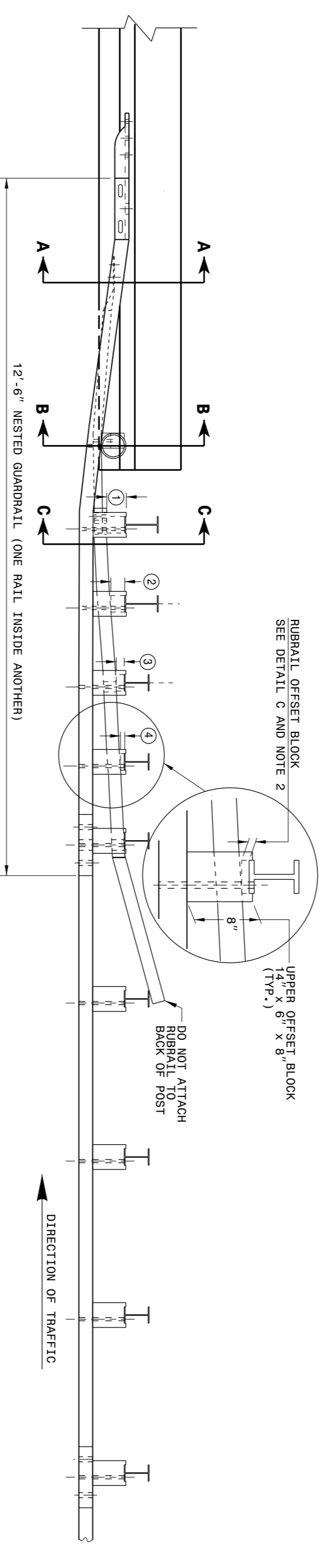
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- Revised \r-4060.tjpd.dgn

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



- GENERAL NOTES:
- 1) POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
  - 2) BLOCKOUTS SHALL BE FABRICATED FROM 7" HIGH X 4" WIDE RUBRAIL BLOCKS ON "Y" POSTS 3 AND 4. RUBRAIL SHALL BE SECURED TO POSTS 5 WITH A 5/8" x 4 1/2" BUTTONEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
  - 3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER X 9' LONG. ATTACH TUBE TO GUARDAIL ONLY WITH 5/8" x 1 1/4" LONG BUTTONEAD BOLT AND RECTANGULAR PLATE WASHER.
  - 4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8" x 3" LAG BOLT WITH FLAT WASHER.
  - 5) TYPE OF F-SHAPE BARRIER OR BRIDGE RAIL.
  - 6) ANCHORAGE:  
(a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5/8" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1/2".  
(b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04). THIS HOLD DOWN PLATE SHALL BE INSTALLED ON THE W-BEAM END SHOE BEHIND THE NESTED "W" BEAM BARRIERS.  
(c) AT NEW BRIDGE RAIL, ANCHOR THE W-BEAM END SHOE AND RUBRAIL AS DETAILED ON THE STRUCTURE PLANS.
  - 7) POSTS 1 AND 2 ARE W8 X 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W8 X 8.5.



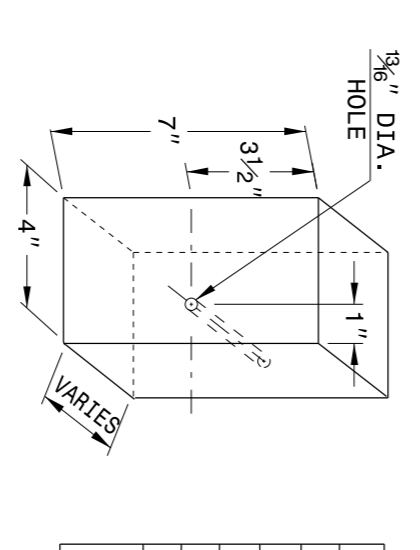
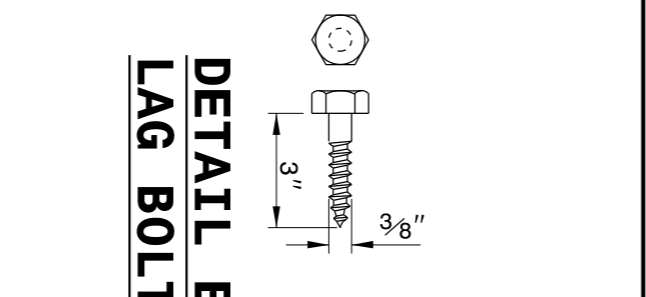
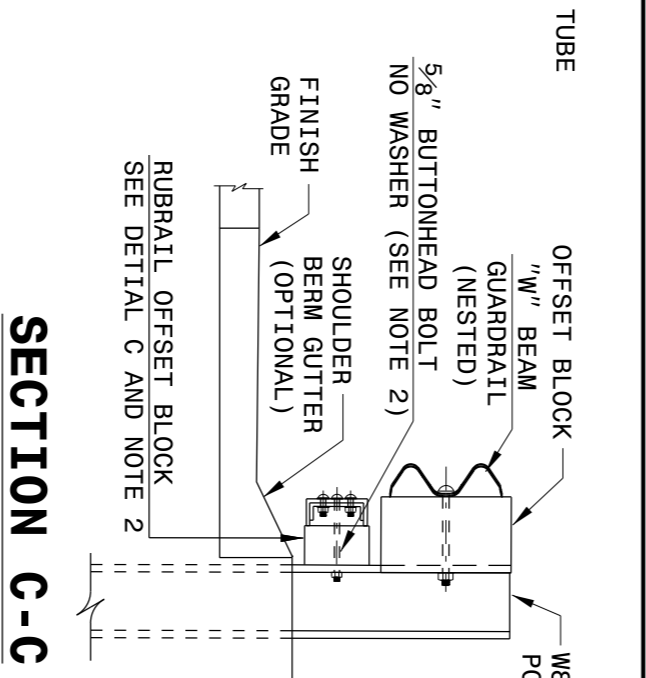
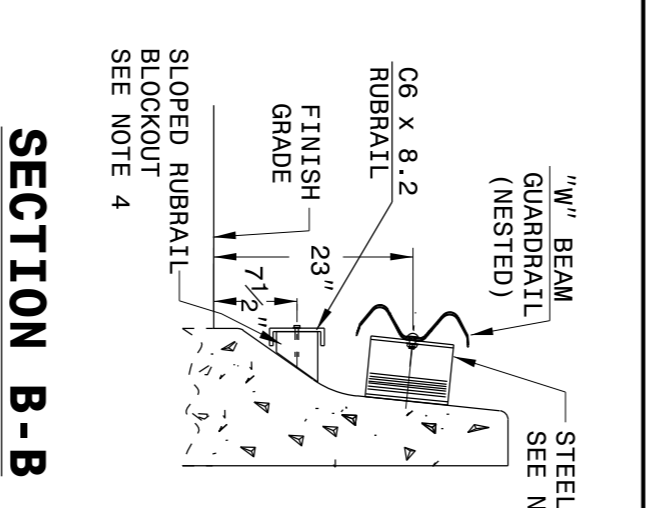
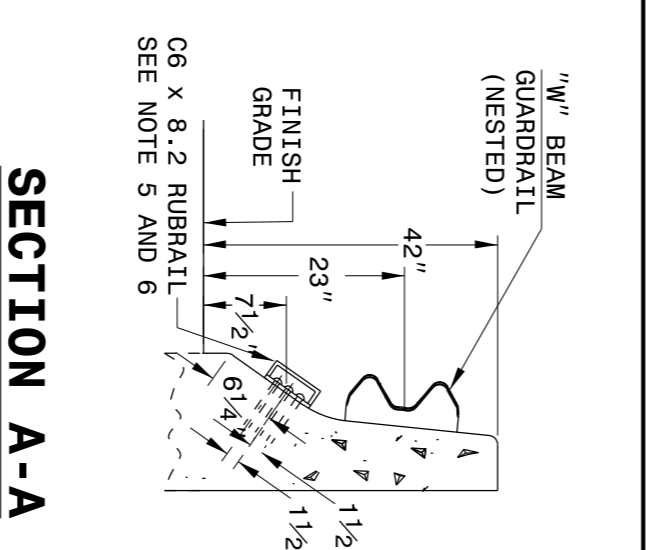
ENGLISH DETAIL DRAWING FOR GUARDAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER

SHEET 4 OF 7 862D003

ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER

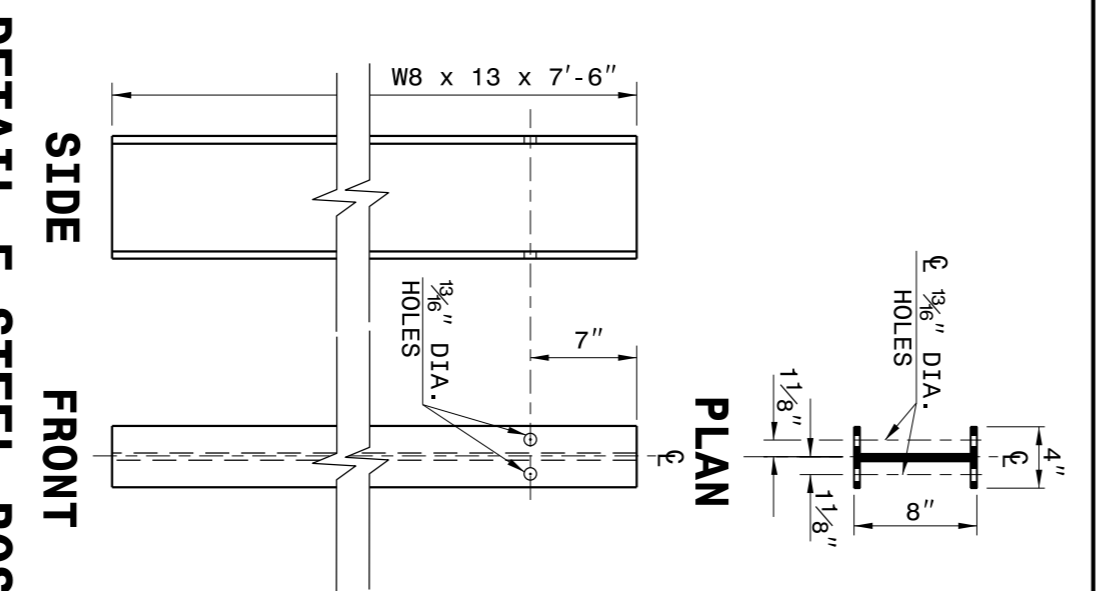
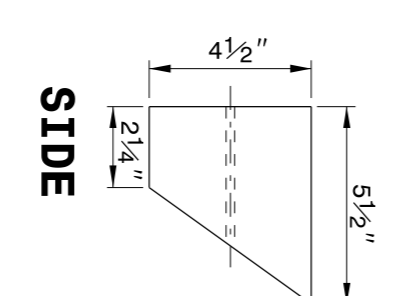
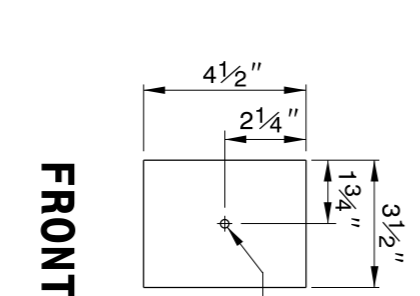
SHEET 4 OF 7 862D003

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



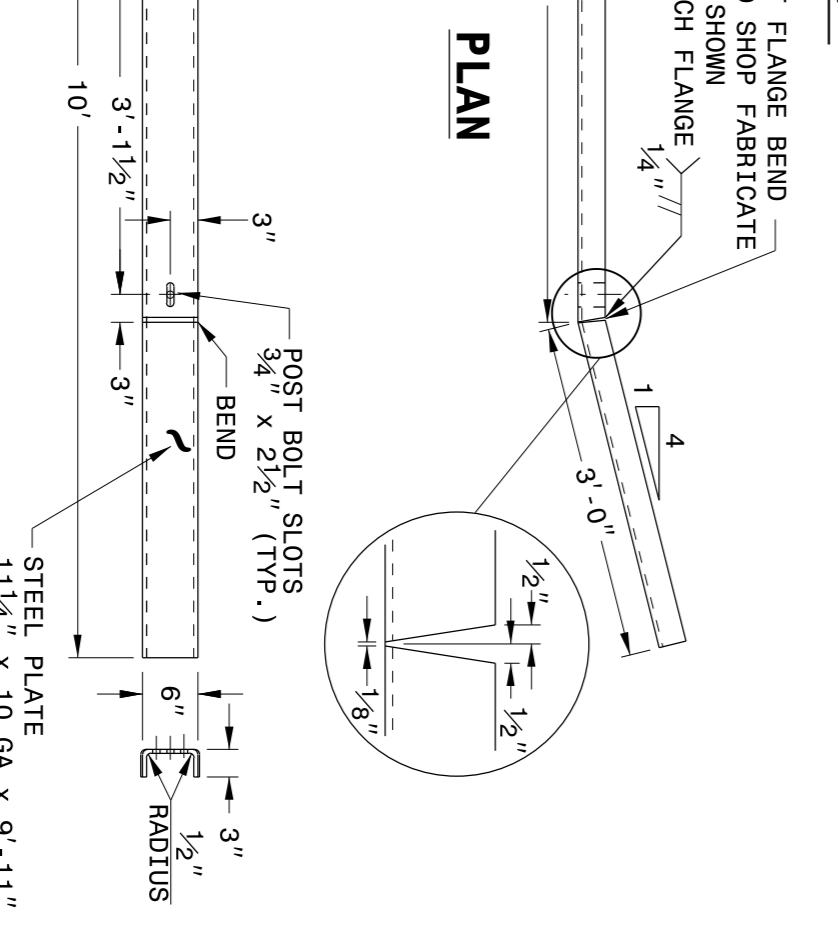
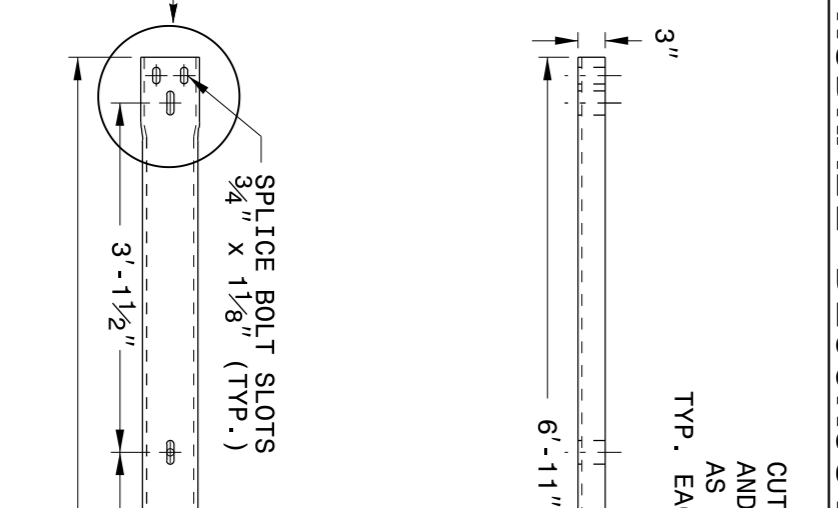
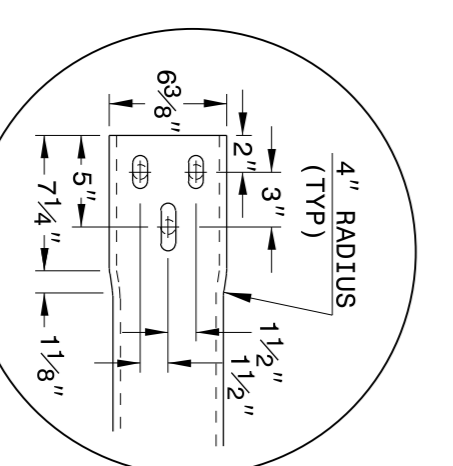
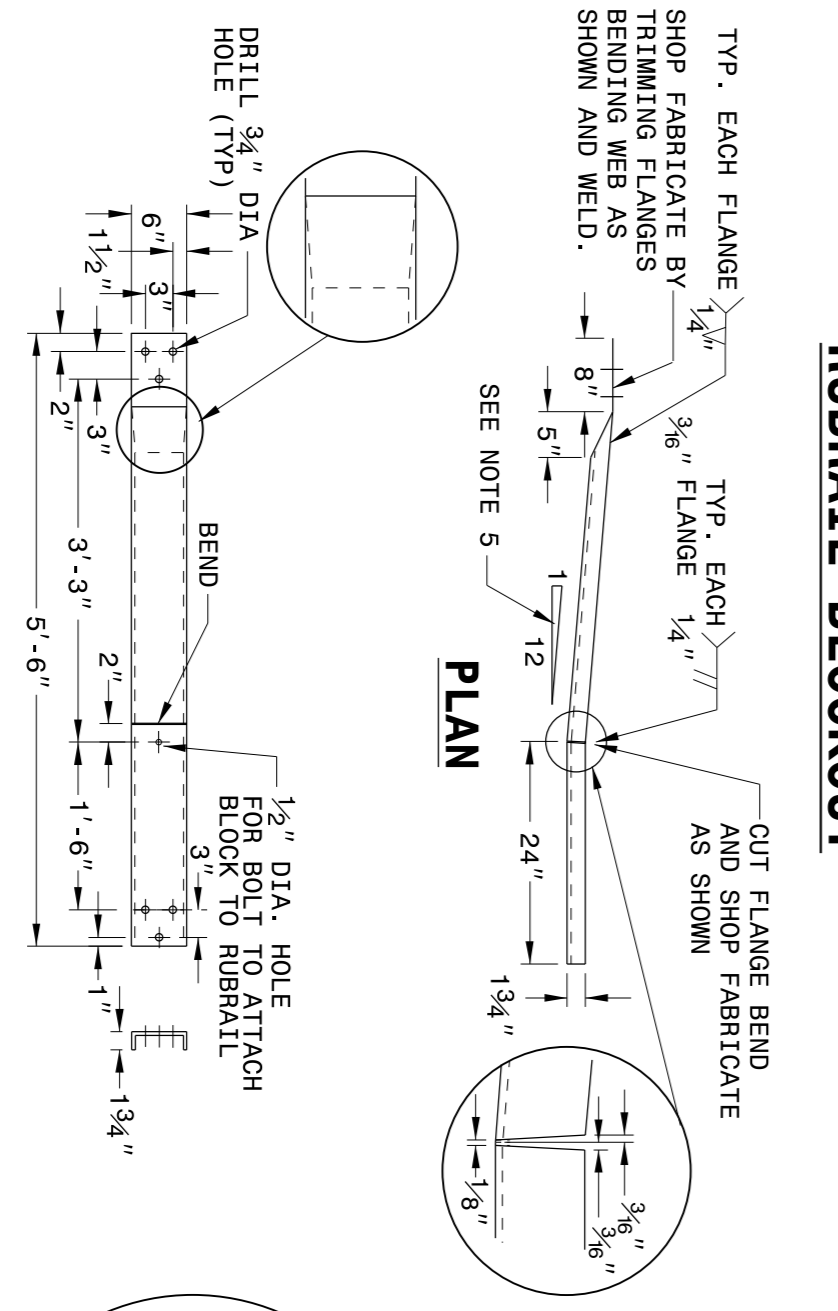
POST	THICKNESS	BOLT LENGTH
(1)	4 1/4"	9"
(2)	3 1/4"	5"*
(3)	2"	6"
(4)	1"	3"*

\* BOLTS FOR POSTS 3 AND 4 ARE USED TO ATTACH BLOCKOUT TO RUBRAIL.



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

ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT FOR F-SHAPE BARRIER



SHEET 5 OF 7 862D003

ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER

SHEET 5 OF 7 862D003

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

SEE TITLE BLOCK

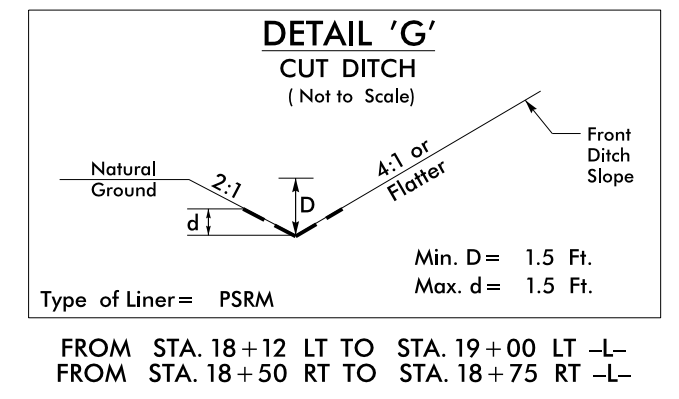
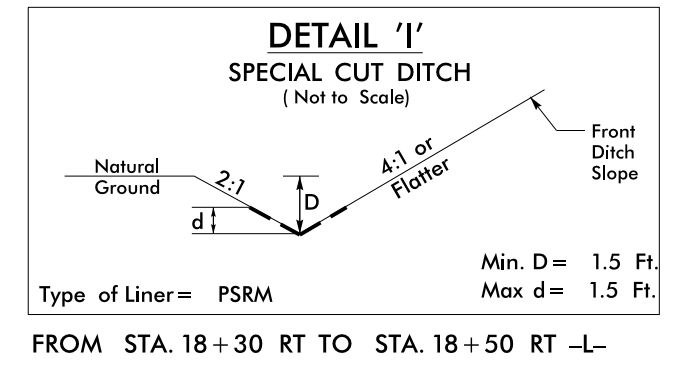
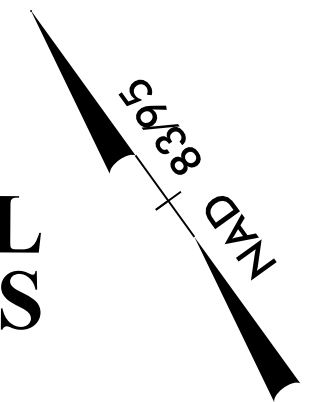
ORIGINAL BY: J. HOWERTON DATE: 06-22-12  
MODIFIED BY: DATE:  
CHECKED BY: DATE:  
FILE SPEC.: DATE:

DocuSigned by: Joel S. Howerton 7/6/2016  
873F301D7DC04CF...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

\*\*\*\*\*UNCLASSIFIED\*\*\*\*\*  
\*\*\*\*\*NO FORN DISSEM\*\*\*\*\*  
\*\*\*\*\*COMMITTEE USE\*\*\*\*\*  
\*\*\*\*\*NO FORN DISSEM\*\*\*\*\*  
\*\*\*\*\*UNCLASSIFIED\*\*\*\*\*

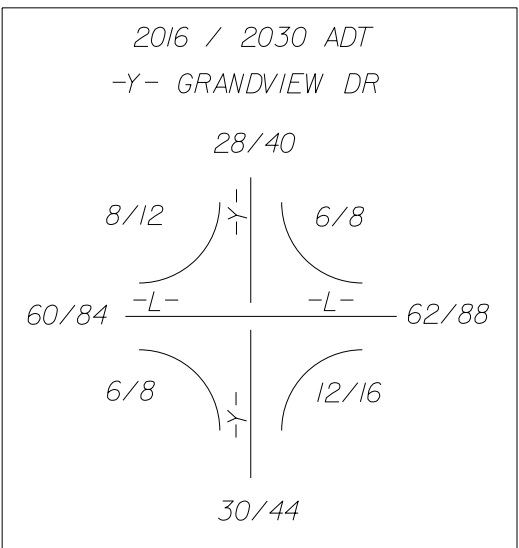
# SITE GRADING DETAIL PROPOSED CONTOURS



-L-  
PI Sta 16+36.99  
Δ = 33' 19" 51" (LT)  
D = 5' 00" 00.0"  
L = 666.62'  
T = 343.04'  
R = 1,145.92'  
SE = .04

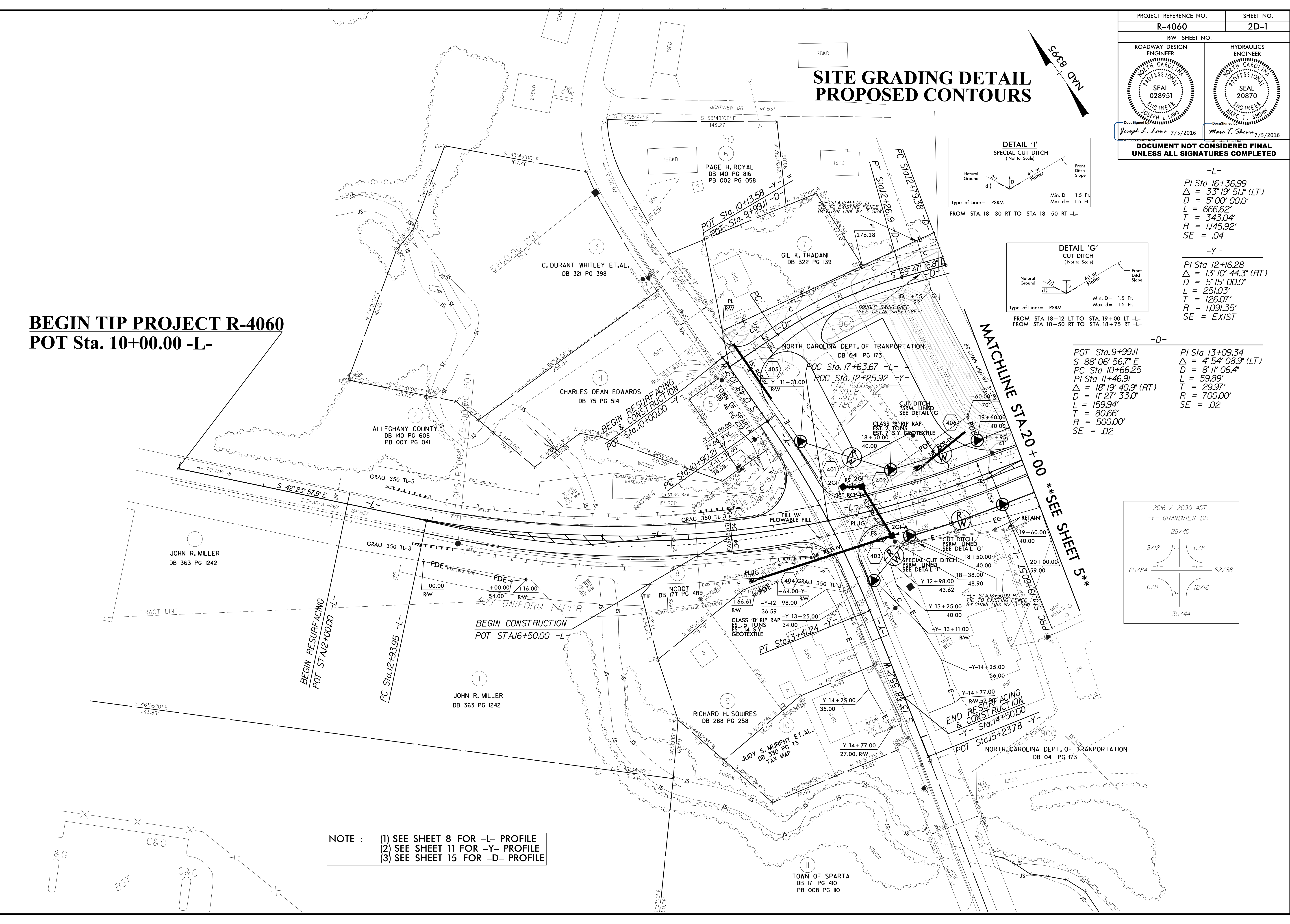
-Y-  
PI Sta 12+16.28  
Δ = 13' 10" 44.3" (RT)  
D = 5' 15" 00.0"  
L = 251.03'  
T = 126.07'  
R = 1,091.35'  
SE = EXIST

-D-  
PI Sta 13+09.34  
Δ = 4' 54" 08.9" (LT)  
D = 8' 11" 06.4"  
L = 59.89'  
T = 29.97'  
R = 700.00'  
SE = .02



**BEGIN TIP PROJECT R-4060**  
**POT Sta. 10+00.00 -L-**

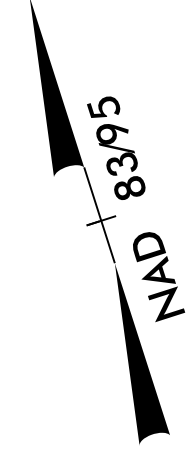
8/17/99  
95-31116-2016\_06i25 - Revised\p\ansheet\ts\psh\_shee2D-1 - SITE DETAIL.dgn  
3:58:51 USER:WALDEE



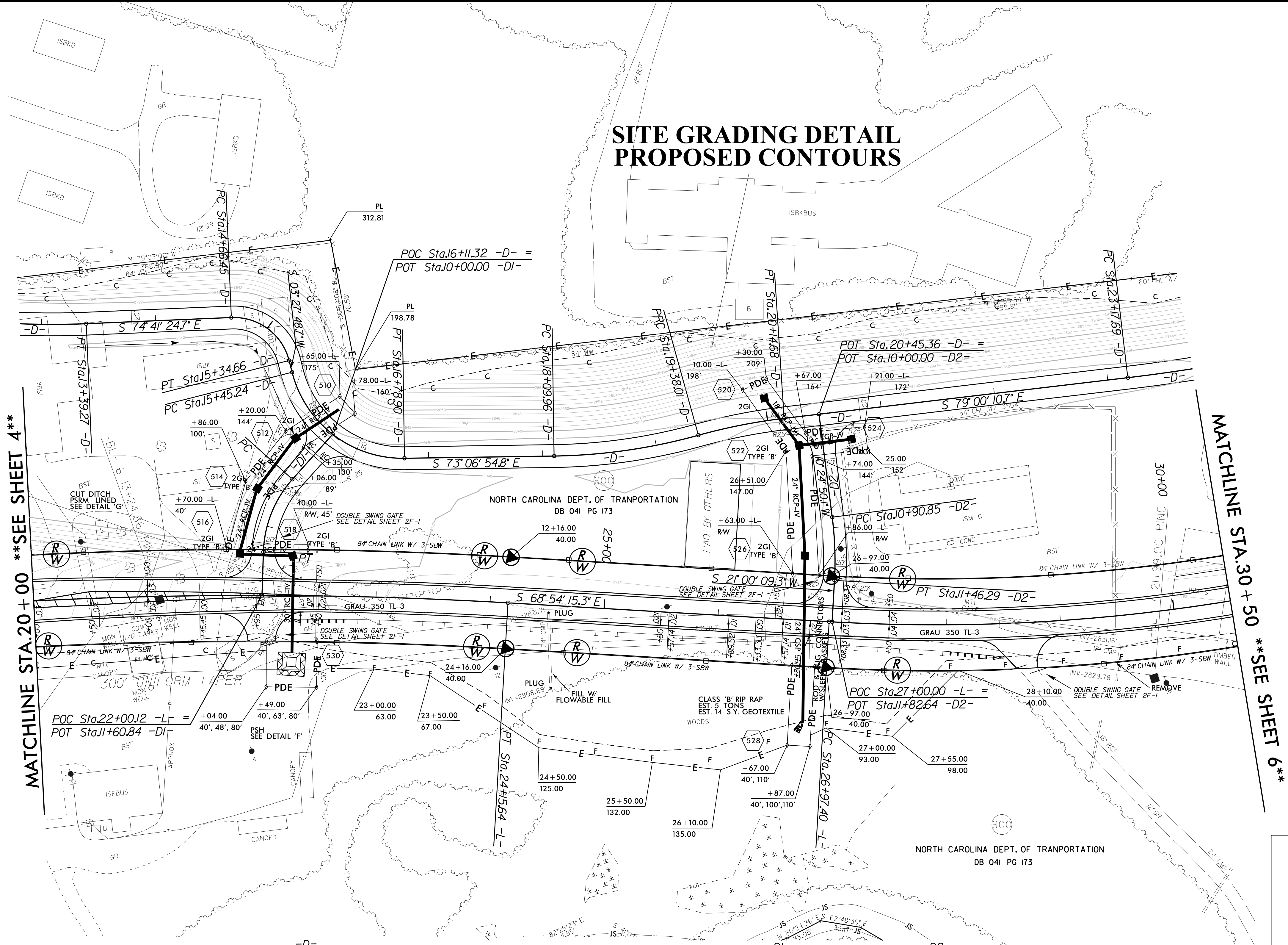
**NOTE :**

- (1) SEE SHEET 8 FOR -L- PROFILE
- (2) SEE SHEET 11 FOR -Y- PROFILE
- (3) SEE SHEET 15 FOR -D- PROFILE

**\*\*SEE SHEET 5\*\***

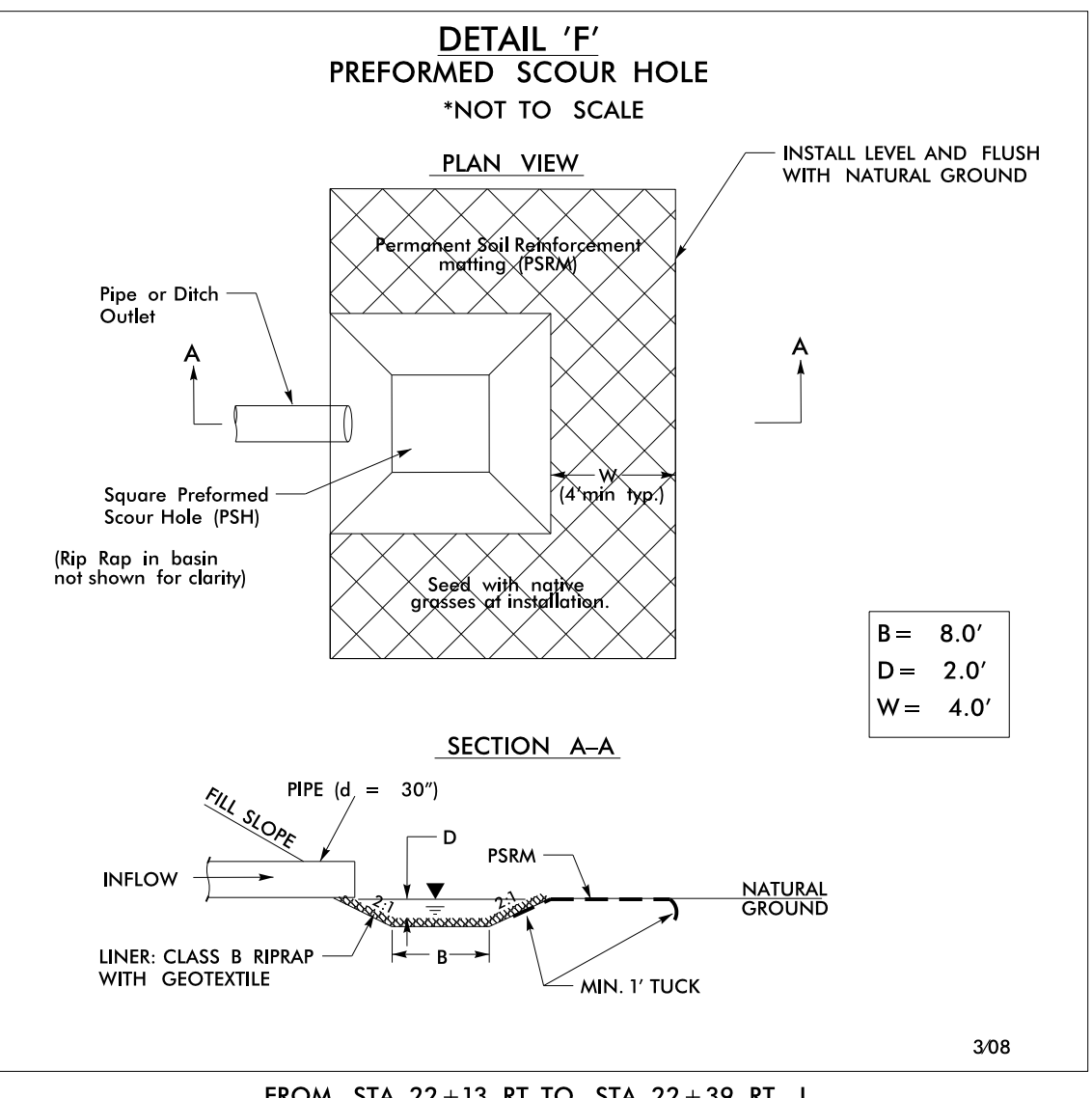
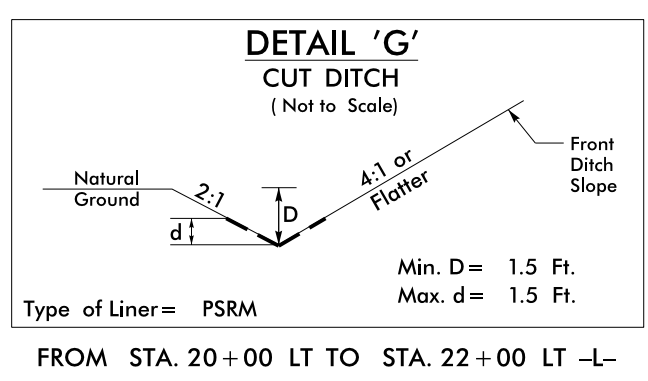


# SITE GRADING DETAIL PROPOSED CONTOURS



MATCHLINE STA. 20 + 00 \*\*SEE SHEET 4\*\*

MATCHLINE STA. 30 + 50 \*\*SEE SHEET 6\*\*



PI Sta 13+09.34 Δ = 4° 54' 08.9" (LT) D = 8' 11" 06.4" L = 59.89' T = 29.97' R = 700.00' SE = .02	PI Sta 15+07.05 Δ = 78° 09' 13.4" (RT) D = 114' 35" 29.6" L = 68.20' T = 40.60' R = 50.00' SE = .02	PI Sta 16+24.19 Δ = 76° 34' 43.5" (LT) D = 57' 17" 44.8" L = 133.66' T = 78.95' R = 100.00' SE = .02	PI Sta 18+74.34 Δ = 14° 40' 23.5" (LT) D = 11' 27" 33.0" L = 128.05' T = 64.38' R = 500.00' SE = .02	PI Sta 19+76.42 Δ = 8° 47' 07.5" (RT) D = 11' 27" 33.0" L = 76.67' T = 38.41' R = 500.00' SE = .02	PI Sta 24+23.74 Δ = 08° 05' 17.3" (LT) D = 3' 49" 11.0" L = 211.75' T = 106.05' R = 1,500.00' SE = .02
---	---	--	--	--	--

POT Sta 10+00.00 S 59° 33' 17.4" W PC Sta 10+52.89 PI Sta 10+89.36 Δ = 40° 03' 59.6" (LT) D = 57' 17" 44.8" L = 69.93' T = 36.46' R = 100.00' PT Sta 11+22.82 S 19° 29' 17.8" W POT Sta 11+60.84	PI Sta 11+18.65 Δ = 10° 35' 19.2" (RT) D = 3' 49" 54.9" L = 55.44' T = 27.80' R = 300.00'
---	--

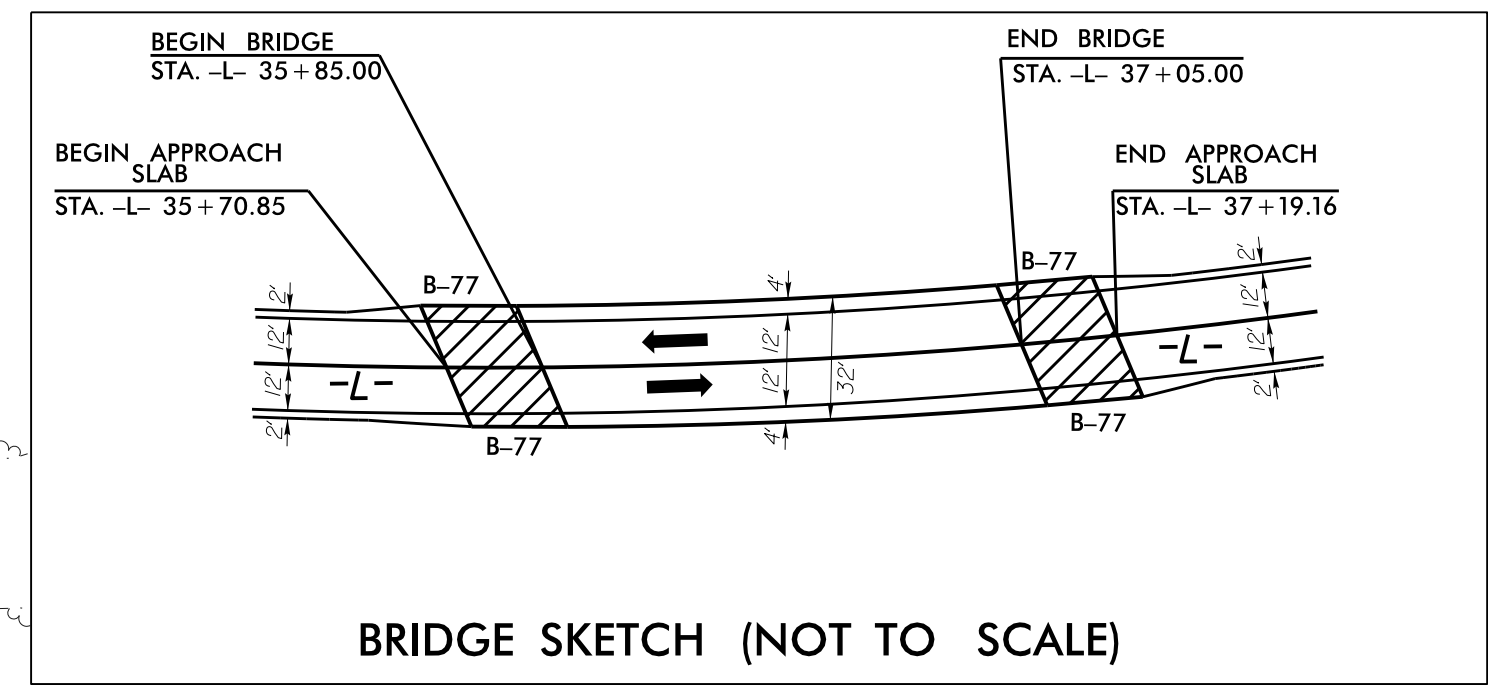
**NOTE :** (1) SEE SHEETS 8 & 9 FOR -L- PROFILE  
(2) SEE SHEET 15 FOR -D- PROFILE  
(3) SEE SHEET 16 FOR -D1- PROFILE  
(4) SEE SHEET 17 FOR -D2- PROFILE

-L-	PI Sta 21+88.37 Δ = 6° 49' 33.6" (RT) D = 1' 30" 00.0" L = 455.07' T = 227.80' R = 3,819.72' SE = .04 RUNOFF=100'	PI Sta 33+90.26 Δ = 46° 49' 43.7" (LT) D = 3' 34" 51.6" L = 1,307.71' T = 692.86' R = 1,600.00' SE = .04 RUNOFF=48.4'
-----	--	--

8/17/99  
9/5/2016 09:26  
3:58:51 USER:MAJOR:SES

-Y1-		
PI Sta 16+60.81	PI Sta 20+86.13	PI Sta 22+90.78
$\Delta = 10^{\circ} 02' 34.3" (LT)$	$\Delta = 77^{\circ} 55' 39.9" (LT)$	$\Delta = 20^{\circ} 33' 03.6" (LT)$
D = 5' 43' 46.5"	D = 54' 34' 02.7"	D = 19' 05' 54.9"
L = 175.28'	L = 142.81'	L = 107.60'
T = 87.87'	T = 84.92'	T = 54.39'
R = 1,000.00'	R = 105.00'	R = 300.00'
SE = EXIST	SE = EXIST	SE = EXIST

-L-		-D-	
PI Sta 33+90.26	PI Sta 24+23.74		
$\Delta = 46^{\circ} 49' 43.7" (LT)$	$\Delta = 08^{\circ} 05' 17.3" (LT)$		
D = 3' 34' 51.6"	D = 3' 49' 11.0"		
L = 1,307.71'	L = 211.75'		
T = 692.86'	T = 106.05'		
R = 1,600.00'	R = 1,500.00'		
SE = .04	SE = .02		
RUNOFF = 48.4'			
PT Sta. 40+05.11			
N 64° 16' 01.0" E			

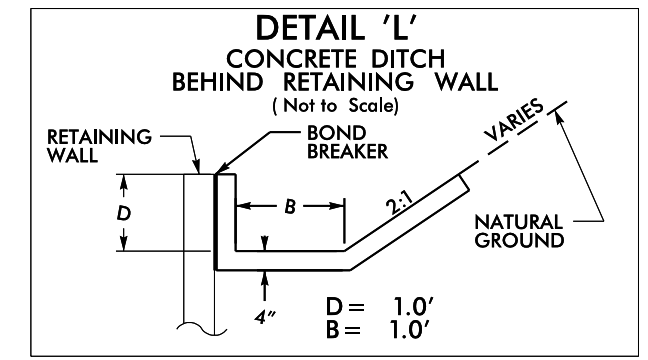


## SITE GRADING DETAIL PROPOSED CONTOURS

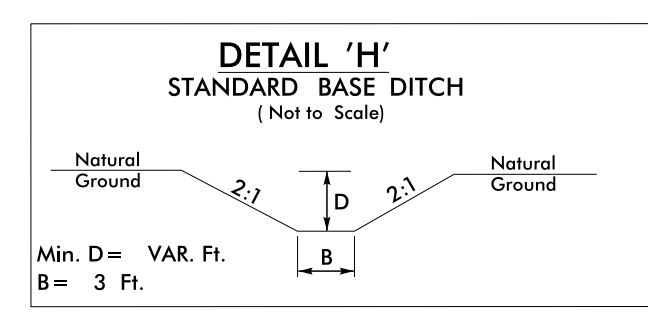
RETAINING WALL #1 : BEGINS AT STA. -L- 38+40 RT  
ENDS AT STA. -L- 40+30 RT

RETAINING WALL #2 : BEGINS AT STA. -L- 39+30 LT  
ENDS AT STA. -L- 42+85 LT

RETAINING WALL #5 : BEGINS AT STA. -L- 40+70 RT  
ENDS AT STA. -L- 41+95 RT



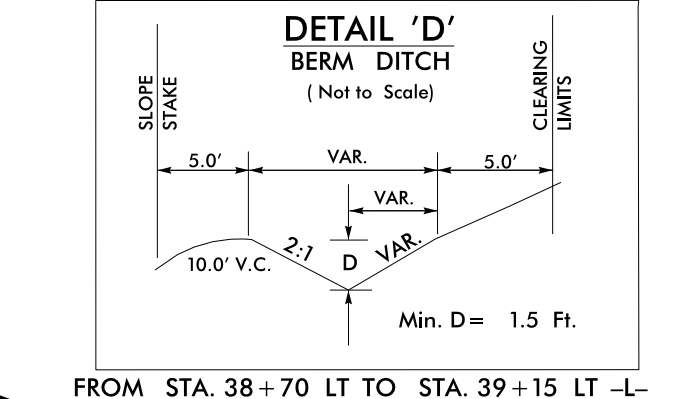
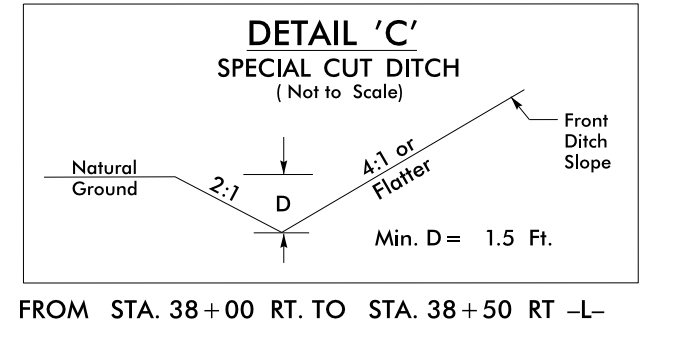
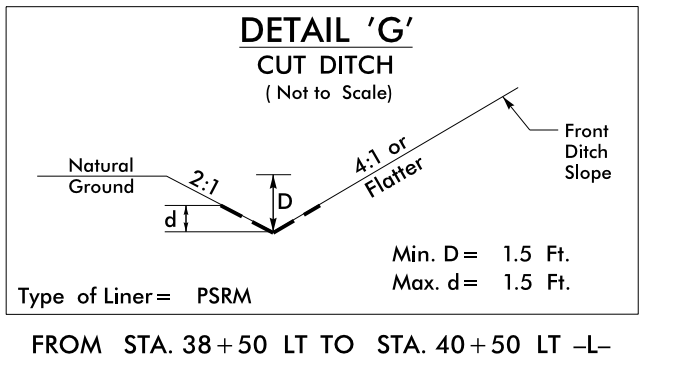
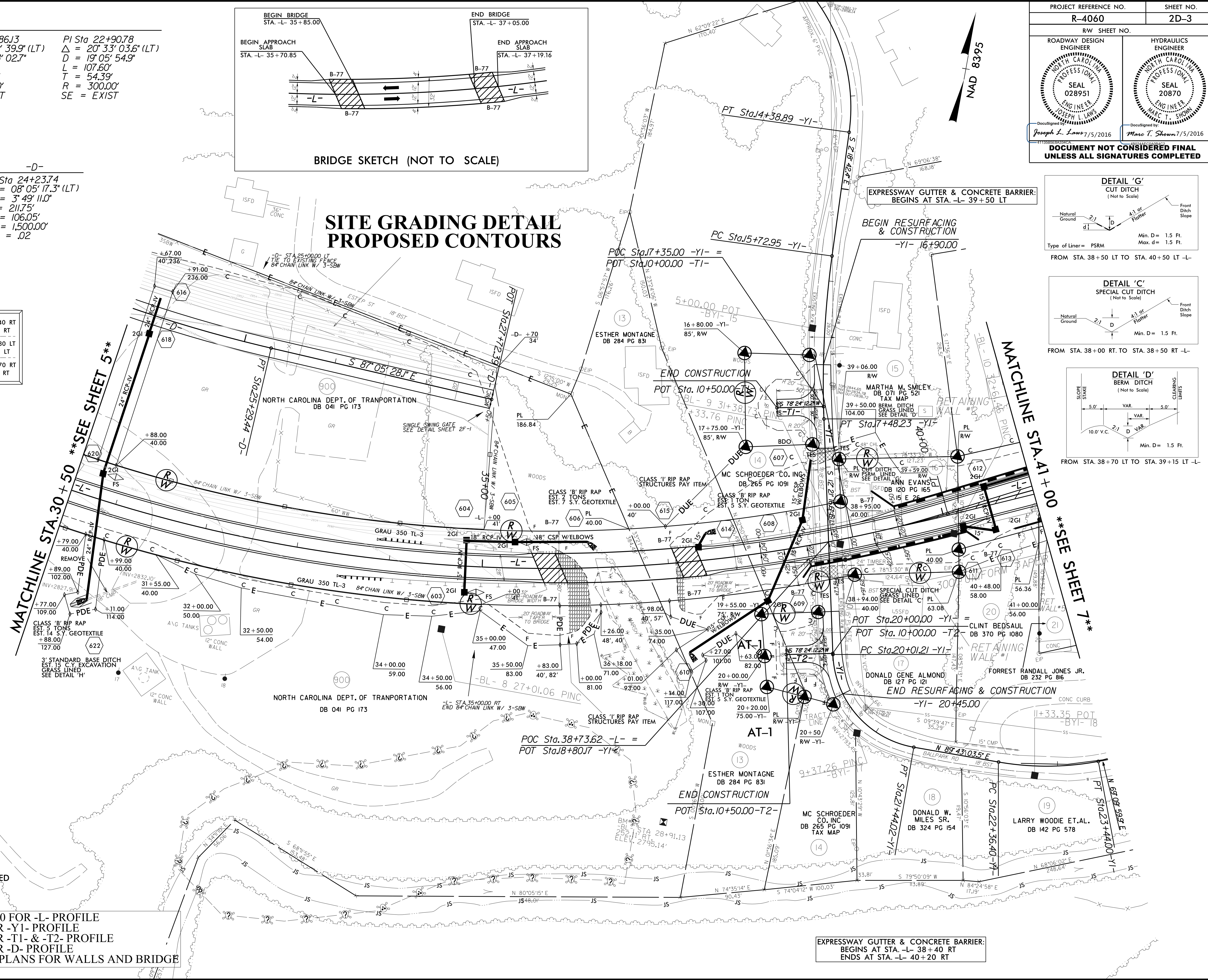
FROM STA. 38+50 TO STA. 40+20 -L- RT.  
FROM STA. 39+30 TO STA. 42+85 -L- LT.  
FROM STA. 40+70 TO STA. 41+95 -L- RT.



REMOVE  
+77.00  
+79.00  
+89.00  
+102.00  
+109.00  
+111.00  
+114.00  
+127.00

PAVEMENT TO BE REMOVED

NOTE : (1) SEE SHEETS 9 & 10 FOR -L- PROFILE  
(2) SEE SHEET 12 FOR -Y1- PROFILE  
(3) SEE SHEET 13 FOR -T1- & -T2- PROFILE  
(4) SEE SHEET 15 FOR -D- PROFILE  
(5) SEE STRUCTURE PLANS FOR WALLS AND BRIDGE



EXPRESSWAY GUTTER & CONCRETE BARRIER.  
BEGINS AT STA. -L- 38+40 RT  
ENDS AT STA. -L- 40+20 RT

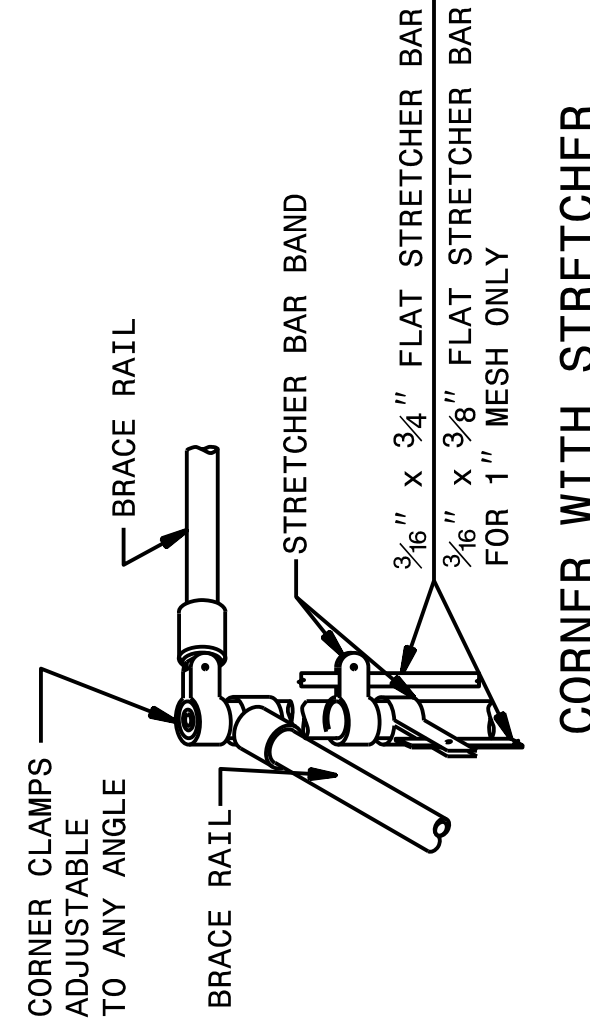
8/17/1995  
9/5/2016  
Revised: vp.lanshete\ts\psh\_shee2D-3 - SITE DETAIL.dgn



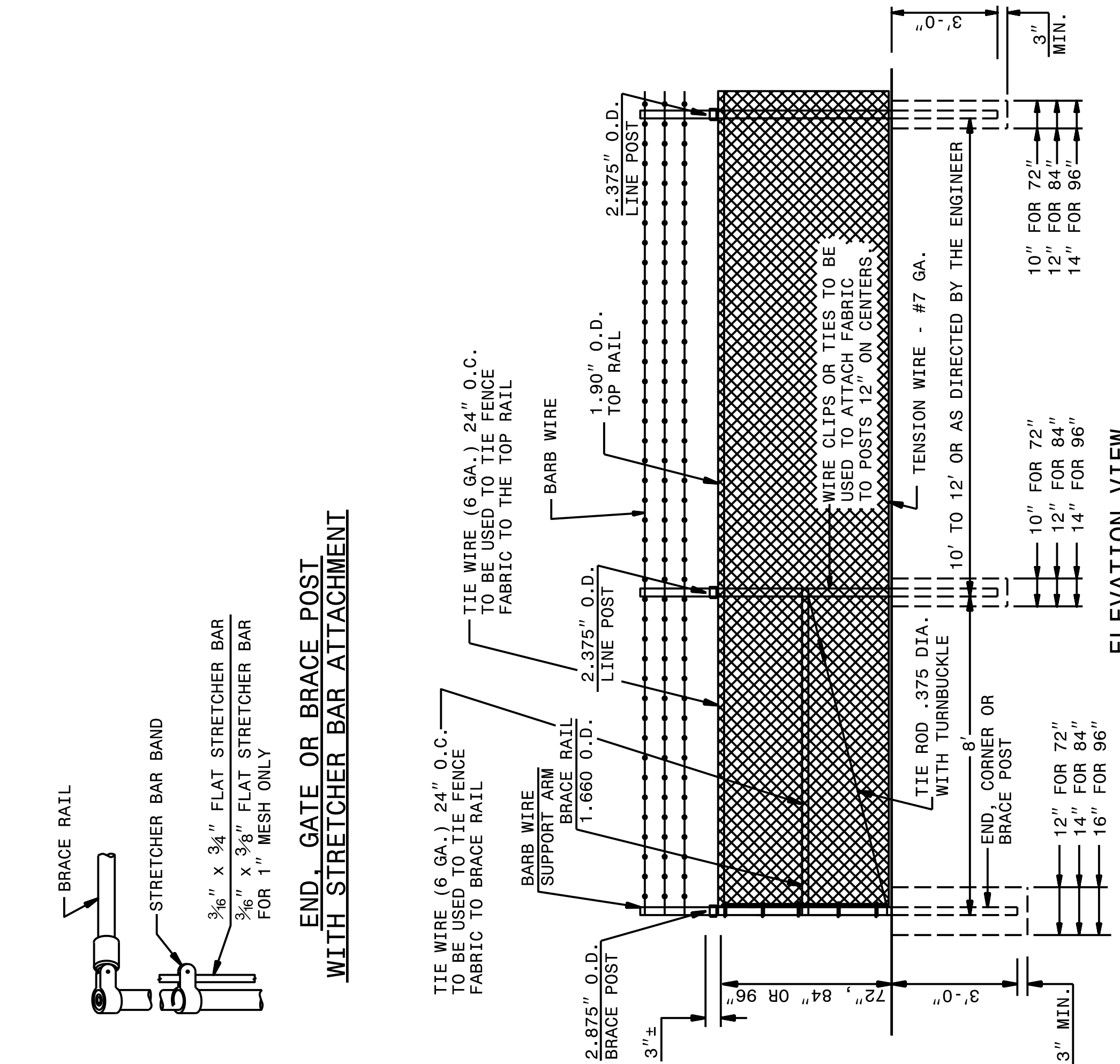
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
CHAIN LINK FENCE WITH BARBED WIRE  
6', 7' AND 8' HEIGHT

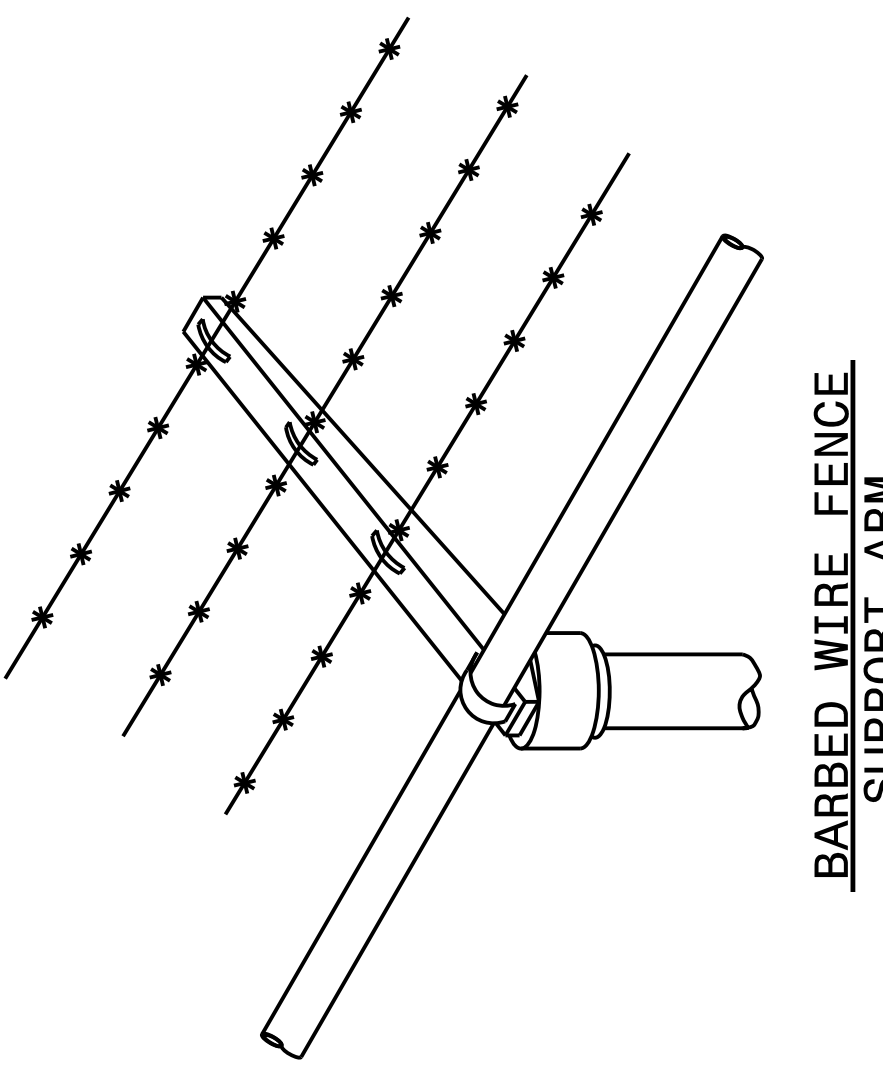
SHEET 1 OF 2  
fence4c1



CORNER WITH STRETCHER BAR ATTACHMENT



ELEVATION VIEW



BARBED WIRE FENCE SUPPORT ARM

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

ENGLISH DETAIL DRAWING FOR  
CHAIN LINK FENCE WITH BARBED WIRE  
6', 7' AND 8' HEIGHT

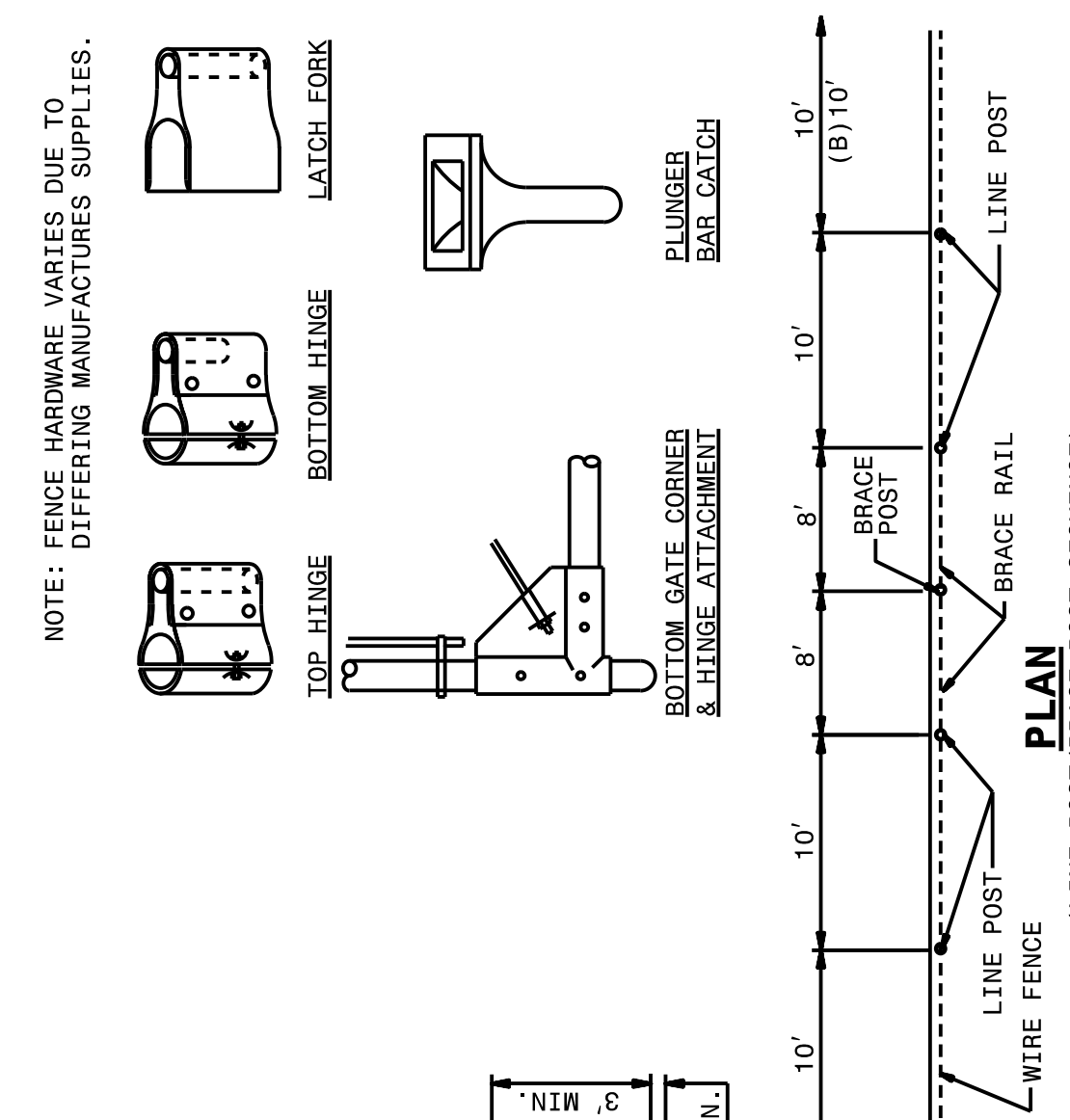
SHEET 1 OF 2  
fence4c1

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$SYSSNAME\$\$\$\$\$  
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\$\$\$\$\$SYSDRAWING\$\$\$\$\$  
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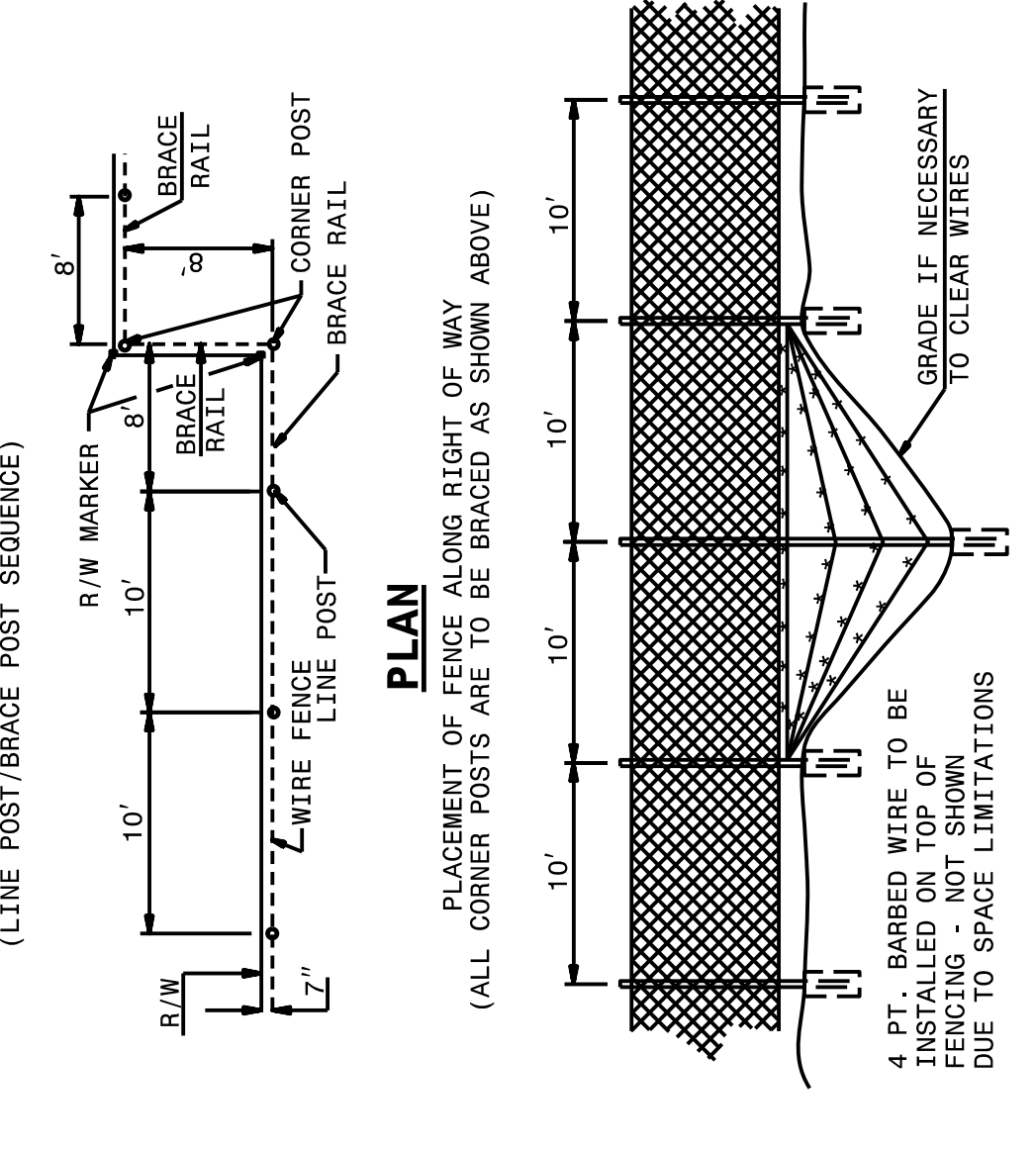
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
CHAIN LINK FENCE WITH BARBED WIRE  
6', 7' AND 8' HEIGHT

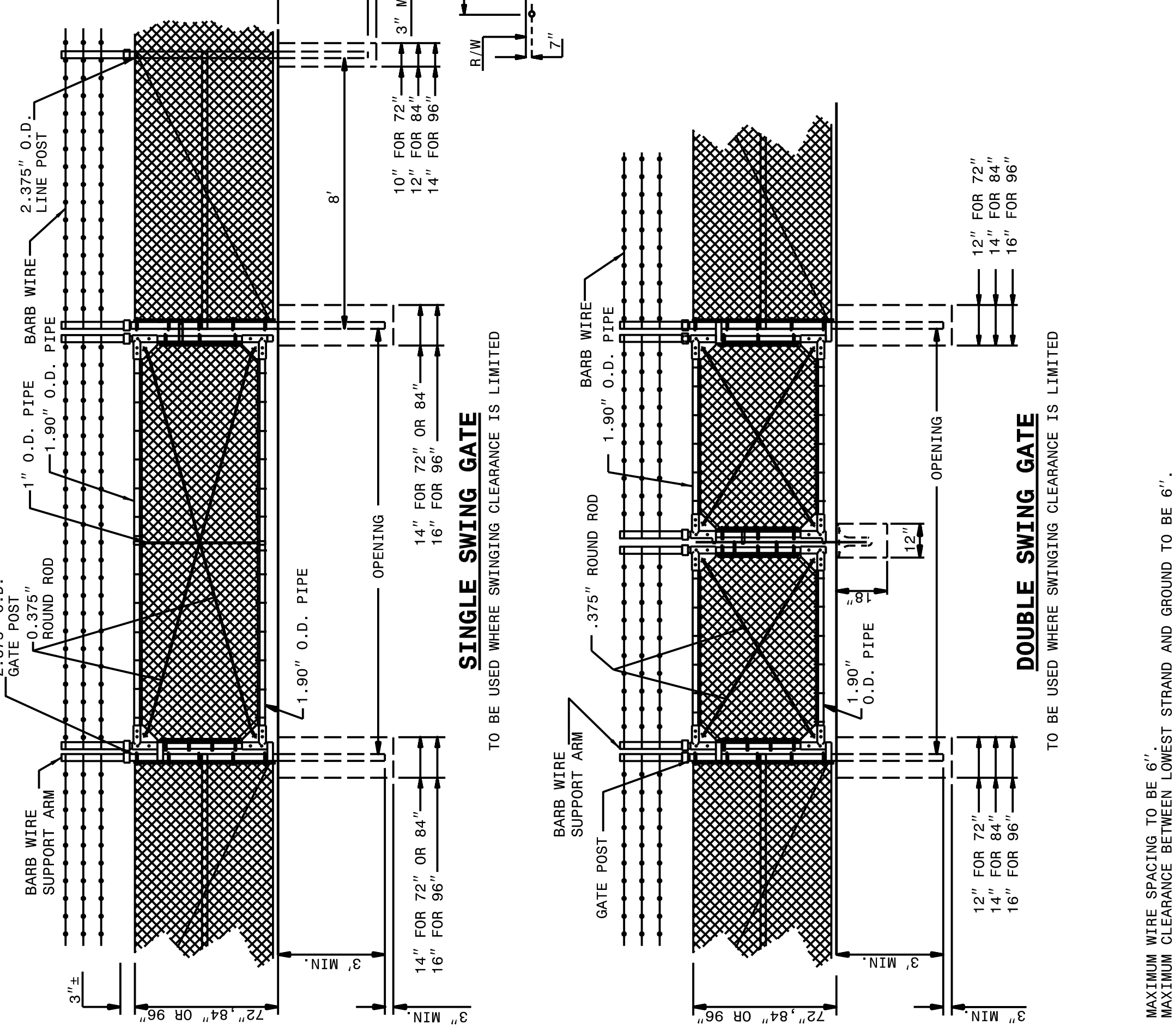
SHEET 2 OF 2  
fence4c1



NOTE: FENCE HARDWARE VARIES DUE TO DIFFERING MANUFACTURE SUPPLIES.



DETAIL OF DITCH CROSSING



SINGLE SWING GATE  
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED

DOUBLE SWING GATE  
TO BE USED WHERE SWINGING CLEARANCE IS LIMITED

MAXIMUM WIRE SPACING TO BE 6". MAXIMUM CLEARANCE BETWEEN LOWEST STRAND AND GROUND TO BE 6". BRACE POSTS SHALL BE ERECTED BETWEEN END, CORNER OR GATE POSTS AT INTERVALS NOT EXCEEDING 700' ON TANGENTS OR 350' ON SHORT RADIUS CURVES. ADDITIONAL BRACE POSTS SHALL BE ERECTED IF SO DIRECTED BY THE ENGINEER. BRACE POSTS SHALL BE BRACED FROM BOTH SIDES OF POST.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT  
Office 919-707-6950 FAX 919-250-4119  
**SEE PLATE FOR TITLE**  
ORIGINAL BY: N.T. KEGLERS DATE: MAR. 11, 1996  
MODIFIED BY: DATE:  
CHECKED BY: DATE:  
FILE SPEC.: DATE:

SHEET 2 OF 2  
fence4c1







COMPUTED BY: DLH DATE: 04/20/2016  
 CHECKED BY: DON DATE: 5-3-2016

PROJECT NO. R-4060 SHEET NO. 3-C

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK  
 [IN CUBIC YARDS]

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 16+50.00	18+00.00	306	230	--	810
-Y- 11+00.00	13+50.00 LT	553	87	--	466
-Y- 11+00.00	13+50.00 RT	192	130	--	62
<b>SUBTOTAL:</b>		1,051	447	--	1,338
-D- 10+11.50	27+72.39	47,857	128	--	47,729
-L- 18+00.00	35+85.00	71,742	34,830	--	36,912
<b>SUBTOTAL:</b>		119,599	34,958	--	84,641
-L- 37+05.00	38+50.00	3,126	527	--	2,599
-T1- 10+10.00	10+50.00	277	--	--	277
-T2- 10+10.00	10+50.00	141	13	--	128
<b>SUBTOTAL:</b>		3,544	540	--	3,004
-L- 38+50.00	44+00.94	11,839	1,208	--	10,631
-Y2- 13+00.00	22+00.00 LT	1,114	217	--	897
-Y2- 13+00.00	22+00.00 RT	2,450	198	--	2,252
<b>SUBTOTAL:</b>		15,403	1,623	--	13,780
<b>PROJECT TOTALS:</b>		139,597	37,568	--	102,763
ADDITIONAL UNDERCUT			920	920	800
ROCK WASTE TO REPLACE BORROW				-777	-777
ELIMINATE EARTH SHRINKAGE			-117	-117	
WASTE IN LIEU OF BORROW			-26	-26	
<b>GRAND TOTALS:</b>		139,597	38,371	--	102,760
<b>SAY:</b>		140,000			
SHALLOW UNDERCUT		150 CY			
SELECT GRANULAR MATERIAL		1,755 CY			
SHOULDER BORROW		2,300 CY			
EST. DRAINAGE DTICH EXCAVATION		20 CY			

UNDERCUT BY STATION RANGE TO BE FILLED BY SELECT GRANULAR MATERIAL

ASPHALT PAVEMENT REMOVAL SUMMARY  
 [IN CUBIC YARDS]

SURVEY LINE	Station	Station	LOCATION	AREA	YD <sup>2</sup>
-L-	16+50	17+59	RT	242.81	26.98
-L-	16+50	17+81	CL	4995.38	555.04
-Y1-	17+80	19+19	CL	2426.63	269.63
-Y2-	17+38	17+80	LT	1435.14	159.46
-L-	42+48	44+14	RT	2607.18	289.69
<b>PROJECT TOTAL:</b>				1,300.79	
<b>SAY:</b>				1,310	

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

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

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL  
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
 G = GATING IMPACT ATTENUATOR TYPE 350  
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH		W		ANCHORS						IMP. ATTN. TYPE 350	REMOVE EXISTING ANCHOR	REMOVE EXISTING GRDRAIL	REMARKS				
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	XI	III	GRAU 350	XII	B-77	AT-1					TES			
-L-	12+83.00	17+45.50	RT	462.5			13+33.00	16+95.50	8	11	50	50	1	1					2				388	REMOVE & REPLACE EXISTING GUARDRAIL				
-L-	12+40.00	16+65.00	LT	425			12+90.00	16+15.00	8	11	50	50	1	1					2				362	REMOVE & REPLACE EXISTING GUARDRAIL				
-L-	22+25.00	28+50.00	RT	625			22+75.00	28+00.00	8	11	50	50	1	1					2									
-L-	33+46.75	35+90.50	RT	243.75			35+90.50		4	11	225		4.5						1		1				TIE TO BRIDGE ON TRAILING END			
-L-	33+84.59	35+78.34	LT	193.75				35+78.34	4	11		175		3.5					1		1				TIE TO BRIDGE ON APPROACH END			
-L-	37+12.50	38+50.00	RT	137.5			37+12.50	38+50.00	8	11										2					TIE TO BRIDGE ON APPROACH END; TIE TO CONCRETE BARRIER ON TRAILING END			
-L-	37+00	39+50.00	LT	250			39+50.00	37+00.00	8	11										2					TIE TO CONCRETE BARRIER ON APPROACH END; TIE TO BRIDGE ON TRAILING END			
-Y1-	19+85.00	20+45.00	RT	62.5	37.5		19+85.00	20+45.00	4	7										2								
-L-	40+20.00	42+51.25	RT	231.25			40+20.00	42+01.25	8	11		50		1					1		1				TIE TO CONCRETE BARRIER ON APPROACH END			
-Y2-	14+93.75	17+75.00	LT	281.25			17+75.00	15+18.75	6	11		25		0.5					1		1		186	REMOVE & REPLACE EXISTING GUARDRAIL; TIE TO CONCRETE BARRIER ON APPROACH END; GRAU 350 TL-2 USED HERE				
-Y2-	17+32.00	19+94.50	LT	175	87.5		19+94.50	17+32.00	2	5										2					GUARDRAIL @ THIS STATION IS LOCATED OFF OF RIVER VIEW			
-L-	42+75.00	42+96.00	LT				42+75.00												1			X			PLACE ATTENUATOR @ Sta. -L-42+75.00 LT			
-Y2-	21+00.00	21+21.00	LT				21+00.00												1			X			PLACE ATTENUATOR @ Sta. -Y2-21+00.00 LT			
-Y1-	17+79.00	17+79.00	CL	25			17+79.00													2								
-Y1-	19+18.50	19+18.50	CL	25			19+18.50													2								
LESS INCLUDED ANCHOR DEDUCTIONS																												
AT-1 4 @ 6.25'				=	-25																							
B-77 8 @ 18.75'				=	-150																							
GRAU 350 TL-3 9 @ 50.0'				=	-450																							
GRAU 350 TL-2 1 @ 25.0'				=	-25																							
<b>Project Subtotal</b>					<b>2487.5</b>	<b>125</b>																		<b>936</b>				
<b>Additional Guardrail Posts</b>						<b>15</b>																						
<b>PROJECT TOTAL NEW ANCHOR UNITS REQUIRED</b>													<b>10</b>		<b>8</b>		<b>4</b>		<b>4</b>		<b>2</b>							



COMPUTED BY: JPR MHS DATE: 6/15/2016  
 CHECKED BY: SCC DATE: 6/15/2016

(2-16-16)

PROJECT NO.  
R-4060

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
CONTINGENCY				SD	300
				<b>TOTAL LF:</b>	300

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

SUMMARY OF GEOTEXTILE  
 FOR PAVEMENT STABILIZATION

LINE	Station	Station	SY
-L-	22+00	28+00	2000
CONTINGENCY			
<b>TOTAL SY:</b>			2000

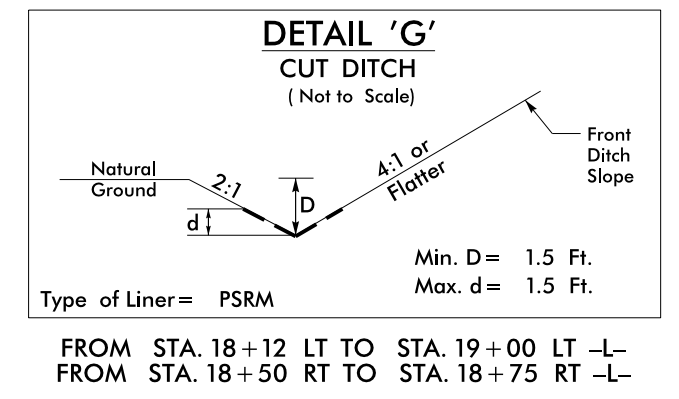
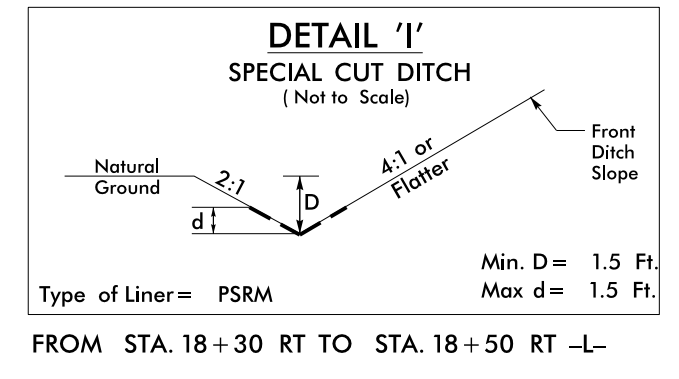
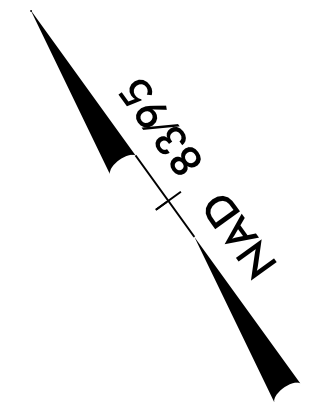
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

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
CONTINGENCY			ASU		150	250	300		
<b>TOTAL CY/TONS/SY:</b>					150	250	300**	0	0

\*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 BRIDGE WAITING PERIODS

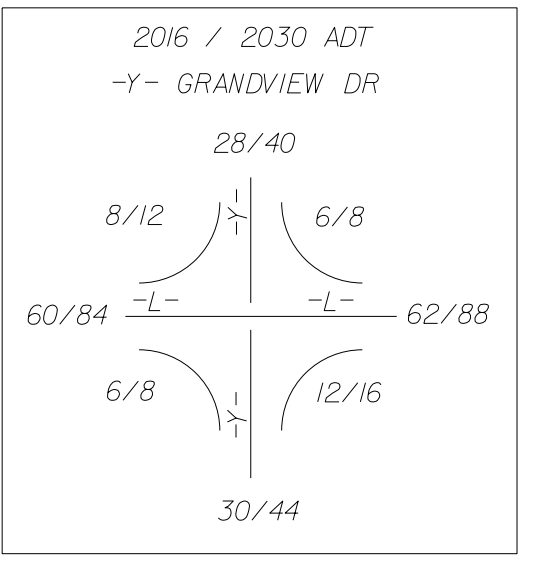
Bridge Description	End Bent/ Bent No.	MONTHS
35+85 to 37+10 -L-	End Bent 1	1
35+85 to 37+10 -L-	End Bent 2	1



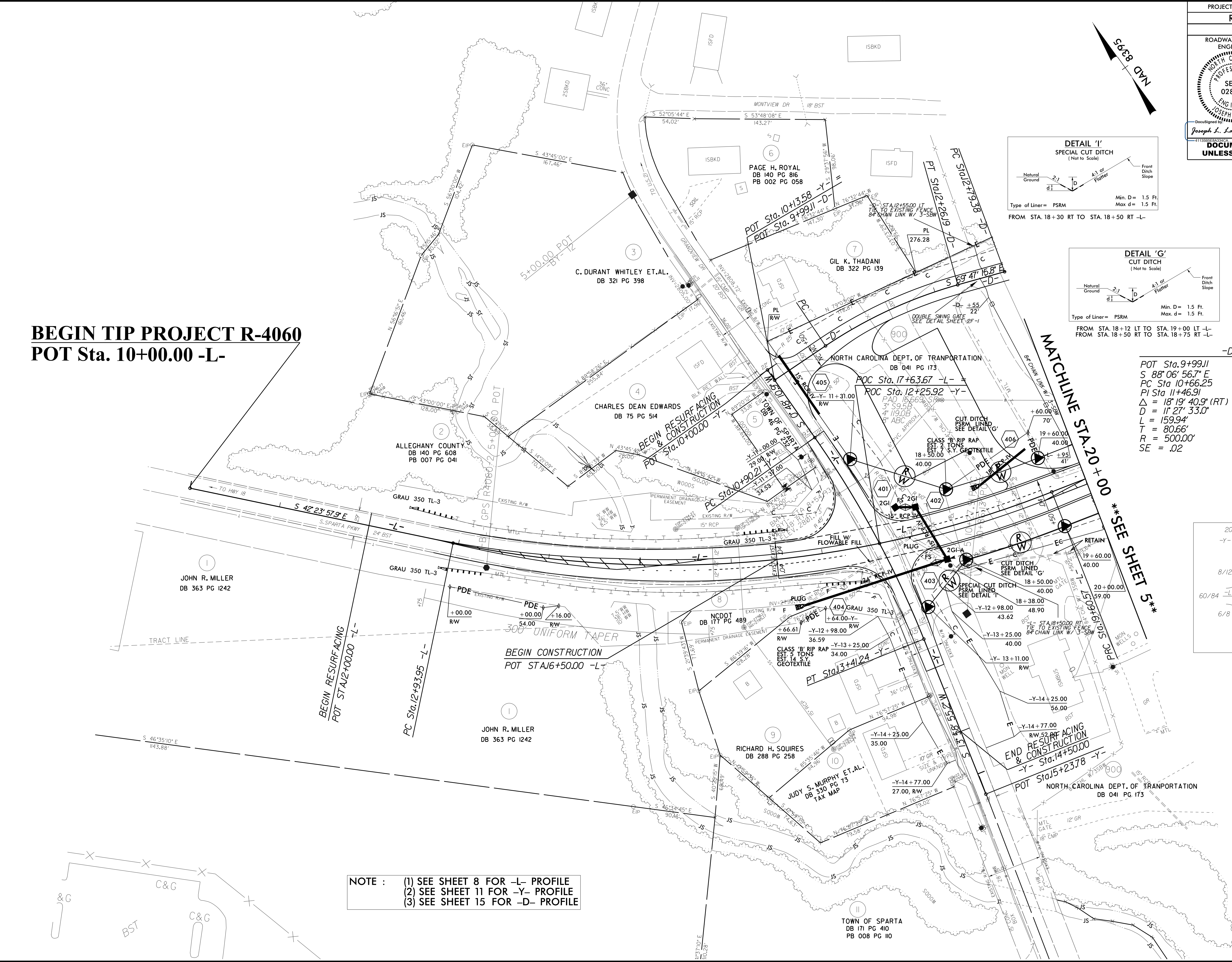
-L-  
PI Sta 16+36.99  
Δ = 33' 19" 51" (LT)  
D = 5' 00" 00.0"  
L = 666.62'  
T = 343.04'  
R = 1,145.92'  
SE = .04

-Y-  
PI Sta 12+16.28  
Δ = 13' 10" 44.3" (RT)  
D = 5' 15" 00.0"  
L = 251.03'  
T = 126.07'  
R = 1,091.35'  
SE = EXIST

-D-  
POT Sta. 9+99.11  
S 88° 06' 56.7" E  
PC Sta 10+66.25  
PI Sta 11+46.91  
Δ = 18' 19" 40.9" (RT)  
D = 1' 27" 33.0"  
L = 159.94'  
T = 80.66'  
R = 500.00'  
SE = .02



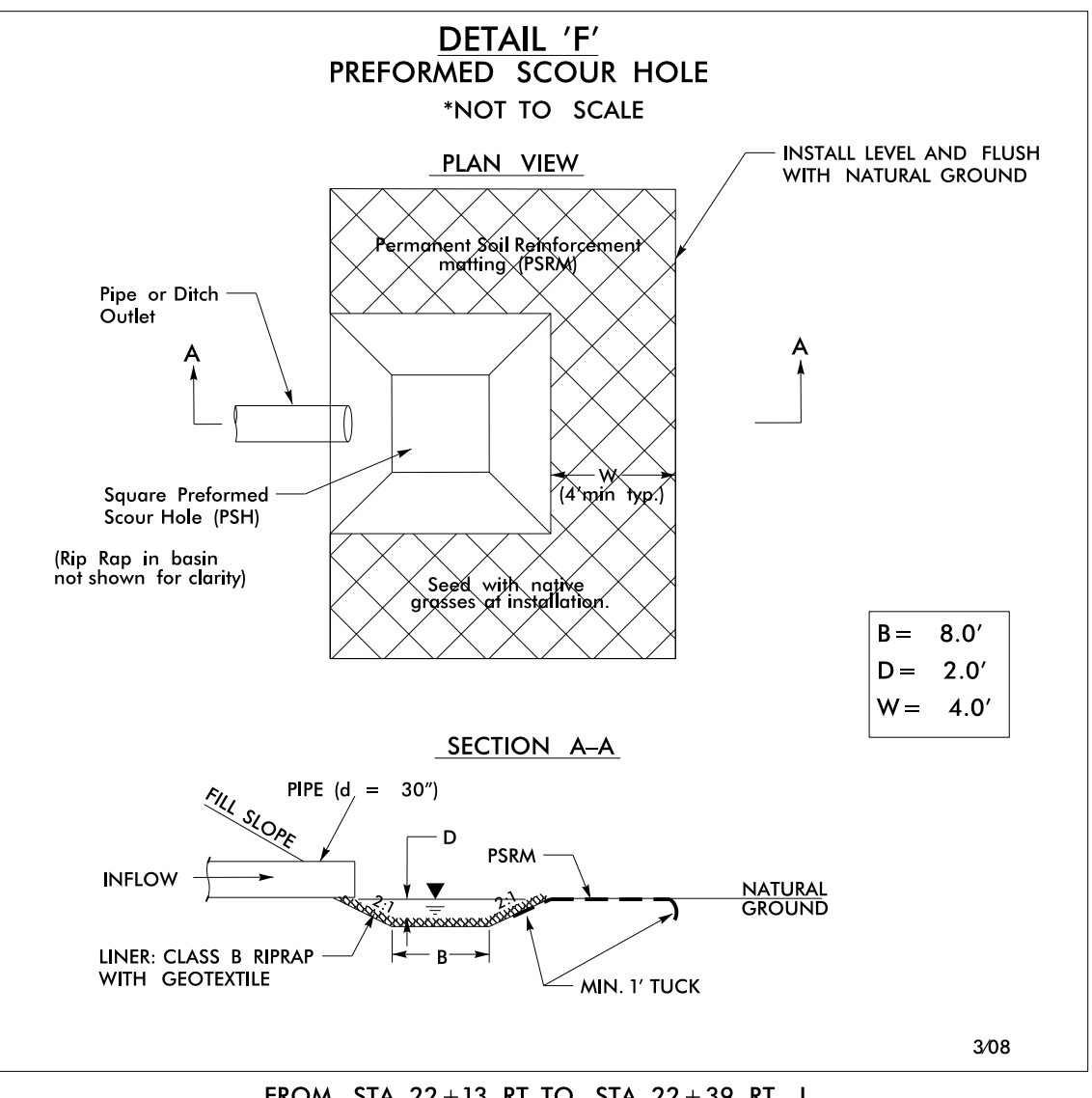
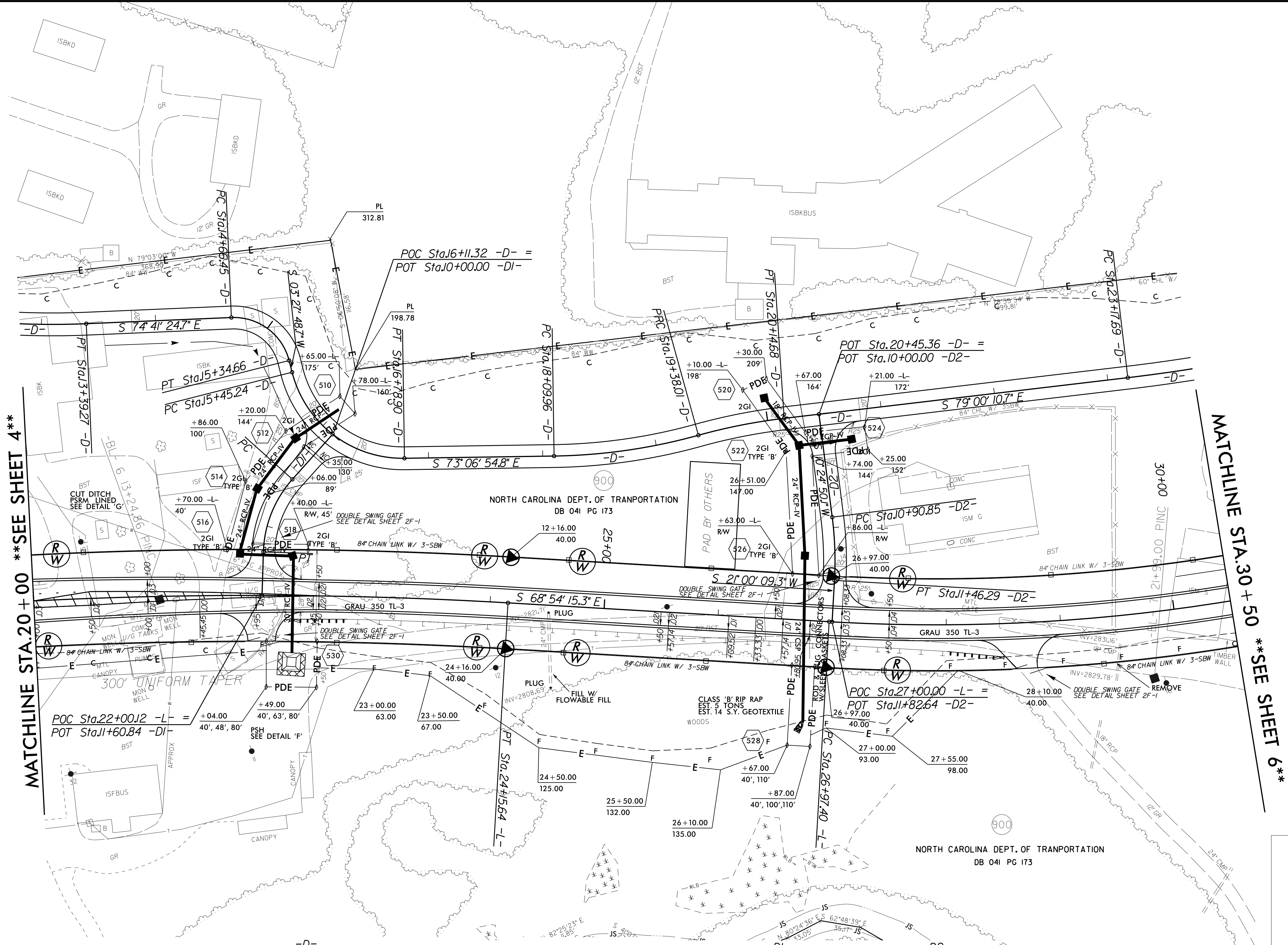
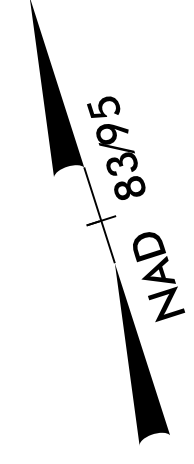
**BEGIN TIP PROJECT R-4060**  
**POT Sta. 10+00.00 -L-**



**NOTE :**

- (1) SEE SHEET 8 FOR -L- PROFILE
- (2) SEE SHEET 11 FOR -Y- PROFILE
- (3) SEE SHEET 15 FOR -D- PROFILE

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PI Sta 13+09.34 Δ = 4' 54" 08.9" (LT) D = 8' 11" 06.4" L = 59.89' T = 29.97' R = 700.00' SE = .02	PI Sta 15+07.05 Δ = 78' 09" 13.4" (RT) D = 114' 35" 29.6" L = 68.20' T = 40.60' R = 50.00' SE = .02	PI Sta 16+24.19 Δ = 76' 34" 43.5" (LT) D = 57' 17" 44.8" L = 133.66' T = 78.95' R = 100.00' SE = .02	PI Sta 18+74.34 Δ = 14' 40" 23.5" (LT) D = 11' 27" 33.0" L = 128.05' T = 64.38' R = 500.00' SE = .02	PI Sta 19+76.42 Δ = 8' 47" 07.5" (RT) D = 11' 27" 33.0" L = 76.67' T = 38.41' R = 500.00' SE = .02	PI Sta 24+23.74 Δ = 08' 05" 17.3" (LT) D = 3' 49" 11.0" L = 211.75' T = 106.05' R = 1,500.00' SE = .02
---	---	--	--	--	--

POT Sta 10+00.00 S 59' 33" 17.4" W PC Sta 10+52.89 PI Sta 10+89.36 Δ = 40' 03" 59.6" (LT) D = 57' 17" 44.8" L = 69.93' T = 36.46' R = 100.00' PT Sta 11+22.82 S 19' 29" 17.8" W POT Sta 11+60.84	PI Sta 11+18.65 Δ = 10' 35" 19.2" (RT) D = 3' 49" 54.9" L = 55.44' T = 27.80' R = 300.00'
---	--

NOTE: (1) SEE SHEETS 8 & 9 FOR -L- PROFILE  
 (2) SEE SHEET 15 FOR -D- PROFILE  
 (3) SEE SHEET 16 FOR -D1- PROFILE  
 (4) SEE SHEET 17 FOR -D2- PROFILE

-L-	PI Sta 21+88.37 Δ = 6' 49" 33.6" (RT) D = 1' 30" 00.0" L = 455.07' T = 227.80' R = 3,819.72' SE = .04 RUNOFF=100'	PI Sta 33+90.26 Δ = 46' 49" 43.7" (LT) D = 3' 34" 51.6" L = 1,307.71' T = 692.86' R = 1,600.00' SE = .04 RUNOFF=48.4'
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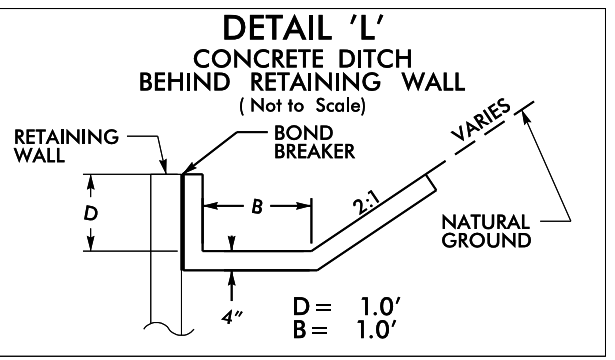
-Y1-		
PI Sta 16+60.81	PI Sta 20+86.13	PI Sta 22+90.78
$\Delta = 10^{\circ} 02' 34.3" (LT)$	$\Delta = 77^{\circ} 55' 39.9" (LT)$	$\Delta = 20^{\circ} 33' 03.6" (LT)$
$D = 5^{\circ} 43' 46.5"$	$D = 54^{\circ} 34' 02.7"$	$D = 19^{\circ} 05' 54.9"$
$L = 175.28'$	$L = 142.81'$	$L = 107.60'$
$T = 87.87'$	$T = 84.92'$	$T = 54.39'$
$R = 1,000.00'$	$R = 105.00'$	$R = 300.00'$
SE = EXIST	SE = EXIST	SE = EXIST

-L-		-D-	
PI Sta 33+90.26	PI Sta 24+23.74		
$\Delta = 46^{\circ} 49' 43.7" (LT)$	$\Delta = 08^{\circ} 05' 17.3" (LT)$		
$D = 3^{\circ} 34' 51.6"$	$D = 3^{\circ} 49' 11.0"$		
$L = 1,307.71'$	$L = 211.75'$		
$T = 692.86'$	$T = 106.05'$		
$R = 1,600.00'$	$R = 1,500.00'$		
SE = .04	SE = .02		
RUNOFF=48.4'			
PT Sta.40+05.11			
N 64°16'01.0" E			

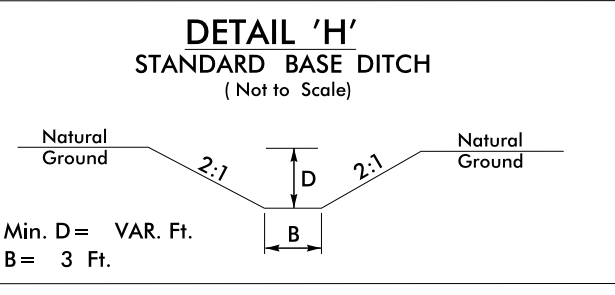
RETAINING WALL #1 : BEGINS AT STA.-L- 38+40 RT ENDS AT STA.-L- 40+30 RT

RETAINING WALL #2 : BEGINS AT STA.-L- 39+30 LT ENDS AT STA.-L- 42+85 LT

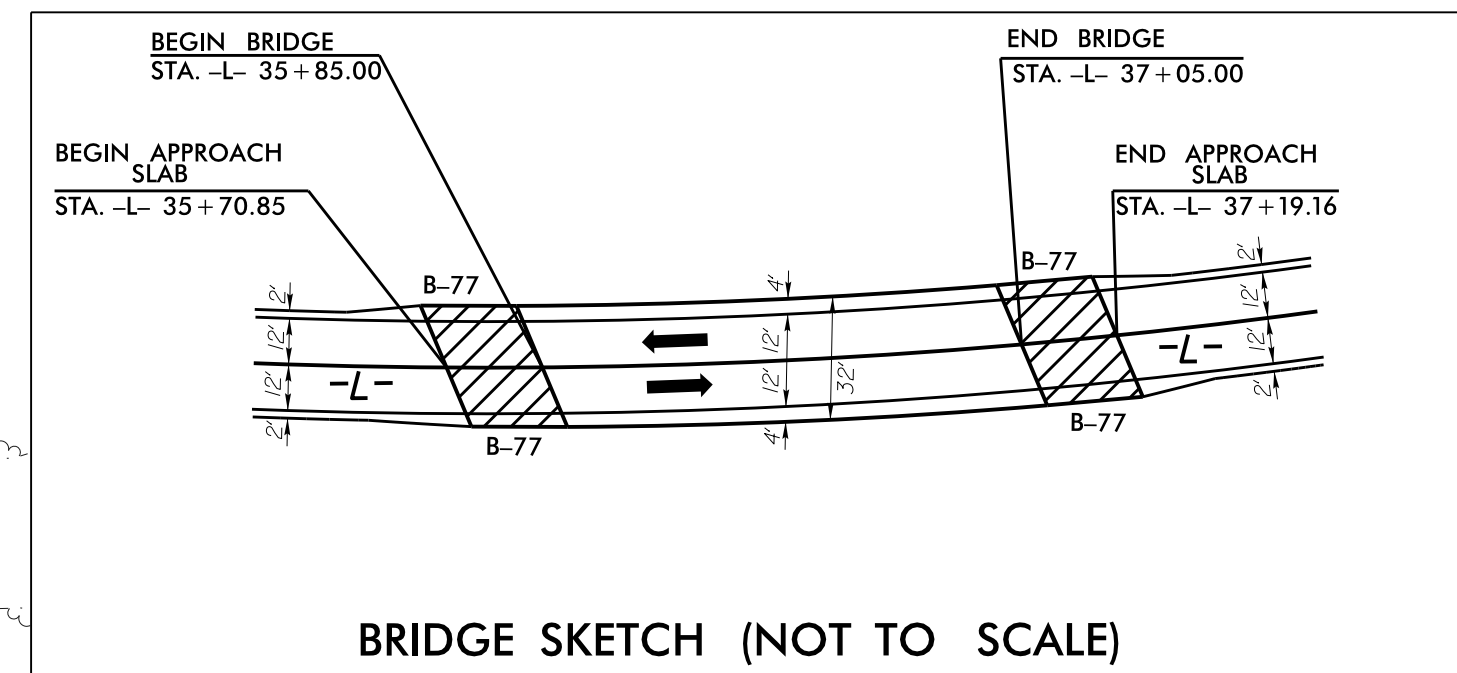
RETAINING WALL #5 : BEGINS AT STA.-L- 40+70 RT ENDS AT STA.-L- 41+95 RT



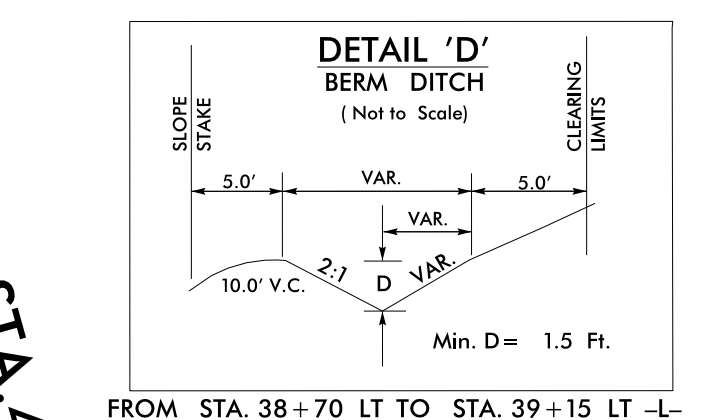
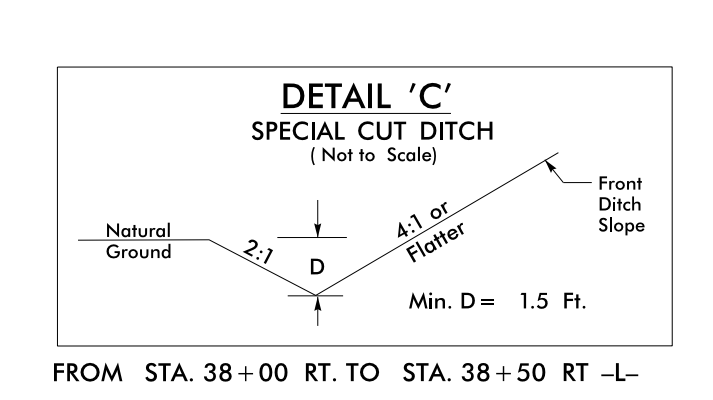
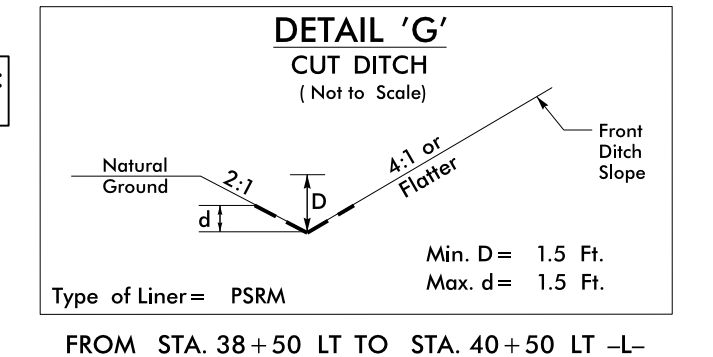
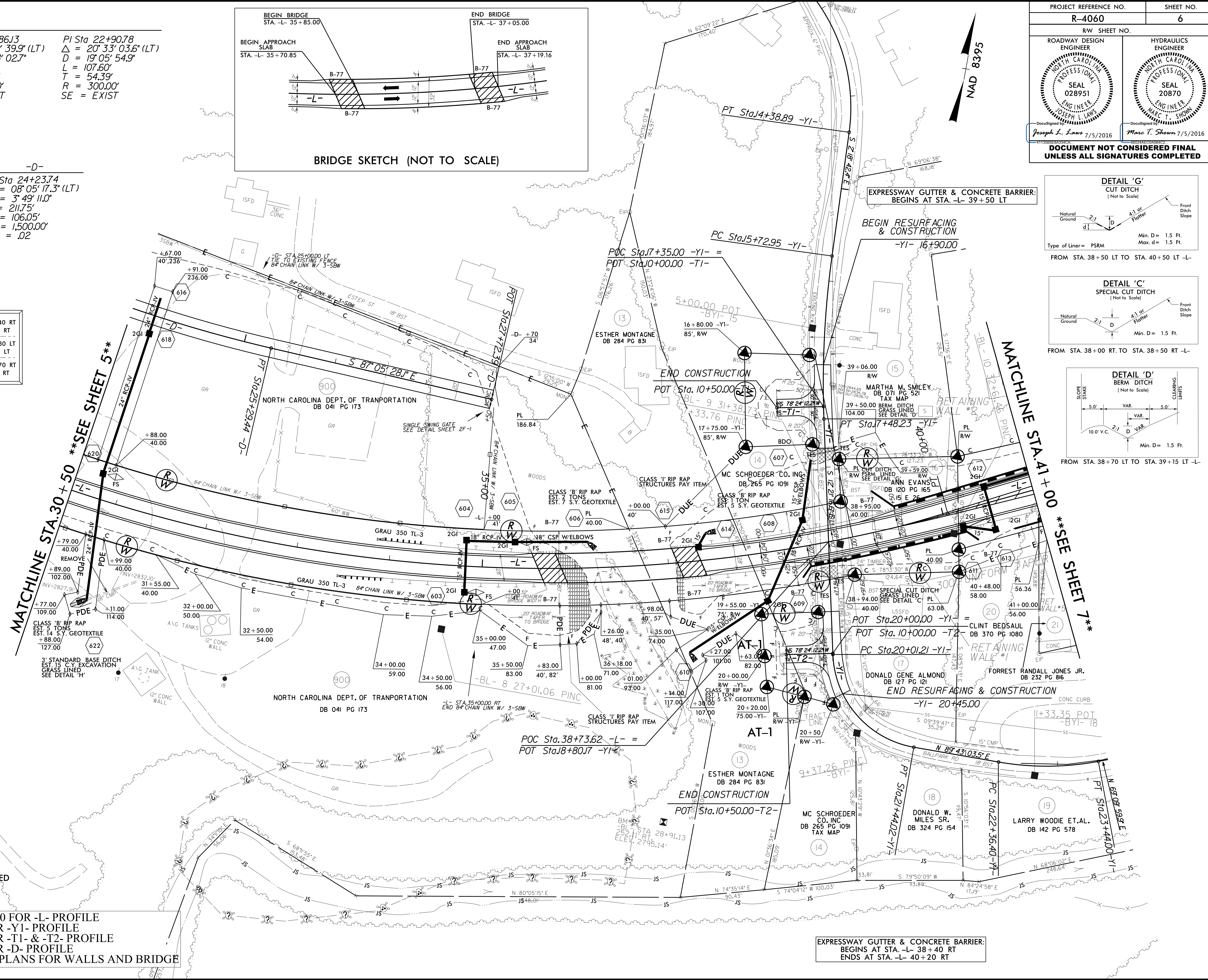
FROM STA.38+50 TO STA.40+20 -L- RT.  
FROM STA.39+30 TO STA.42+85 -L- LT.  
FROM STA.40+70 TO STA.41+95 -L- RT.



Min. D = VAR. FT.  
B = 3 FT.



BRIDGE SKETCH (NOT TO SCALE)

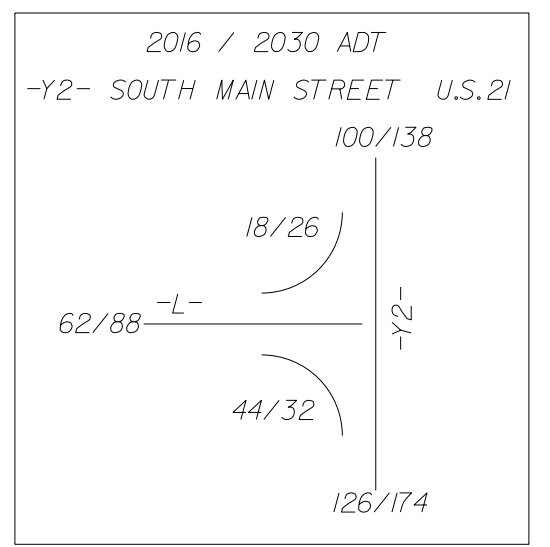
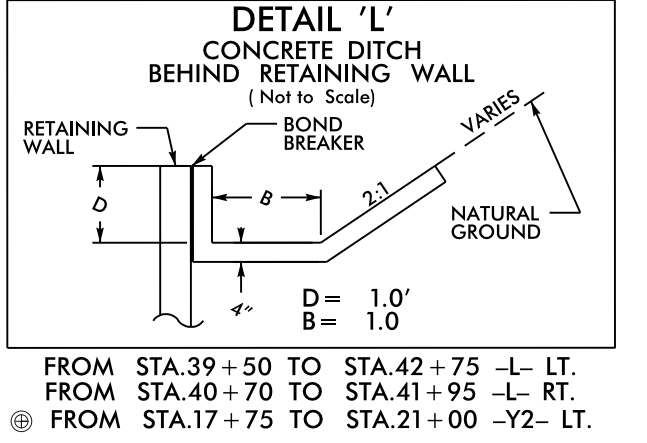
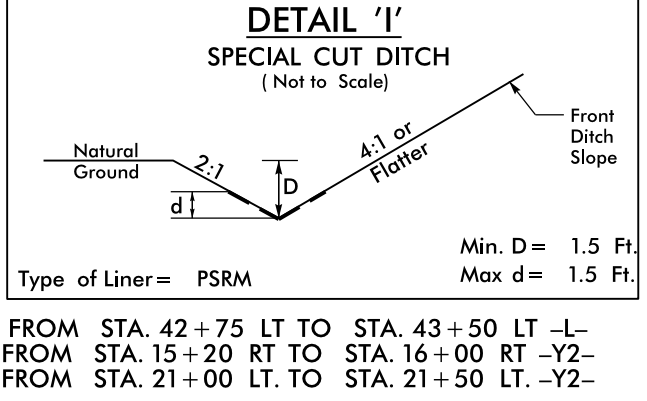
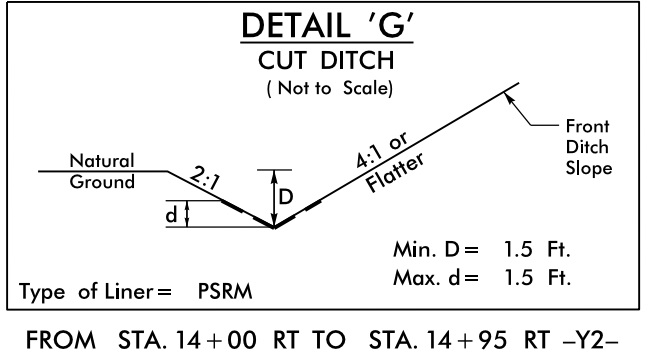
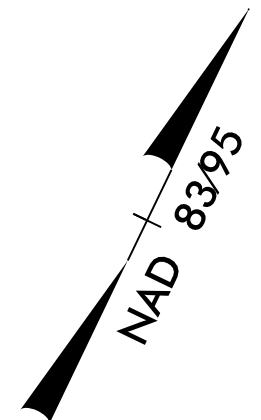


NOTE : (1) SEE SHEETS 9 & 10 FOR -L- PROFILE  
(2) SEE SHEET 12 FOR -Y1- PROFILE  
(3) SEE SHEET 13 FOR -T1- & -T2- PROFILE  
(4) SEE SHEET 15 FOR -D- PROFILE  
(5) SEE STRUCTURE PLANS FOR WALLS AND BRIDGE

EXPRESSWAY GUTTER & CONCRETE BARRIER BEGINS AT STA.-L- 38+40 RT ENDS AT STA.-L- 40+20 RT

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- RETAINING WALL #2 : BEGINS AT STA. -L- 39+30 LT  
ENDS AT STA. -L- 42+85 LT
- RETAINING WALL #3 : BEGINS AT STA. -Y2- 15+19 LT  
ENDS AT STA. -Y2- 17+02 LT
- RETAINING WALL #4 : BEGINS AT STA. -Y2- 17+75 LT  
ENDS AT STA. -Y2- 21+20 LT
- RETAINING WALL #5 : BEGINS AT STA. -L- 40+70 RT  
ENDS AT STA. -L- 41+95 RT

**END TIP PROJECT R-4060**  
**POT Sta. 44+30.00 -L- =**  
**POC Sta. 16+46.59 -Y2-**

CONCRETE BARRIER:  
BEGINS AT STA. -Y2- 17+75 LT

EXPRESSWAY GUTTER & CONCRETE BARRIER:  
ENDS AT STA. -Y2- 21+00 LT

-Y1-	-Y2-
PI Sta 23+91.59	PC Sta 16+13.41
Δ = 27° 45' 24.5" (RT)	PI Sta 18+16.89
D = 57' 17" 44.8"	Δ = 32° 24' 56.9" (LT)
L = 48.44'	D = 8' 11" 06.4"
T = 24.71'	L = 396.03'
R = 100.00'	T = 203.47'
SE = EXIST	R = 700.00'
	SE = EXIST

PAVEMENT TO BE REMOVED

NOTE : (1) SEE SHEET 10 FOR -L- PROFILE  
(2) SEE SHEET 14 FOR -Y2- PROFILE  
(3) SEE STRUCTURE PLANS FOR WALLS

MATCHLINE STA. 41+00 \*\*SEE SHEET 6\*\*

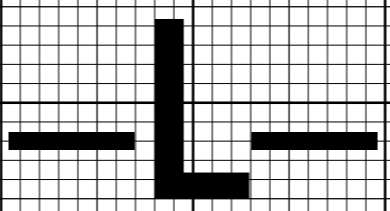
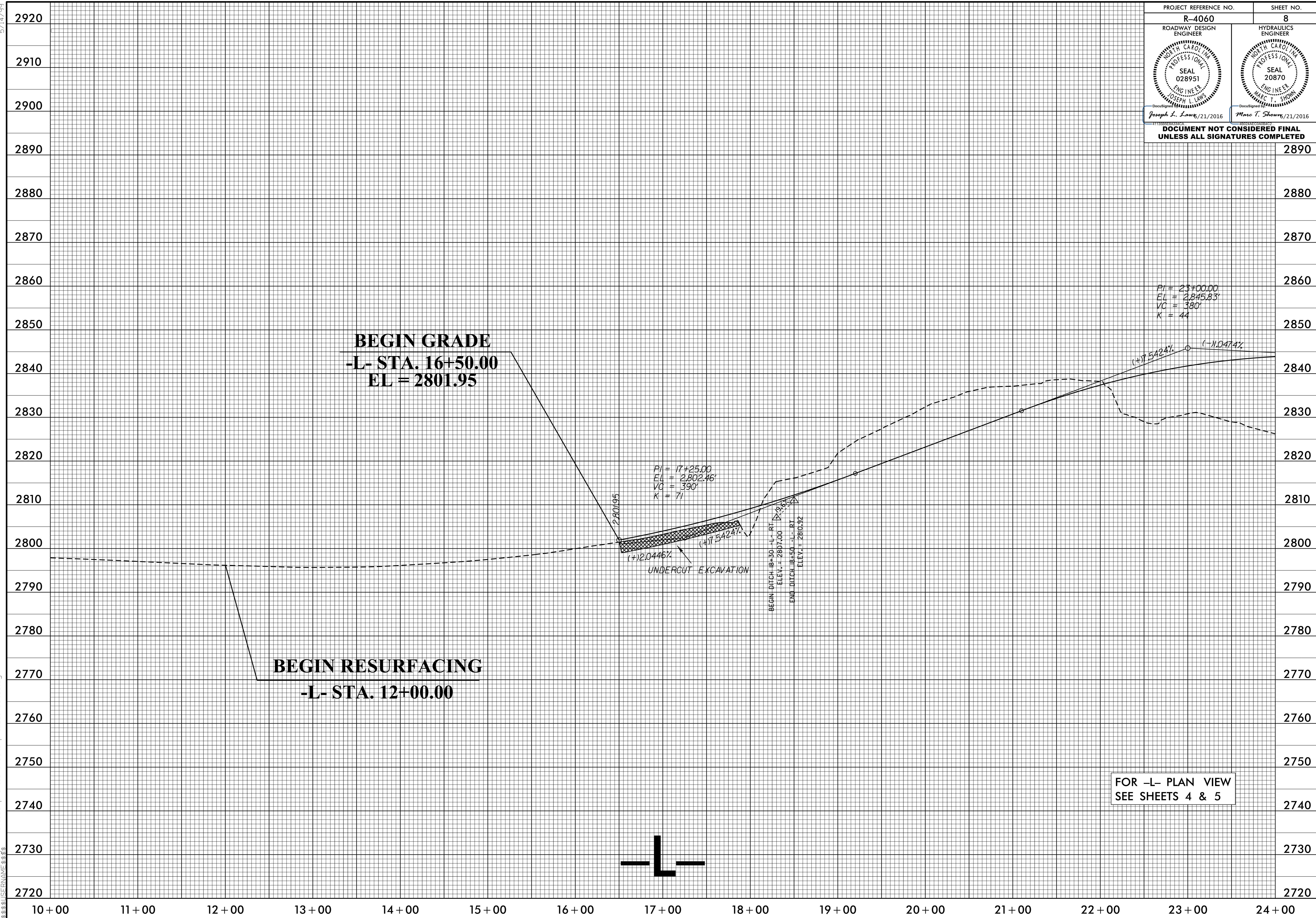
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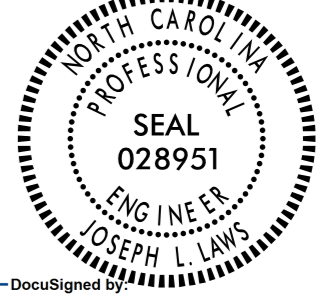

PROJECT REFERENCE NO. <b>R-4060</b>	SHEET NO. <b>8</b>
ROADWAY DESIGN ENGINEER <b>JOSEPH L. LAWS</b> SEAL 028951 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER <b>MARC T. SHOWN</b> SEAL 20870 NORTH CAROLINA PROFESSIONAL ENGINEER
DocuSign Joseph L. Laws/21/2016	DocuSign Marc T. Shown/21/2016

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

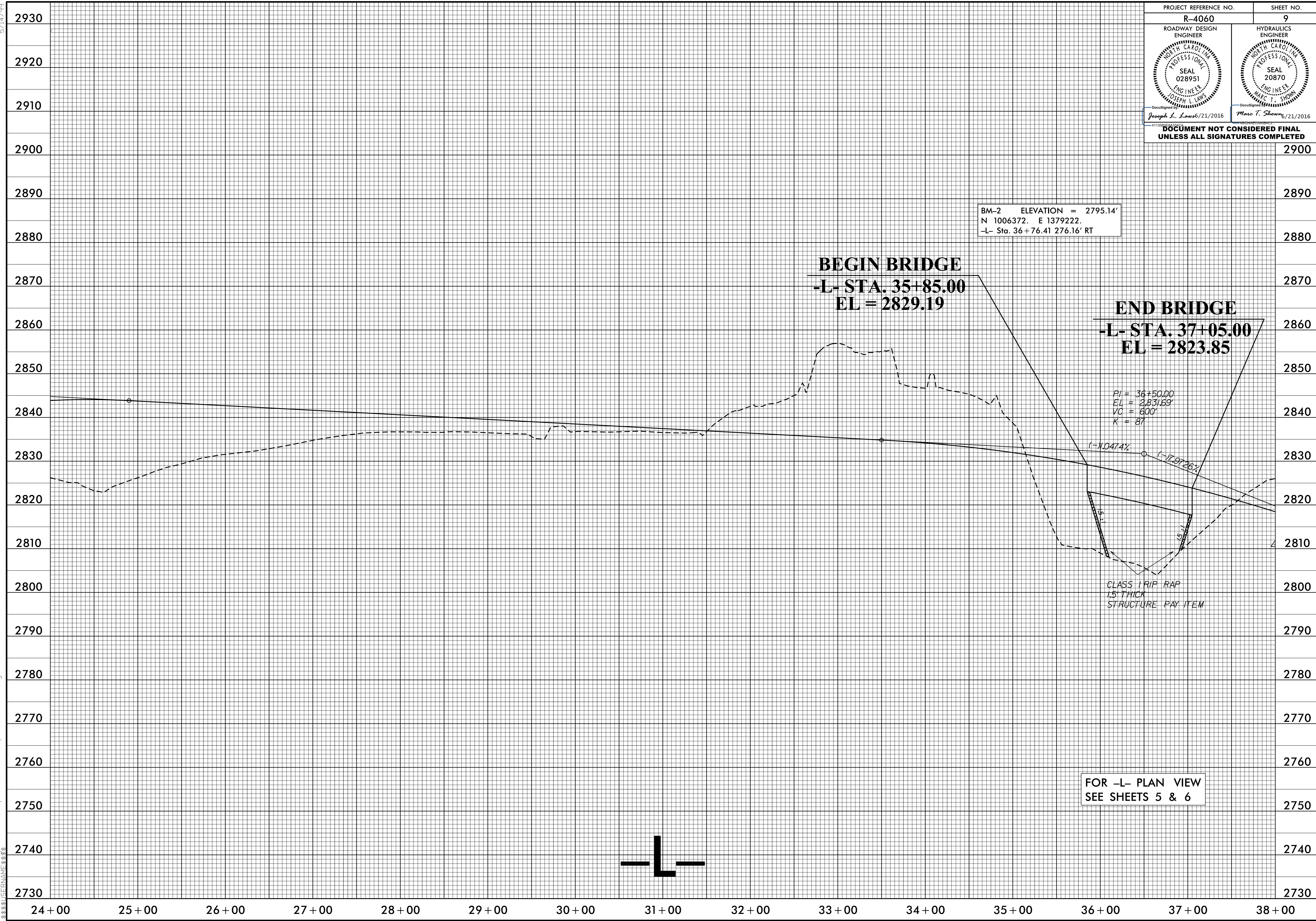


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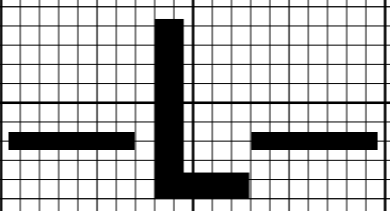
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PROJECT REFERENCE NO. <b>R-4060</b>	SHEET NO. <b>9</b>
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
DocuSigned: <i>Joseph L. Laws</i> 6/21/2016	DocuSigned: <i>Marc T. Shaw</i> 6/21/2016

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

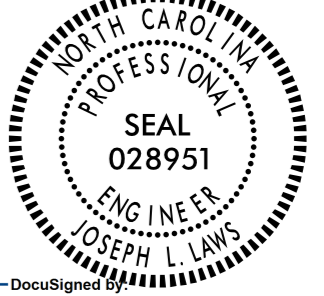



FOR -L- PLAN VIEW  
SEE SHEETS 5 & 6

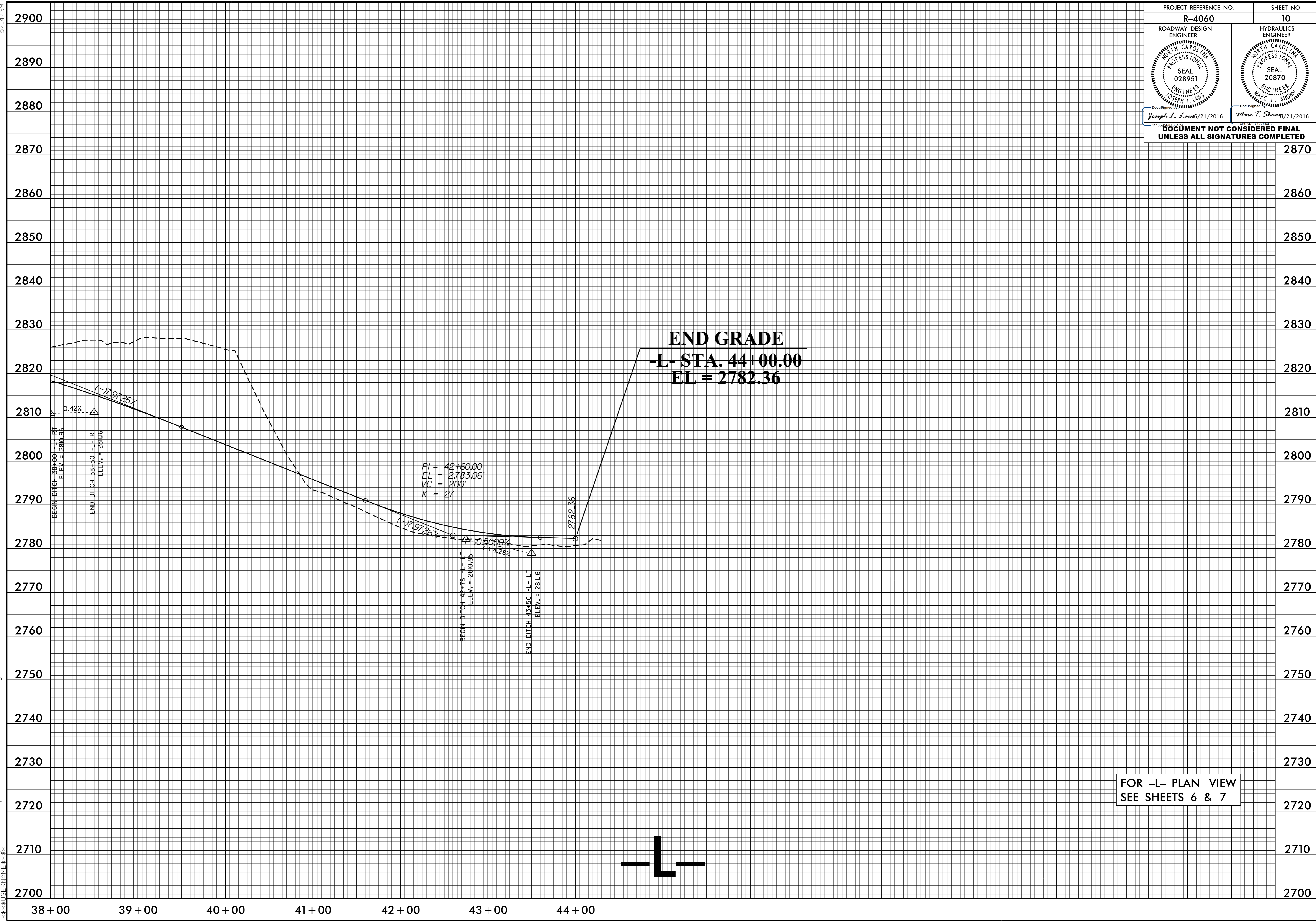


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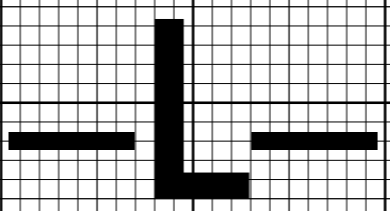
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PROJECT REFERENCE NO. <b>R-4060</b>	SHEET NO. <b>10</b>
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
DocuSigned by: <i>Joseph L. Laws</i> /21/2016	DocuSigned by: <i>Marc T. Shaws</i> /21/2016

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



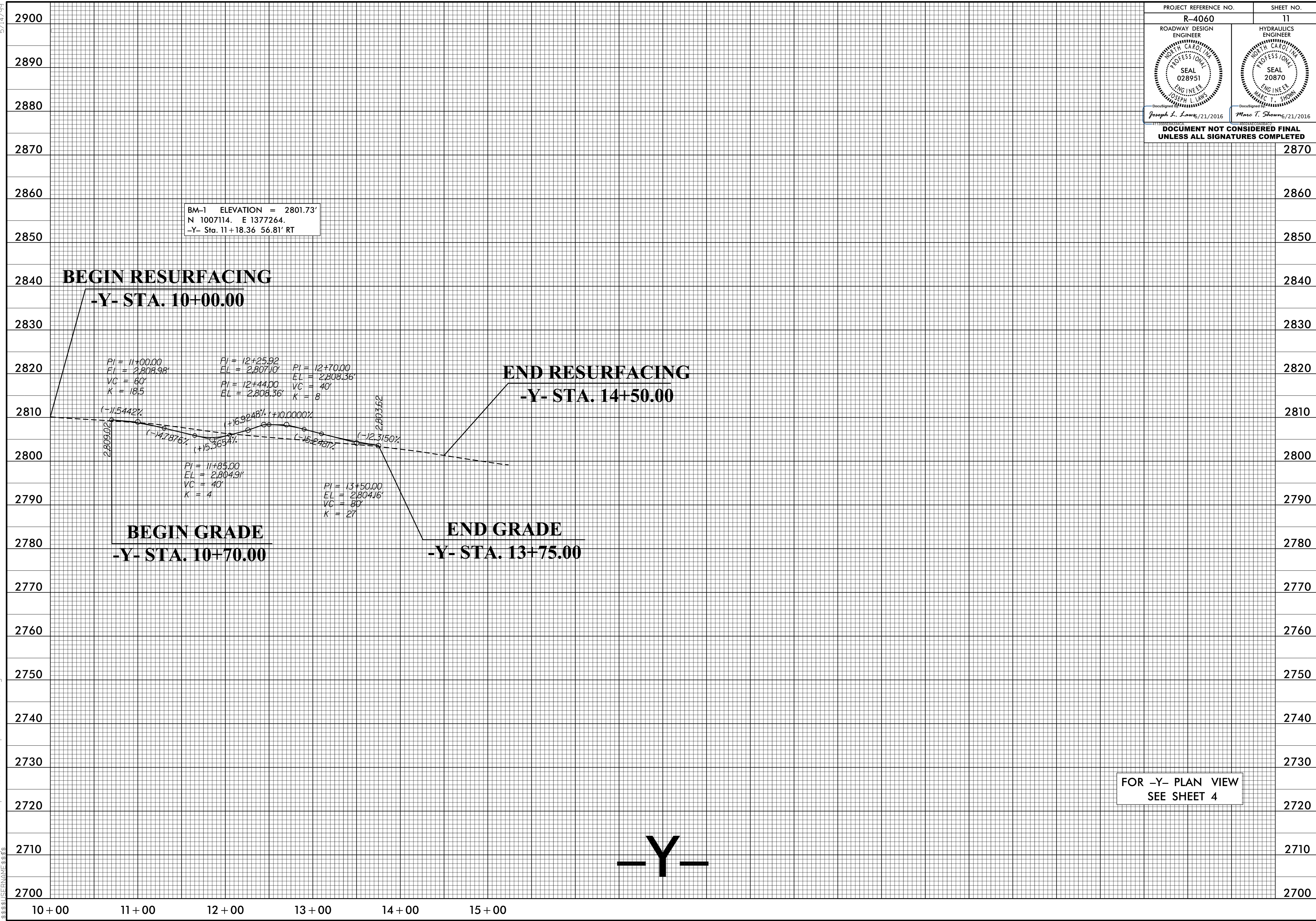
FOR -L- PLAN VIEW  
SEE SHEETS 6 & 7



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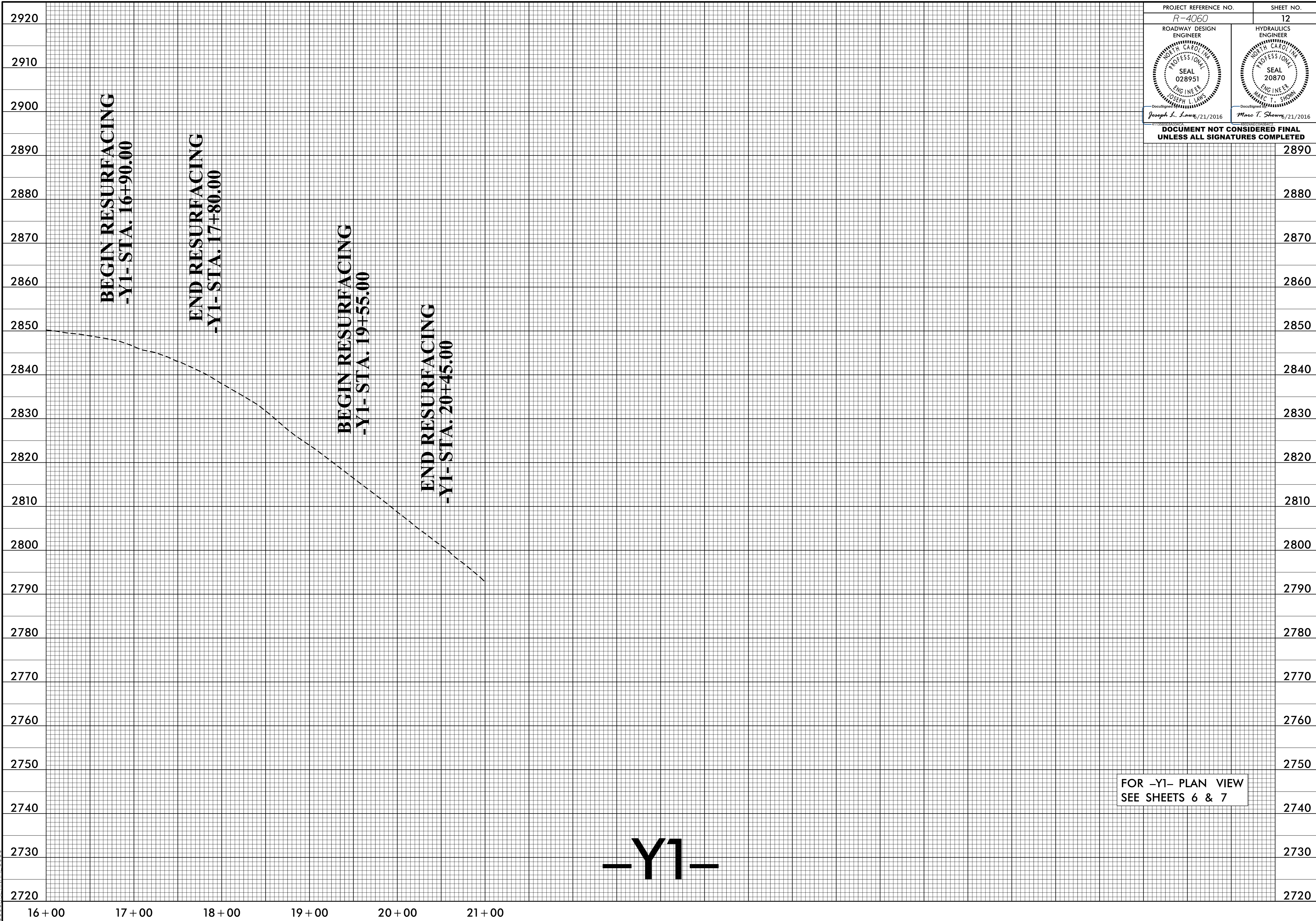
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PROJECT REFERENCE NO. <b>R-4060</b>	SHEET NO. <b>11</b>
ROADWAY DESIGN ENGINEER SEAL 028951 JOSEPH L. LAWS	HYDRAULICS ENGINEER SEAL 20870 MARC T. SHOWN
DocuSigned by: Joseph L. Laws/21/2016	DocuSigned by: Marc T. Shown/21/2016
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



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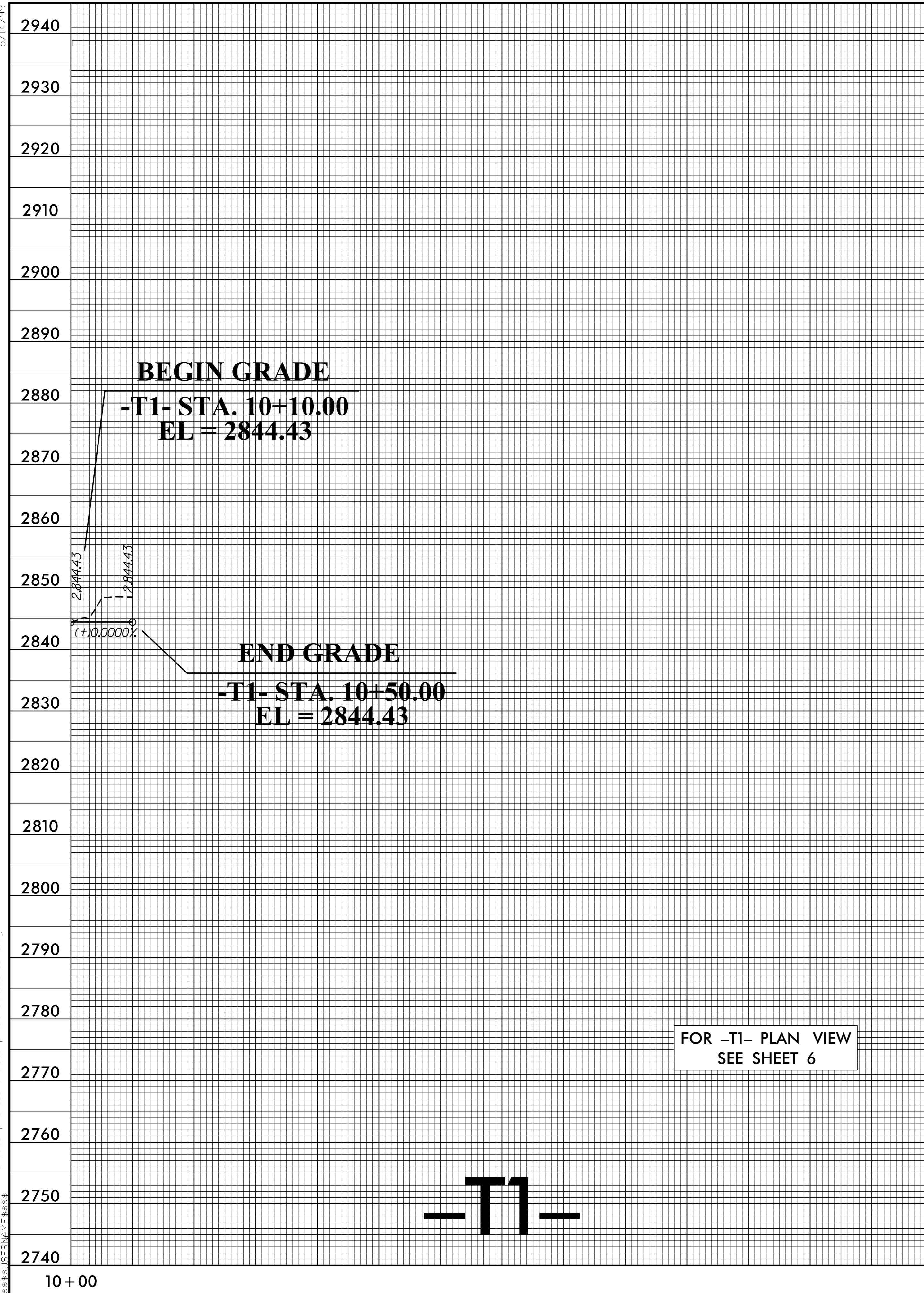
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ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
<i>Joseph L. Laws</i> , 2/21/2016	<i>Marc T. Shows</i> , 2/21/2016
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

FOR -Y1- PLAN VIEW  
SEE SHEETS 6 & 7

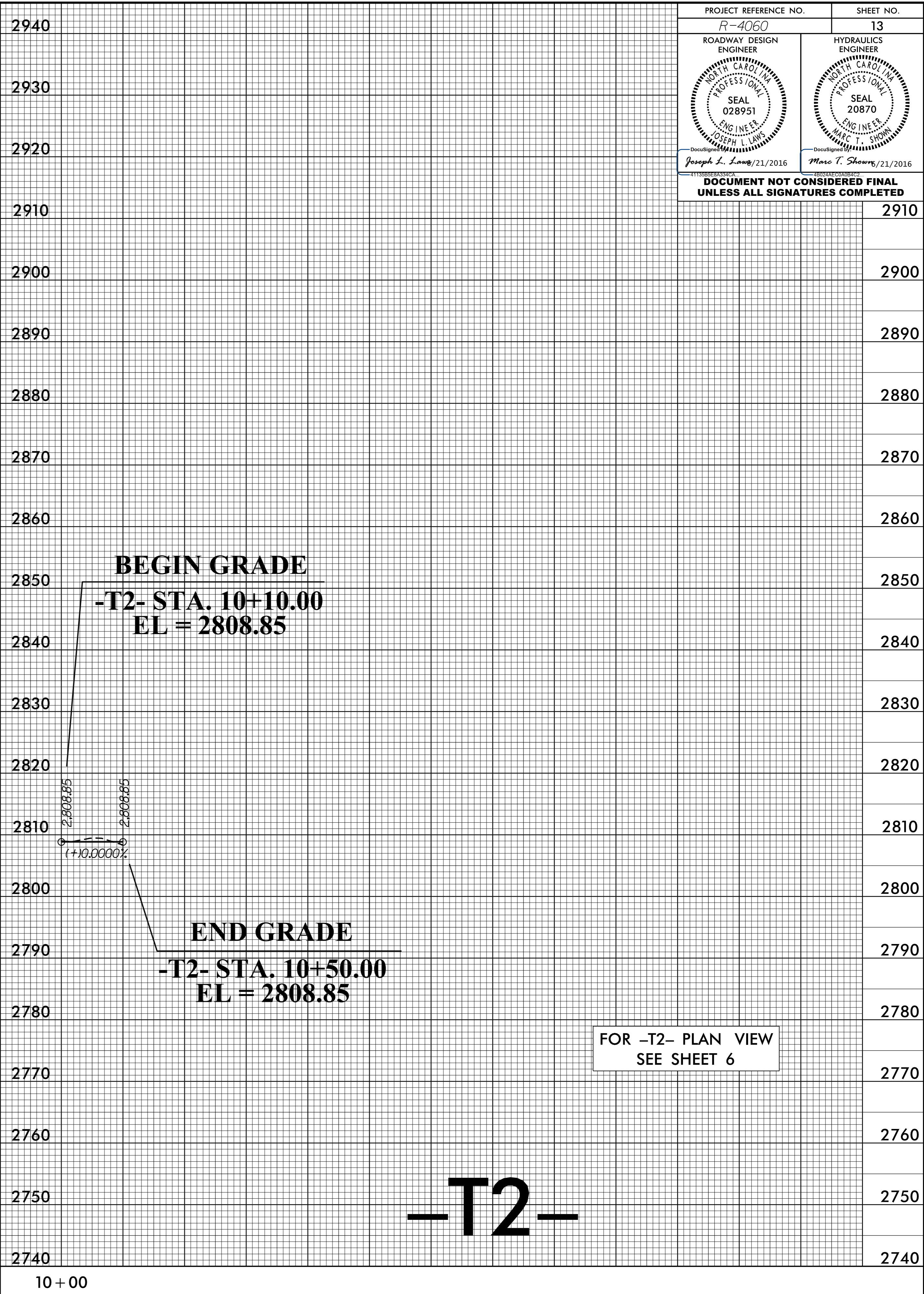
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FOR -T1- PLAN VIEW  
SEE SHEET 6



FOR -T2- PLAN VIEW  
SEE SHEET 6

PROJECT REFERENCE NO. R-4060	SHEET NO. 13
ROADWAY DESIGN ENGINEER SEAL 028951 JOSEPH L. LAW	HYDRAULICS ENGINEER SEAL 20870 MARC T. SHOWN
DocuSign Joseph L. Law 6/23/2016	DocuSign Marc T. Shown 6/23/2016

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UNLESS ALL SIGNATURES COMPLETED**

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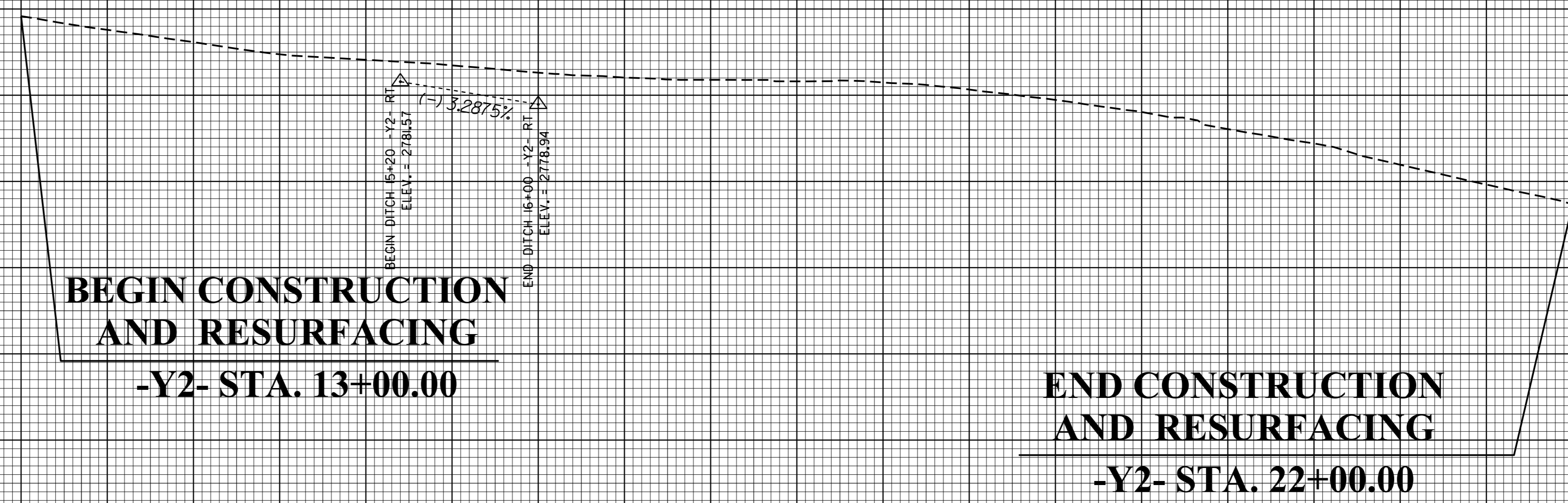
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5/14/99

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PROJECT REFERENCE NO. R-4060	SHEET NO. 14
ROADWAY DESIGN ENGINEER SEAL 028951 JOSEPH L. LAWS	HYDRAULICS ENGINEER SEAL 20870 MARC T. SHOWS
Joseph L. Laws/21/2016	Marc T. Shows/21/2016
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

BM-3 ELEVATION = 2770.85'  
 N 1007013. E 1379951.  
 -Y2- Sta. 16+48.80 129.90' LT

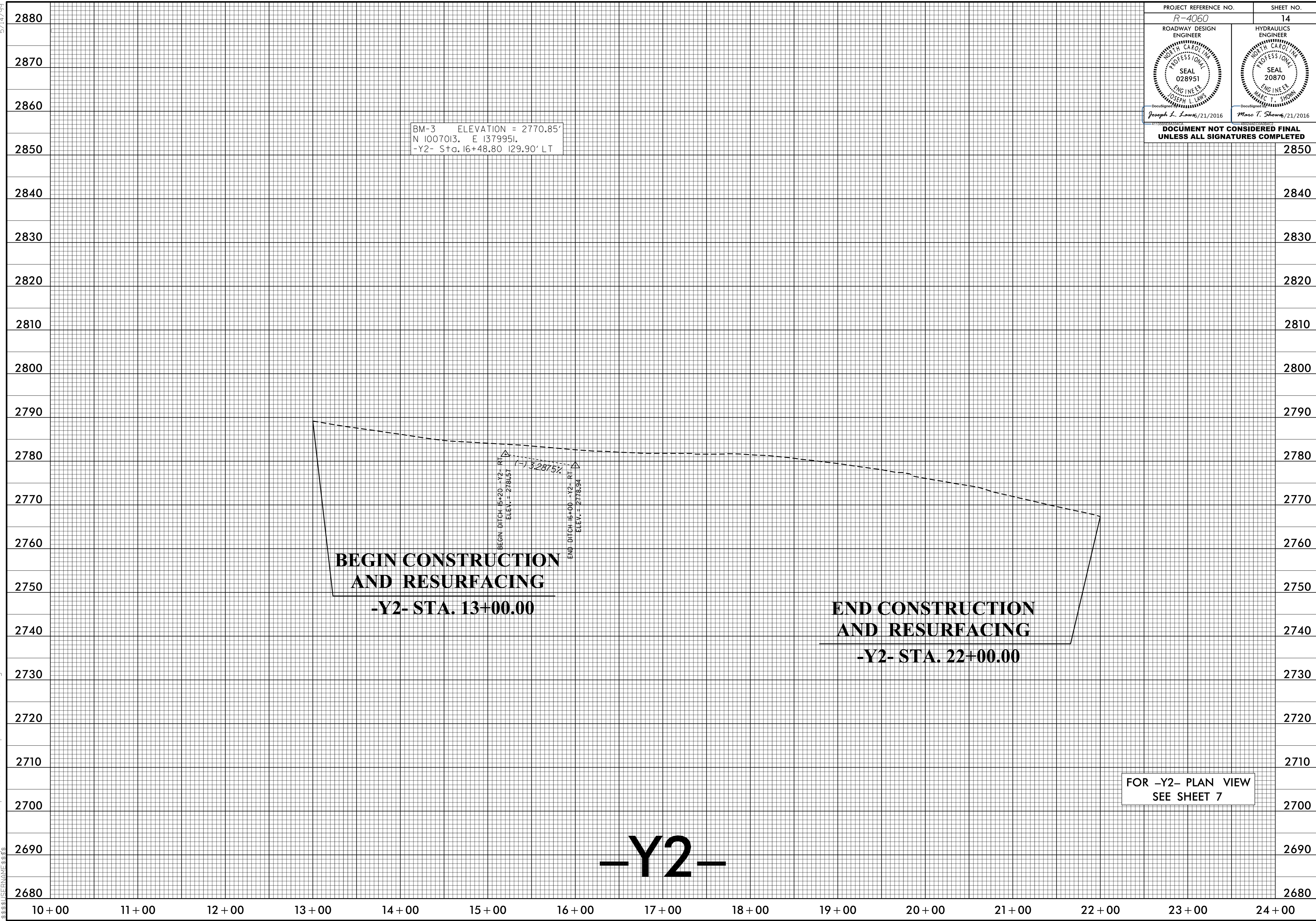


**BEGIN CONSTRUCTION  
AND RESURFACING**  
 -Y2- STA. 13+00.00

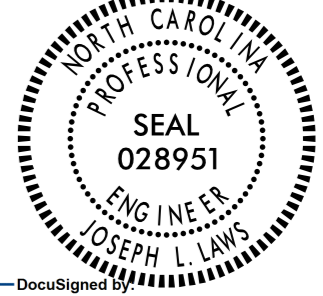

**END CONSTRUCTION  
AND RESURFACING**  
 -Y2- STA. 22+00.00

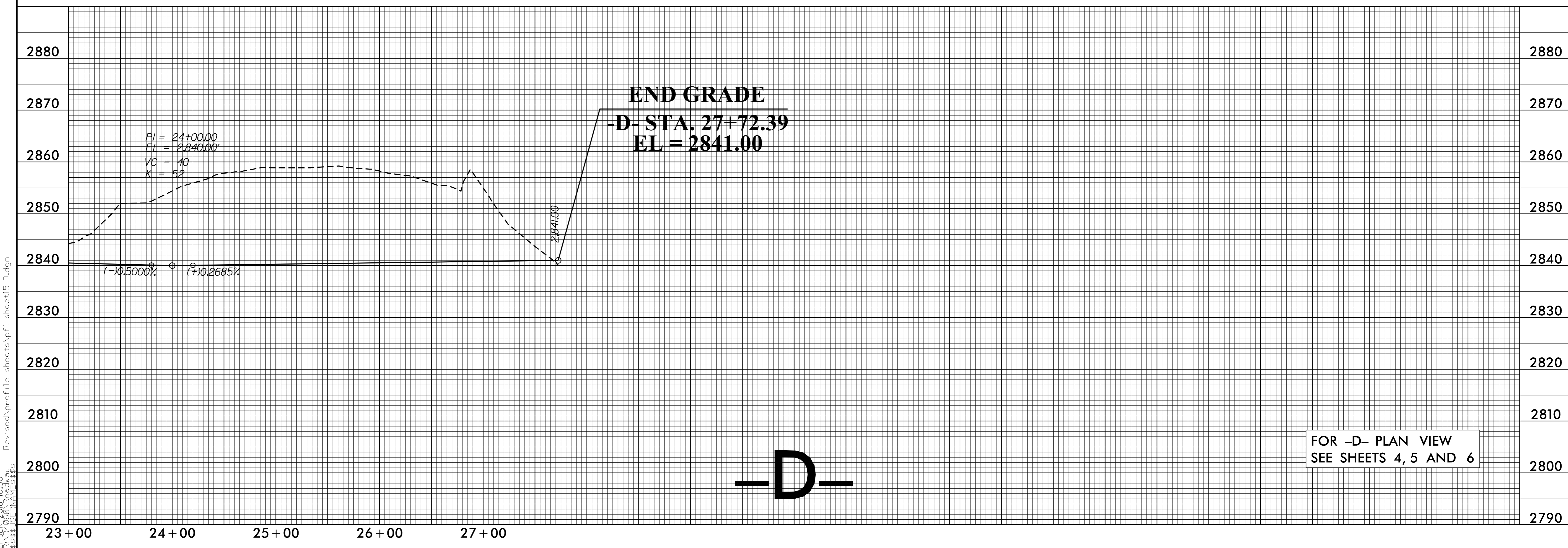
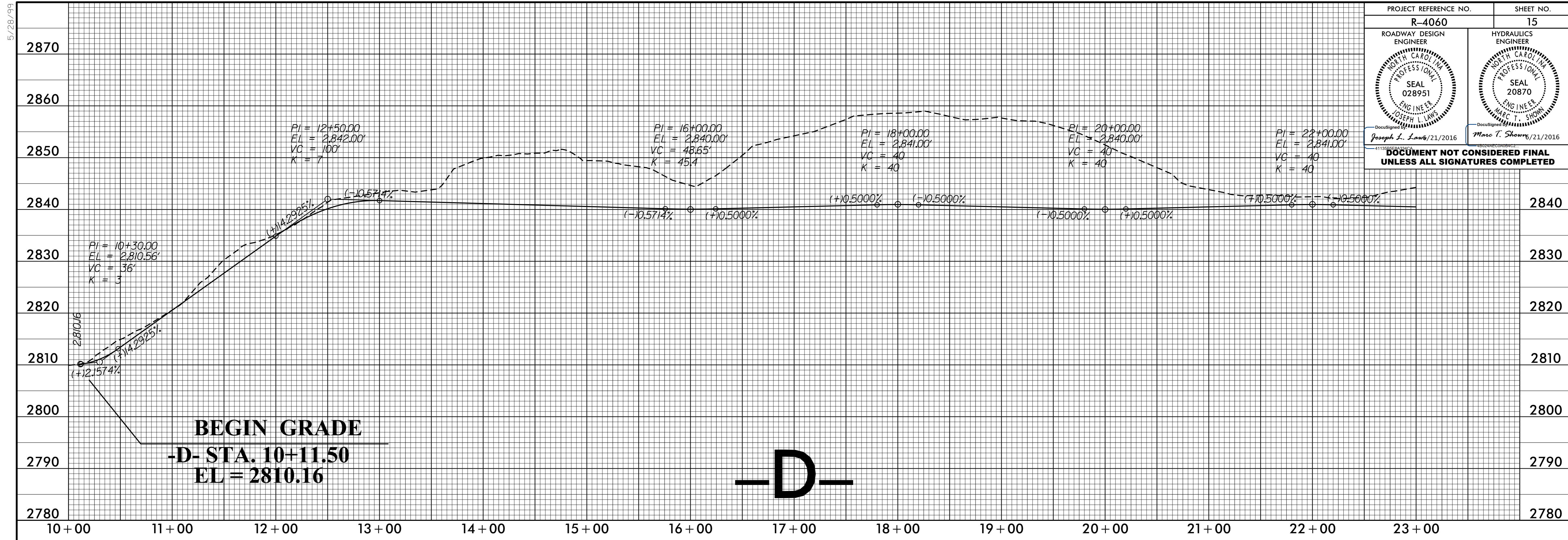
FOR -Y2- PLAN VIEW  
SEE SHEET 7

**-Y2-**





PROJECT REFERENCE NO. <b>R-4060</b>	SHEET NO. <b>15</b>
ROADWAY DESIGN ENGINEER  JOSEPH L. LAWS	HYDRAULICS ENGINEER  MARC T. SHOWS
<small>DocuSign</small> Joseph L. Laws/21/2016      Marc T. Shows/21/2016	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

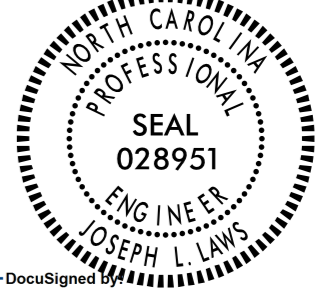



FOR -D- PLAN VIEW  
SEE SHEETS 4, 5 AND 6

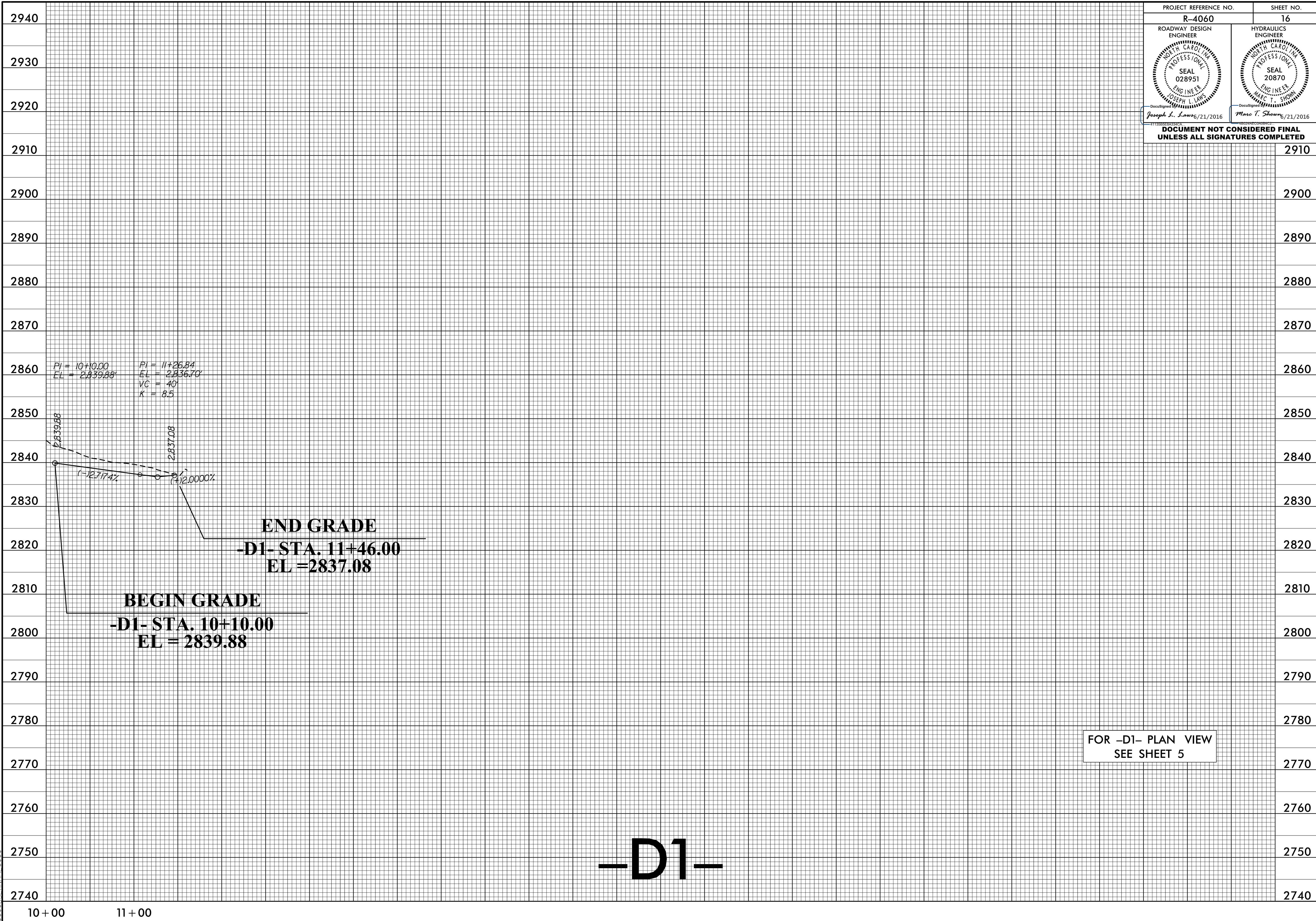
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PROJECT REFERENCE NO. <b>R-4060</b>	SHEET NO. <b>16</b>
ROADWAY DESIGN ENGINEER  JOSEPH L. LAWRY 028951 NORTH CAROLINA PROFESSIONAL ENGINEER	HYDRAULICS ENGINEER  MARC T. SHOWERS 20870 NORTH CAROLINA PROFESSIONAL ENGINEER
DocuSign Joseph L. Lawry 6/21/2016	DocuSign Marc T. Showers 6/21/2016

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

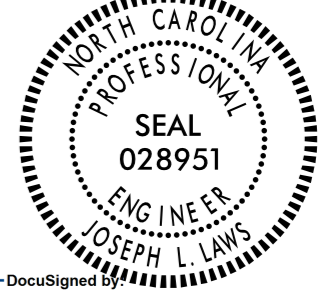
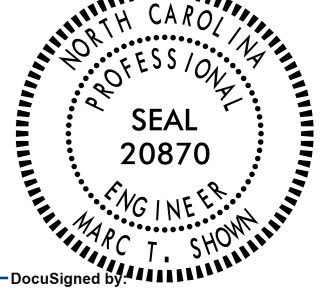


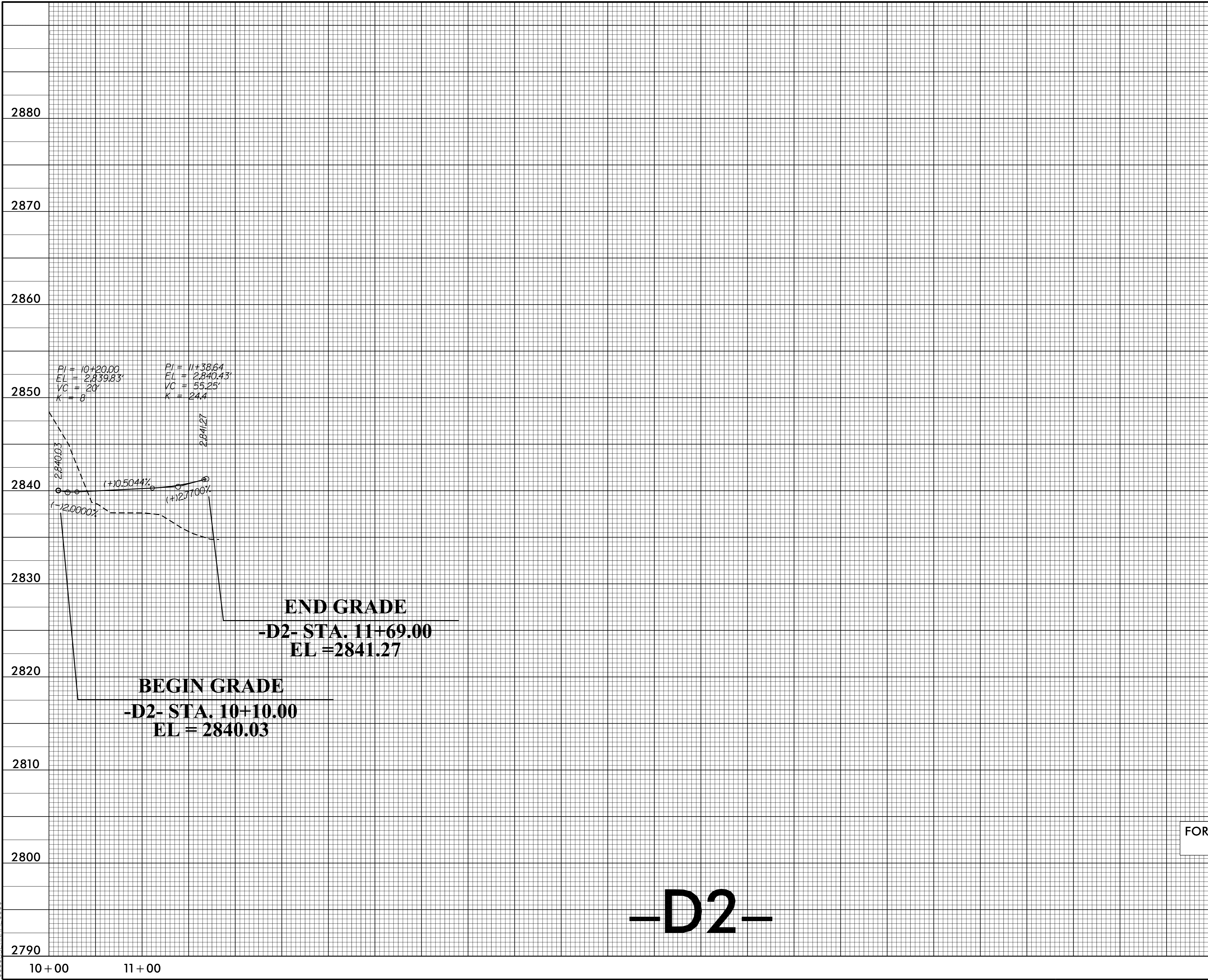
FOR -D1- PLAN VIEW  
SEE SHEET 5

**-D1-**

5/14/99

21 JUN 2016 10:10 AM - Revised\prof\le sheets\pfl\sheet7\_D2.dgn

PROJECT REFERENCE NO. <b>R-4060</b>	SHEET NO. <b>17</b>
ROADWAY DESIGN ENGINEER  SEAL 028951 JOSEPH L. LAWS ENGINEER NORTH CAROLINA	HYDRAULICS ENGINEER  SEAL 20870 MARC T. SHAW ENGINEER NORTH CAROLINA
DocuSigned by: <i>Joseph L. Laws</i> /21/2016	DocuSigned by: <i>Marc T. Shaw</i> /21/2016
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FOR -D2- PLAN VIEW  
SEE SHEET 5

**-D2-**

10 + 00      11 + 00

2870

2860

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2790