

09/08/99

See Sheet 1A For Index of Sheets

**TIP PROJECT: U-6088**

**CONTRACT: DJ00446**

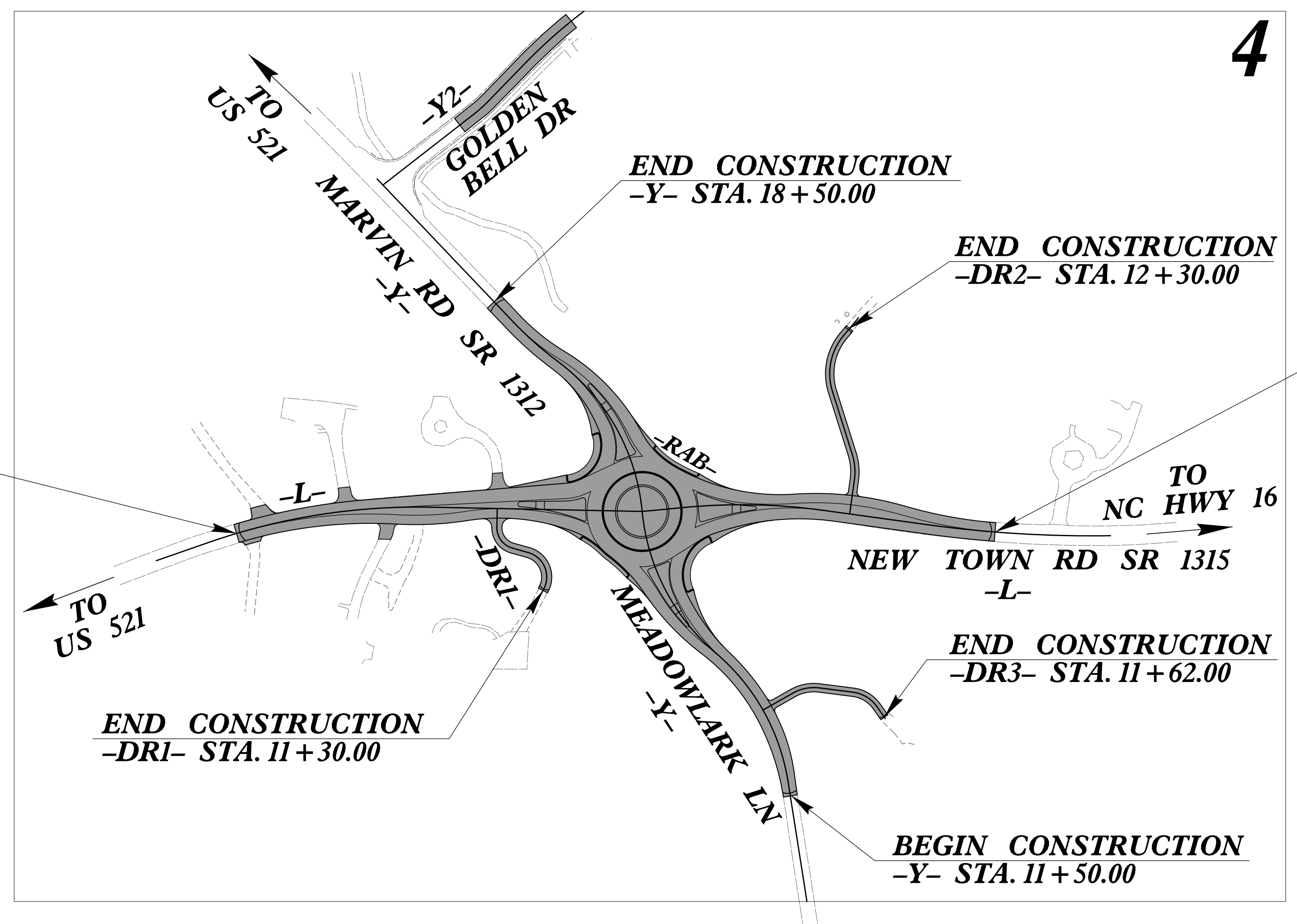
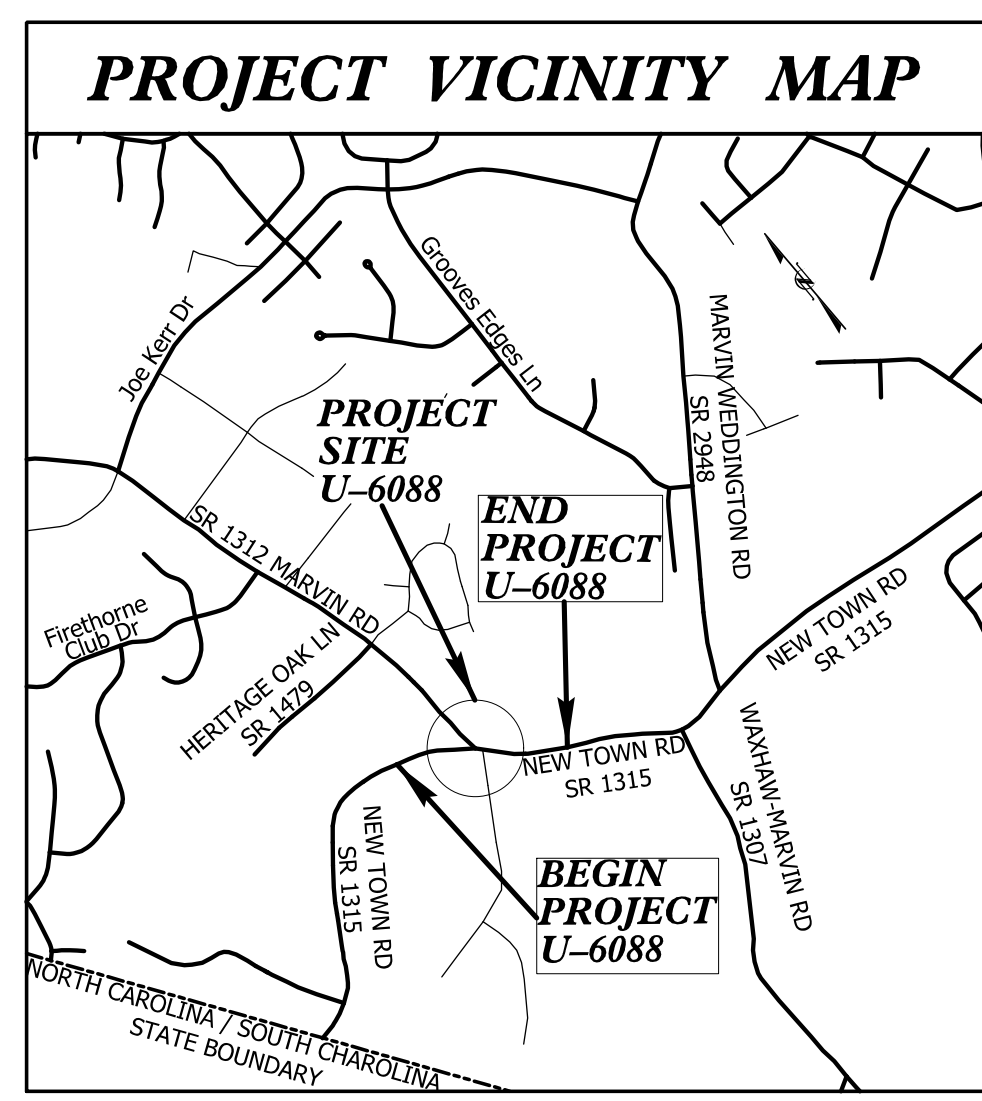
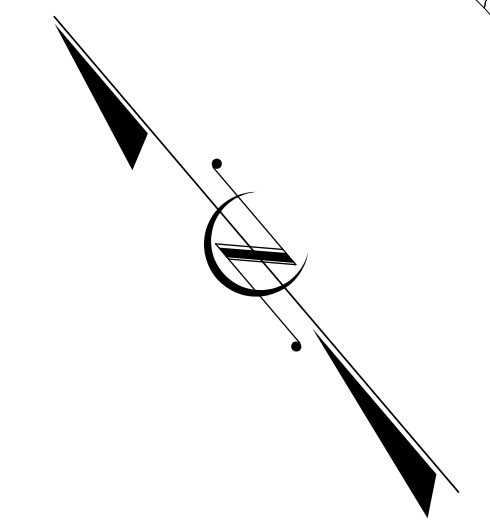
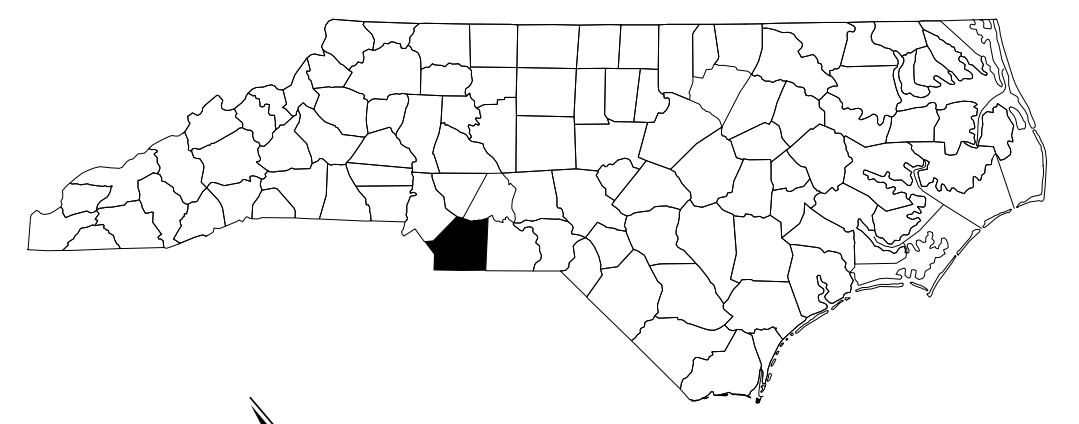
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UNION COUNTY**

**LOCATION: INTERSECTION OF SR 1315 (NEW TOWN RD),  
SR 1312 (MARVIN RD) & MEADOWLARK LN**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, SANITARY SEWER PLANS  
CONCRETE CURB & GUTTER, MONOLITHIC ISLANDS  
& PAVEMENT MARKINGS**

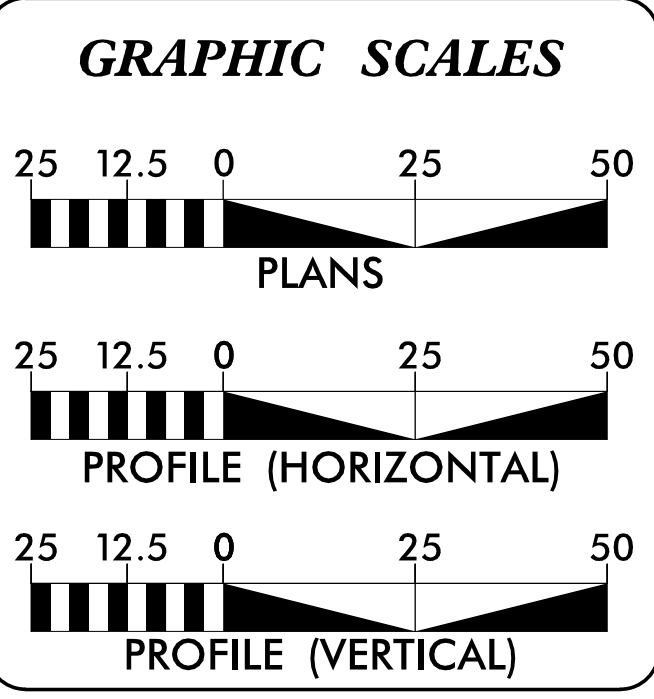
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-6088	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
47883.1.1	STBDGA-1003 (169)	P.E.	
47883.2.1	STBDGA-1003 (169)	R /W & UTIL.	
47883.3.1	STBDGA-1003 (169)	CONSTR.	



**BEGIN TIP PROJECT U-6088  
-L- STA. 11+00.00**

**END TIP PROJECT U-6088  
-L- STA. 20+00.00**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

ADT	=	N/A
ADT	=	N/A
K	=	N/A %
D	=	N/A %
T	=	N/A % *
V	=	N/A MPH
* TTST = N/A DUAL		
FUNC CLASS	=	N/A TIER

**PROJECT LENGTH**

LENGTH OF -L- TIP PROJECT U-6088	=	0.17 MILES
LENGTH OF -Y- TIP PROJECT U-6088	=	0.13 MILES
TOTAL LENGTH OF TIP PROJECT U-6088	=	0.30 MILES

Prepared in the Office of:

**wsp**  
1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203  
NC LIC NO. F-0165

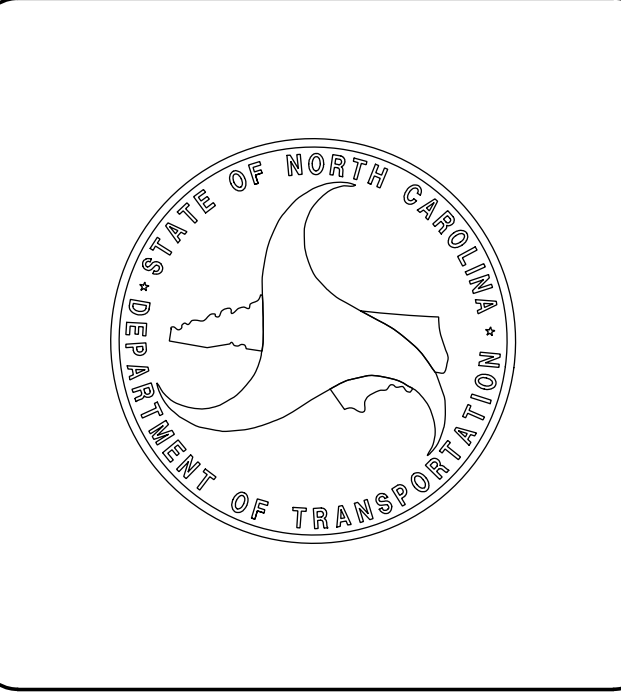
2018 STANDARD SPECIFICATIONS	RIGHT OF WAY DATE:	JENNIFER L. STARNES, P.E. PROJECT ENGINEER
	DECEMBER 10, 2019	
	LETTING DATE: <th>ALEJANDRA PORTILLO, P.E. PROJECT DESIGN ENGINEER</th>	ALEJANDRA PORTILLO, P.E. PROJECT DESIGN ENGINEER
	JANUARY 18, 2023	

**HYDRAULICS ENGINEER**

DocuSigned by:  
Robert M. Green  
SIGNATURE:

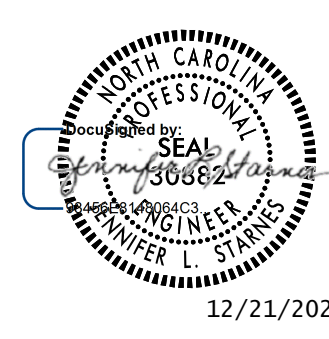

**ROADWAY DESIGN ENGINEER**

DocuSigned by:  
Jennifer L. Starnes  
SIGNATURE:



12/21/2022  
U-6088\U6088\Roadway\Proj\Sheets\U6088\_Rdy\_TSH.dgn  
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starnesj

8/17/99

PROJECT REFERENCE NO. <i>U-6088</i>	SHEET NO. <i>1-A</i>
ROADWAY DESIGN ENGINEER	
	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
 <small>1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC. NO. F-0165</small>	

GENERAL NOTES:                    2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
REVISED:

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	HORIZONTAL LAYOUT DETAIL
2B-2	CURB RAMP DETAILS
2B-3	PAVEMENT REMOVAL SHEET
3A-1	EARTHWORK, PAVEMENT REMOVAL, CURB & GUTTER SUMMARY SHEET
3D-1	DRAINAGE SUMMARY SHEET
4 THRU 6	PLAN AND PROFILE SHEETS
RW04	RIGHT OF WAY SHEET
EC-1 THRU EC-5	EROSION CONTROL PLANS
TMP-1	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
UC-1 THRU UC-5	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
X-0 THRU X-14	CROSS-SECTIONS

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. 560.01

SIDE ROADS:

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

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Union Power Cooperative Monroe, Time Warner Cable, Windstream Communications Incs., Union County Public Works, Piedmont Natural Gas Company Inc. 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.

EFF. 01-16-2018  
REV.

2018 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, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.02	Method of Clearing - Method II
225.04	Method of Obtaining Superelevation - Two Lane Pavement
<b>DIVISION 3 - PIPE CULVERTS</b>	
310.10	Driveway Pipe Construction
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
806.01	Concrete Right-of-Way Marker
815.02	Subsurface Drain
846.01	Concrete Curb, Gutter and Curb & Gutter
848.02	Driveway Turnout - Radius Type
852.01	Concrete Islands
852.02	Concrete Mountable Median - for Use with Rigid or Flexible Pavement

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# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO. <i>U-6088</i>	SHEET NO. <i>1-B</i>
 <small>1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC. NO. F-0165</small>	

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed 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	☠-S-☠
Potential Contamination Area: Soil	??-S-??
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	??-W-??
Contaminated Site: Known or Potential	☠??

### BUILDINGS AND OTHER CULTURE:

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

### HYDROLOGY:

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

### RAILROADS:

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

### RIGHT OF WAY & PROJECT CONTROL:

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

### ROADS AND RELATED FEATURES:

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

### VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale

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

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:

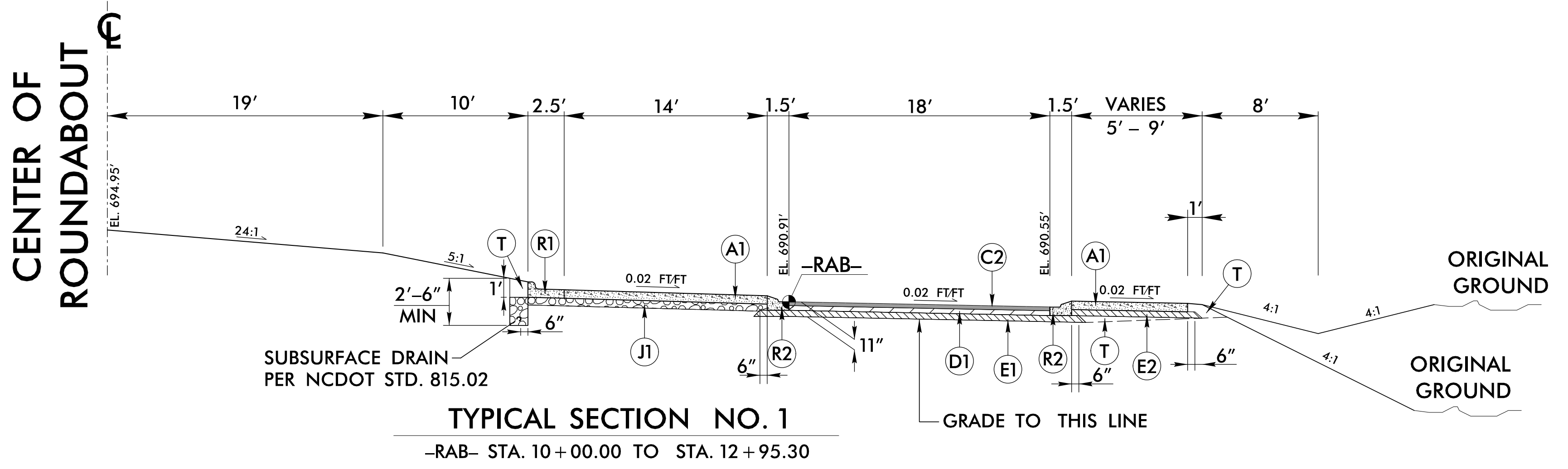
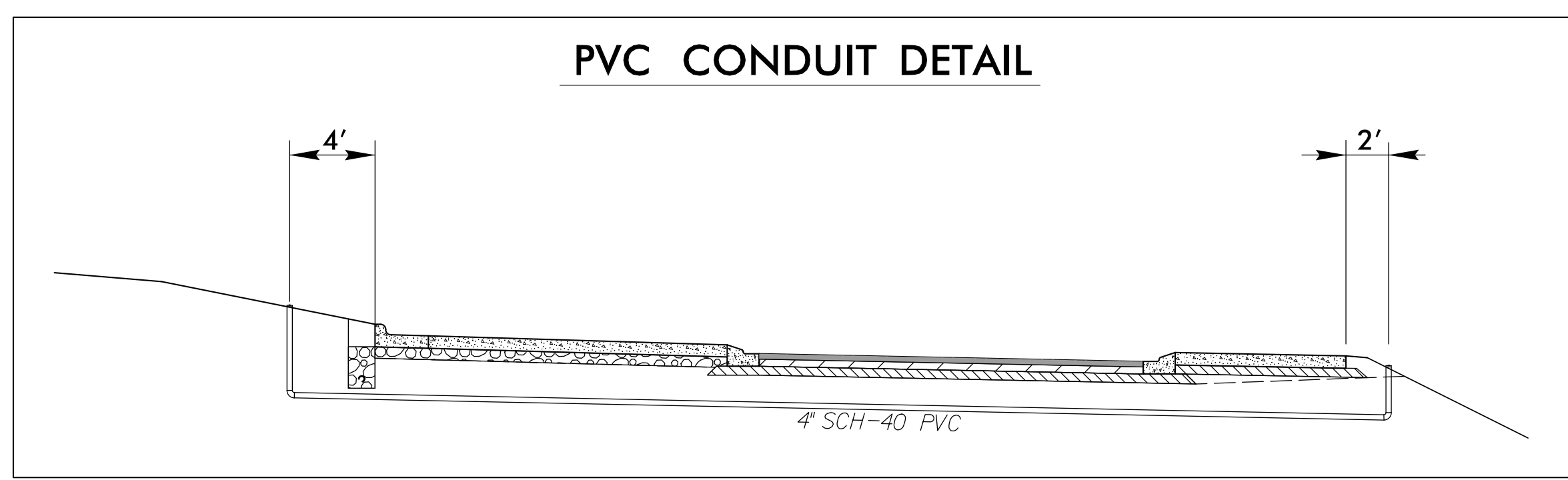
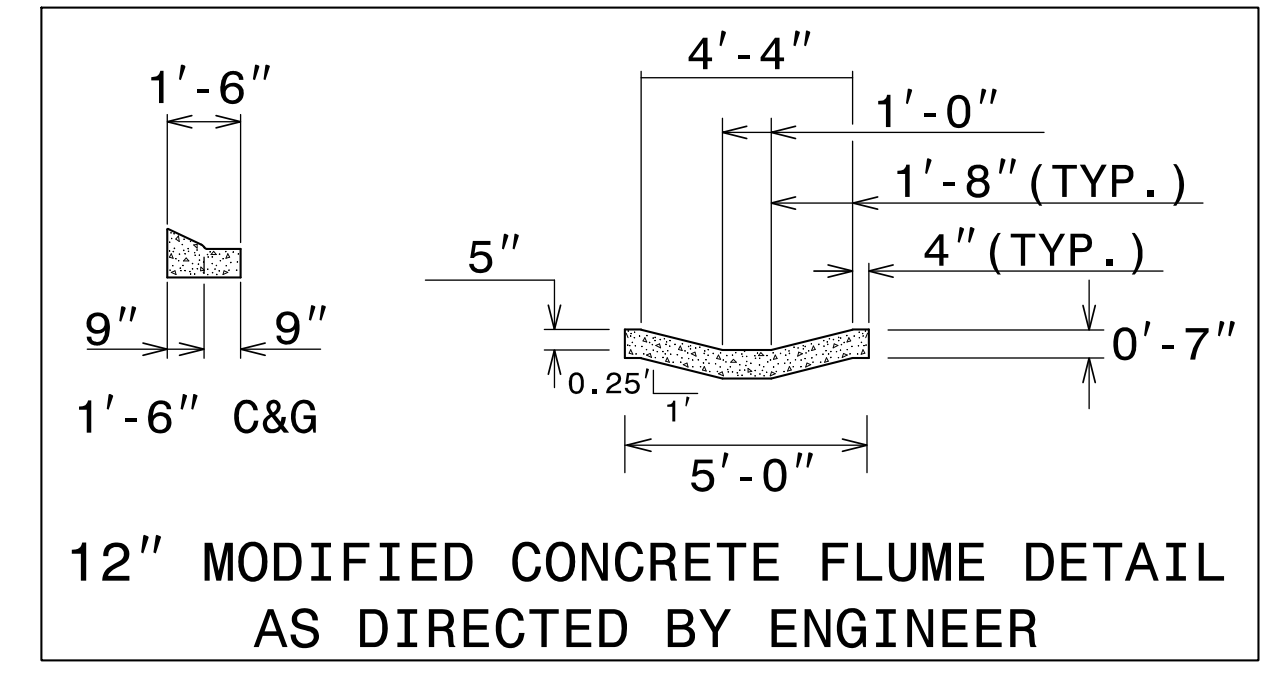
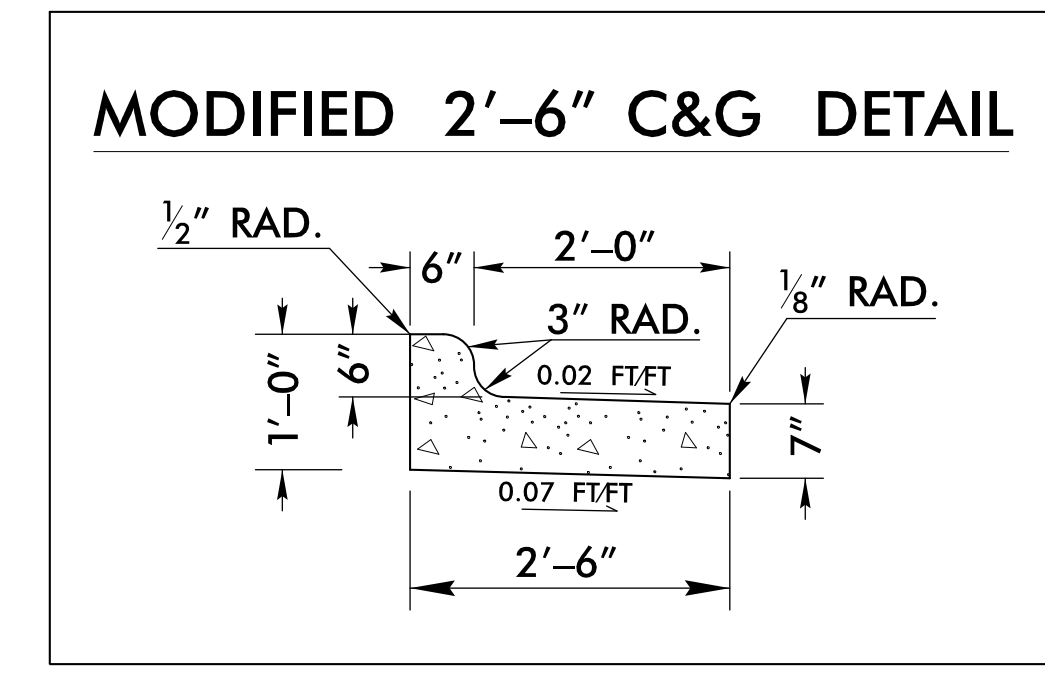
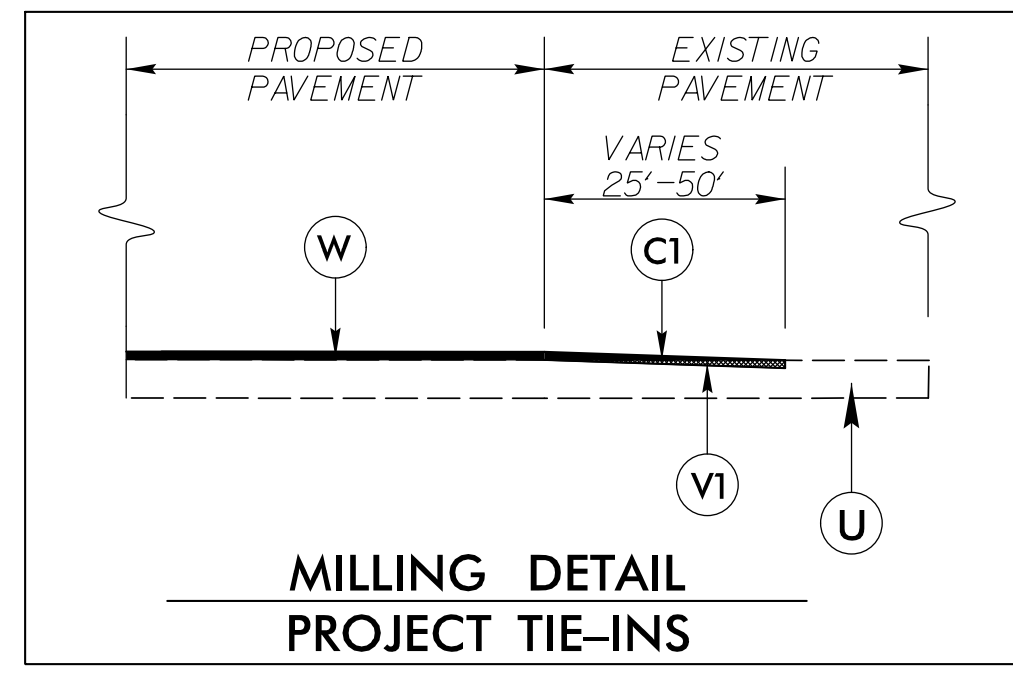
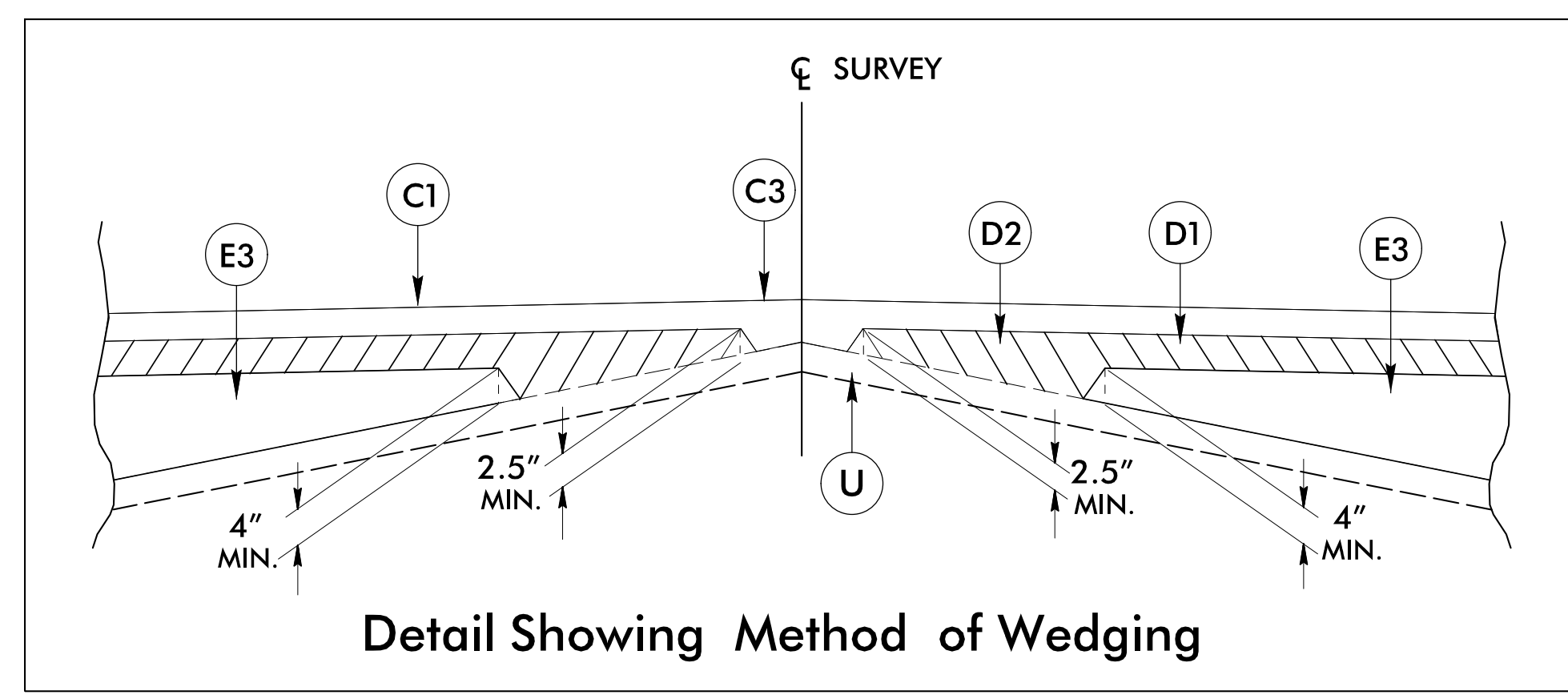
Utility Pole	●
Utility Pole with Base	⊠
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- 7UTL
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	⊠ UST
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

5/14/20

PAVEMENT SCHEDULE	
A1	7" TRUCK MOUNTABLE CONCRETE APRON
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
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
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
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.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	6" AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER (MODIFIED). SEE DETAIL THIS SHEET
R2	1'-6" CONCRETE CURB AND GUTTER CLASS AA
R3	5" MONOLITHIC CONCRETE ISLAND
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	VARIABLE DEPTH MILLING
V2	1.5" DEPTH MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL ON THIS SHEET)

- NOTES:
- TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY  
SEE PLANS FOR SUPERELEVATION DETAILS
  - ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE
  - PAVEMENT DESIGN IN PROGRESS (BY OTHERS)
  - UTILIZE WELDED WIRE MESH (EITHER 4x4 W3.5x3.5 OR 6x6 W5xW5) IN PROP. 7" MOUNTABLE CONCRETE APRON.
  - OVERLAP WELDED WIRE MESH PANELS 4".

PROJECT REFERENCE NO. U-6088	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC NO. F-0165	

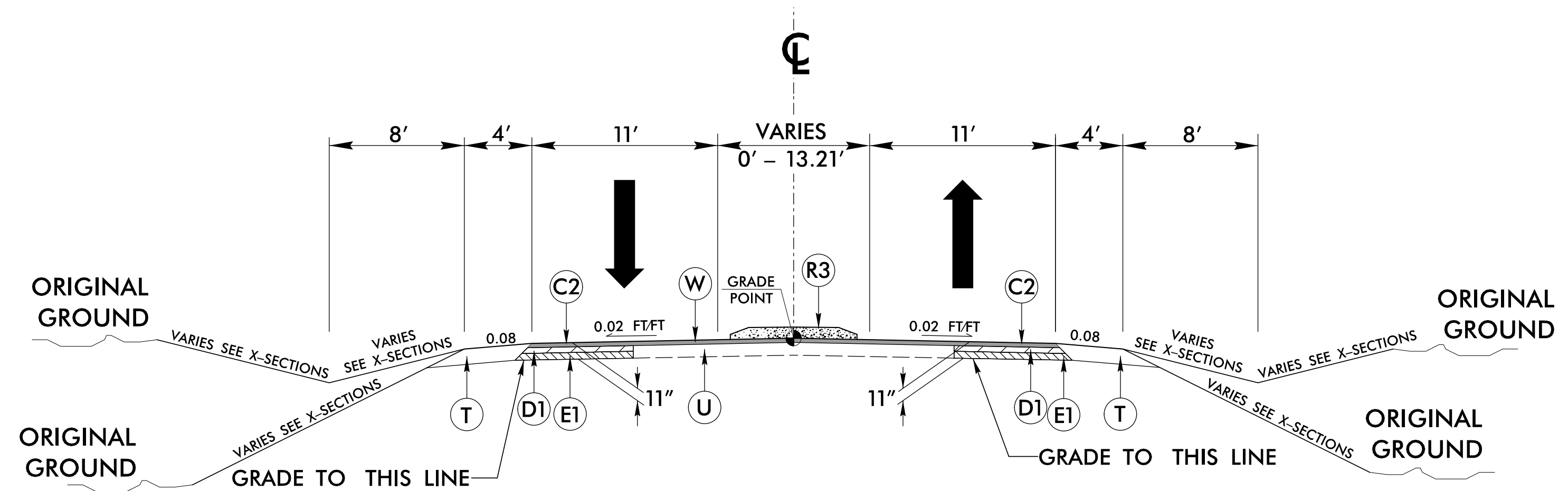


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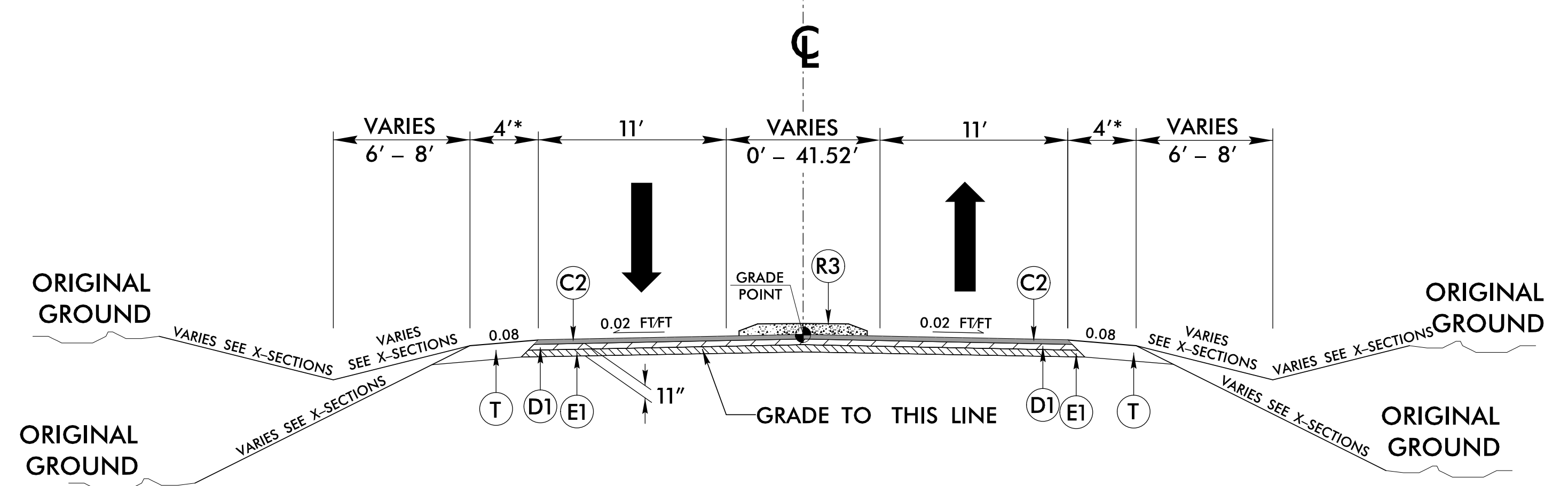
5/14/2022

LEGEND	
A1	7" CONCRETE APRON
C1	1.5" S9.5C
C2	3" S9.5C
D1	4" I19.0C
E1	4" B25.0C
E2	5" B25.0C
J1	6" ABC
R2	1'-6" CONCRETE C&G
R3	5" MCI
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V2	1.5" DEPTH MILLING
W	WEDGING



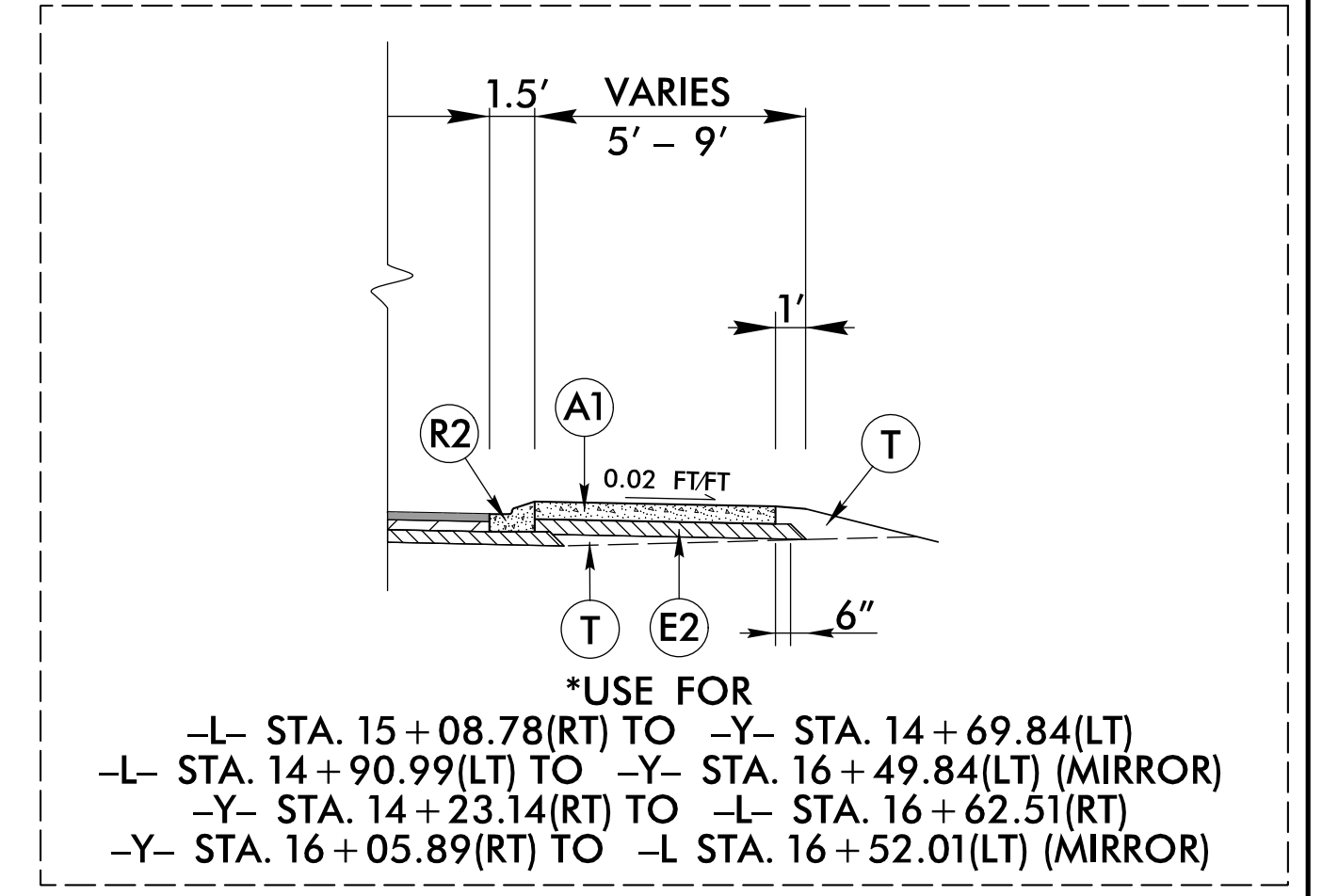
**TYPICAL SECTION NO. 2**

SR 1315 (NEW TOWN RD)/SR 1312 (MARVIN RD)/MEADOWLARK LANE  
 -L- STA. 11+00.00 TO STA. 14+25.00  
 -L- STA. 17+35.00 TO STA. 20+00.00  
 -Y- STA. 16+50.00 TO STA. 18+50.00

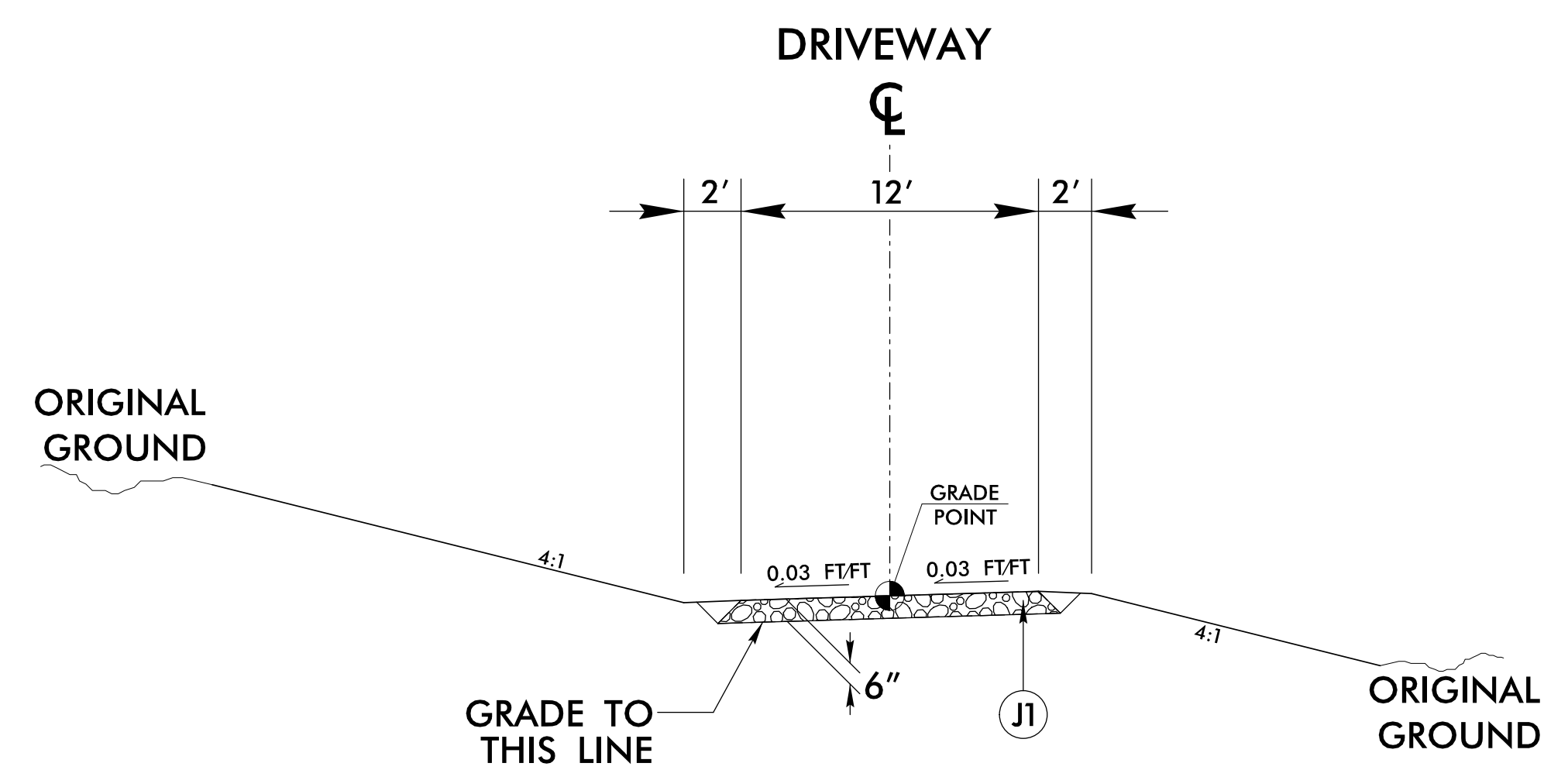


**TYPICAL SECTION NO. 3**

SR 1315 (NEW TOWN RD)/SR 1312 (MARVIN RD)/MEADOWLARK LN  
 -L- STA. 14+25.00 TO STA. 15+16.45 (BEGIN RAB)  
 -L- STA. 16+46.45 (END RAB) TO STA. 17+35.00  
 -Y- STA. 11+50.00 TO STA. 14+72.57 (BEGIN RAB)  
 -Y- STA. 16+02.94 (END RAB) TO STA. 16+50.00

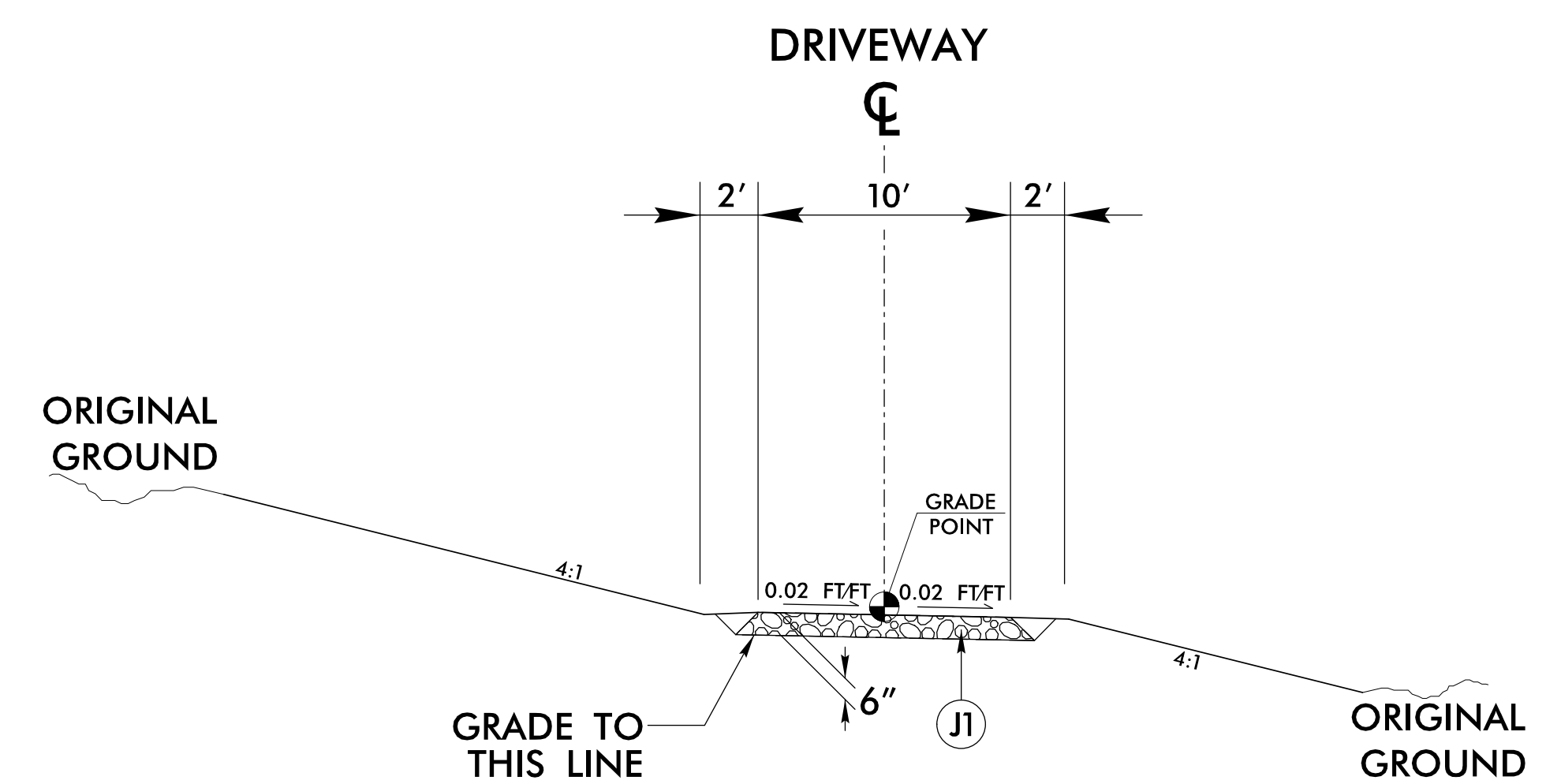


\*USE FOR  
 -L- STA. 15+08.78(RT) TO -Y- STA. 14+69.84(LT)  
 -L- STA. 14+90.99(LT) TO -Y- STA. 16+49.84(LT) (MIRROR)  
 -Y- STA. 14+23.14(RT) TO -L- STA. 16+62.51(RT)  
 -Y- STA. 16+05.89(RT) TO -L- STA. 16+52.01(LT) (MIRROR)



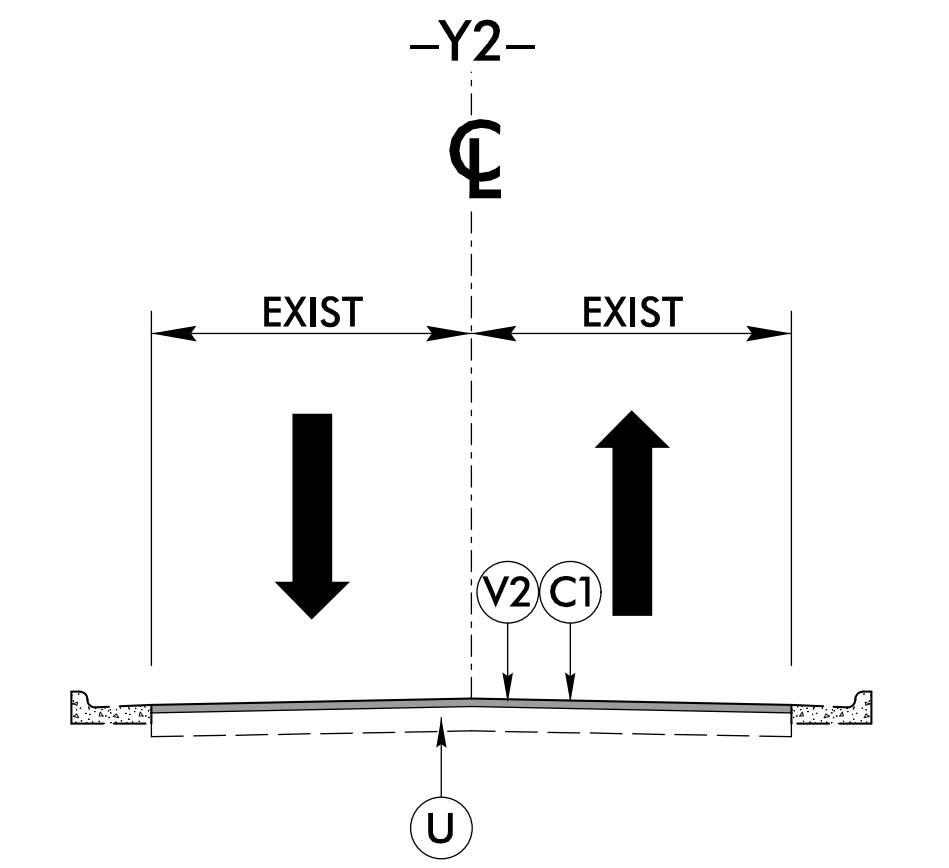
**TYPICAL SECTION NO. 4**

-DR1- STA. 10+11.32 TO 11+30.00



**TYPICAL SECTION NO. 5**

-DR2- STA. 10+22.02 TO 12+30.00  
 -DR3- STA. 10+11.00 TO 11+62.00



**TYPICAL SECTION NO. 6**

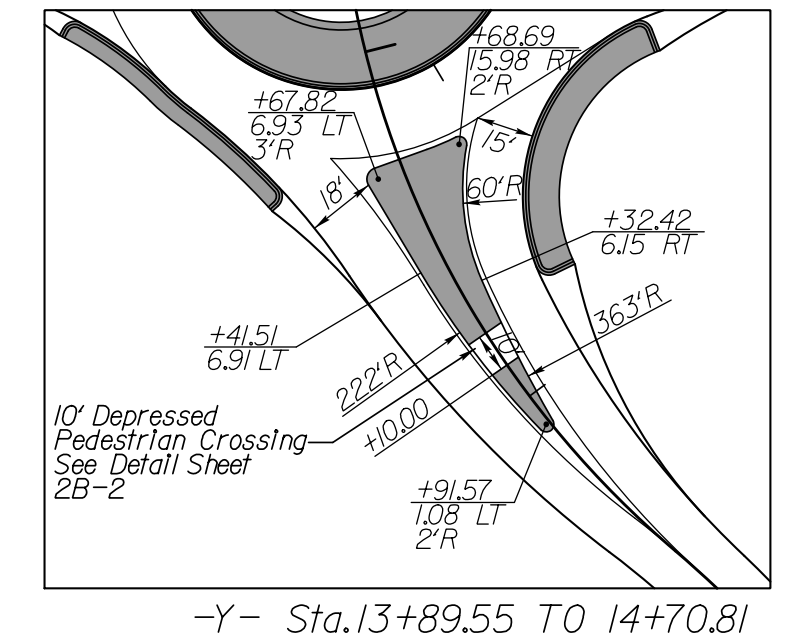
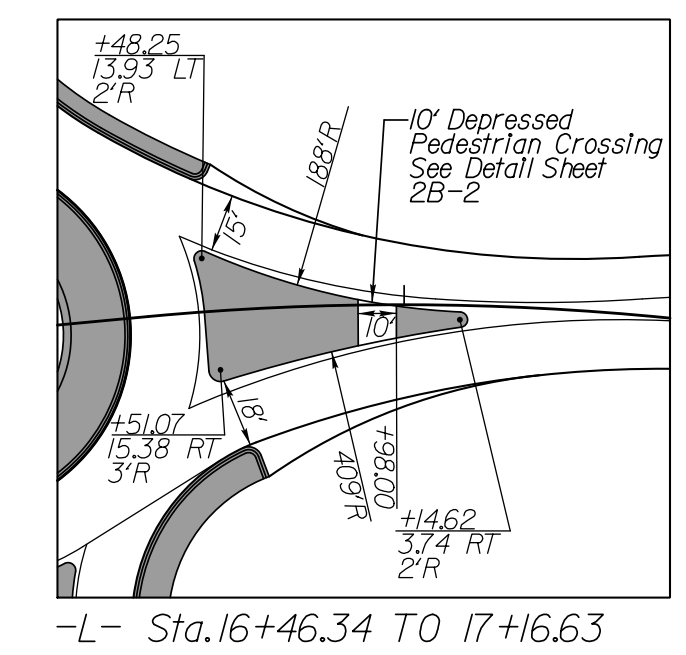
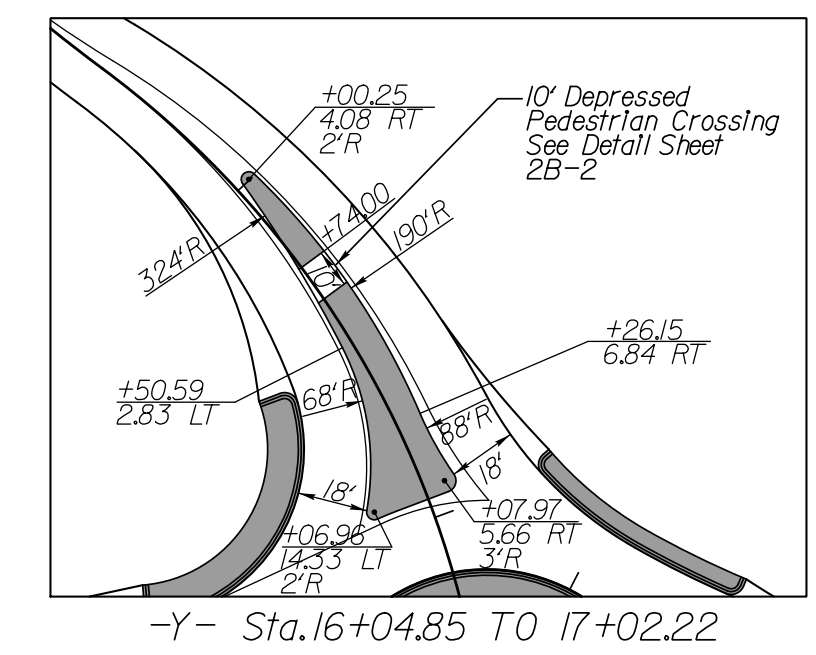
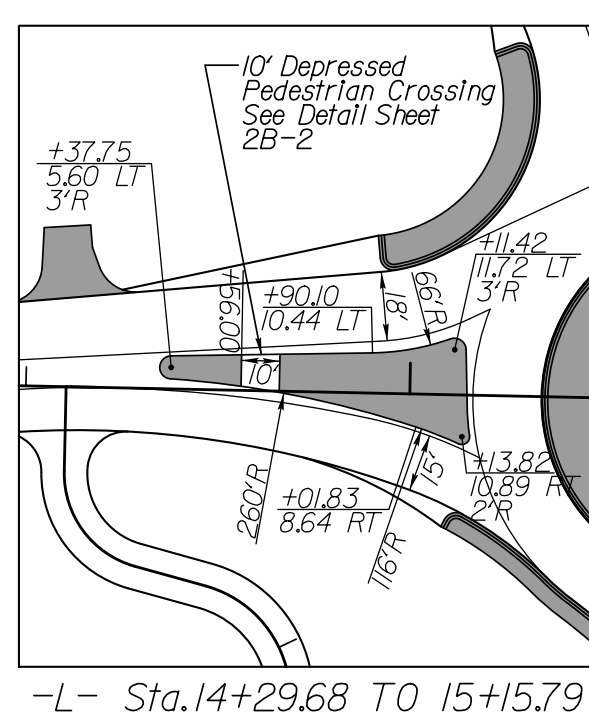
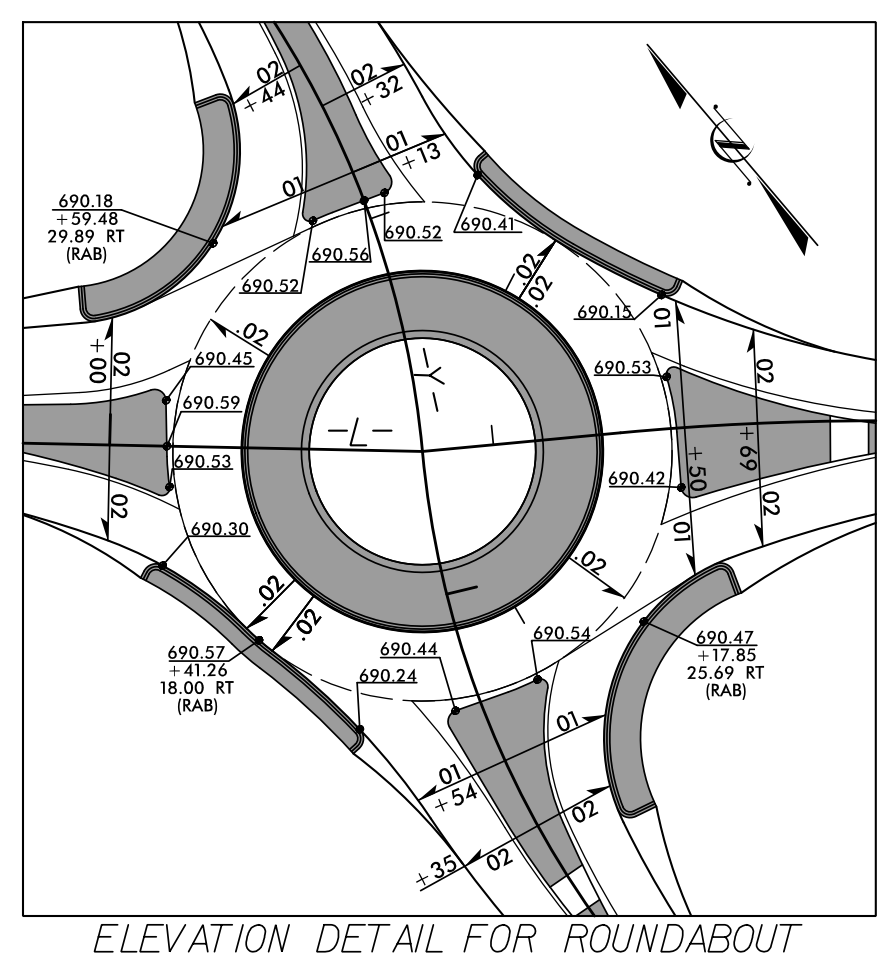
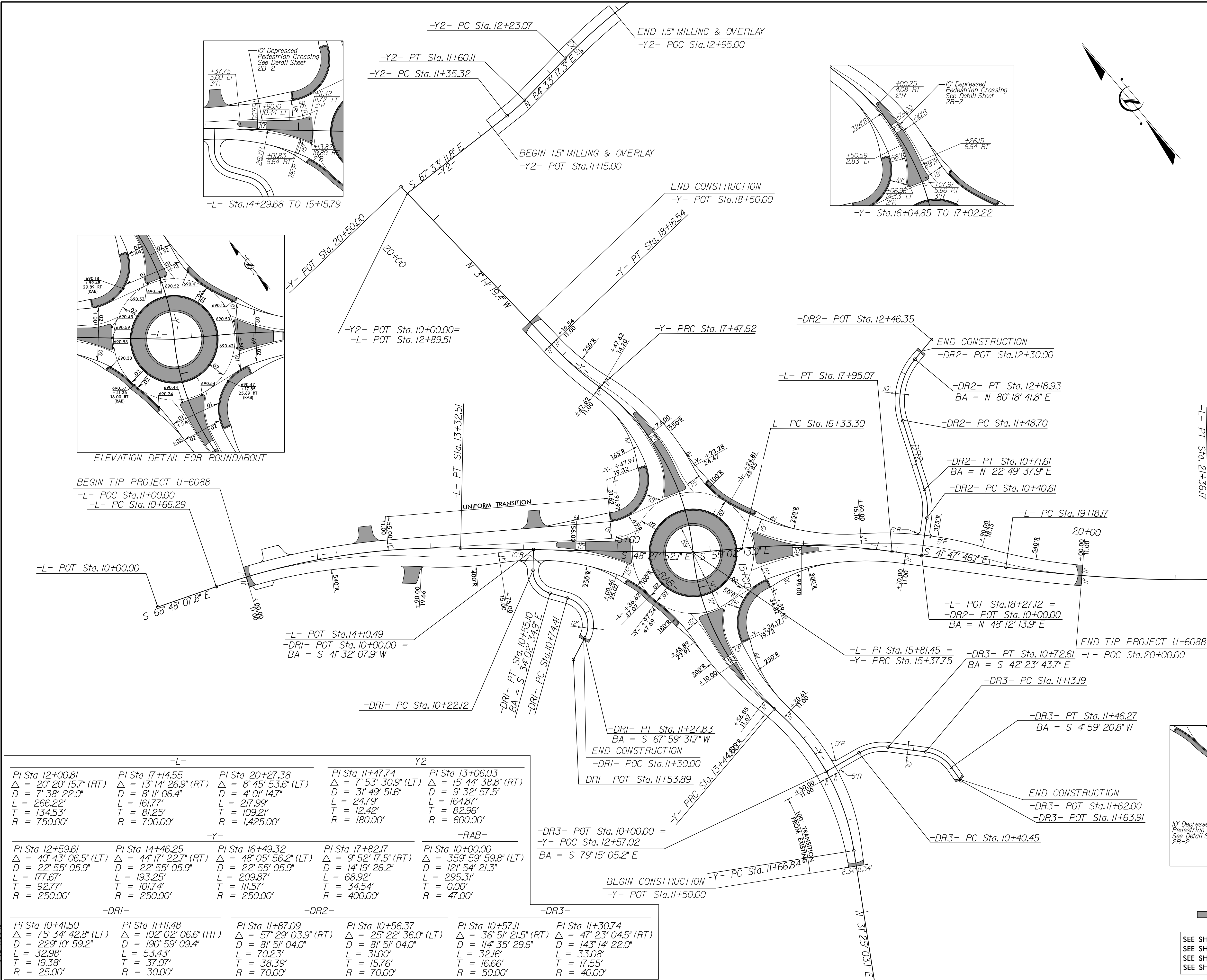
GOLDEN BELL DR  
 -Y2- STA. 11+15.00 TO STA. 12+95.00

PROJECT REFERENCE NO. U-6088	SHEET NO. 2A-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
1001 Morehead Square Dr., Suite 610, Charlotte, NC, 28203 NC LIC NO. F-0165	

2T\_U-6088\Roadway\Project\U6088\_RdJ\_TYP.dgn  
 12/21/2022 10:00:00 AM



PROJECT REFERENCE NO. U-6088	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC NO. F-0165	

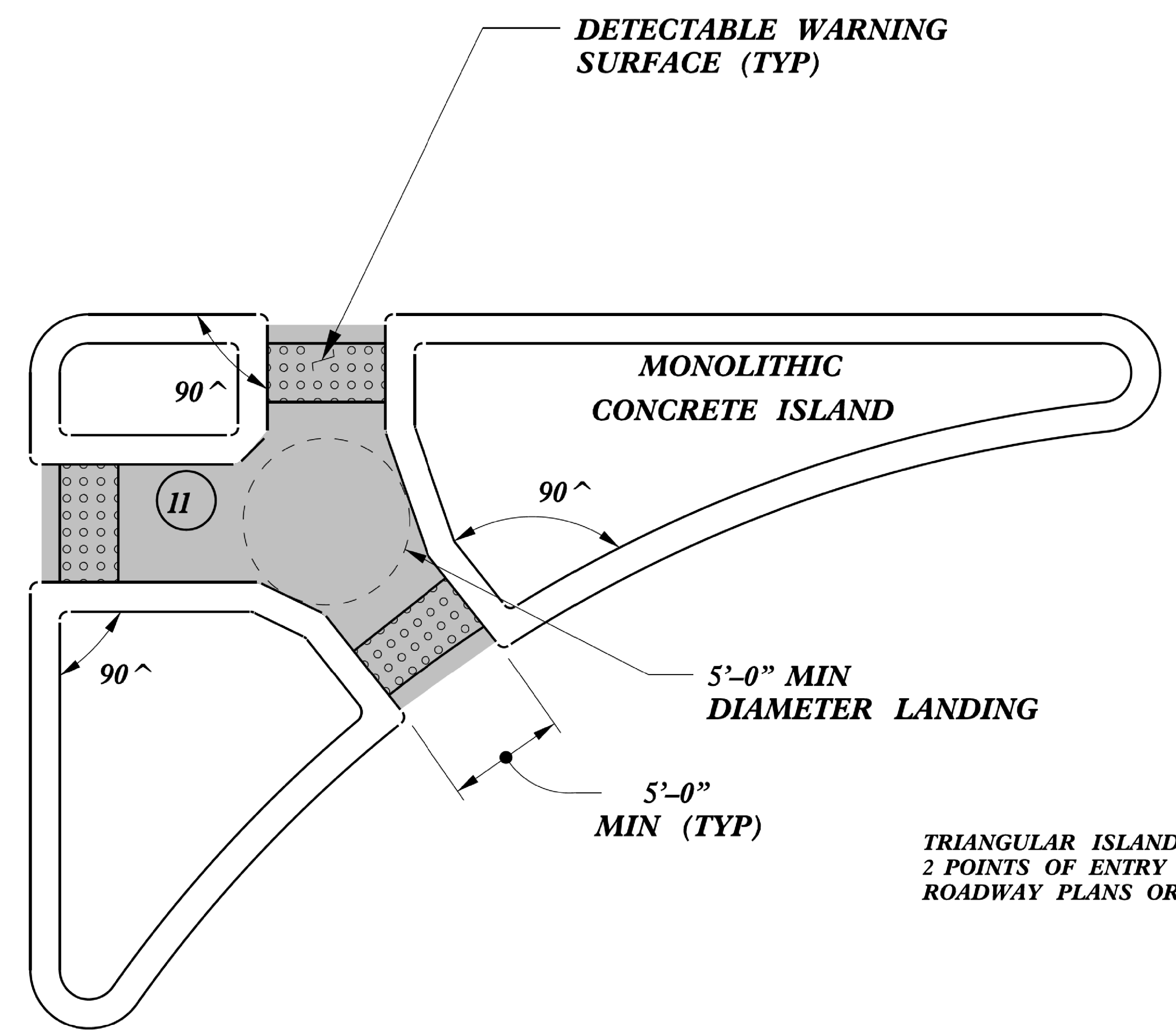


-L-		-Y2-	
PI Sta 12+00.81 Δ = 20° 20' 15.7" (RT) D = 7' 38" 22.0" L = 266.22' T = 134.53' R = 750.00'	PI Sta 17+4.55 Δ = 13° 14' 26.9" (RT) D = 8' 11" 06.4" L = 161.77' T = 81.25' R = 700.00'	PI Sta 20+27.38 Δ = 48° 05' 56.2" (LT) D = 4' 01' 14.7" L = 217.99' T = 109.21' R = 1,425.00'	PI Sta 11+47.74 Δ = 7° 53' 30.9" (LT) D = 31' 49' 51.6" L = 247.9' T = 12.42' R = 180.00'
-Y-		-RAB-	
PI Sta 12+59.61 Δ = 40° 43' 06.5" (LT) D = 22° 55' 05.9" L = 177.67' T = 92.77' R = 250.00'	PI Sta 14+46.25 Δ = 44° 17' 22.7" (RT) D = 22° 55' 05.9" L = 193.25' T = 101.74' R = 250.00'	PI Sta 16+49.32 Δ = 9° 52' 17.5" (RT) D = 22° 55' 05.9" L = 209.87' T = 111.57' R = 250.00'	PI Sta 17+82.17 Δ = 14° 19' 26.2" D = 14' 19' 26.2" L = 68.92' T = 34.54' R = 400.00'
-DRI-		-DR2-	
PI Sta 10+41.50 Δ = 75° 34' 42.8" (LT) D = 229° 10' 59.2" L = 32.98' T = 19.38' R = 25.00'	PI Sta 11+41.48 Δ = 102° 02' 06.6" (RT) D = 190° 59' 09.4" L = 53.43' T = 37.07' R = 30.00'	PI Sta 11+87.09 Δ = 57° 29' 03.9" (RT) D = 8° 51' 04.0" L = 70.23' T = 38.39' R = 70.00'	PI Sta 10+56.37 Δ = 25° 22' 36.0" (LT) D = 81° 51' 04.0" L = 31.00' T = 15.76' R = 70.00'
-DR1-		-DR3-	
PI Sta 10+41.50 Δ = 75° 34' 42.8" (LT) D = 229° 10' 59.2" L = 32.98' T = 19.38' R = 25.00'	PI Sta 11+41.48 Δ = 102° 02' 06.6" (RT) D = 190° 59' 09.4" L = 53.43' T = 37.07' R = 30.00'	PI Sta 11+87.09 Δ = 57° 29' 03.9" (RT) D = 8° 51' 04.0" L = 70.23' T = 38.39' R = 70.00'	PI Sta 10+56.37 Δ = 25° 22' 36.0" (LT) D = 81° 51' 04.0" L = 31.00' T = 15.76' R = 70.00'

PROPOSED C&G AND CONCRETE MONOLITHIC ISLAND

SEE SHEET 4 FOR -L-, -Y-, -DRI-, -DR2-, -DR3- PLAN  
SEE SHEET 5 FOR -L-, -Y- & -DRI- PROFILES  
SEE SHEET 6 FOR -DR2- & -DR3- PROFILES  
SEE SHEET 2B-2 FOR CURB RAMP DETAILS

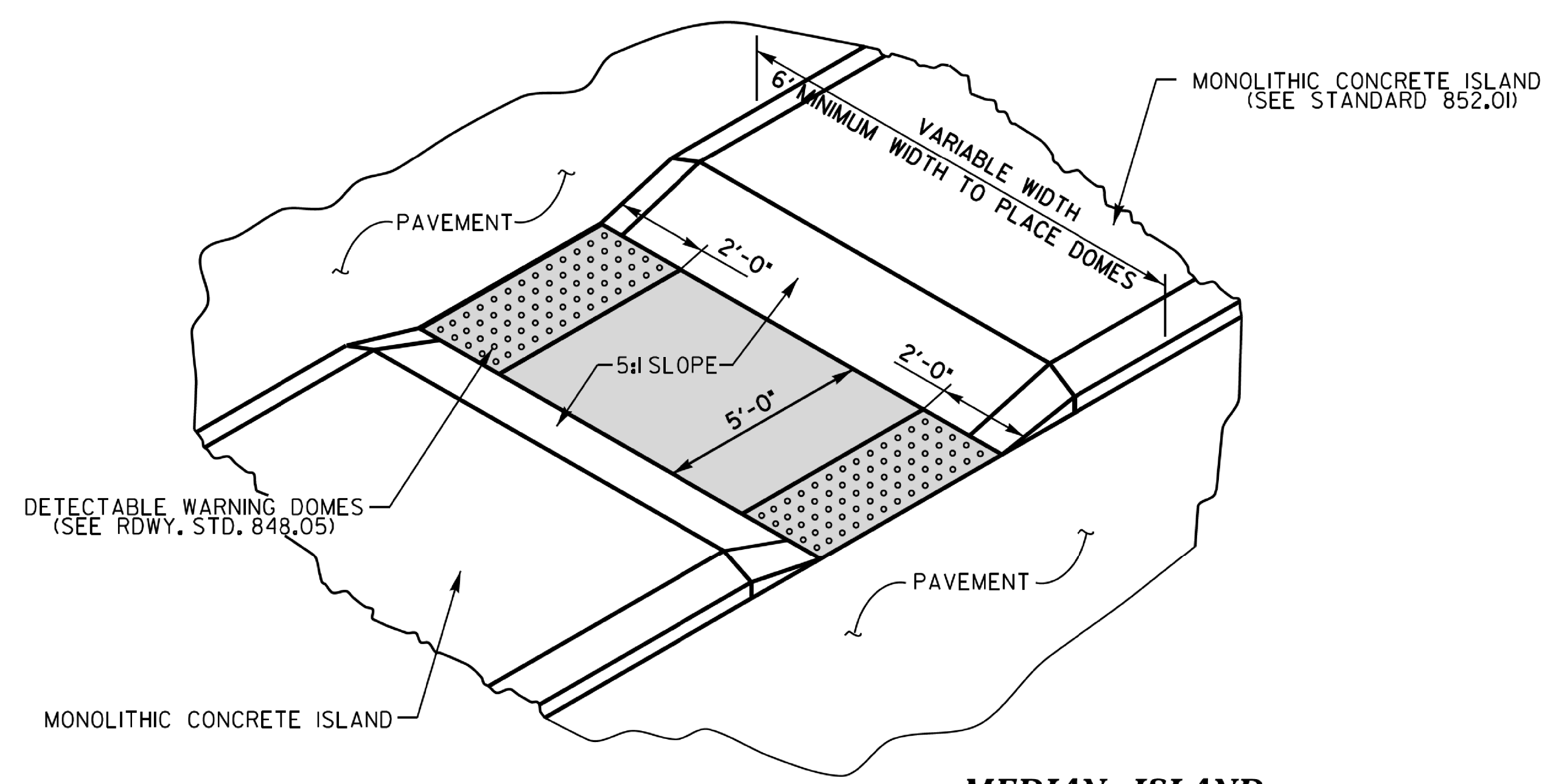




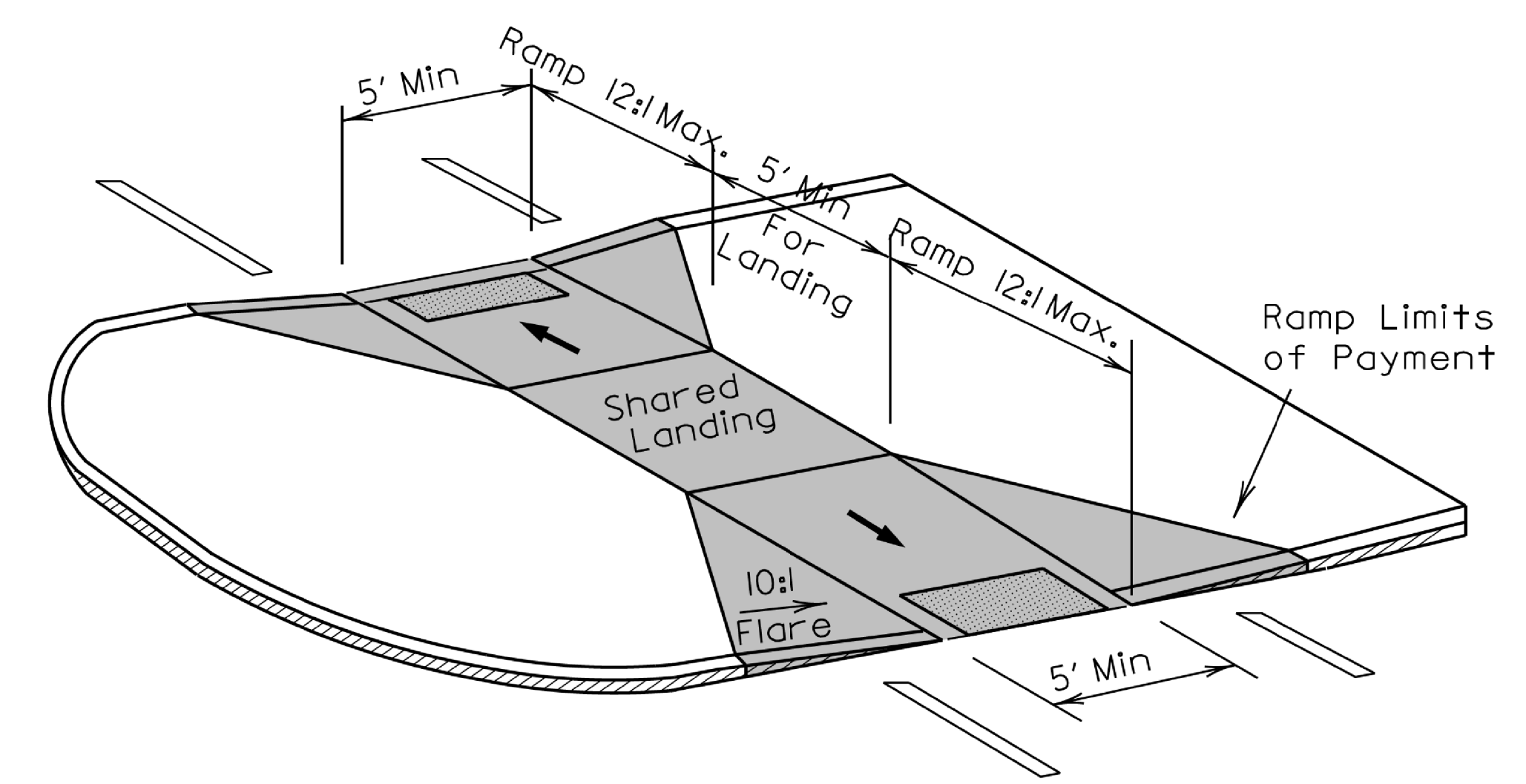
 PAY LIMITS FOR 1 CURB RAMP

TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

**TRIANGULAR ISLAND WITH CUT THROUGH**



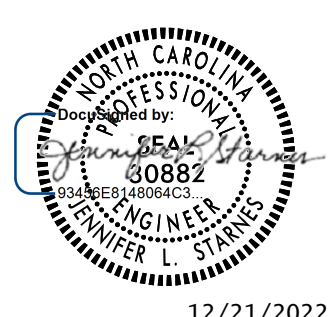


**MEDIAN ISLAND WITH CUT THROUGH**

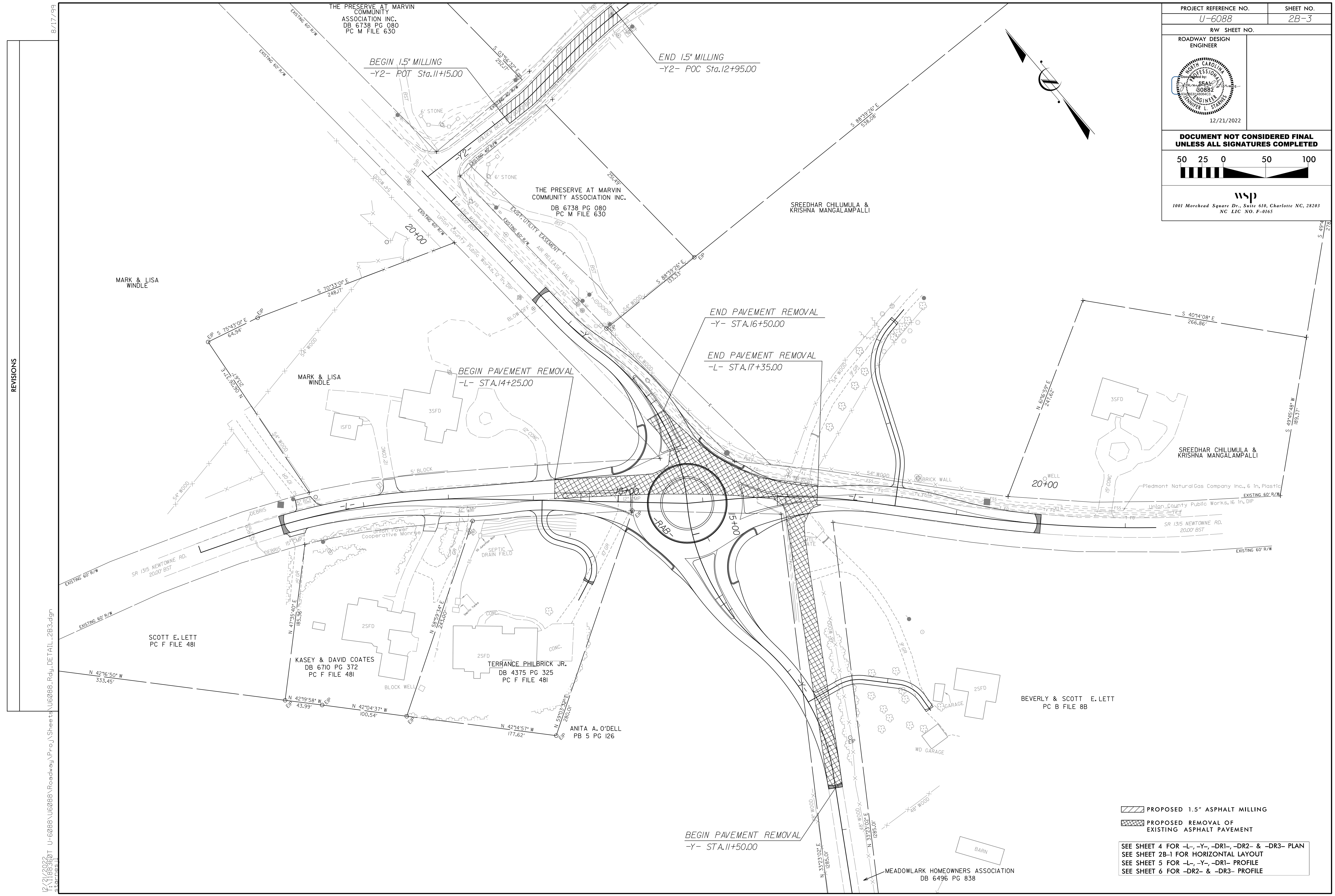
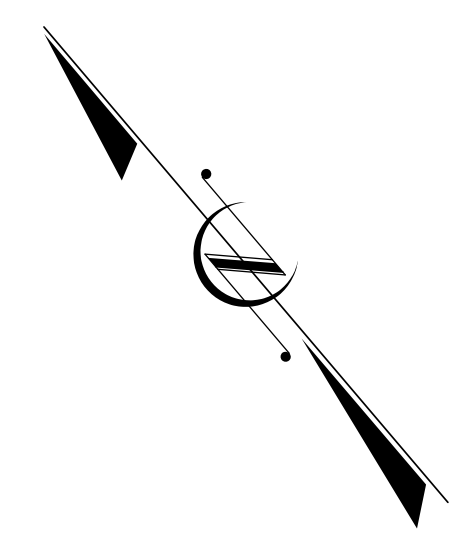


**MEDIAN ISLAND CURB RAMPS**

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

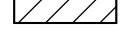
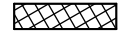
5/14/99  
88\U6088\Roadway\ProJ\Sheets\U6088\_Rdy\_DETAIL\_2B2.dgn  
12/2/2022

PROJECT REFERENCE NO. <i>U-6088</i>	SHEET NO. <i>2B-3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	
	
 <p>1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC. NO. F-0165</p>	



REVISIONS

12/21/2022  
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 PROPOSED 1.5" ASPHALT MILLING  
 PROPOSED REMOVAL OF EXISTING ASPHALT PAVEMENT

SEE SHEET 4 FOR -L-, -Y-, -DR1-, -DR2- & -DR3- PLAN  
 SEE SHEET 2B-1 FOR HORIZONTAL LAYOUT  
 SEE SHEET 5 FOR -L-, -Y-, -DR1- PROFILE  
 SEE SHEET 6 FOR -DR2- & -DR3- PROFILE



12/06/07

I:\11883601-U-6088-Roadway\Proj\Sheets\U6088-r.dwg-SUM.dgn

COMPUTED BY: AP	DATE: 10/12/2021
CHECKED BY: JLS	DATE: 10/28/2021

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. U-6088	SHEET NO. 3B-1
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**SUMMARY OF EARTHWORK**

STATION	STATION	UNCL. EXCAV.	EMBANK. +20%	BORROW	WASTE
-L- 11+00.00	-L- 15+16.45	433	53		380
-L- 16+46.45	-L- 20+00.00	188	617	429	
-Y- 11+50.00	-Y- 14+72.00	333	862	529	
-Y- 16+03.59	-Y- 18+50.00	125	239	114	
* -L- 15+16.45	-L- 16+46.45		344	344	
* -Y- 14+72.00	-Y- 16+03.59		67	67	
SUBTOTALS:		1,079	2,182	1,483	380
-DR1- 10+50.00	-DR1- 11+30.00	34			34
-DR2- 10+30.00	-DR2- 10+75.00	12			12
-DR3- 10+30.00	-DR3- 11+62.00	51	4		47
-RAB- 10+00.00	-RAB- 12+95.00	39	1,925	1,886	
SUBTOTALS:		136	1,929	1,886	93
TOTALS:		1,215	4,111	3,369	473
WASTE IN LIEU OF BORROW				-473	-473
PROJECT TOTALS:		1,215	4,111	2,896	
EST. 5% TO REPLACE SOIL ON BORROW PIT				145	
GRAND TOTALS:		1,215	4,109	3,041	
SAY:		1,250		3,050	

\* QUANTITY REPRESENTS EARTH TO REPLACE PAVEMENT REMOVAL (18" ASSUMED) ON EXISTING L AND/OR Y, THROUGH THE ROUNDABOUT AREA. PAVEMENT REMOVAL OUTSIDE OF ROUNDABOUT AREA WAS CONSIDERED IN QUANTITIES ABOVE.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING & GRUBBING, REMOVAL OF EXISTING ASPHALT PAVEMENT AND REMOVAL OF EXISTING CONCRETE PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

**PAVEMENT REMOVAL SUMMARY**

SURVEY LINE	STATION	STATION	YD'
-L-	14+25.00	17+35.00	1,035.93
-Y-	11+50.00	15+31.00	697.36
-Y-	16+00.00	16+50.00	148.24
TOTAL:			1,881.53
SAY:			1,890

**SUMMARY OF EXISTING CONCRETE PAVEMENT REMOVAL**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD'
-L-	12+16.00	12+50.00	LT	30.52
-L-	13+95.00	14+29.00	LT	30.67
-L-	13+07.00	13+27.00	RT	34.58
TOTAL:				95.77
SAY:				100

**CURB & GUTTER SUMMARY**

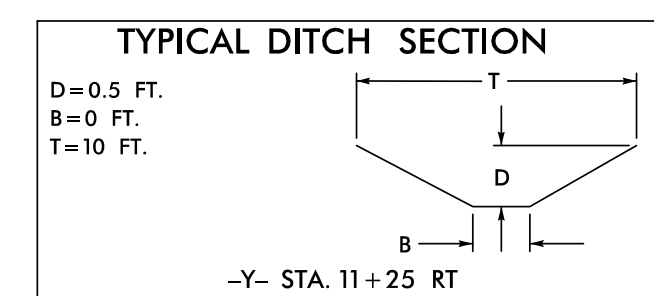
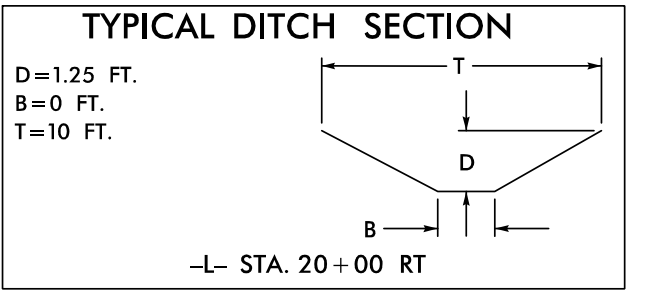
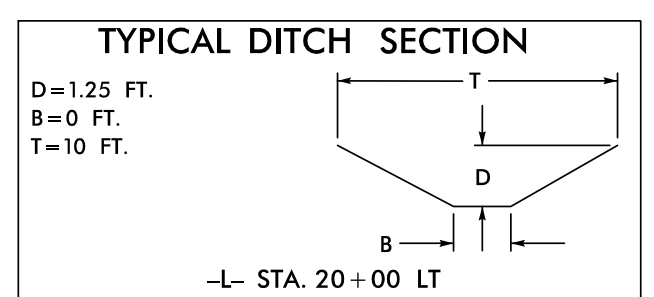
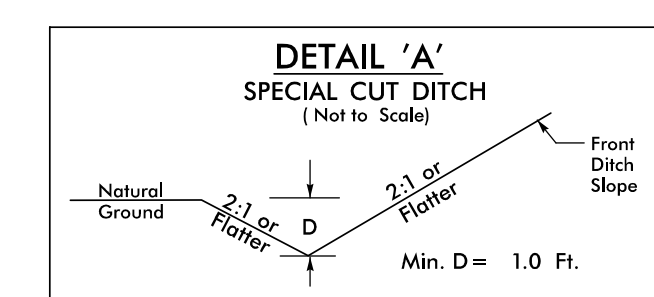
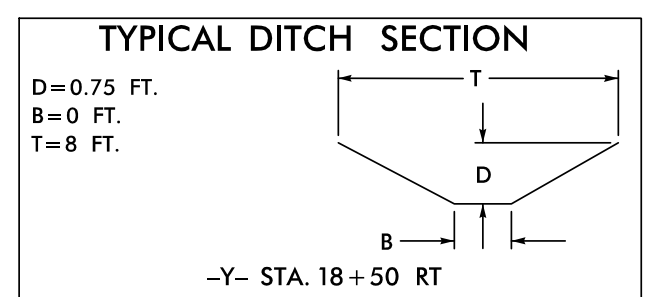
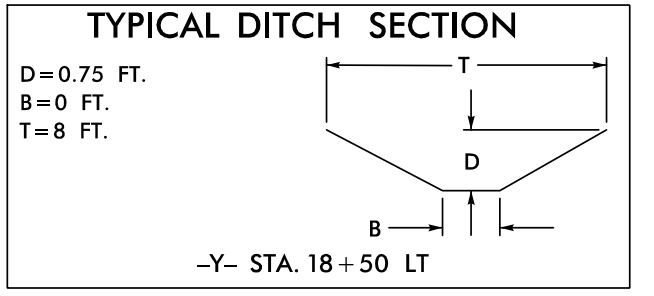
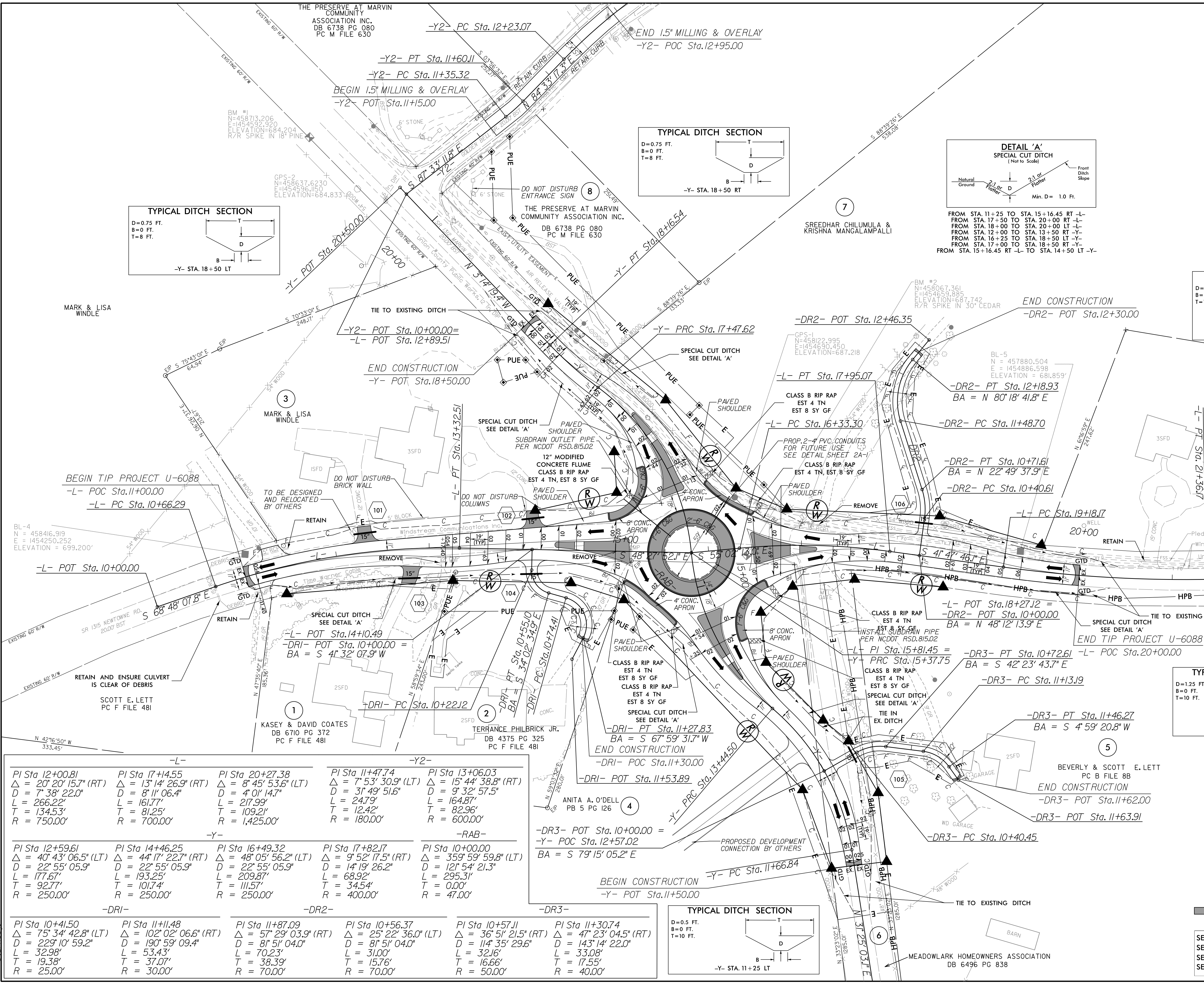
SURVEY LINE	STATION	STATION	LENGTH
CLASS AA CONCRETE 1'-6" C&G (BLACK TINT)			
L/Y	14+91.59	LT 16+48.67	98.83
L/Y	15+09.63	RT 14+70.46	82.07
L/Y	14+23.78	RT 16+60.63	72.70
L/Y	16+05.32	RT 16+51.17	98.92
TOTAL:			352.52
SAY:			360
CLASS AA CONCRETE 1'-6" C&G			
RAB	CENTRAL ISLAND		295.31
TOTAL:			295.31
SAY:			300'
MODIFIED CONCRETE 2'-6" C&G			
RAB	CENTRAL ISLAND		197.92
TOTAL:			197.92
SAY:			200'



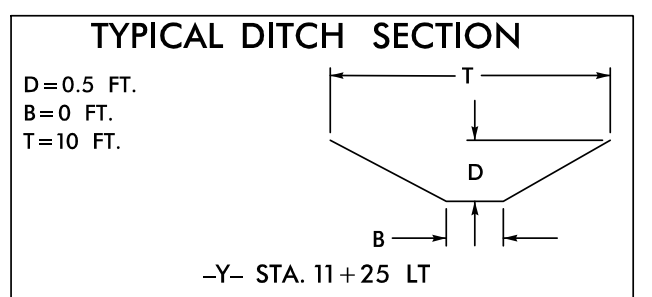


5/14/2022  
6/28/2022  
6088\U6088\Roadway\Proj\Sheets\U6088\_Rdly\_PSH\_04.dgn

PROJECT REFERENCE NO. U-6088	SHEET NO. 4
RW SHEET NO. RW04	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
50 25 0 50 100	
wsp 1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC. NO. F-0165	



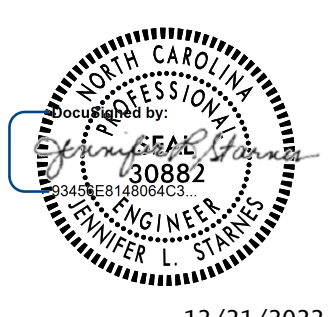


-L-		-Y2-		-RAB-	
PI Sta 12+00.81 Δ = 20° 20' 15.7" (RT) D = 7' 38' 22.0" L = 266.22' T = 134.53' R = 750.00'	PI Sta 17+4.55 Δ = 13° 14' 26.9" (RT) D = 8' 11' 06.4" L = 161.77' T = 81.25' R = 700.00'	PI Sta 20+27.38 Δ = 8° 45' 53.6" (LT) D = 4' 01' 14.7" L = 217.99' T = 109.21' R = 1,425.00'	PI Sta 11+47.74 Δ = 7° 53' 30.9" (LT) D = 3' 49' 51.6" L = 247.9' T = 124.2' R = 180.00'	PI Sta 13+06.03 Δ = 15° 44' 38.8" (RT) D = 9' 32' 57.5" L = 164.87' T = 82.96' R = 600.00'	PI Sta 10+00.00 Δ = 47° 23' 04.5" (RT) D = 121' 54' 21.3" L = 295.31' T = 0.00' R = 47.00'
-Y-		-DR1-		-DR2-	
PI Sta 12+59.61 Δ = 40° 43' 06.5" (LT) D = 22° 55' 05.9" L = 177.67' T = 92.77' R = 250.00'	PI Sta 14+46.25 Δ = 44° 17' 22.7" (RT) D = 22° 55' 05.9" L = 193.25' T = 101.74' R = 250.00'	PI Sta 16+49.32 Δ = 57° 29' 03.9" (RT) D = 22° 55' 05.9" L = 209.87' T = 38.39' R = 70.00'	PI Sta 17+82.17 Δ = 48° 05' 56.2" (RT) D = 14° 19' 26.2" L = 68.92' T = 111.57' R = 400.00'	PI Sta 10+56.37 Δ = 25° 22' 36.0" (LT) D = 81' 51' 04.0" L = 31.00' T = 15.76' R = 70.00'	PI Sta 10+57.11 Δ = 36° 51' 21.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'
-DR1-		-DR2-		-DR3-	
PI Sta 10+41.50 Δ = 75° 34' 42.8" (LT) D = 229° 10' 59.2" L = 32.98' T = 19.38' R = 25.00'	PI Sta 11+11.48 Δ = 102° 02' 06.6" (RT) D = 190° 59' 09.4" L = 53.43' T = 37.07' R = 30.00'	PI Sta 11+87.09 Δ = 57° 29' 03.9" (RT) D = 81' 51' 04.0" L = 70.23' T = 38.39' R = 70.00'	PI Sta 10+56.37 Δ = 25° 22' 36.0" (LT) D = 81' 51' 04.0" L = 31.00' T = 15.76' R = 70.00'	PI Sta 10+57.11 Δ = 36° 51' 21.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'	PI Sta 11+30.74 Δ = 47° 23' 04.5" (RT) D = 143' 14' 22.0" L = 33.08' T = 17.55' R = 40.00'

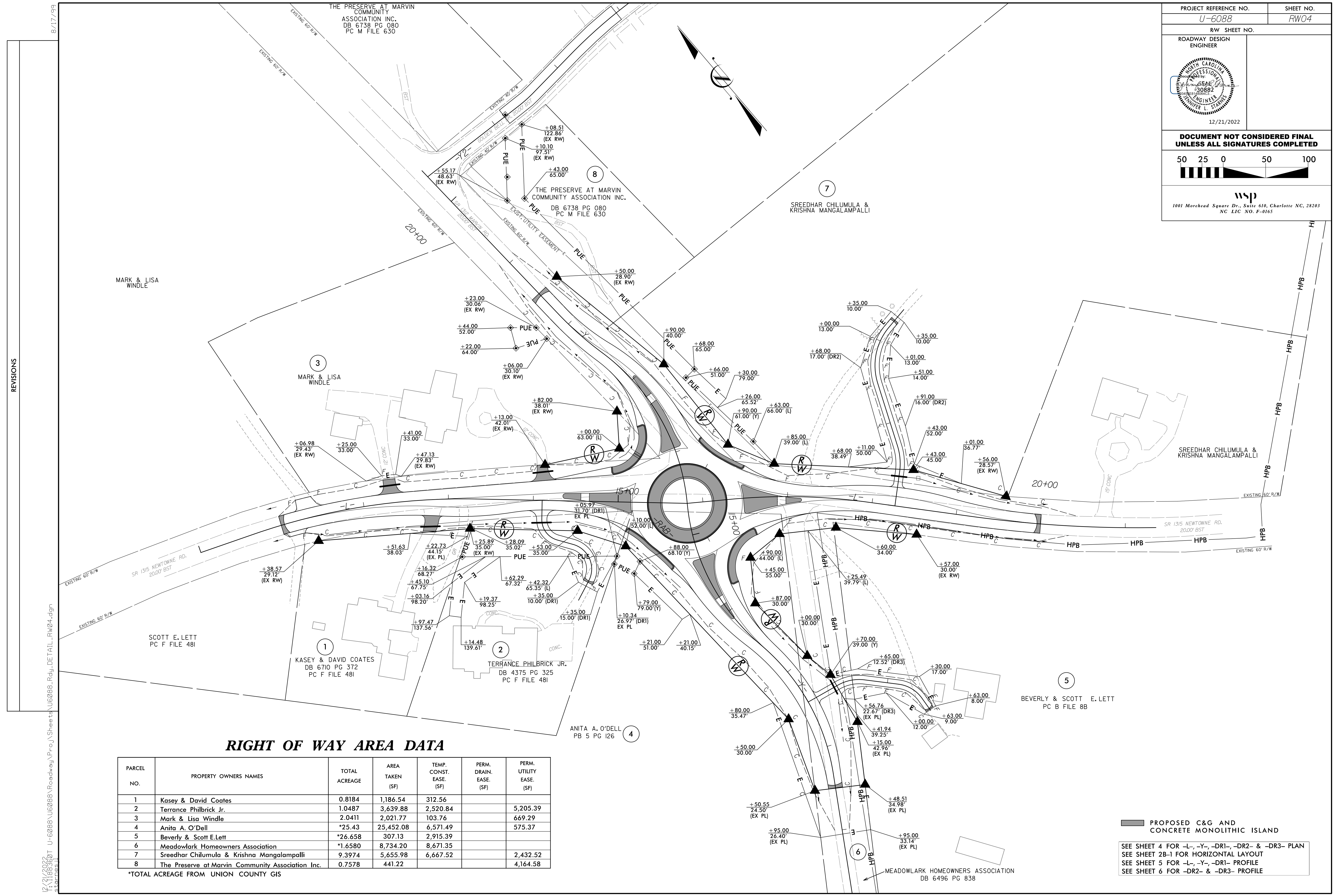


PROPOSED C&G, CONCRETE DRIVEWAY, & CONCRETE MONOLITHIC ISLAND

SEE SHEET 2B-1 FOR HORIZONTAL LAYOUT  
SEE SHEET RW04 FOR RIGHT OF WAY  
SEE SHEET 5 FOR -L-, -Y-, & -DR1- PROFILES  
SEE SHEET 6 FOR -DR2- & -DR3- PROFILES



PROJECT REFERENCE NO. <i>U-6088</i>	SHEET NO. <i>RW04</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p> 	
 <p>1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC. NO. F-0165</p>	




REVISIONS

**RIGHT OF WAY AREA DATA**

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN (SF)	TEMP. CONST. EASE. (SF)	PERM. DRAIN. EASE. (SF)	PERM. UTILITY EASE. (SF)
1	Kasey & David Coates	0.8184	1,186.54	312.56		
2	Terrance Philbrick Jr.	1.0487	3,639.88	2,520.84		5,205.39
3	Mark & Lisa Windle	2.0411	2,021.77	103.76		669.29
4	Anita A. O'Dell	*25.43	25,452.08	6,571.49		575.37
5	Beverly & Scott E. Lett	*26.658	307.13	2,915.39		
6	Meadowlark Homeowners Association	*1.6580	8,734.20	8,671.35		
7	Sreedhar Chilumula & Krishna Mangalampalli	9.3974	5,655.98	6,667.52		2,432.52
8	The Preserve at Marvin Community Association Inc.	0.7578	441.22			4,164.58

\*TOTAL ACREAGE FROM UNION COUNTY GIS

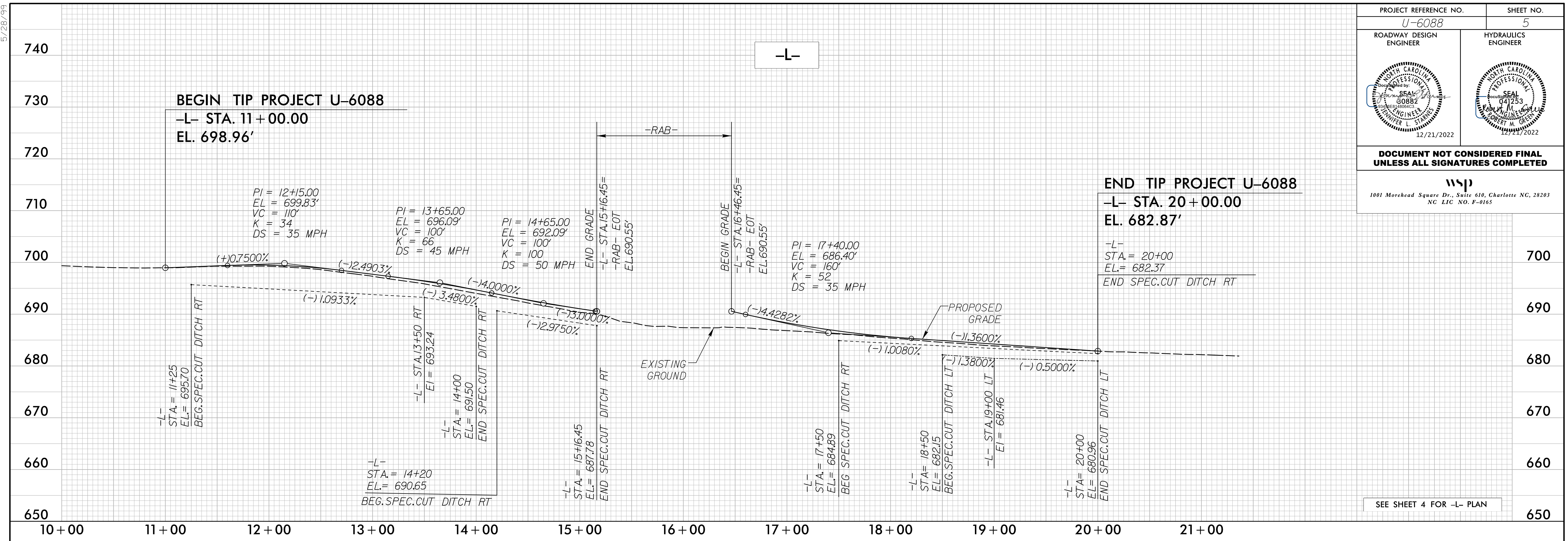

  
 SEE SHEET 4 FOR -L-, -Y-, -DR1-, -DR2- & -DR3- PLAN  
 SEE SHEET 2B-1 FOR HORIZONTAL LAYOUT  
 SEE SHEET 5 FOR -L-, -Y-, -DR1- PROFILE  
 SEE SHEET 6 FOR -DR2- & -DR3- PROFILE

12/21/2022  
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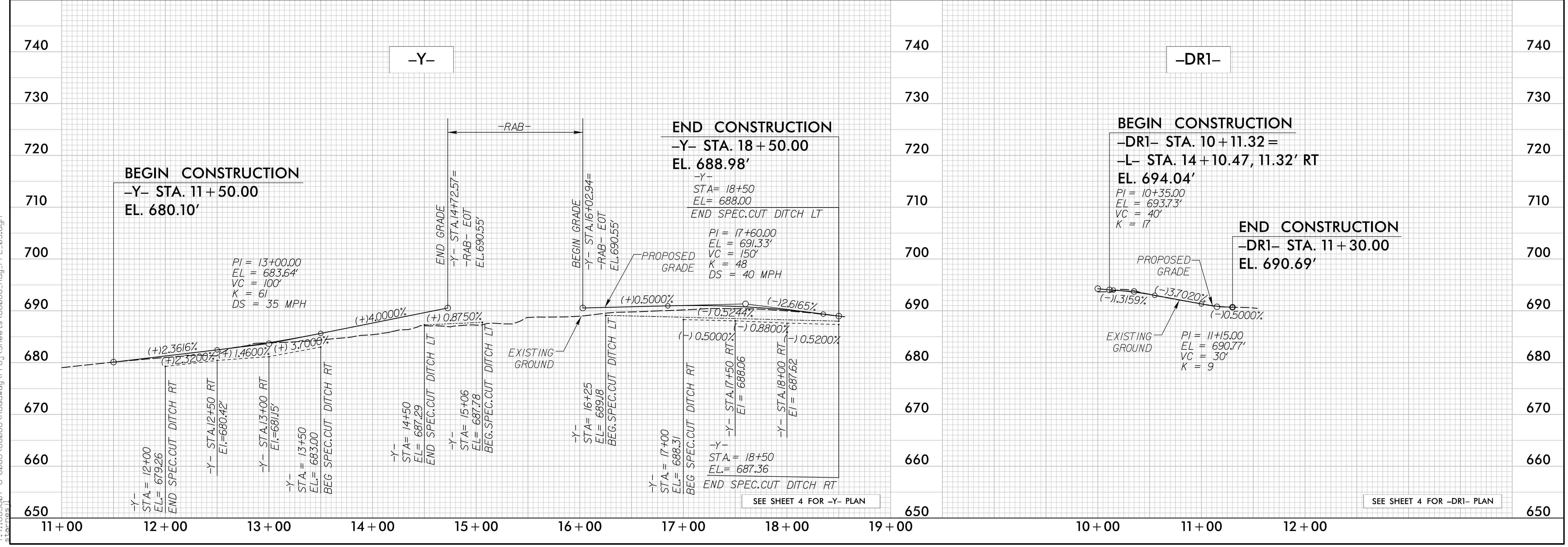


5/28/2022

PROJECT REFERENCE NO. <b>U-6088</b>		SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		
<b>WSP</b> 1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC. NO. F-0165		

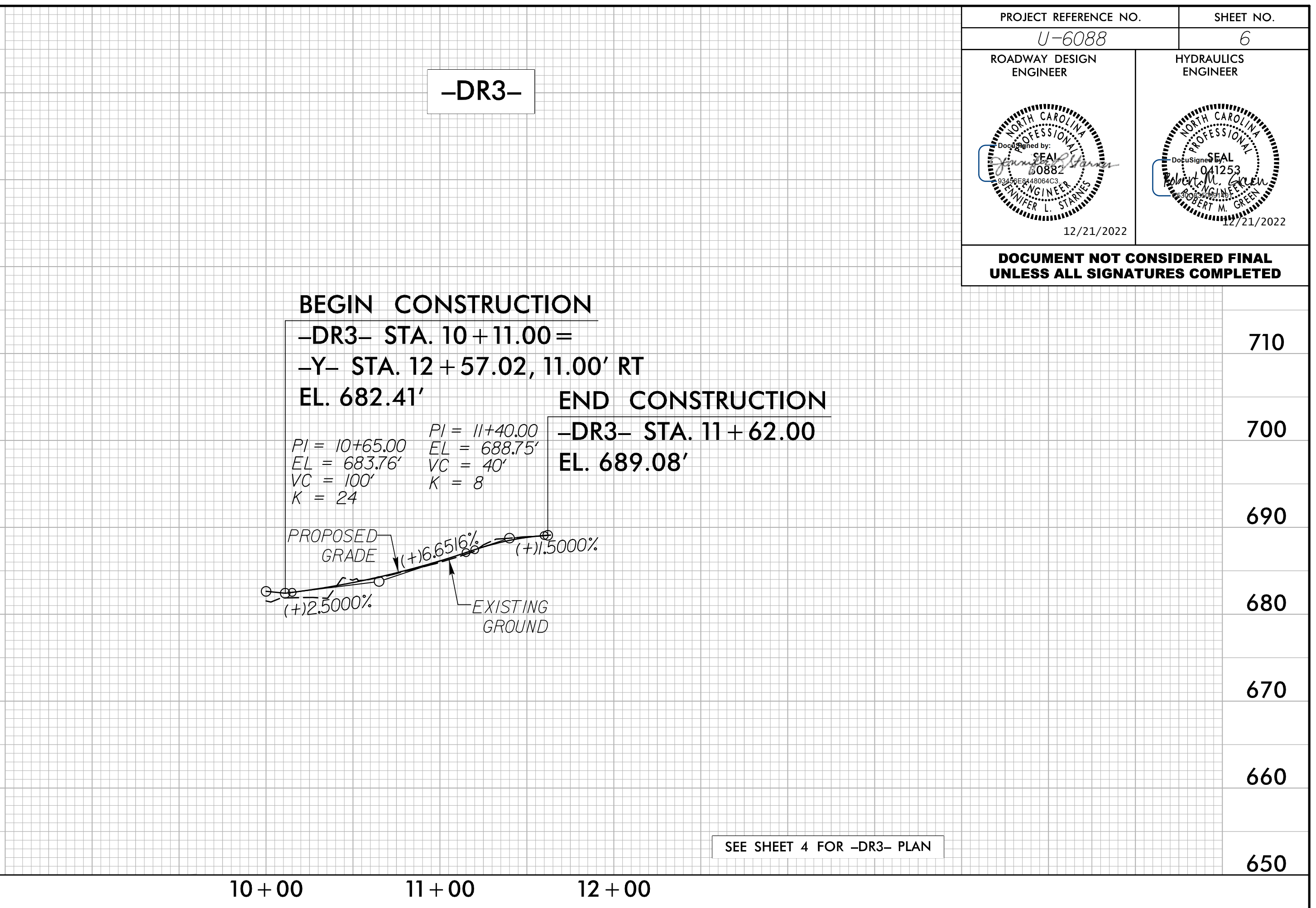
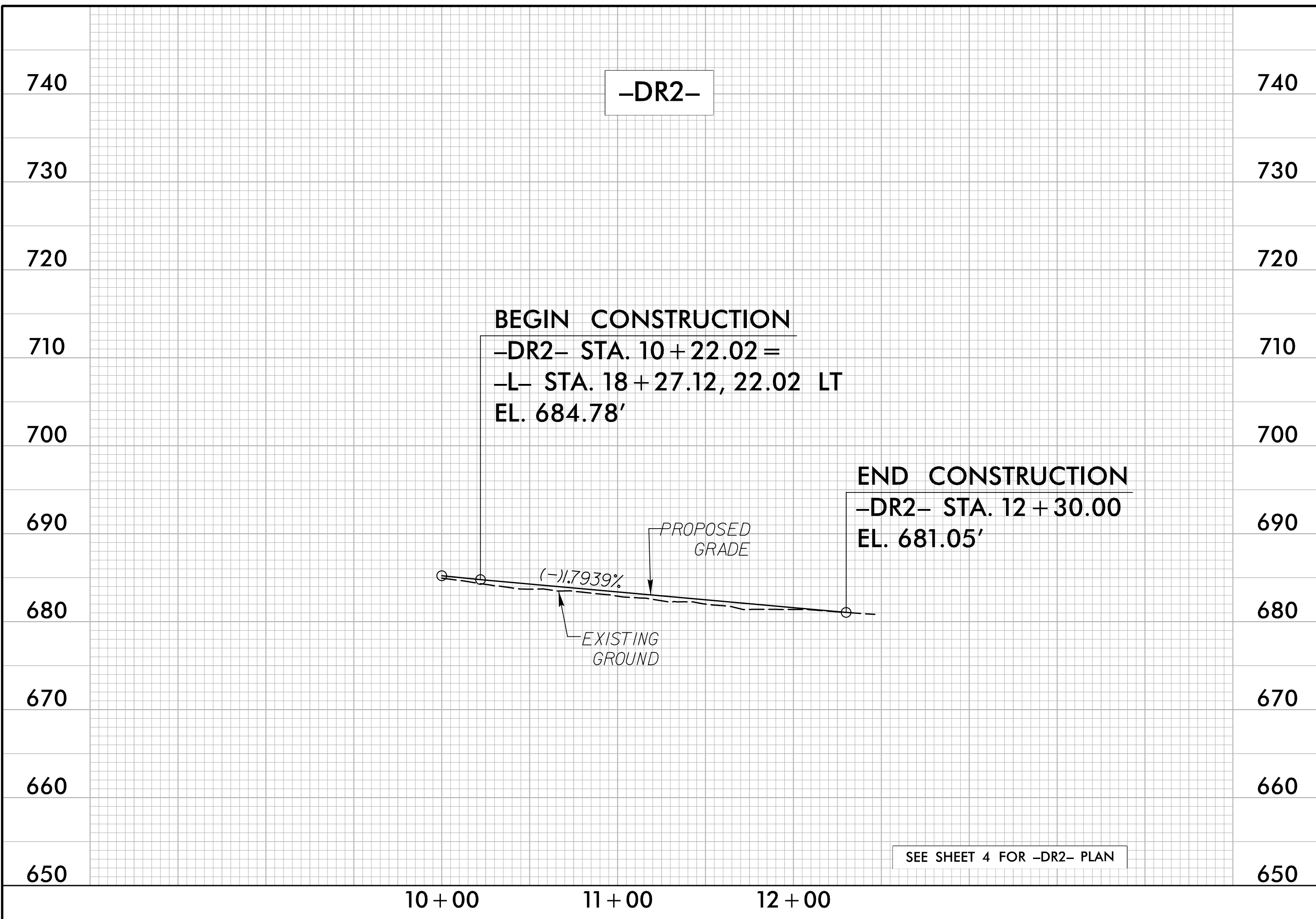


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5/28/22

PROJECT REFERENCE NO. U-6088	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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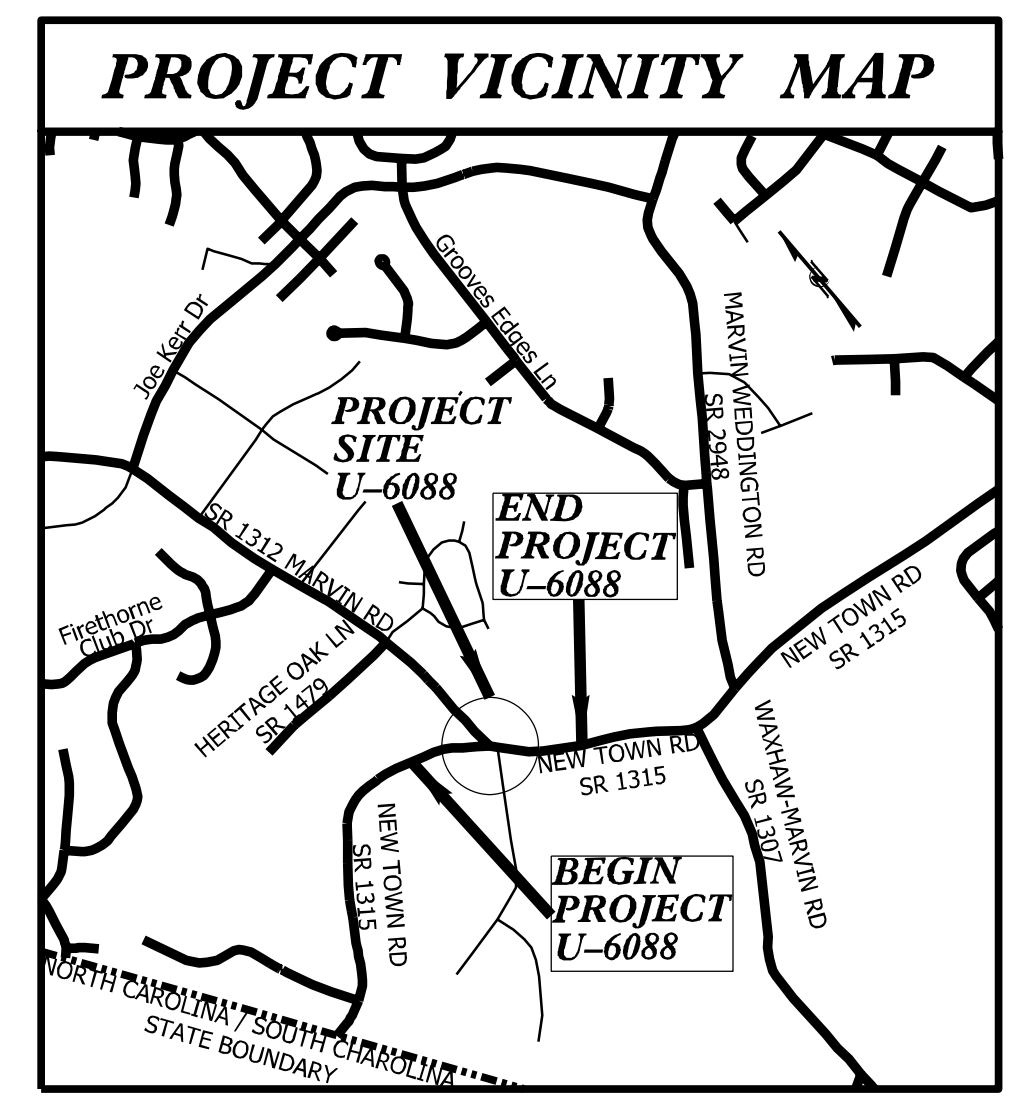
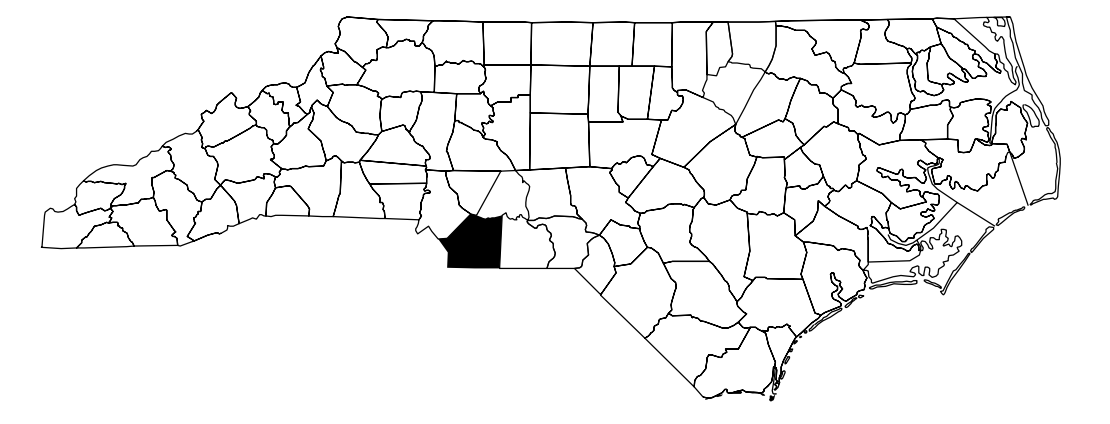
09/28/19

**TIP PROJECT: U-6088**

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
 PLAN FOR PROPOSED  
 HIGHWAY EROSION CONTROL  
 UNION COUNTY

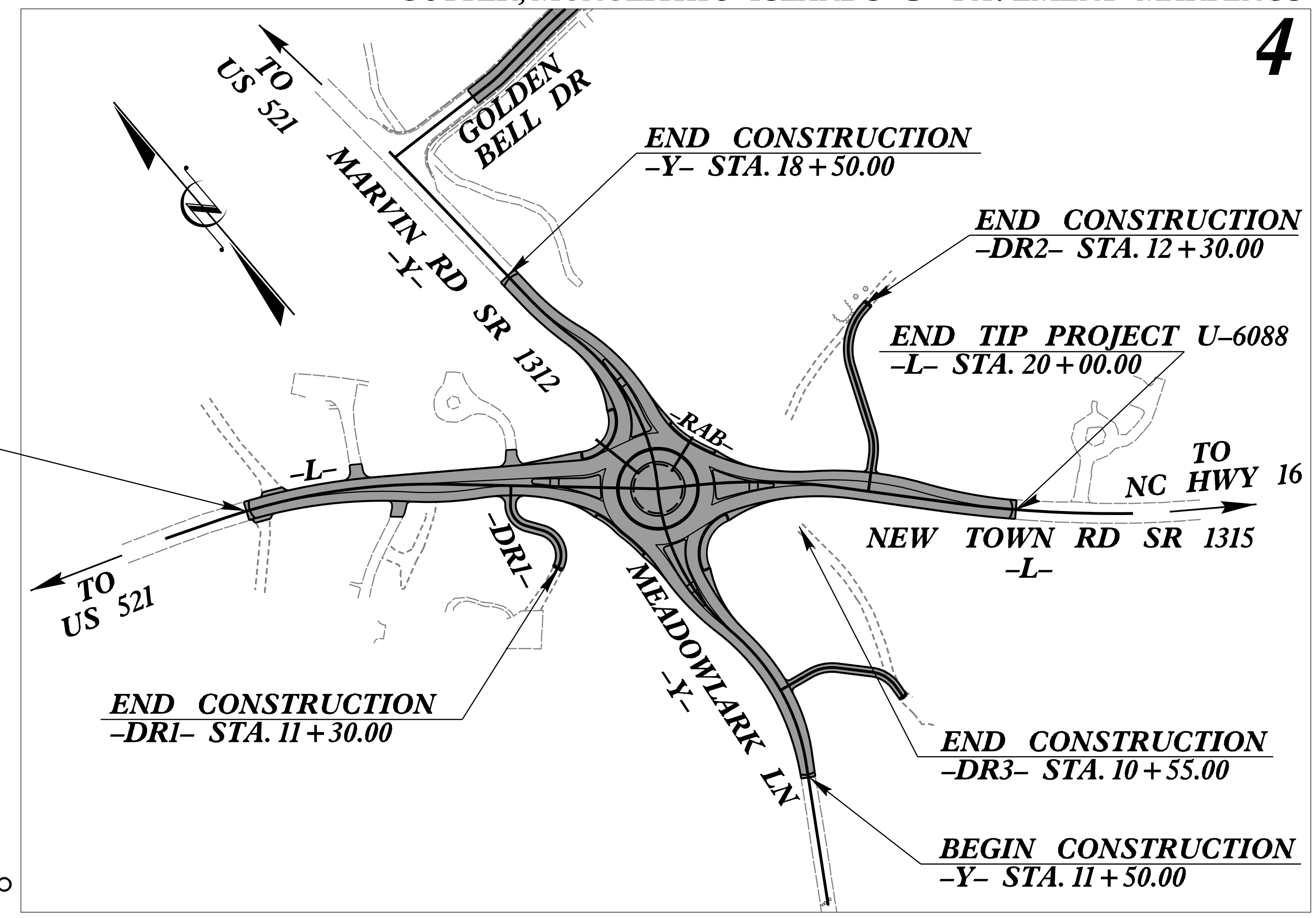
LOCATION: INTERSECTION OF SR 1315 (NEW TOWN RD),  
 SR 1312 (MARVIN RD) & MEADOWLARK LN  
 GRADING, PAVING, DRAINAGE, CONCRETE CURB &  
 GUTTER, MONOLITHIC ISLANDS & PAVEMENT MARKINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-6088	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
47883.1.1	STBDGA-1003 (169)	P.E.	
47883.2.1	STBDGA-1003 (169)	R /W & UTIL.	
47883.3.1	STBDGA-1003 (169)	CONSTR.	



THIS PROJECT CONTAINS  
 EROSION CONTROL PLANS  
 FOR CLEARING AND  
 GRUBBING PHASE OF  
 CONSTRUCTION.

**BEGIN TIP PROJECT U-6088**  
 -L- STA. 11+00.00

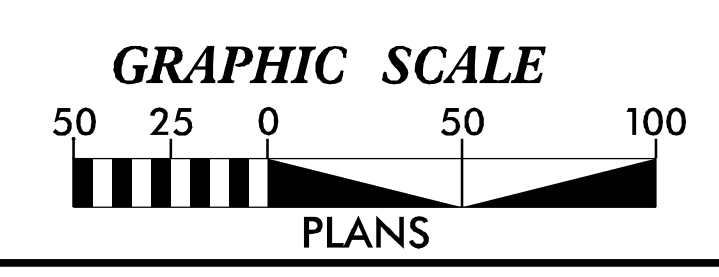


**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	— to —
1630.05	Temporary Diversion	— to —
1605.01	Temporary Silt Fence	— III — III — III —
1606.01	Special Sediment Control Fence	— III — III — III —
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	— [Symbol] —
1633.01	Temporary Rock Silt Check Type-A	— [Symbol] —
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	— [Symbol] —
1633.02	Temporary Rock Silt Check Type-B	— [Symbol] —
	Wattle / Coir Fiber Wattle	— [Symbol] —
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	— [Symbol] —
1634.01	Temporary Rock Sediment Dam Type-A	— [Symbol] —
1634.02	Temporary Rock Sediment Dam Type-B	— [Symbol] —
1635.01	Rock Pipe Inlet Sediment Trap Type-A	— [Symbol] —
1635.02	Rock Pipe Inlet Sediment Trap Type-B	— [Symbol] —
1630.04	Stilling Basin	— [Symbol] —
1630.06	Special Stilling Basin	— [Symbol] —
	Rock Inlet Sediment Trap:	
1632.01	Type A	— [Symbol] —
1632.02	Type B	— [Symbol] —
1632.03	Type C	— [Symbol] —
	Skimmer Basin	— [Symbol] —
	Tiered Skimmer Basin	— [Symbol] —
	Infiltration Basin	— [Symbol] —

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.



Prepared in the Office of:

**WSP**

1001 Morehead Square Dr, Suite 610  
 Charlotte, NC 28203  
 NC LIC NO. F-0165

Designed by:

**Robert M. Green, PE**

4245

NAME

LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

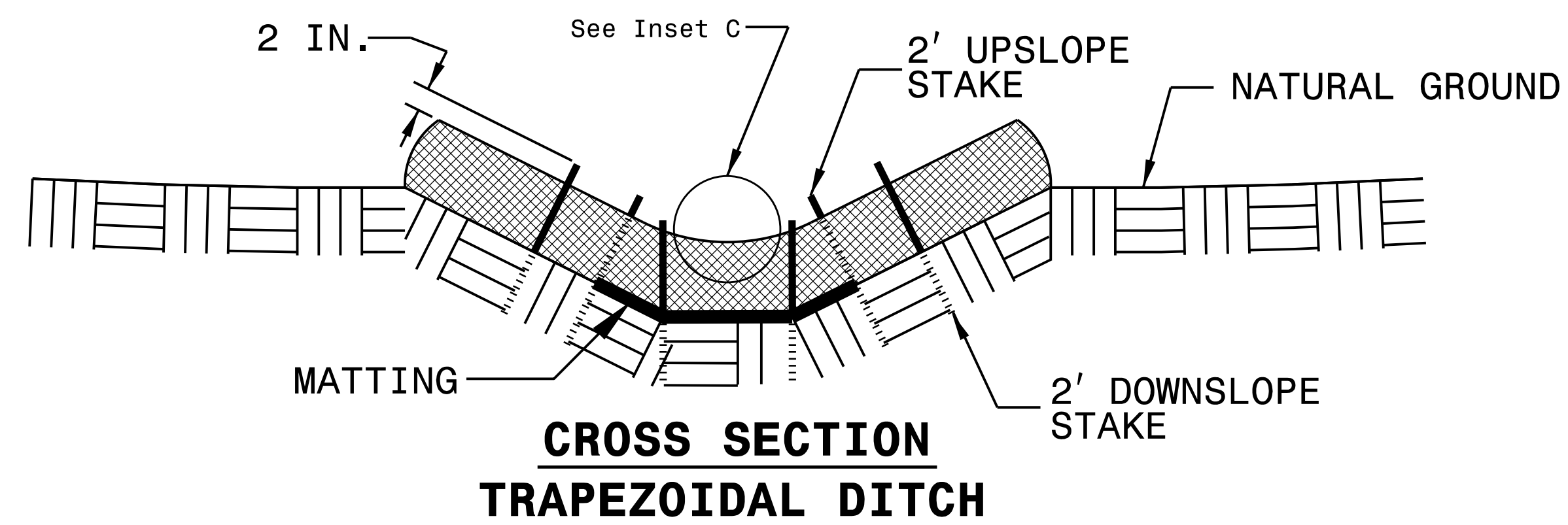
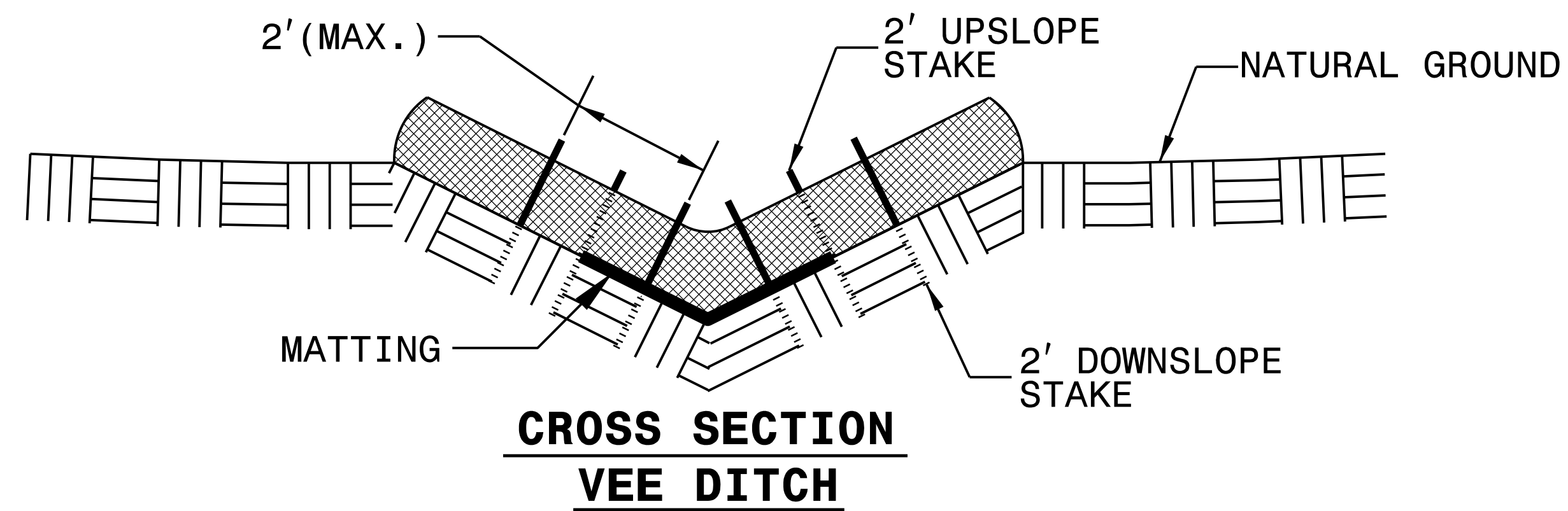
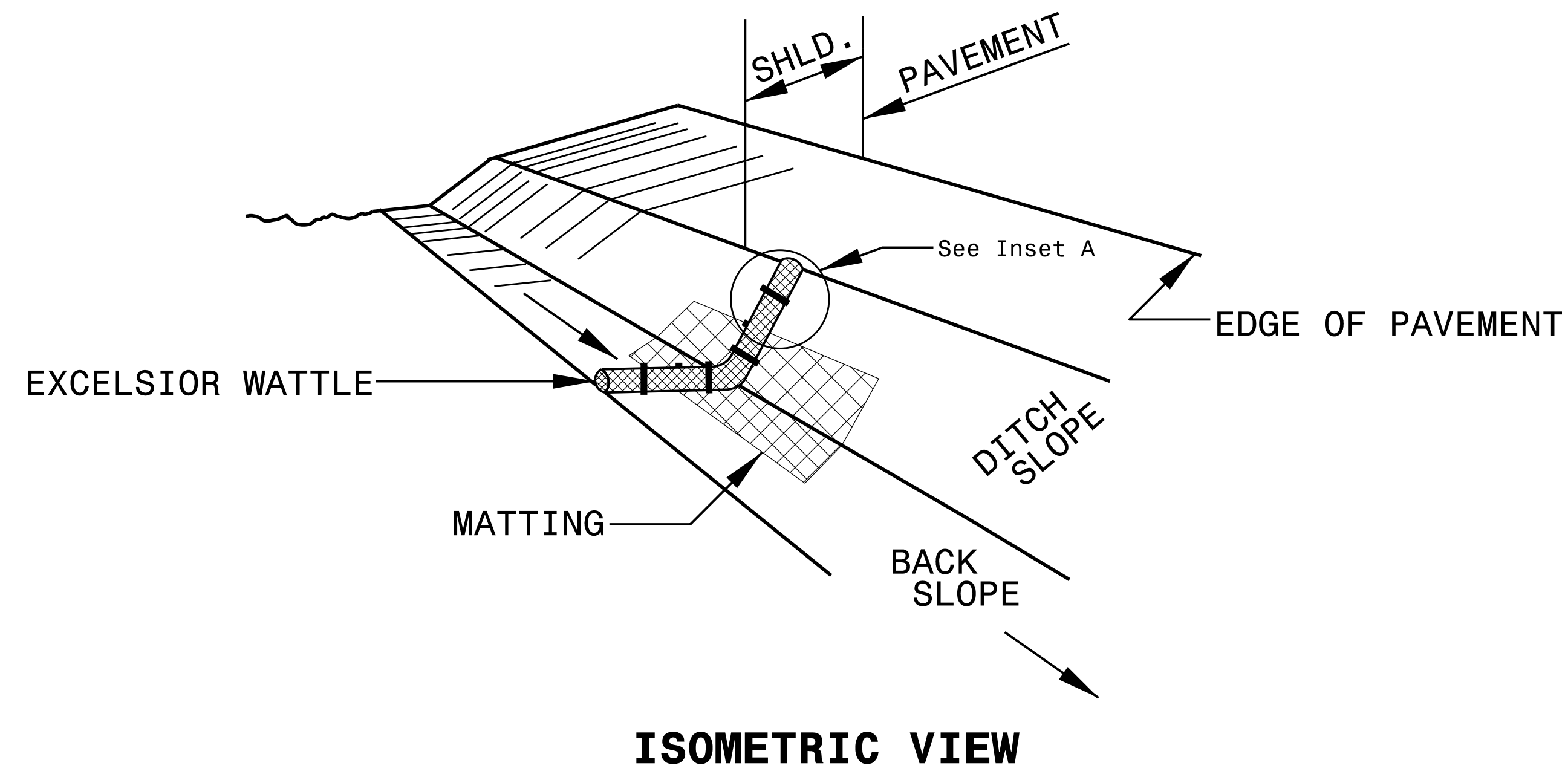
The following roadway english standards as appear in "Roadway Standard Drawings"— Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

11/30/2022 U:\6088\_U6088\_Envr\onment\Design\U6088\_esc\_EC\_01.dgn PARSONS BRINCKERHOFF

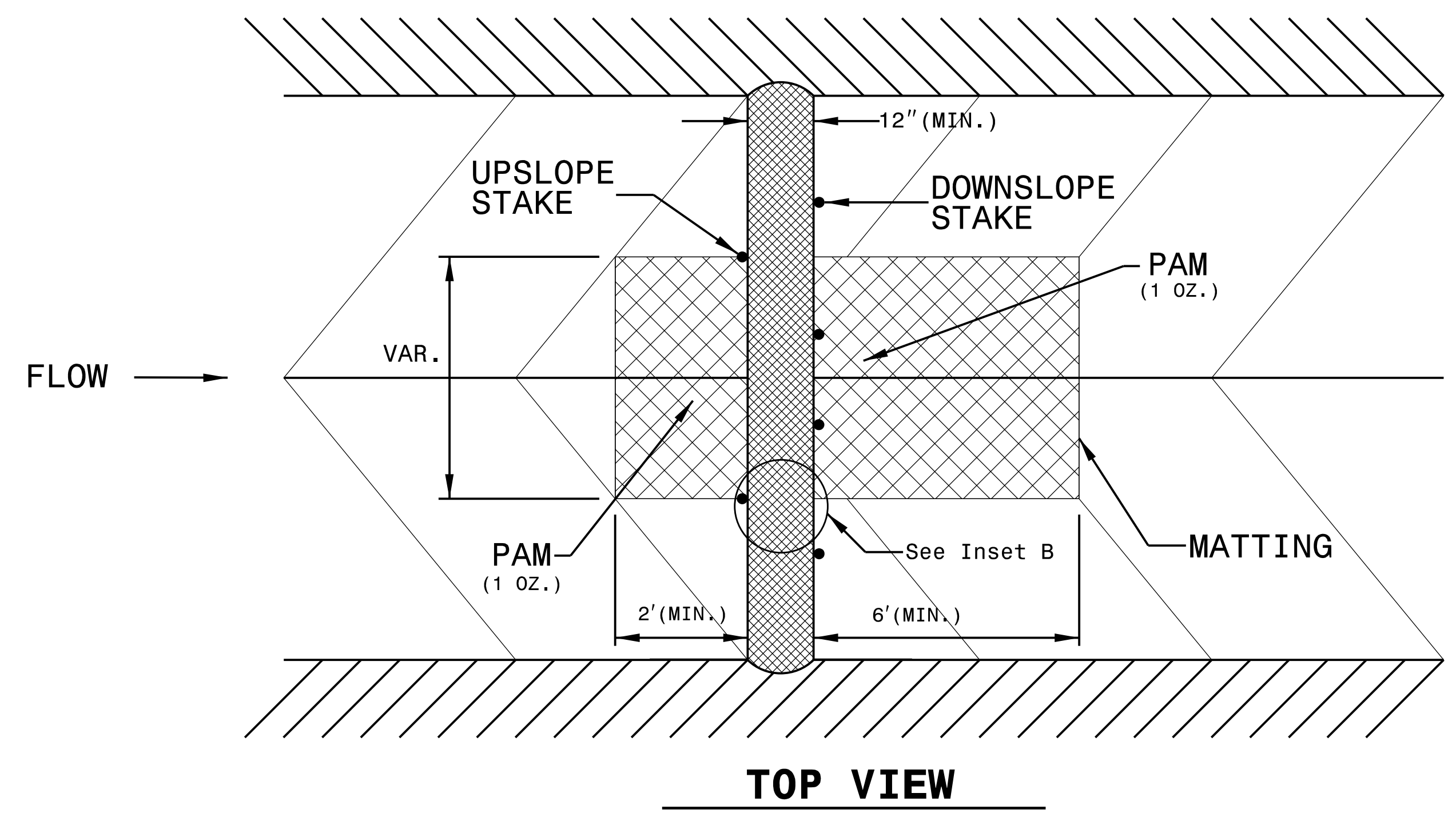
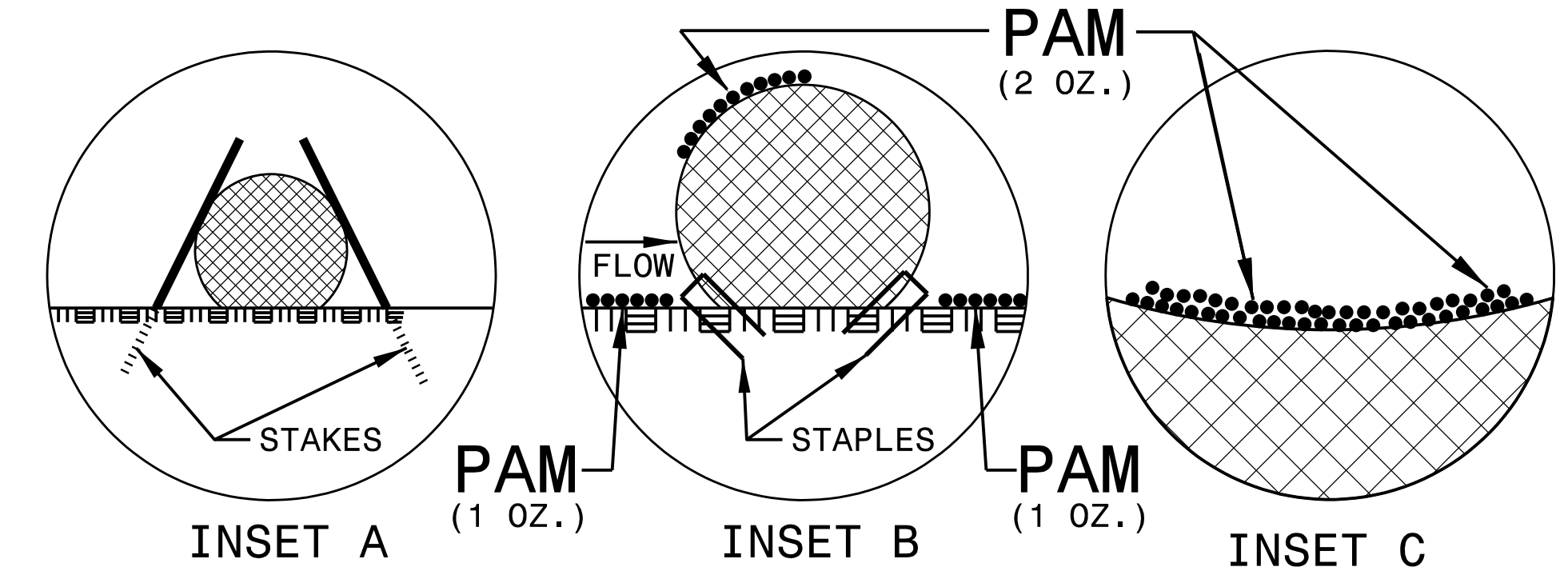
PROJECT REFERENCE NO. <i>U-6088</i>	SHEET NO. <i>EC-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



**NOTES:**

- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
- INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.







DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO.	SHEET NO.
<i>U-6088</i>	<i>EC-3B</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

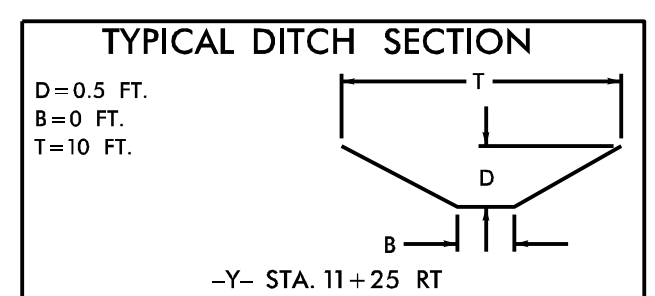
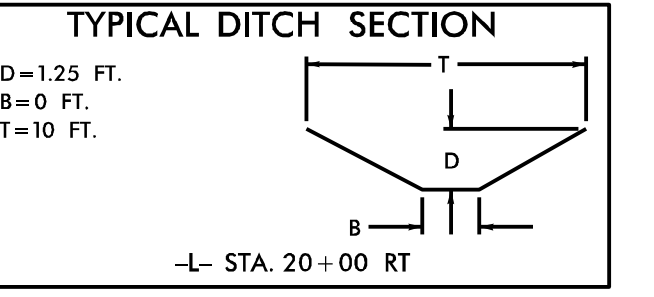
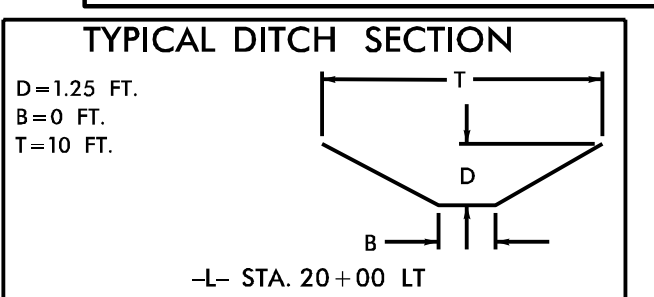
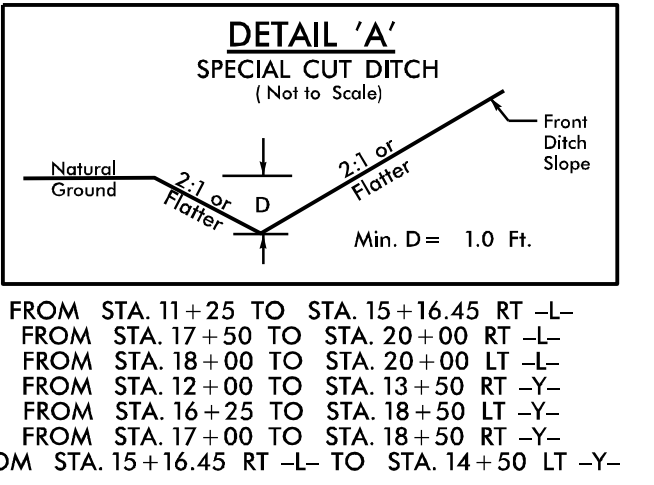
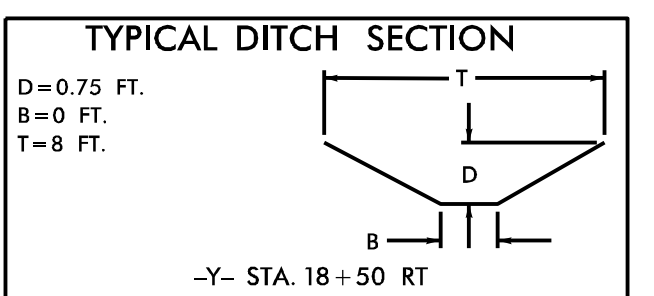
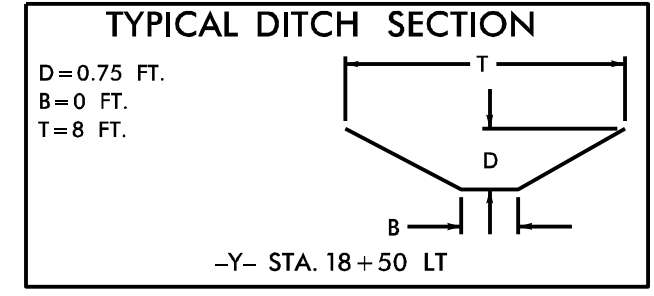
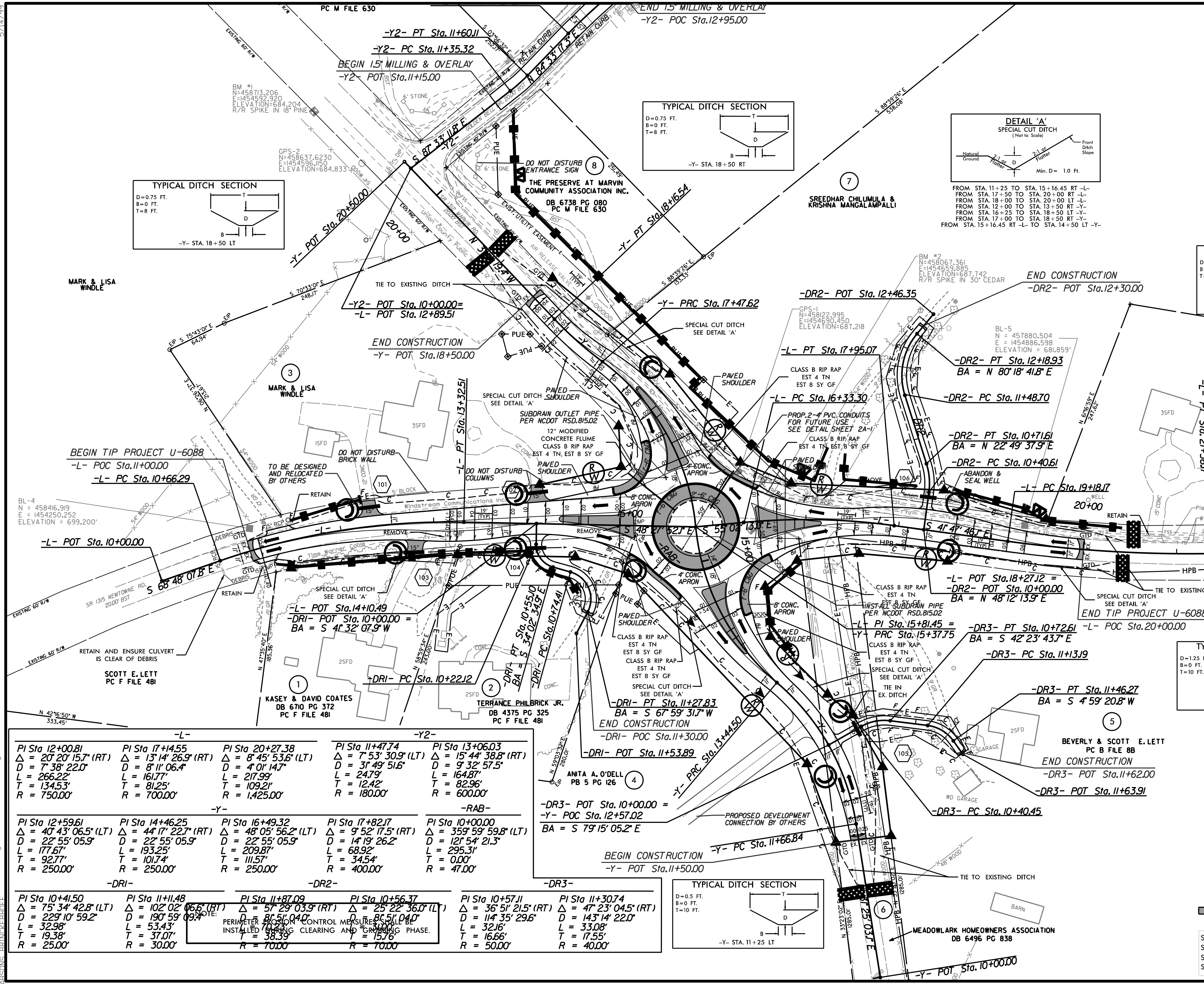
## ***SOIL STABILIZATION TIMEFRAMES***

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.









-L-		-Y2-		-RAB-	
PI Sta 12+00.81 Δ = 20' 20" 15.7" (RT) D = 7' 38" 22.0" L = 266.22' T = 134.53' R = 750.00'	PI Sta 17+14.55 Δ = 13' 14" 26.9" (RT) D = 8' 11" 06.4" L = 161.77' T = 81.25' R = 700.00'	PI Sta 20+27.38 Δ = 8' 45" 53.6" (LT) D = 4' 01" 14.7" L = 217.99' T = 109.21' R = 1,425.00'	PI Sta 11+47.74 Δ = 7' 53" 30.9" (LT) D = 31' 49" 51.6" L = 24.79' T = 12.42' R = 180.00'	PI Sta 13+06.03 Δ = 15' 44" 38.8" (RT) D = 9' 32" 57.5" L = 164.87' T = 82.96' R = 600.00'	PI Sta 10+00.00 Δ = 359' 59" 59.8" (LT) D = 12' 19" 26.2" L = 68.92' T = 34.54' R = 47.00'
-Y-		-DR1-		-DR2-	
PI Sta 12+59.61 Δ = 40' 43" 06.5" (LT) D = 22' 55" 05.9" L = 177.67' T = 92.77' R = 250.00'	PI Sta 14+46.25 Δ = 44' 17" 22.7" (RT) D = 22' 55" 05.9" L = 193.25' T = 101.74' R = 250.00'	PI Sta 16+49.32 Δ = 48' 05" 56.2" (LT) D = 22' 55" 05.9" L = 209.87' T = 111.57' R = 250.00'	PI Sta 17+82.17 Δ = 9' 52" 17.5" (RT) D = 14' 19" 26.2" L = 68.92' T = 34.54' R = 400.00'	PI Sta 10+00.00 Δ = 359' 59" 59.8" (LT) D = 12' 19" 26.2" L = 295.31' T = 0.00' R = 47.00'	PI Sta 10+57.11 Δ = 36' 51" 21.5" (RT) D = 114' 35" 29.6" L = 32.16' T = 16.66' R = 50.00'
-DR1-		-DR2-		-DR3-	
PI Sta 10+41.50 Δ = 75' 34" 42.8" (LT) D = 229' 10" 59.2" L = 32.98' T = 19.38' R = 25.00'	PI Sta 11+11.48 Δ = 102' 02" 06.6" (RT) D = 190' 59" 09.4" L = 53.43' T = 37.07' R = 30.00'	PI Sta 11+87.09 Δ = 57' 29" 03.9" (RT) D = 85' 10" 08.0" L = 38.39' T = 15.76' R = 70.00'	PI Sta 10+56.37 Δ = 25' 22" 36.0" (LT) D = 85' 10" 08.0" L = 15.76' T = 15.76' R = 70.00'	PI Sta 10+57.11 Δ = 36' 51" 21.5" (RT) D = 114' 35" 29.6" L = 32.16' T = 16.66' R = 50.00'	PI Sta 11+30.74 Δ = 47' 23" 04.5" (RT) D = 143' 14" 22.0" L = 33.08' T = 17.55' R = 40.00'

PROPOSED C&G, CONCRETE DRIVEWAY, & CONCRETE MONOLITHIC ISLAND

SEE SHEET 2B-1 FOR HORIZONTAL LAYOUT  
SEE SHEET 2D-1 FOR RIGHT OF WAY  
SEE SHEET 5 FOR -L-, -Y-, & -DR1- PROFILES  
SEE SHEET 6 FOR -DR2- & -DR3- PROFILES

5/14/19  
 U:\6088\U6088\Design\U6088\_esc-EC\_05.dgn  
 3/1/2022  
 U:\6088\U6088\Design\U6088\_esc-EC\_05.dgn



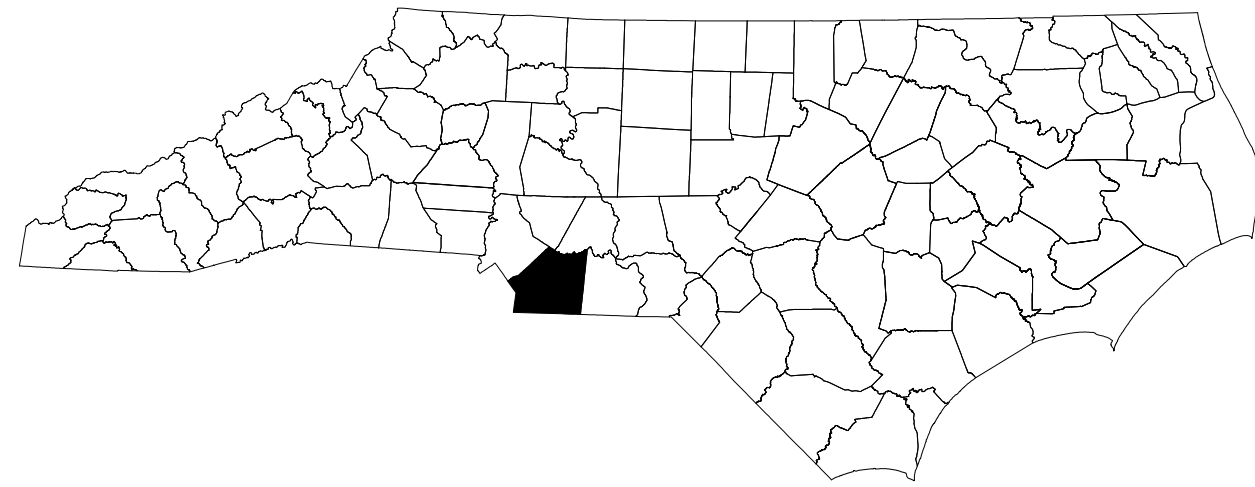


**T.I.P.: U-6088**

**CONTRACT:**

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING & SIGNING PLANS  
UNION COUNTY**



**INDEX OF SHEETS**

SHEET NO.	TITLE
PMP-1	TITLE SHEET, INDEX OF SHEETS, LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES AND PAVEMENT MARKING SCHEDULE
PMP-2	PAVEMENT MARKING PLAN SHEET
SIGN-1	REVISED ROADWAY STANDARD DRAWING
SIGN-2	SIGN DESIGNS
SIGN-3	TYPE "E" SIGN QUANTITIES
SIGN-4	SIGNING PLAN SHEET

**ROADWAY STANDARD DRAWINGS**

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS (SHEET 2 OF 2)
910.40	SINGLE/TWO LANE ROUNDABOUT SIGNING, WITH PEDESTRIANS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.14	PAVEMENT MARKINGS - ROUNDABOUTS

**REVISED ROADWAY STANDARD DRAWINGS**

THE FOLLOWING REVISED ROADWAY STANDARDS ARE USED ON THIS PROJECT:

STD. NO.	TITLE
904D50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS (SHEET 1 OF 2)

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
 

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	NONE
- B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.
- E) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- F) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.
- G) SIGNS FURNISHED BY STATE.
- H) ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- I) IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- J) WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.
- K) ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- L) REPLACE/RELOCATE ALL EXISTING SIGNS AS NEEDED OR DIRECTED BY THE ENGINEER. SPECIAL ATTENTION SHOULD BE PAID TO STOP SIGNS AND SPEED LIMIT SIGNS.
- M) THE BACKGROUND FOR TYPE 'E' AND 'F' SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

**PAVEMENT MARKING SCHEDULE**

**THERMOPLASTIC (4", 90 MIL)**

T1 WHITE EDGELINE  
T10 YELLOW EDGELINE  
T13 YELLOW DOUBLE CENTER

**THERMOPLASTIC (8", 90 MIL)**

T40 WHITE GORELINE  
T45 3 FT- 3 FT SP WHITE MINISKIP

**THERMOPLASTIC CHARACTERS (90 MIL)**

T103 24" YIELD LINE TRIANGLE

TIP NO. <b>U-6088</b>	SHEET NO. <b>PMP-1</b>
APPROVED: <b>Eric W. Bowman</b> <small>DADA2D3C68024EF</small>	
DATE: 12/20/2022	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

 <b>WSP</b> <small>WSP USA Inc. 1001 MOREHEAD SQUARE DRIVE SUITE 610 CHARLOTTE, NC 28203 NC LIC. NO. F-0165</small>	<b>PLAN PREPARED BY:</b>	
	<b>ERIC W. BOWMAN, PE</b>	<b>TRAFFIC ENGINEER</b>
	<b>ROBIN HUELSBECK, PE</b>	<b>SR. TRANSPORTATION DESIGNER</b>
	<b>SAYMA AFREEN</b>	<b>TRANSPORTATION DESIGNER</b>





TIP NO. SHEET NO.  
DocuSign by:  
APPROVED: Matthew V. Springer  
DATE: 6/23/2021  
SEAL  
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042546 MATTHEW V. SPRINGER

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

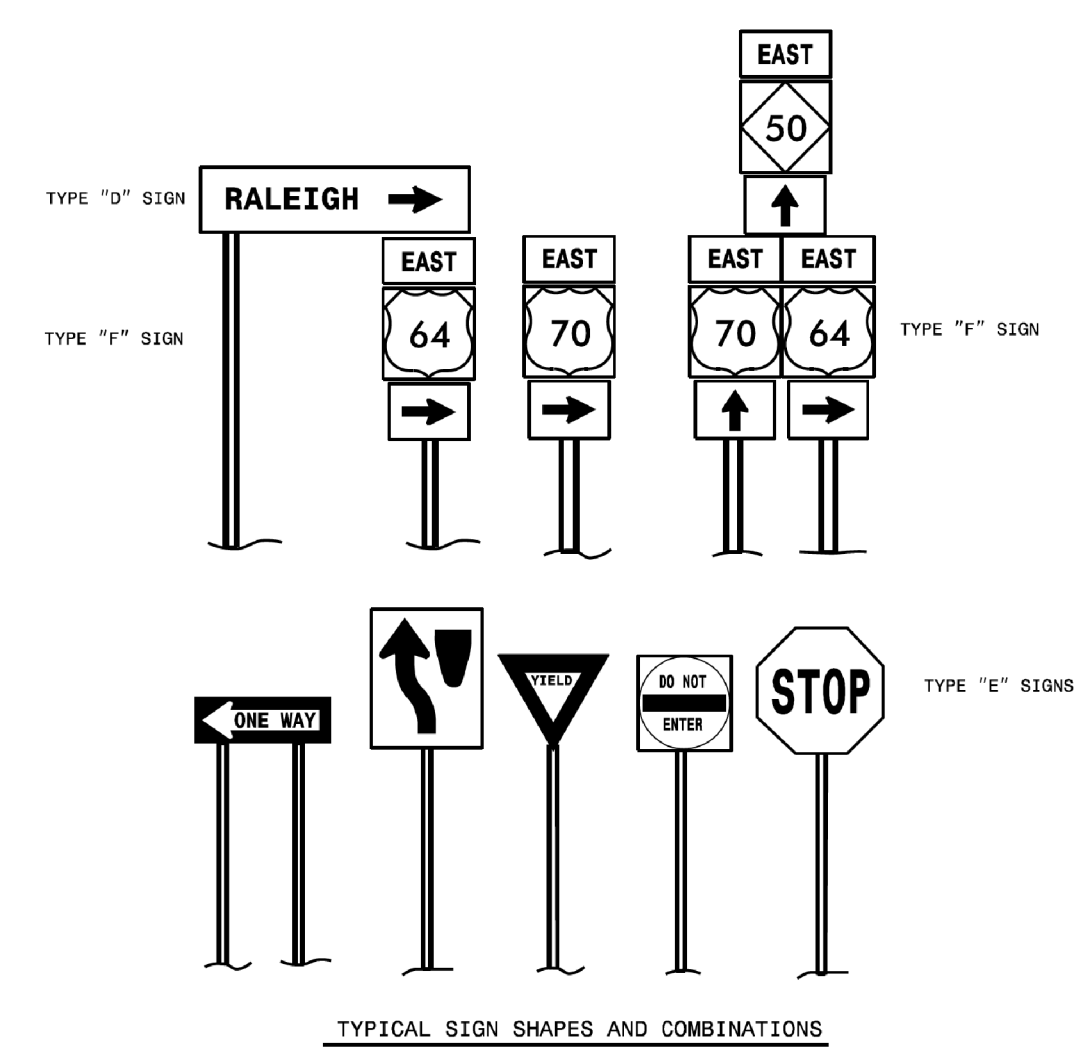
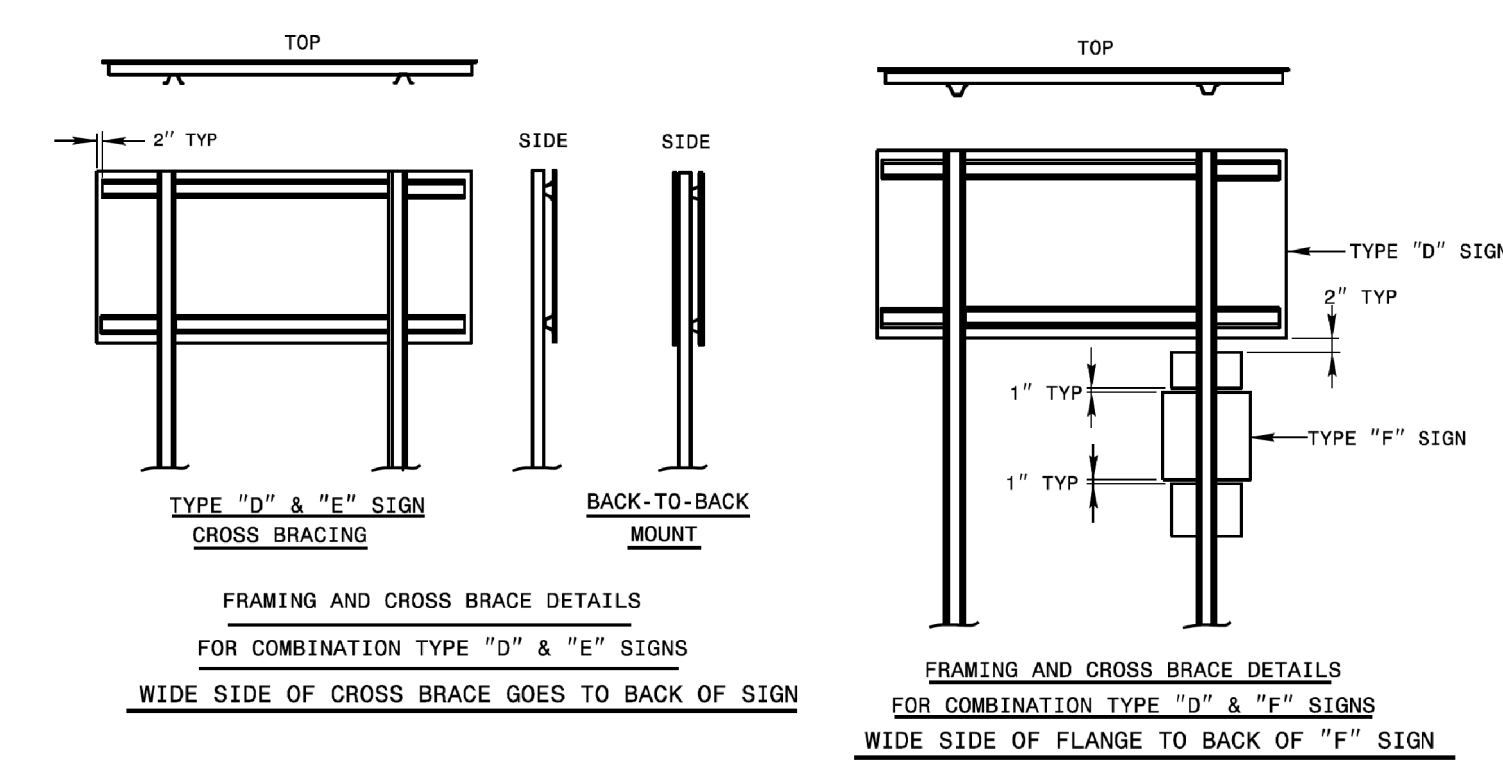
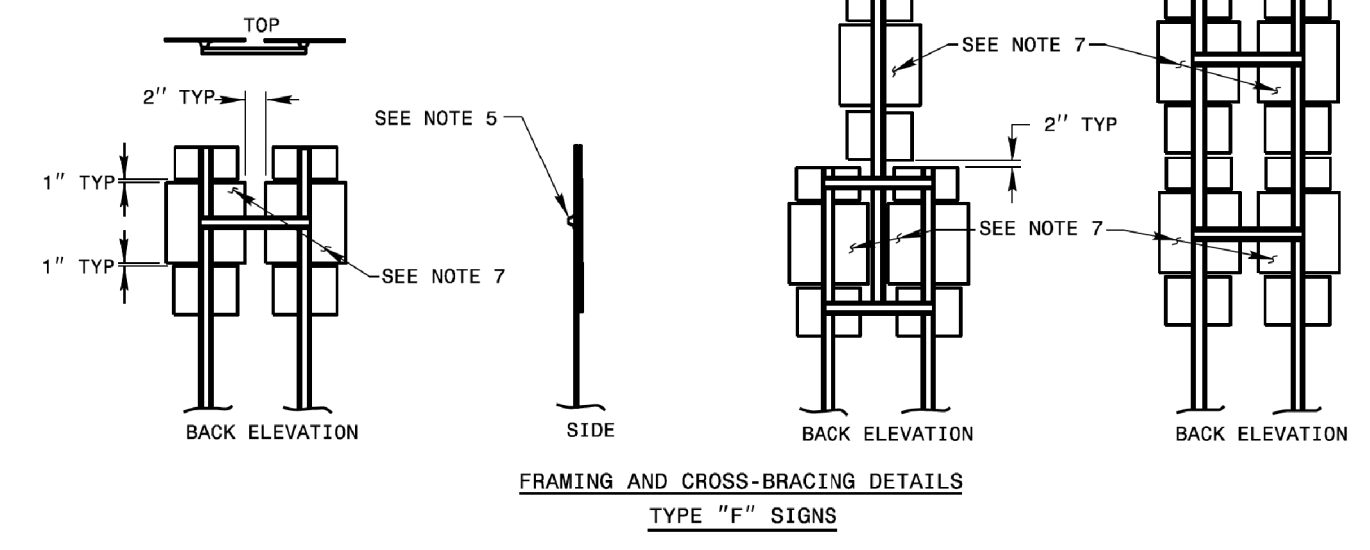
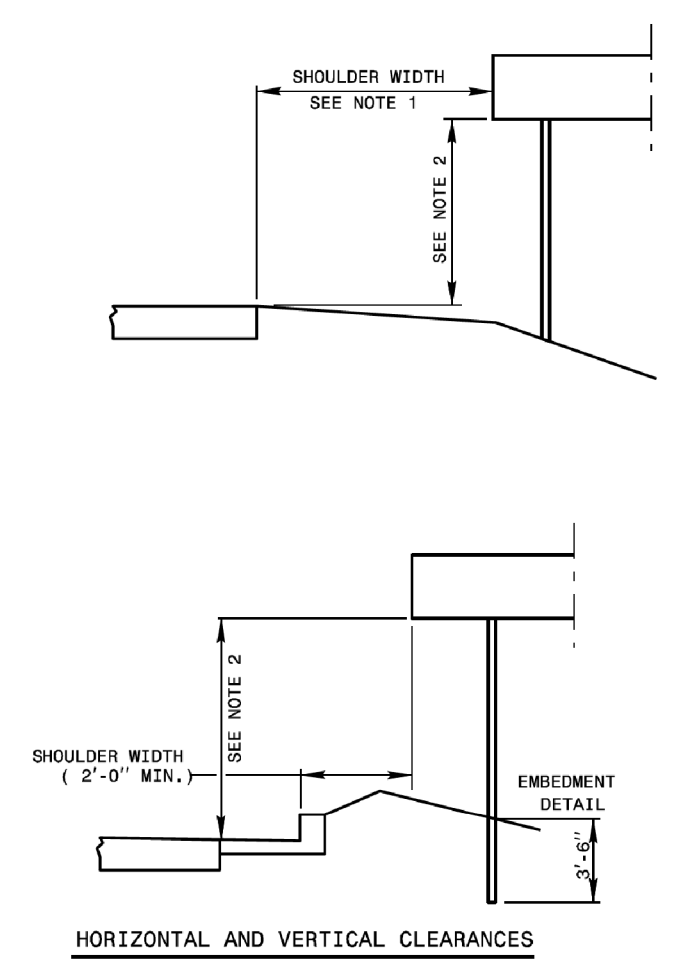
ENGLISH DETAIL DRAWING FOR  
MOUNTING OF  
TYPE 'D', 'E', AND 'F' SIGNS  
ON 'U' CHANNEL POSTS

SHEET 1 OF 2  
904D50

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

ENGLISH DETAIL DRAWING FOR  
MOUNTING OF  
TYPE 'D', 'E', AND 'F' SIGNS  
ON 'U' CHANNEL POSTS

SHEET 1 OF 2  
904D50



- NOTES:
- ERECT TYPE "D", "E", AND "F" SIGNS ON FREEWAYS WITH THE NEAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL OTHER "D", "E", AND "F" SIGNS WITH THE NEAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (6 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE), OR AS DIMENSIONED ON PLAN SHEETS.
  - ERECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE ON ROADS WITH 2 OR MORE LANES IN THE SAME DIRECTION AND AT LEAST 5 FT. ON OTHER ROUTES. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
  - THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "D", "E", AND "F" SIGNS IS 30" MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
  - ATTACH SIGN W/ 5/8" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET# 2 OF 904.50.
  - FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT ENDS OF CROSS BRACES W/ APPROVED. ZINC PAINT
  - INSTALL POST AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "D" AND "F" SIGNS.
  - THE SHIELD HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LARGER THAN 24".
  - IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO U-CHANNEL SUPPORTS, THE SUPPORTS SHALL BE PLACED A MINIMUM OF 4 FT. BETWEEN POSTS. NO MORE THAN TWO POSTS SHALL FALL WITHIN 7 FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.

REVISED SIGNING  
ROADWAY STANDARD DRAWING

REVISED ROADWAY  
STANDARD DRAWING

12/20/22  
W:\11863601  
U-6088\U6088 Traffic Signing\CADD\Signing Layout Plans\U-6088\_SGN\_TSH\_01.dgn  
USER:BJK

6/18/2021 Standards and Drawings Group\Standards and Drawings\Drawings\2016 Standard Dwg\Division 9 Final\0904.50\_sgn\_sht01\_Luchannel.post.e-2.dgn  
User:BJK

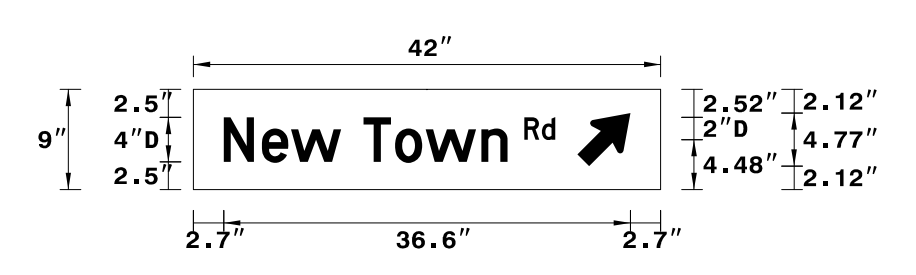
SIGN NUMBER: 301, 303  
 TYPE: D  
 QUANTITY: 2  
 SIGN WIDTH: 3'-6"  
 HEIGHT: 0'-9"  
 TOTAL AREA: 2.6 Sq.Ft.  
 BORDER TYPE: FLUSH  
 RECESS: 0"  
 WIDTH: 0"  
 RADII: 0"  
 NO. Z BARS:  
 LENGTH:

BACKG COLOR: Green  
 COPY COLOR: White

SYMBOL	X	Y	WID	HT
AR_Type D	34.5	2.1	4	6

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: EWB  
 PROJECT ID: U-6088  
 CHECKED BY: RRH  
 LOCATION: UNION COUNTY  
 Dec 20, 2022  
 DIV: 10



USE NOTES:  
 1. Legend and border (except those that are colored black) shall be direct applied Grade C sheeting.  
 2. Background shall be Grade C reflective sheeting.  
 3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter												Series/Size Text Length
R	d											D 2000
29.7	1.6	1.2	9.5									2.8
N	e	w	T	o	w	n						D 2000
2.7	3.4	2.6	4.5	2	2.8	2.8	5	2.4	13.8			25.5

FILENAME: U-6088\_GuideSign\_dsn NORTH CAROLINA D.O.T. SIGN DETAIL

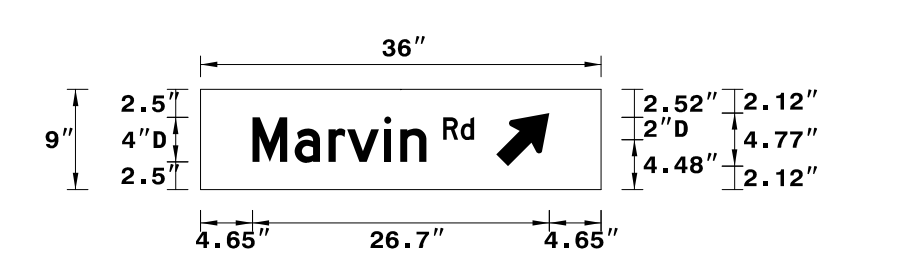
SIGN NUMBER: 302  
 TYPE: D  
 QUANTITY: 1  
 SIGN WIDTH: 3'-0"  
 HEIGHT: 0'-9"  
 TOTAL AREA: 2.3 Sq.Ft.  
 BORDER TYPE: FLUSH  
 RECESS: 0"  
 WIDTH: 0"  
 RADII: 0"  
 NO. Z BARS:  
 LENGTH:

BACKG COLOR: Green  
 COPY COLOR: White

SYMBOL	X	Y	WID	HT
AR_Type D	26.6	2.1	4	6

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: EWB  
 PROJECT ID: U-6088  
 CHECKED BY: RRH  
 LOCATION: UNION COUNTY  
 Dec 20, 2022  
 DIV: 10



USE NOTES:  
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Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter												Series/Size Text Length
R	d											D 2000
21.8	1.6	1.2	11.4									2.8
M	a	r	v	i	n							D 2000
4.7	3.8	3	1.7	3.3	1.4	2.4	15.7					15.6

FILENAME: U-6088\_GuideSign\_dsn NORTH CAROLINA D.O.T. SIGN DETAIL

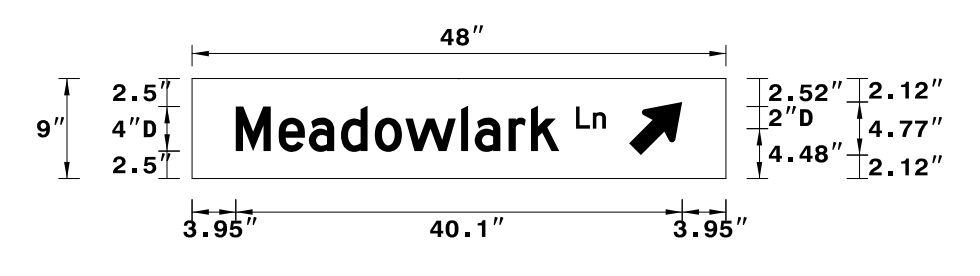
SIGN NUMBER: 304  
 TYPE: D  
 QUANTITY: 1  
 SIGN WIDTH: 4'-0"  
 HEIGHT: 0'-9"  
 TOTAL AREA: 3.0 Sq.Ft.  
 BORDER TYPE: FLUSH  
 RECESS: 0"  
 WIDTH: 0"  
 RADII: 0"  
 NO. Z BARS:  
 LENGTH:

BACKG COLOR: Green  
 COPY COLOR: White

SYMBOL	X	Y	WID	HT
AR_Type D	39.3	2.1	4	6

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: EWB  
 PROJECT ID: U-6088  
 CHECKED BY: RRH  
 LOCATION: UNION COUNTY  
 Dec 20, 2022  
 DIV: 10



USE NOTES:  
 1. Legend and border (except those that are colored black) shall be direct applied Grade C sheeting.  
 2. Background shall be Grade C reflective sheeting.  
 3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum with Grade C reflective sheeting and demountable.

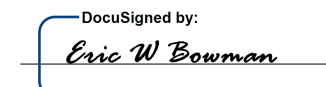
Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

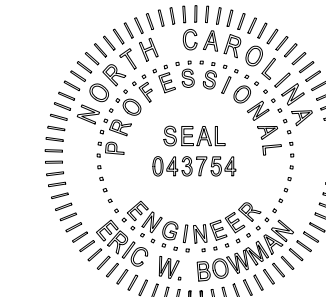
Letter spacings are to start of next letter												Series/Size Text Length
L	n											D 2000
34.5	1.5	1.2	10.8									2.7
M	e	a	d	o	w	l	a	r	k			D 2000
3.9	3.8	2.7	2.9	3	2.8	5	1.2	3	2	2.6	15	29.1

FILENAME: U-6088\_GuideSign\_dsn NORTH CAROLINA D.O.T. SIGN DETAIL

TIP NO. U-6088 SHEET NO. SIGN-2

APPROVED:   
 DATE: 12/20/2022

SEAL



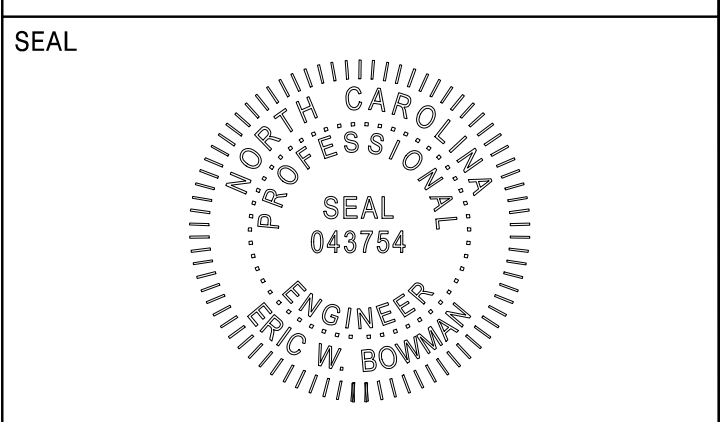
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

12/20/22 W:\1166360T U-6088\U6088\_Traffic\Sign Designs\CADD\Sign Designs\U-6088\_GuideSign\_dsn.dgn USE:04421

# SIGN DESIGNS

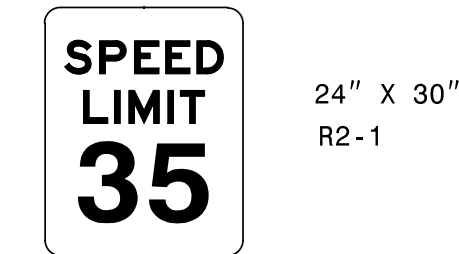


DocuSigned by:  
**Eric W Bowman**  
DADA2D3CB6B0246F  
APPROVED:  
DATE: 12/20/2022



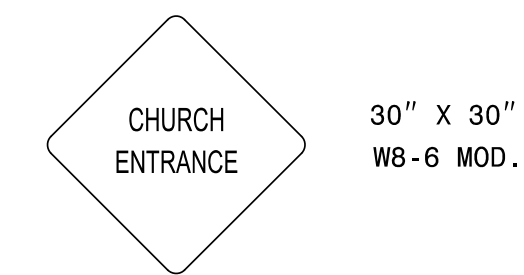
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UNLESS ALL SIGNATURES COMPLETED**

401 QUANTITY REQ'D . 2



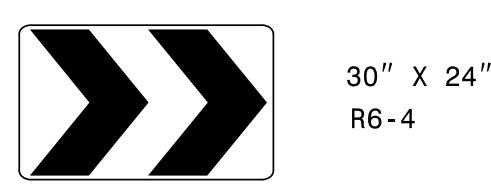
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406 QUANTITY REQ'D . 1



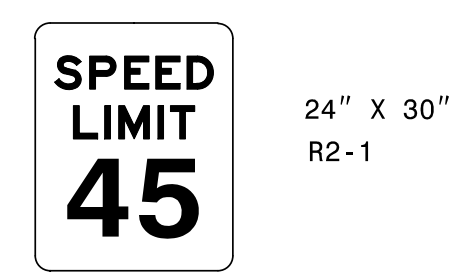
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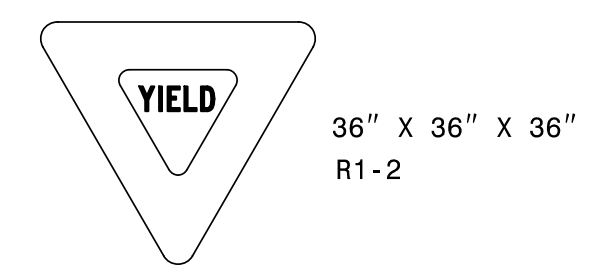
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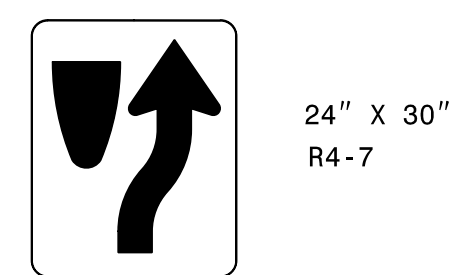
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403 QUANTITY REQ'D . 8



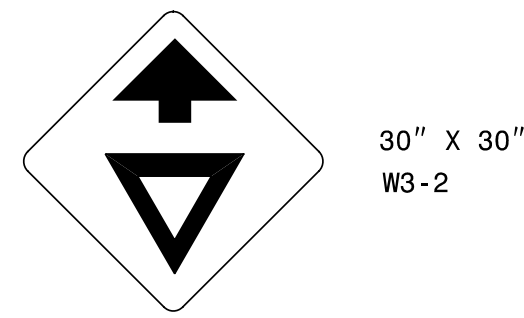
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408 QUANTITY REQ'D . 4



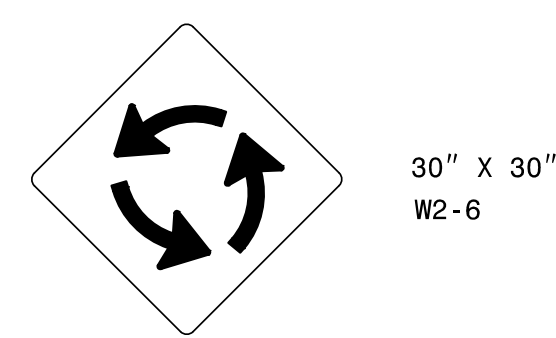
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404 QUANTITY REQ'D . 4



ONE "U" POST PER SIGN

405 QUANTITY REQ'D . 4

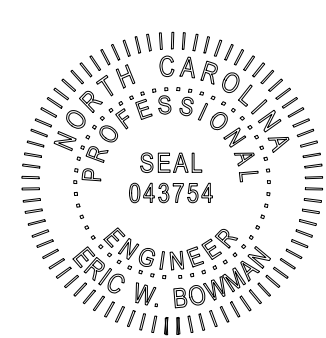


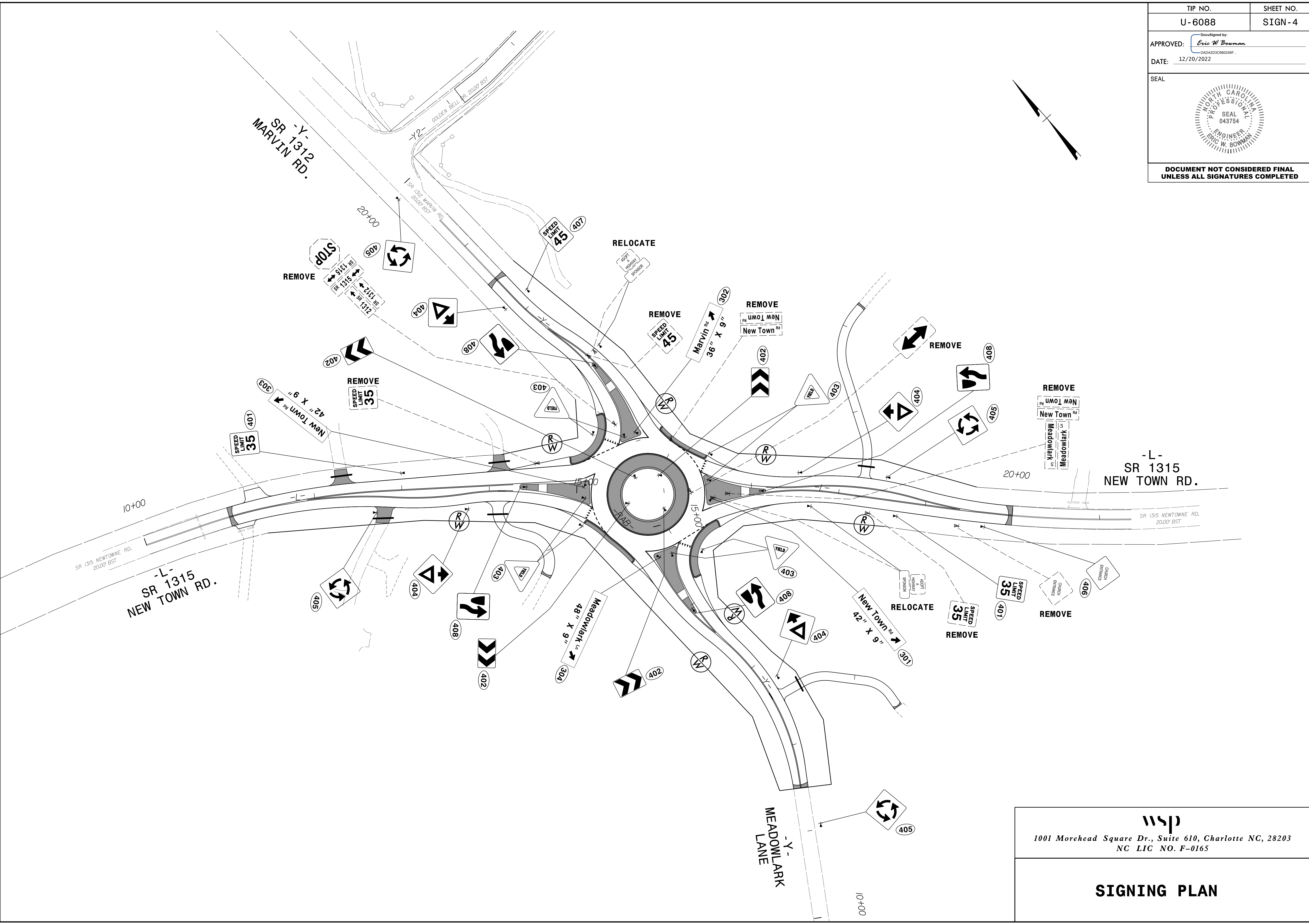
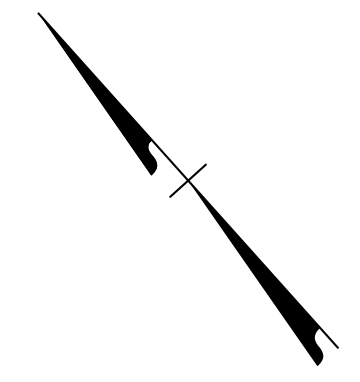
ONE "U" POST PER SIGN

12/20/22  
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USE04421  
U-6088\U6088\Traffic\Signing\CADD\Quantities & CM Signs\U-6088\_DEF\_Chart\_Sheet.dgn

**wsp**  
1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203  
NC LIC NO. F-0165

**TYPE "E" SIGN QUANTITIES**

TIP NO. U-6088	SHEET NO. SIGN-4
Desigined by: APPROVED: <i>Eric W Bowman</i> <small>DADA2D3C8B0246F...</small>	
DATE: 12/20/2022	
SEAL	
	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



12/20/22  
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 USEB04421

  
 1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203  
 NC LIC NO. F-0165

## SIGNING PLAN

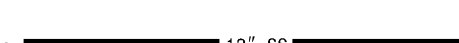



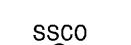




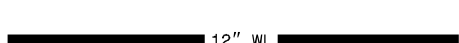





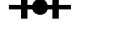



# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## UTILITIES PLAN SHEET SYMBOLS






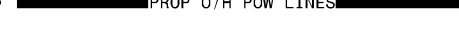

### PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	
Sanitary Sewer Clean Out	

### PROPOSED WATER SYMBOLS



















Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
Plug	
Tee	
Reducer	
Gate Valve	
Blow Off	
Fire Hydrant	





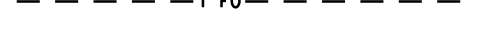
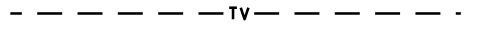
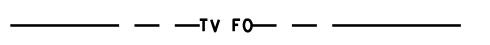
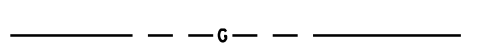






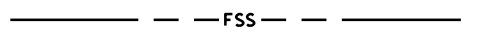
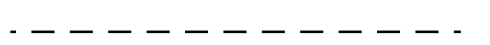



### PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

### EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	<b>AATUR</b>
End of Information	<b>E.O.I.</b>

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

NOTE  
PAY ITEM

5/14/99

1883601\_U-6088\_12088170888\Utilities\CADD\U6088\_UC-02.dgn



5/14/23

# UTILITY CONSTRUCTION

## GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.
2. THE EXISTING WATER AND SEWER UTILITIES BELONG TO UNION COUNTY PUBLIC WORKS.
3. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.
6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

## PROJECT SPECIFIC NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, CONTRACTOR MUST CONTACT UNION COUNTY PROJECT MANAGER, MICHAEL CALDWELL, AT 704-968-4150.
2. ALL PROPOSED WATER LINES 12" OR SMALLER TO BE DUCTILE IRON PIPE PC350 RESTRAINED JOINT UNLESS OTHERWISE SPECIFIED.
3. CONNECTION BETWEEN THE PRIVATE RESIDENTIAL WASTEWATER SYSTEM AND THE PROPOSED PUBLIC SANITARY SEWER MAY BE MADE ONLY UPON APPROVAL OF UNION COUNTY PUBLIC WORKS CUSTOMER SERVICE AND UNION COUNTY DEPARTMENT OF PUBLIC HEALTH.
4. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF UNION COUNTY PUBLIC WORKS SANITARY SEWER & WATER SPECIFICATIONS.
5. IN ACCORDANCE WITH NCDOT SPECIFICATION SECTION 1500-7 SUBMITTALS AND RECORDS, CONTRACTOR TO PROVIDE AS-BUILT PLANS OF THE INSTALLED UTILITY TO UTILITY OWNER AND ENGINEER.
6. FOR CONNECTIONS TO EXISTING WATER LINES, CONTRACTOR TO COORDINATE WITH UNION COUNTY FIELD REPRESENTATIVE. PROVIDE A MINIMUM OF 96 HOURS OF NOTICE TO FIELD REPRESENTATIVE PRIOR TO THE NEED FOR ISOLATION OF WATER LINES.
7. COORDINATE WITH UNION COUNTY FIELD REPRESENTATIVE TO DEVELOP A PLAN TO CONNECT THE NEW WATER LINES TO EXISTING WATER LINES WHILE MINIMIZING WATER SERVICE INTERRUPTIONS. DEVELOP A PLAN TO PERFORM WATER SERVICE TRANSFERS WITH MINIMUM INTERRUPTION OF SERVICE.
8. LIMIT INTERRUPTION OF SERVICE TO UNION COUNTY WATER CUSTOMERS TO NO MORE THAN 6 HOURS FOR WATER LINE INTERCONNECTIONS.
9. CONTRACTOR SHALL NOT OPERATE ANY VALVES ON THE EXISTING UTILITY SYSTEMS. CONTRACTOR SHALL CONTACT THE UTILITY OWNER TO CONDUCT STRATEGIC OPERATION OF VALVES FOR SERVICE INTERRUPTION IN ORDER TO PERFORM SPECIFIC WORK.
10. ANY BENDS OF PVC WATER PIPE NOT SPECIFICALLY CALLED OUT WITH A 90, 45, 22.5 , OR 11.25 DEGREE BEND FITTING, SHALL BE CONSTRUCTED BY A RADIAL BEND OF THE PIPE AS NOTED ON THE PLANS OR IN ACCORDANCE WITH PIPE MANUFACTURERS SPECIFICATIONS (WHICHEVER IS MORE STRINGENT)- OR A COMBINATION OF BEND FITTINGS AND A RADIAL BEND OF THE PIPE.

11. ALL WATER LINE FITTINGS SHALL BE RESTRAINED-JOINT DUCTILE IRON IN ACCORDANCE WITH THE REQUIREMENTS OF EITHER ANSI/AWWA A21.53/C153 OR ANSI/AWWA A21.10 / C110. FITTINGS SHALL HAVE CEMENT MORTAR LINING AND SEAL COATED IN ACCORDANCE WITH ANSI/AWWA A21.4/C104.
12. LAY PIPE STRAIGHT IN ALIGNMENT AND GRADIENT OR FOLLOW TRUE CURVES AS NEARLY AS POSSIBLE. DO NOT DEFLECT ANY JOINT MORE THAN HALF THE MAXIMUM DEFLECTION RECOMMENDED BY THE MANUFACTURER.
13. NO INTERRUPTION OF EXISTING WATER SERVICE SHALL BE MADE DURING CONSTRUCTION UNTIL AUTHORIZED BY UNION COUNTY PUBLIC WORKS DEPARTMENT. UNION COUNTY WILL WITNESS PRESSURE TESTS. UNION COUNTY WILL COLLECT SAMPLES AND PERFORM BACTERIOLOGICAL TESTING. EACH SAMPLE COSTS \$50, PAYABLE BY CHECK MADE TO K&W LABORATORIES. UNION COUNTY WILL NOT ACCEPT TESTS FROM OUTSIDE TESTING LABS.
14. CONTRACTOR TO ABANDON THE PRIVATE RESIDENTIAL WASTEWATER SEPTIC TANK, GRINDER PUMP, AND FORCE SEWER IN ACCORDANCE WITH UNION COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH REQUIREMENTS BELOW:

### ON-SITE WASTEWATER SYSTEM ABANDONMENT PROCEDURE

1. HAVE AN APPROVED HAULER PUMP THE LIQUID, SLUDGE, AND SCUM FROM ALL TANKS IN THE SYSTEM.
2. THE TANK(S) SHOULD BE ABANDONED BY A CERTIFIED SEPTIC INSTALLER, LICENSED PLUMBER, LICENSED PUBLIC UTILITIES CONTRACTOR, OR THE OWNER OF THE PROPERTY WHERE THE TANK(S) IS/ARE LOCATED. THREE WAYS TO ABANDON THE TANKS ARE LISTED BELOW:
  - \*DISINFECT WITH CHLORINE OR LIME PRIOR TO REMOVING, FILLING OR CRUSHING THE TANK(S).
  - A. REMOVE THE TANKS
  - B. FILL IN THE TANK IN ONE OF TWO WAYS:
    1. FILL IN ENTIRE TANK WITH CONCRETE. MUST CAP OFF INLET AND OUTLET PIPE PENETRATIONS FIRST.
    2. CAP OFF INLET AND OUTLET PIPE PENETRATIONS WITH CONCRETE. FILL IN ENTIRE TANK WITH SAND OR PEA GRAVEL, AND THEN CAP OFF BOTH INLET AND OUTLET ACCESS OPENINGS WITH CONCRETE.
  - C. CRUSH TANK IN PLACE. BREAK UP BOTTOM OF TANK SO WATER DOES NOT POND ON TOP. FILL IN AREA WITH CLAY SAND OR PEA GRAVEL. PACK MATERIAL TO ENSURE SETTLING COMPLETE.
3. BACKFILL THE EXCAVATION WITH CLEAN CLAY MATERIAL TO NATURAL GRADE AND ESTABLISH VEGETATIVE COVER.
4. DISCONNECT POWER AT THE SOURCE TO ALL ELECTRICAL CONTROLS AND REMOVE ALL CONTROLS AND PANELS.
5. REMOVE ALL PARTS OF THE DRAIN FIELD ON THE GROUND SURFACE (SUCH AS VALVES, VALVE BOXES AND RISERS), BACKFILL THE AREA TO A NATURAL GRADE AND ESTABLISH VEGETATIVE COVER.
6. COAT ALL SURFACE AREAS EXPOSED TO EFFLUENT WITH HYDRATED LIME AND ESTABLISH A VEGETATIVE COVER.
7. RECOMMEND TO WAIT AT LEAST 18 MONTHS BEFORE USING THE DISPOSAL AREA FOR GARDENING OR CONSTRUCTION.

PROJECT REFERENCE NO.	SHEET NO.
U-6088	UC-3
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

## UTILITY CONSTRUCTION

188360T\_U-6088-UC-03.dgn



PROJECT REFERENCE NO.	SHEET NO.
U-6088	UC-3A
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

# PROJECT SEWER TYPICAL DETAILS

## UTILITY CONSTRUCTION

**GRAVITY SEWER - BEDDING DETAIL**

NOTES:  
 FOR PVC -- USE SDR 35 FOR 10 FT. OR LESS. USE SDR 26 FOR 10 FT. OR MORE.  
 USE DUCTILE IRON - IF UNDER 3 FT. DEEP OR OVER 10 FT. DEEP.  
 \* NO STONES LARGER THAN # 67 STONE SHALL BE USED IN SELECT BACKFILL

**CLASS C**

UNION COUNTY PUBLIC WORKS DEPARTMENT  
UNION COUNTY, N.C.

STANDARD DETAIL

SCALE: N.T.S.  
DATE: 12-16-13

8A

**FORCE MAIN**

UNION COUNTY PUBLIC WORKS DEPARTMENT  
UNION COUNTY, N.C.

STANDARD DETAIL

SCALE: N.T.S.  
DATE: 12-16-13

9A

UNION COUNTY PUBLIC WORKS DEPARTMENT  
UNION COUNTY, N.C.

STANDARD DETAIL

SCALE: N.T.S.  
DATE: 9-9-11

9

UNION COUNTY PUBLIC WORKS DEPARTMENT  
UNION COUNTY, N.C.

STANDARD DETAIL

SCALE: N.T.S.  
DATE: 7-31-14

10

NOTES:  
 1. THE CLEAN-OUT SHALL BE ADJUSTED TO GRADE AND THE POST REMOVED BY THE PLUMBER UPON CONNECTION TO THE TAP.  
 2. PLUMBER SHALL HAVE THE OPTION TO INSTALL A ONE PIECE 4" SCH. 40 COMBINATION WYE TO MINIMIZE TRENCH DEPTH OR INSTALL THE SEWER SERVICE LATERAL FROM THE 4" STUB OUT.  
 3. ALL CONSTRUCTION BY THE PLUMBER, EITHER OPTION 1 OR OPTION 2, SHALL BE INSPECTED AND APPROVED BY UNION COUNTY PLUMBING INSPECTOR UNDER A VALID PLUMBING PERMIT.  
 4. CONTRACTOR OR UNION COUNTY PUBLIC WORKS PERSONNEL MAY ADJUST SERVICE LATERAL ELEVATION WITH FITTINGS IF ADEQUATE GRADE EXISTS.  
 5. LATERAL CONNECTIONS TO MANHOLES MUST BE CORED AND BOOT INSTALLED.

UNION COUNTY PUBLIC WORKS DEPARTMENT  
UNION COUNTY, N.C.

STANDARD DETAIL

SCALE: N.T.S.  
DATE: 2/19-14

11

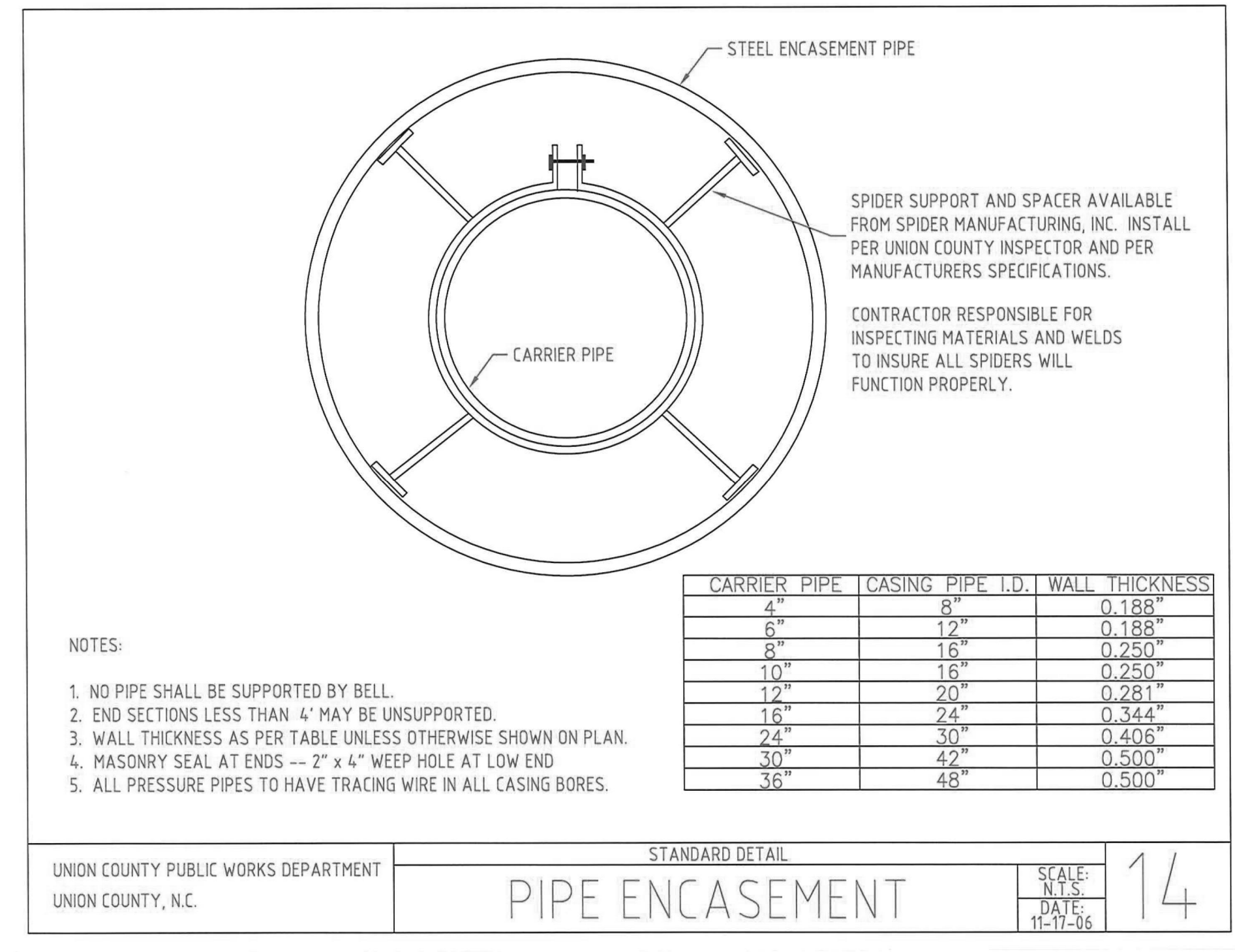
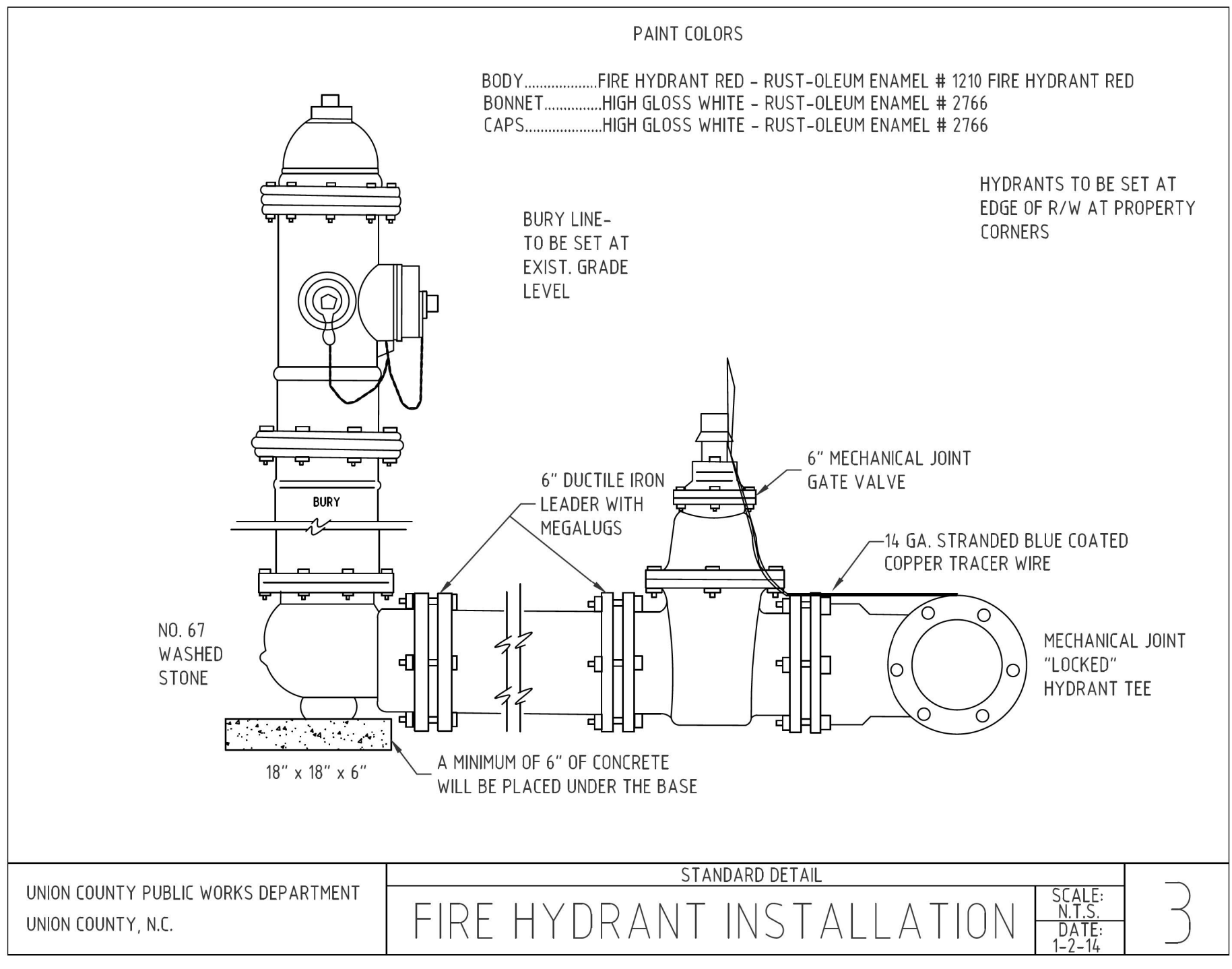
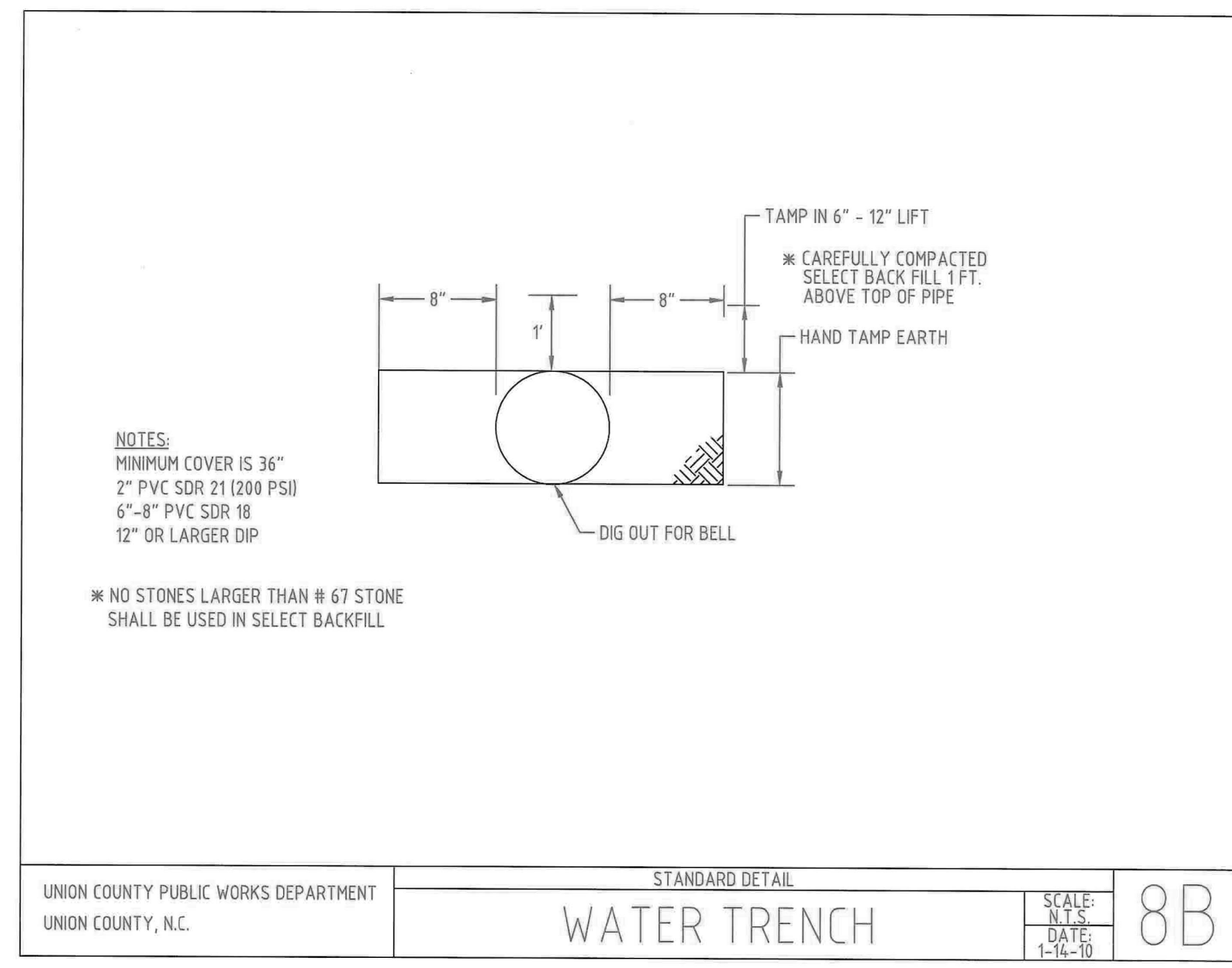
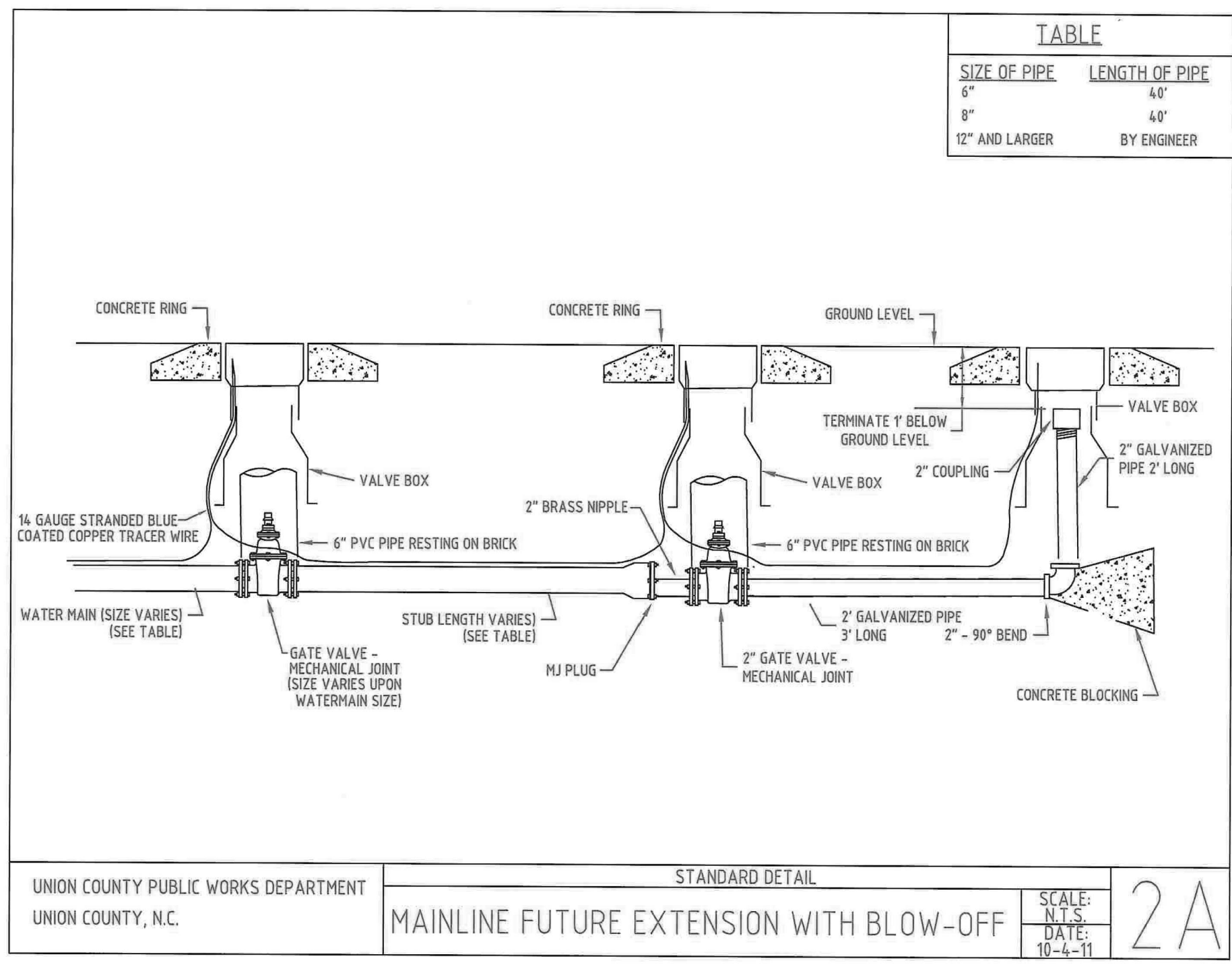


5/14/20

# PROJECT WATER TYPICAL DETAILS

PROJECT REFERENCE NO.	SHEET NO.
U-6088	UC-3B
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

## UTILITY CONSTRUCTION



188360T\_U-6088-UC-03.dgn



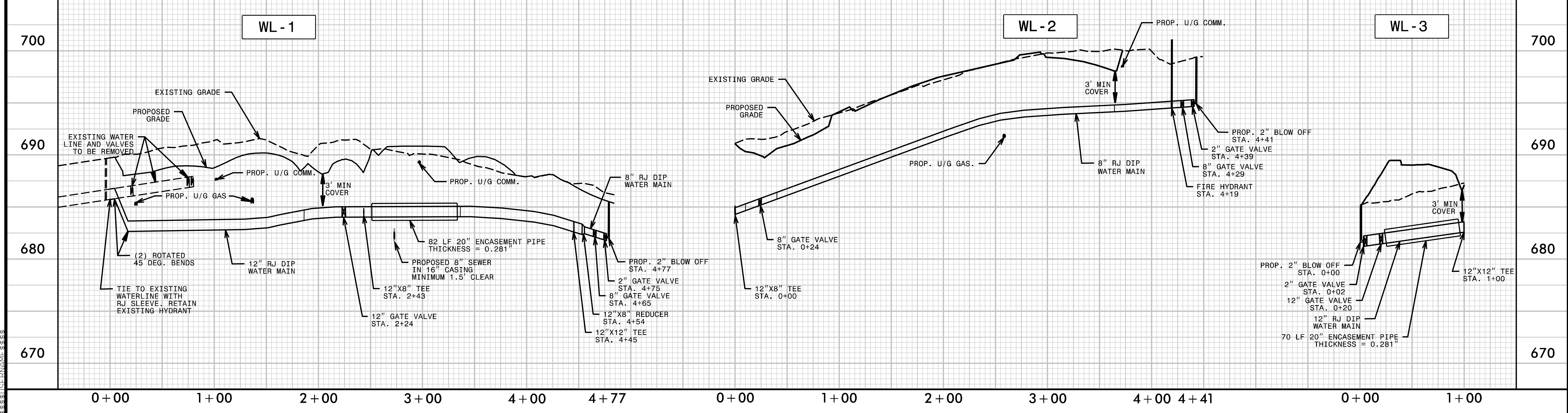
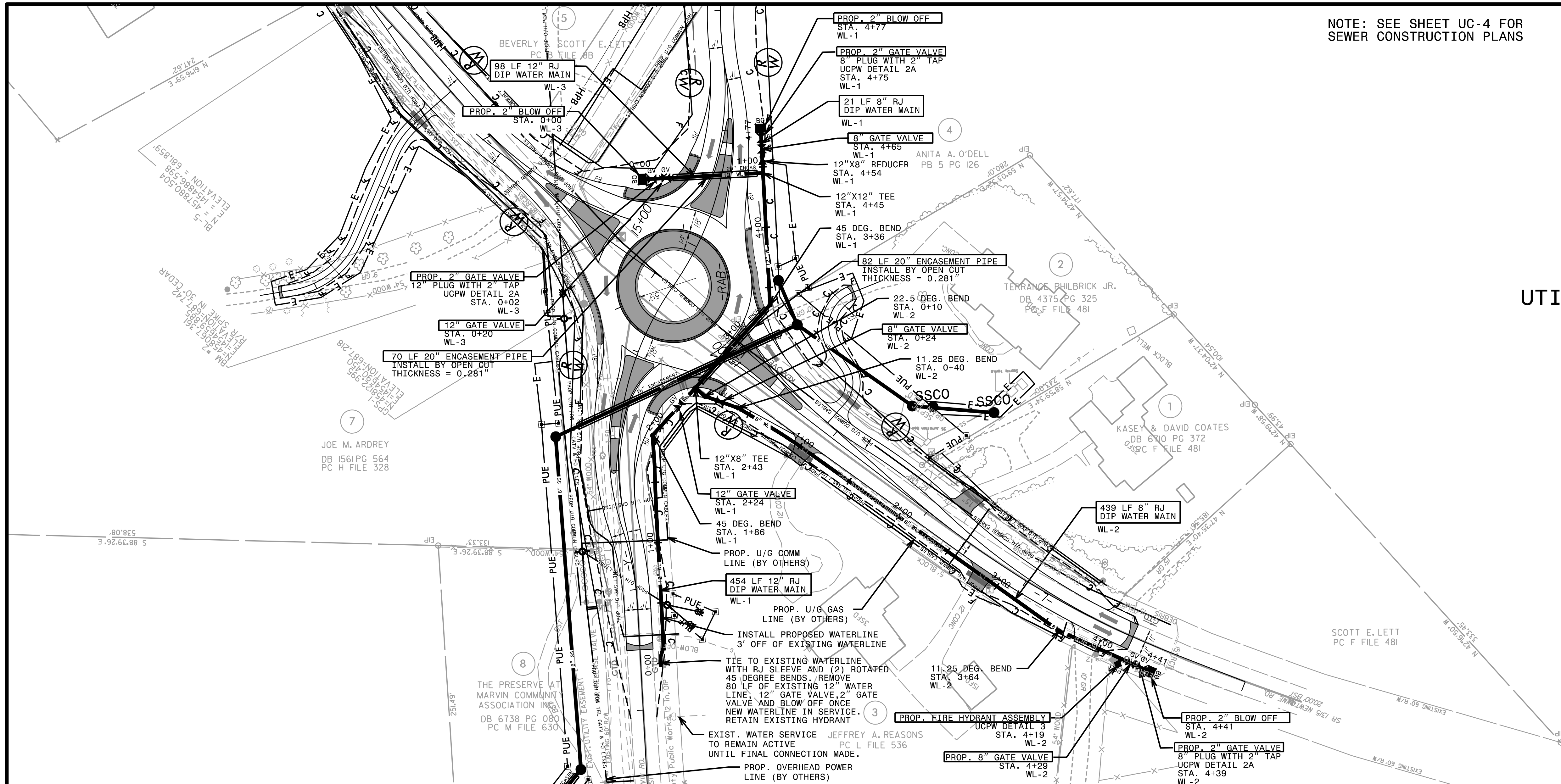
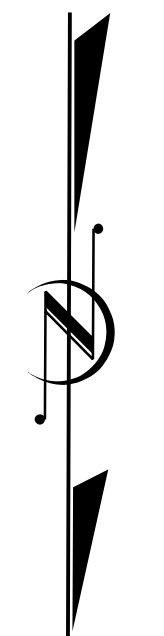




NOTE: SEE SHEET UC-4 FOR SEWER CONSTRUCTION PLANS

PROJECT REFERENCE NO. <b>U-6088</b>	SHEET NO. <b>UC-5</b>
DESIGNED BY: <b>RMG</b>	
DRAWN BY: <b>JOB</b>	
CHECKED BY: <b>RMG</b>	
APPROVED BY: <b>RMG</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151 UTILITY CONSTRUCTION PLANS ONLY	
1001 Morehead Square Dr., Suite 610, Charlotte, NC, 28203 NC LIC. NO. F-0165	

# UTILITY CONSTRUCTION





See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
U-6088	UO-1

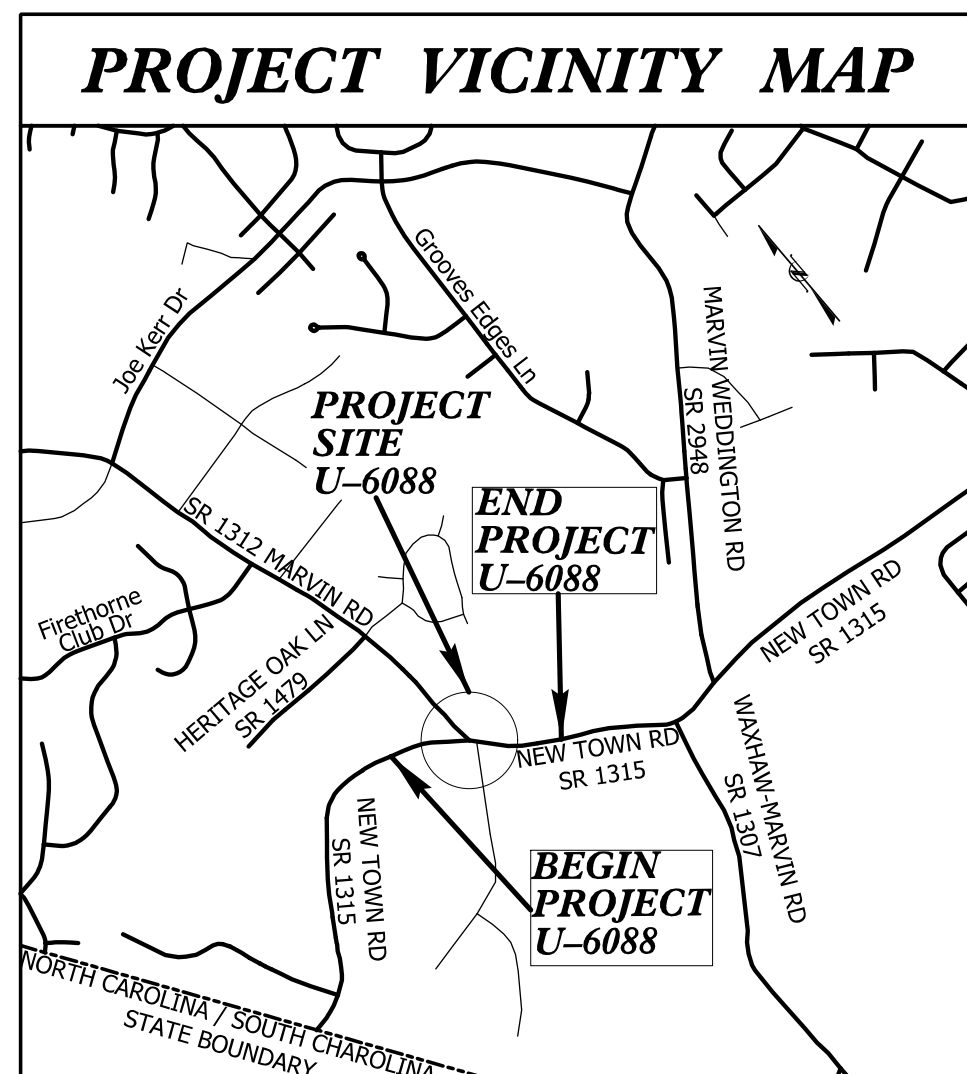
# UTILITIES BY OTHERS PLAN UNION COUNTY

NOTE:  
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

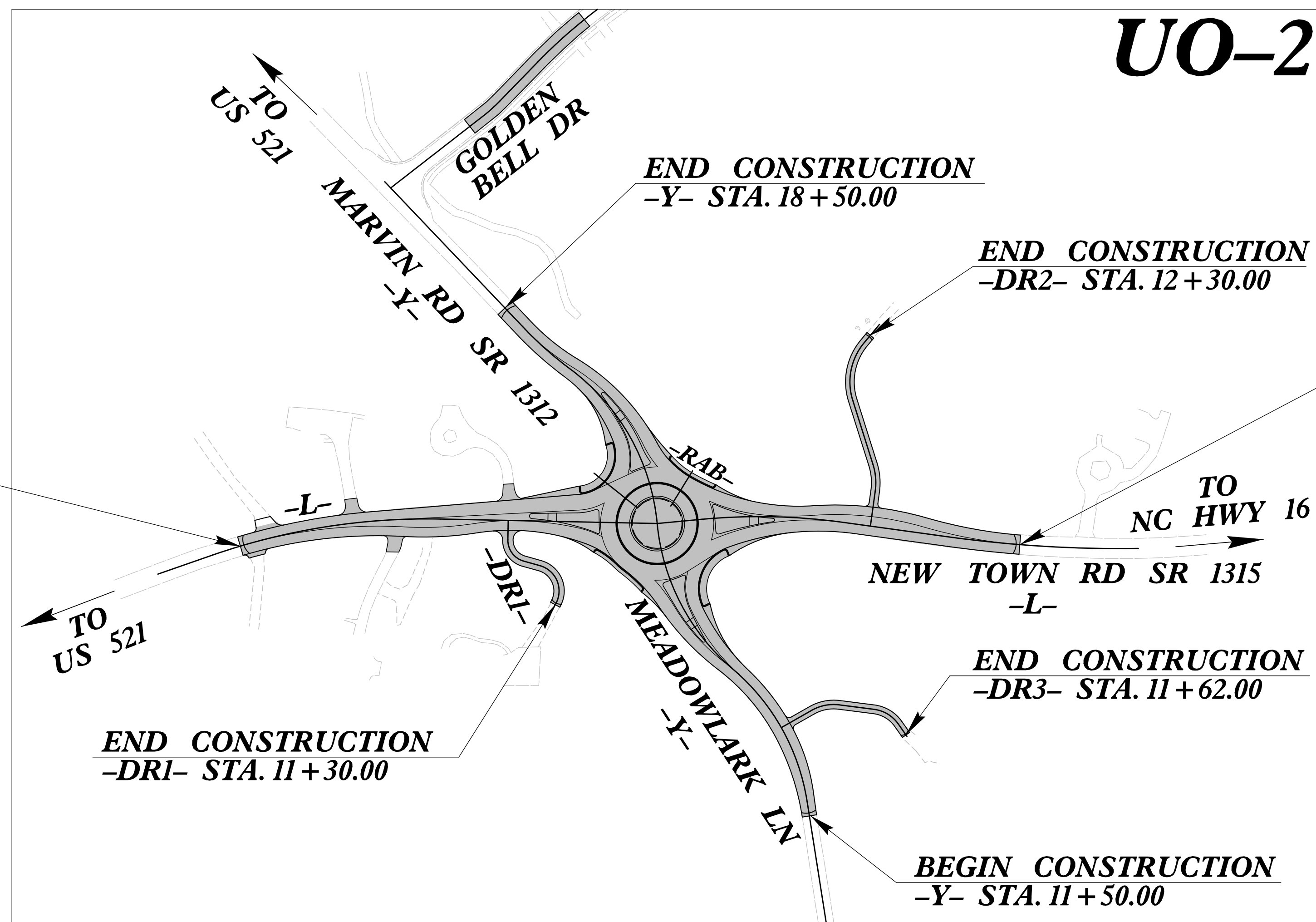
LOCATION: INTERSECTION OF SR 1315 (NEW TOWN RD),  
SR 132 (MARVIN RD) & MEADOWLARK LN

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SANITARY SEWER PLANS  
CONCRETE CURB & GUTTER, MONOLITHIC ISLANDS  
& PAVEMENT MARKINGS

TIP PROJECT: U-6088

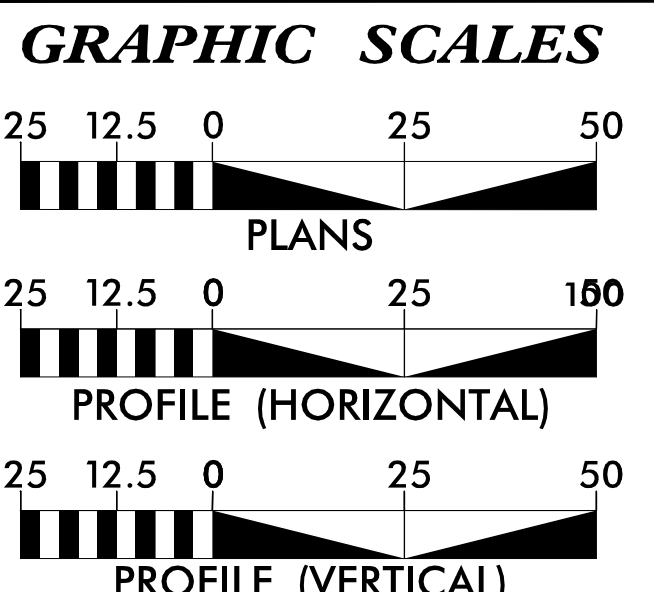


90% PLANS



## UO-2

CONTRACT:



SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-4	UBO PLAN SHEETS

- UTILITY OWNERS WITH CONFLICTS
- (A) UNION POWER (DISTRIBUTION)
  - (B) PNG GAS (DISTRIBUTION)
  - (C) WINDSTREAM (COMMUNICATIONS)
  - (D) COMPORIUM (COMMUNICATIONS)
  - (E) CHARTER (COMMUNICATIONS)

PREPARED IN THE OFFICE OF:  
**wsp**  
1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203  
NC LIC NO. F-0165

XXXX \_\_\_\_\_ UTILITY PROJECT MANAGER  
XXXX \_\_\_\_\_ PROJECT UTILITY COORDINATOR  
XXXX \_\_\_\_\_ PROJECT UTILITY XXXX

DIVISION OF HIGHWAYS  
DIVISION 10  
716 W MAIN ST.  
ALBEMARLE, NC 28001  
PHONE (704) 983-4400  
FAX: (704) 982-3146

LYNN BASINGER UTILITIES ENGINEER  
ADAM J. PRESLAR UTILITIES COORDINATOR

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

09/08/99  
12/19/2022  
T:\188360T  
Portilloa  
U-6088\U6088\Util\Files\UBO Plans\U6088\_Rdy\_TSH\_UBO.dgn



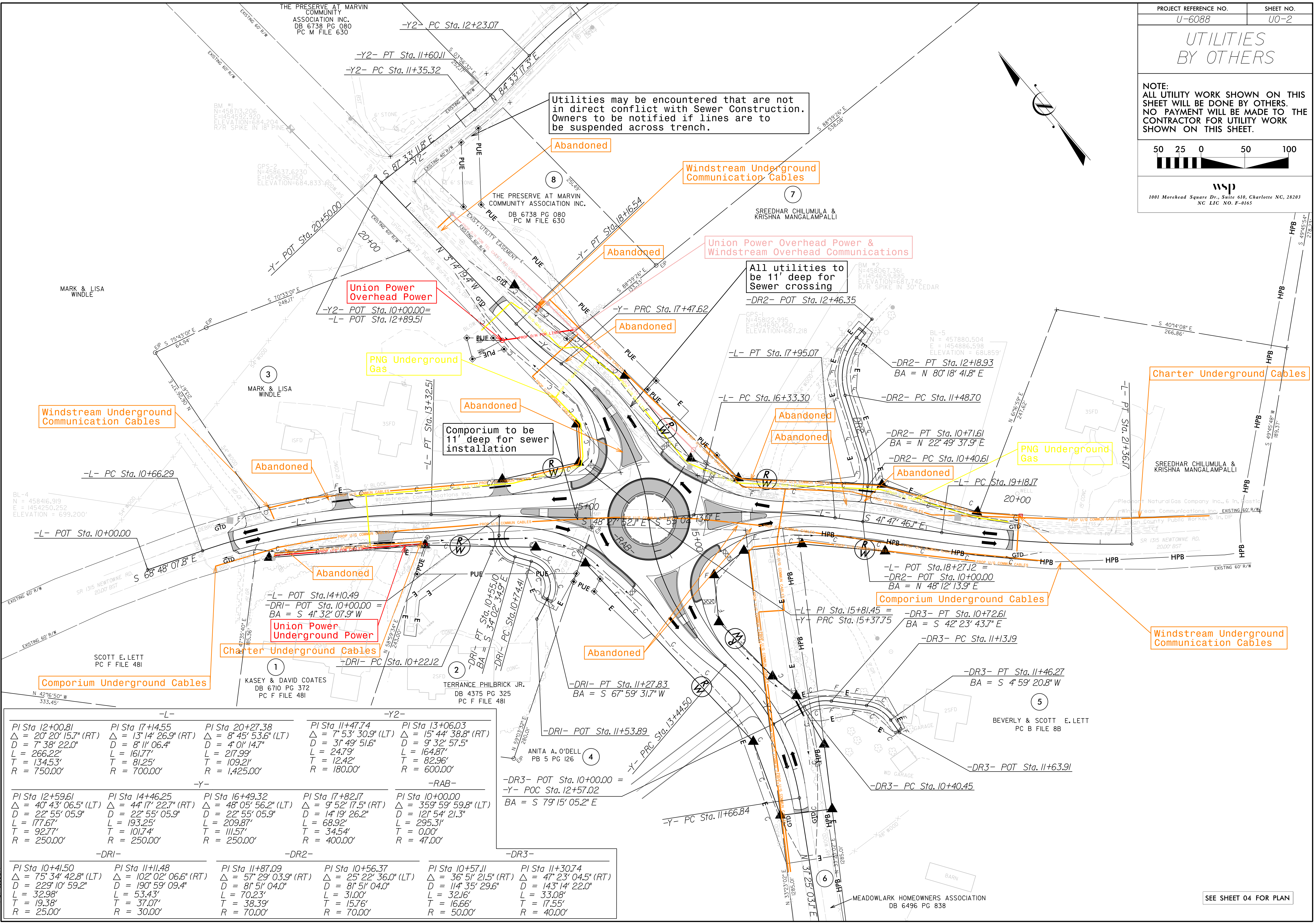
# UTILITIES BY OTHERS

NOTE:  
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



**wsp**  
1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203  
NC LIC NO. F-0165


5/14/2022 6:08 PM U:\Utilities\UB0\_Plan\U6088\_UB0\_PSH-02.dgn



-L-		-Y2-		-RAB-		-DR3-	
PI Sta 12+00.81 Δ = 20° 20' 15.7" (RT) D = 7' 38' 22.0" L = 266.22' T = 134.53' R = 750.00'	PI Sta 17+14.55 Δ = 13° 14' 26.9" (RT) D = 8' 11' 06.4" L = 161.77' T = 81.25' R = 700.00'	PI Sta 20+27.38 Δ = 8° 45' 53.6" (LT) D = 4' 01' 14.7" L = 217.99' T = 109.21' R = 1,425.00'	PI Sta 11+47.74 Δ = 7° 53' 30.9" (LT) D = 3' 49' 51.6" L = 247.9' T = 12.42' R = 180.00'	PI Sta 13+06.03 Δ = 15° 44' 38.8" (RT) D = 9' 32' 57.5" L = 164.87' T = 82.96' R = 600.00'	PI Sta 10+00.00 Δ = 359° 59' 59.8" (LT) D = 121' 54' 21.3" L = 295.31' T = 0.00' R = 47.00'	PI Sta 15+81.45 Δ = 47° 23' 04.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'	PI Sta 10+00.00 Δ = 79° 15' 05.2" E D = 0.00' L = 0.00' T = 0.00' R = 0.00'
-Y-		-RAB-		-DR3-		-DR3-	
PI Sta 12+59.61 Δ = 40° 43' 06.5" (LT) D = 22° 55' 05.9" L = 177.67' T = 92.77' R = 250.00'	PI Sta 14+46.25 Δ = 44° 17' 22.7" (RT) D = 22° 55' 05.9" L = 193.25' T = 101.74' R = 250.00'	PI Sta 16+49.32 Δ = 9° 52' 17.5" (RT) D = 22° 55' 05.9" L = 209.87' T = 111.57' R = 250.00'	PI Sta 17+82.17 Δ = 14° 19' 26.2" D = 14' 19' 26.2" L = 68.92' T = 34.54' R = 400.00'	PI Sta 10+00.00 Δ = 121° 54' 21.3" D = 121' 54' 21.3" L = 295.31' T = 0.00' R = 47.00'	PI Sta 10+00.00 Δ = 359° 59' 59.8" (LT) D = 121' 54' 21.3" L = 295.31' T = 0.00' R = 47.00'	PI Sta 11+30.74 Δ = 47° 23' 04.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'	PI Sta 11+30.74 Δ = 47° 23' 04.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'
-DRI-		-DR2-		-DR3-		-DR3-	
PI Sta 10+41.50 Δ = 75° 34' 42.8" (LT) D = 229° 10' 59.2" L = 32.98' T = 19.38' R = 25.00'	PI Sta 11+11.48 Δ = 102° 02' 06.6" (RT) D = 190° 59' 09.4" L = 53.43' T = 37.07' R = 30.00'	PI Sta 11+87.09 Δ = 57° 29' 03.9" (RT) D = 8° 51' 04.0" L = 70.23' T = 38.39' R = 70.00'	PI Sta 10+56.37 Δ = 25° 22' 36.0" (LT) D = 81° 51' 04.0" L = 31.00' T = 15.76' R = 70.00'	PI Sta 10+57.11 Δ = 36° 51' 21.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'	PI Sta 11+30.74 Δ = 47° 23' 04.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'	PI Sta 11+30.74 Δ = 47° 23' 04.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'	PI Sta 11+30.74 Δ = 47° 23' 04.5" (RT) D = 114' 35' 29.6" L = 32.16' T = 16.66' R = 50.00'

SEE SHEET 04 FOR PLAN



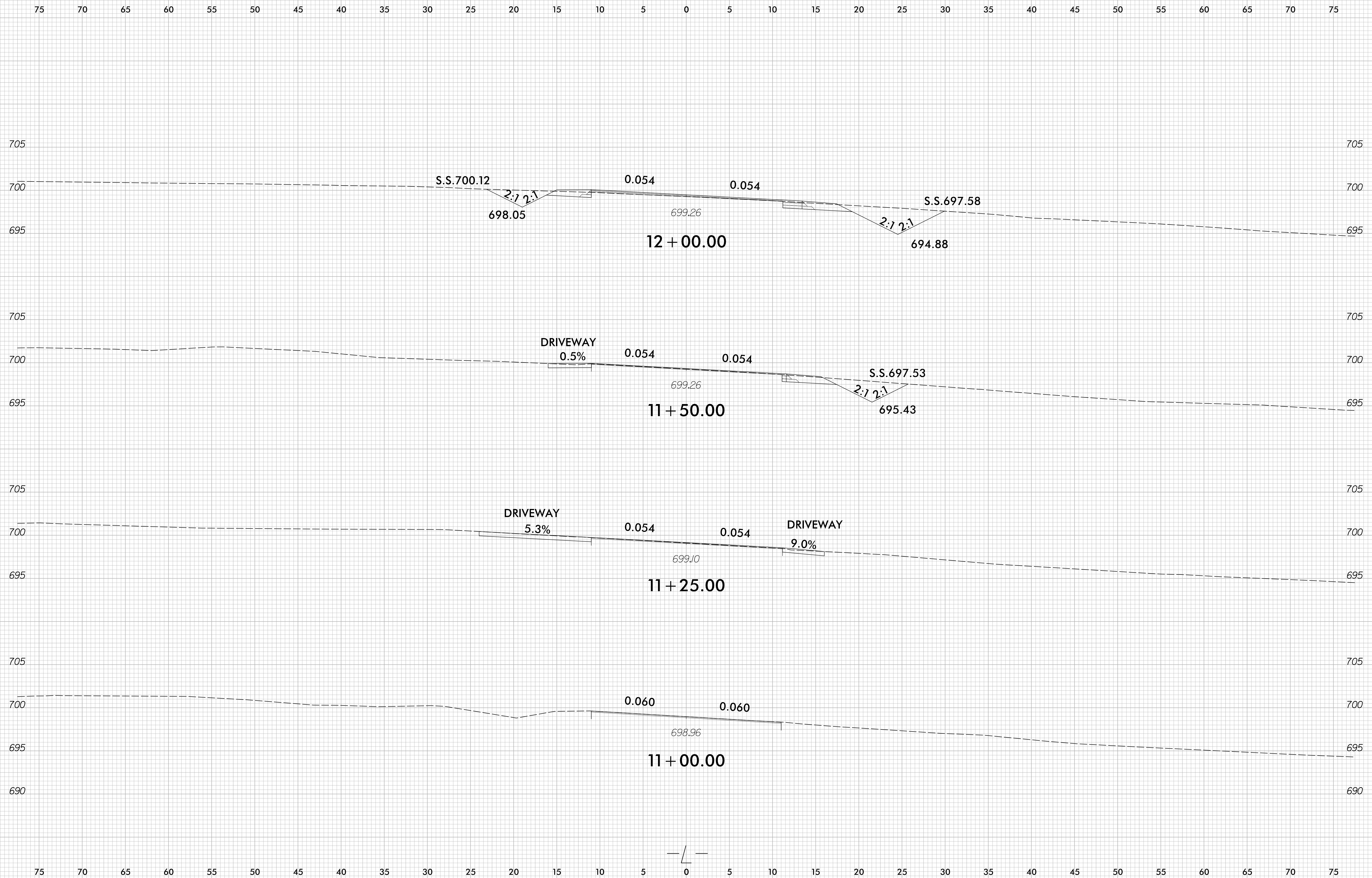
PROJ. REFERENCE NO.	SHEET NO.
U-6088	X-0
 <small>1001 Morehead Square Dr., Suite 610, Charlotte NC, 28203 NC LIC NO. F-0165</small>	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

# VOLUME # 1

## CROSS-SECTIONS INDEX OF SHEETS

-L-		X-1 THRU X-5
-Y-		X-6 THRU X-8
-RAB-		X-9 THRU X-12
-DRI-		X-13
-DR2-		X-14 THRU X-15
-DR3-		X-16

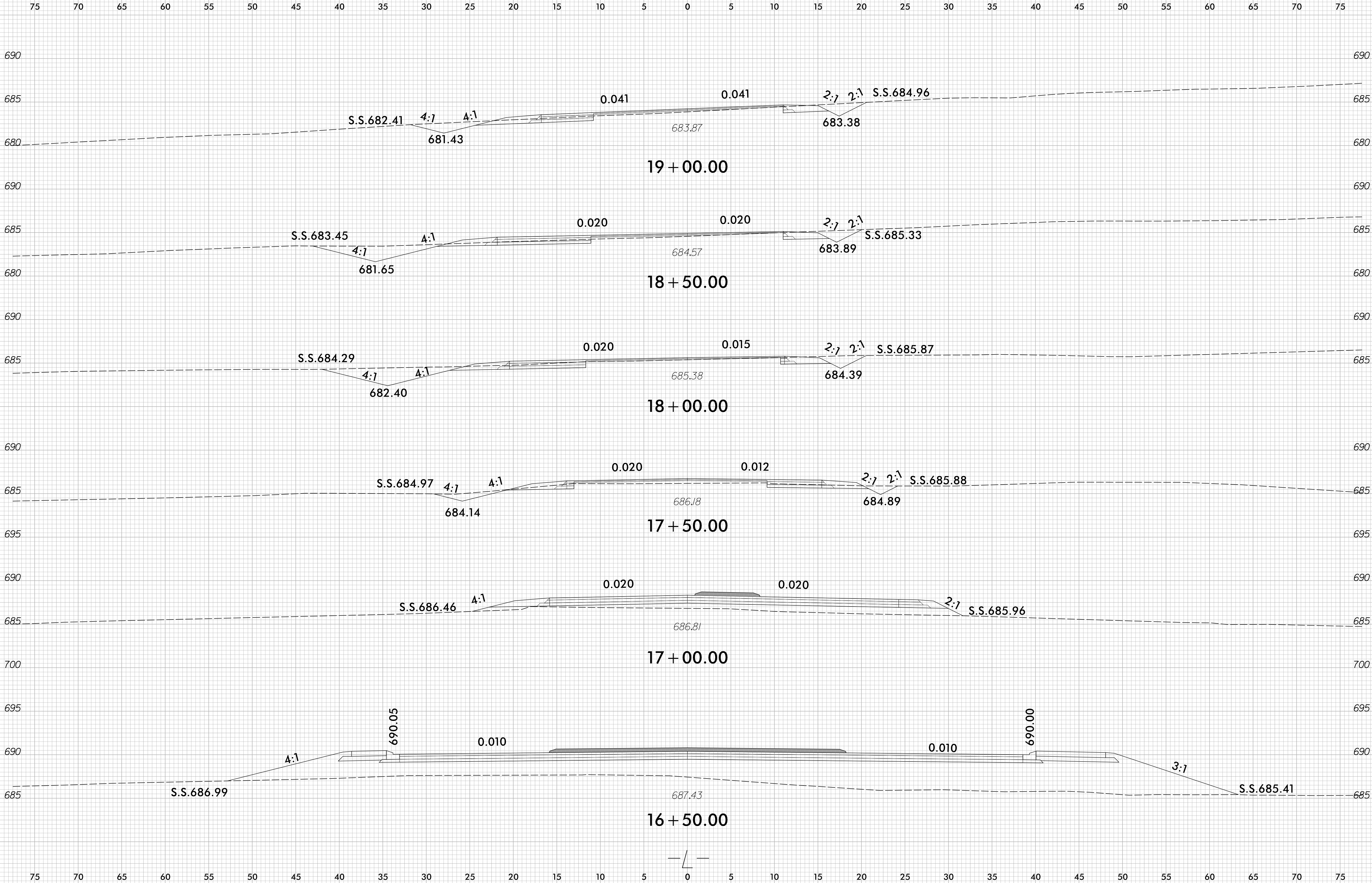






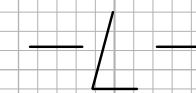
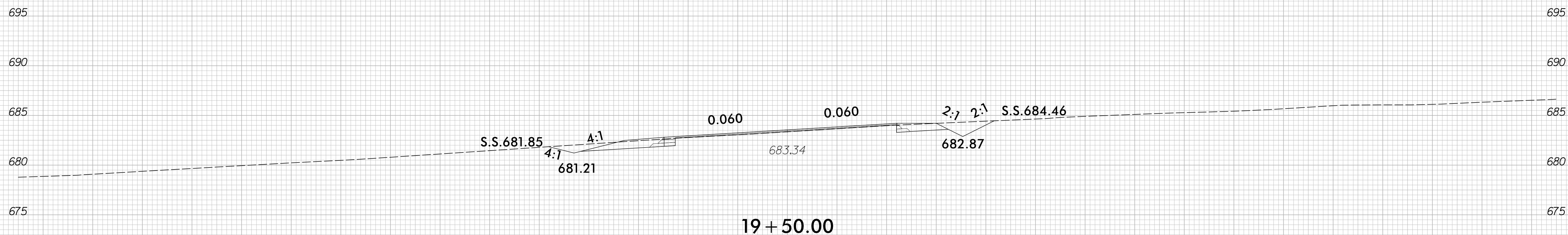
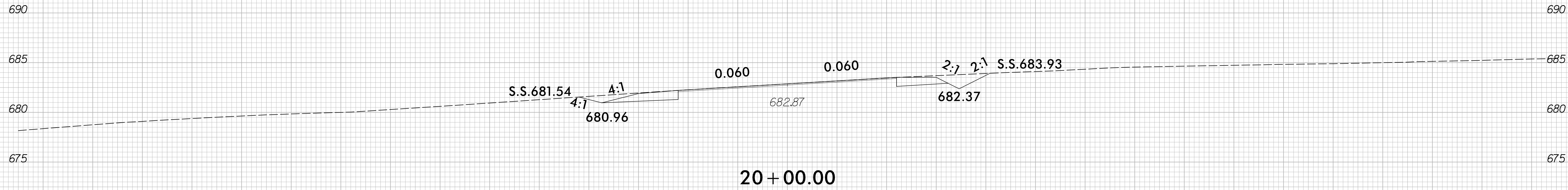




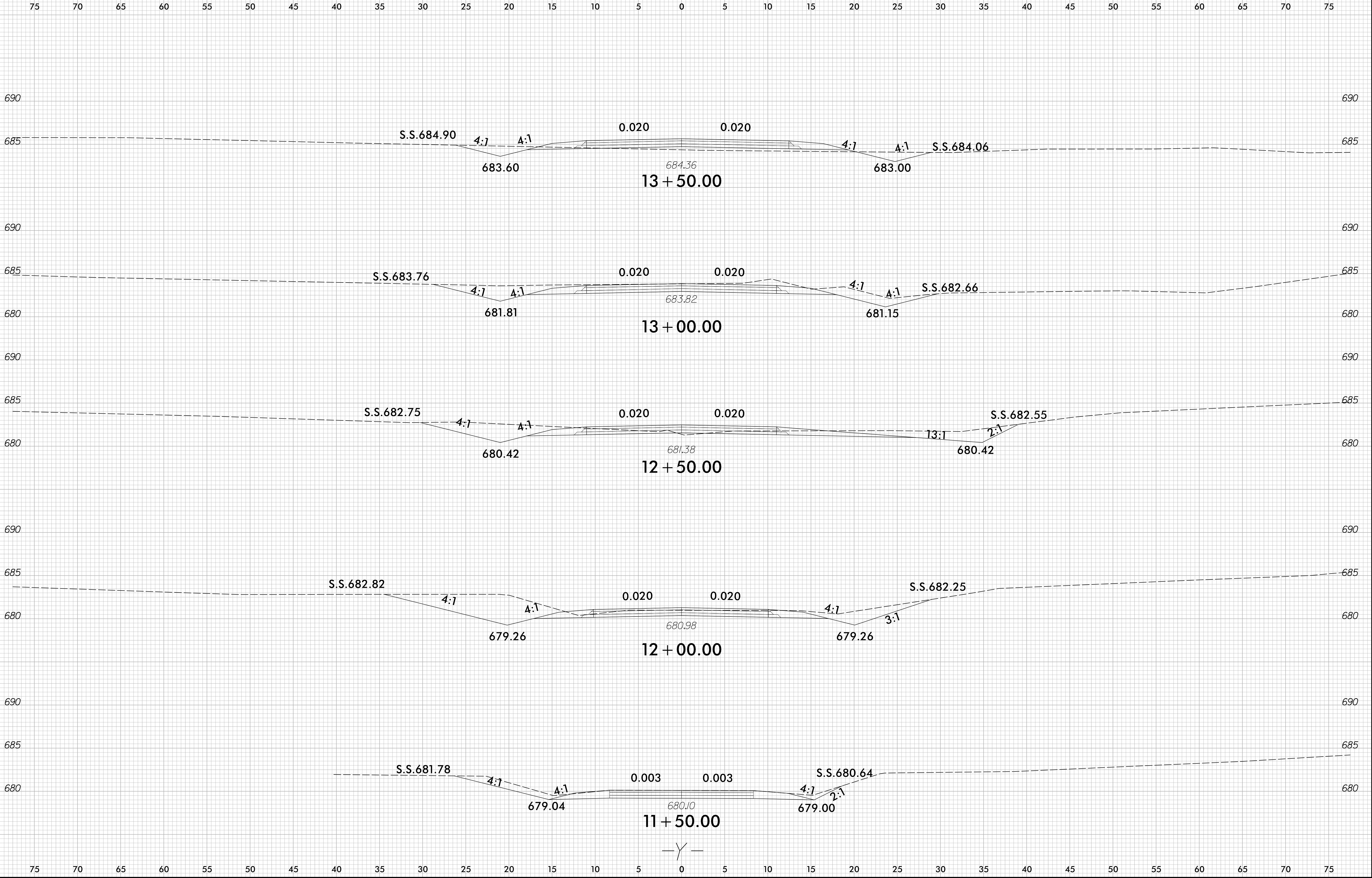




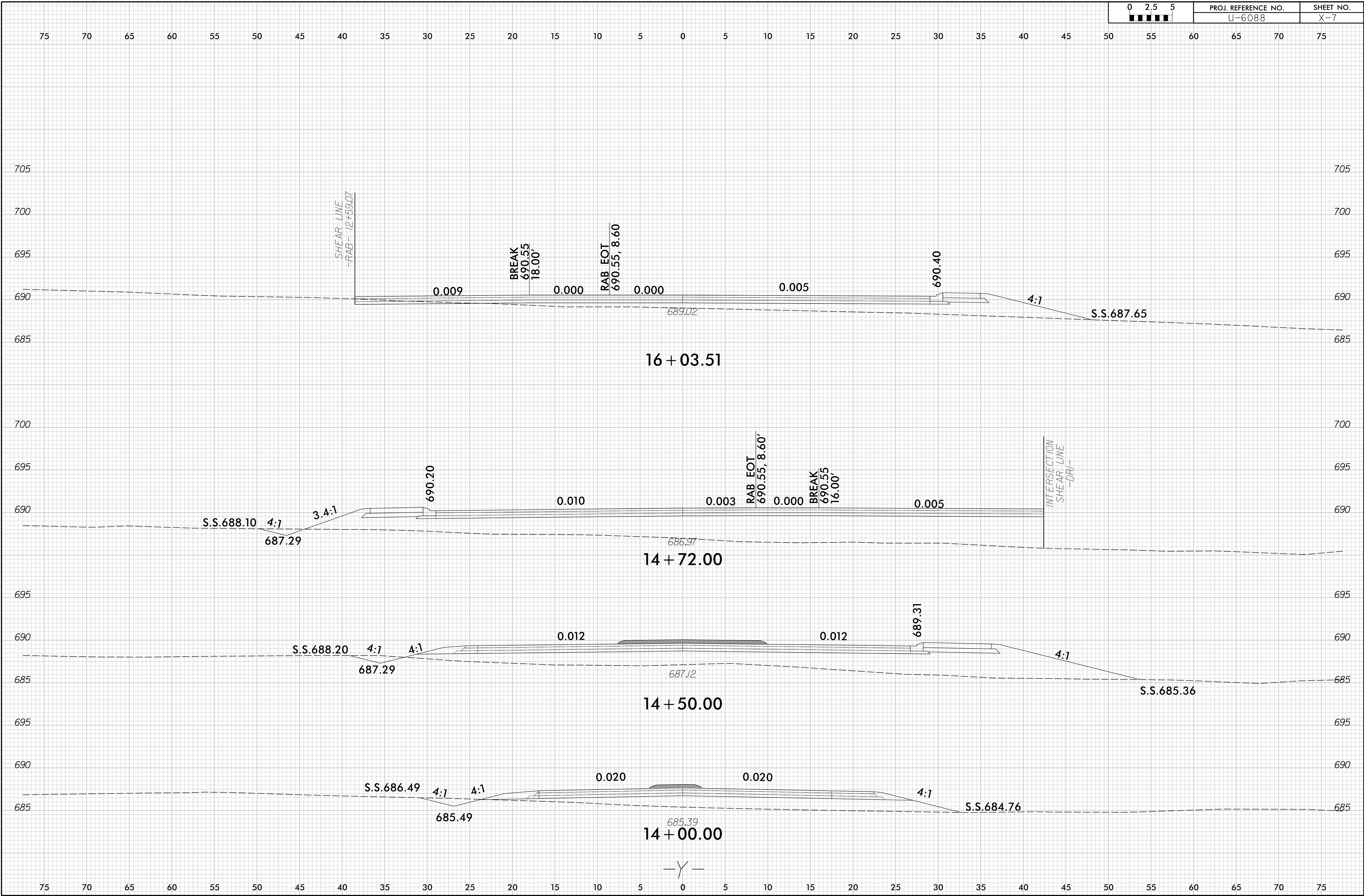
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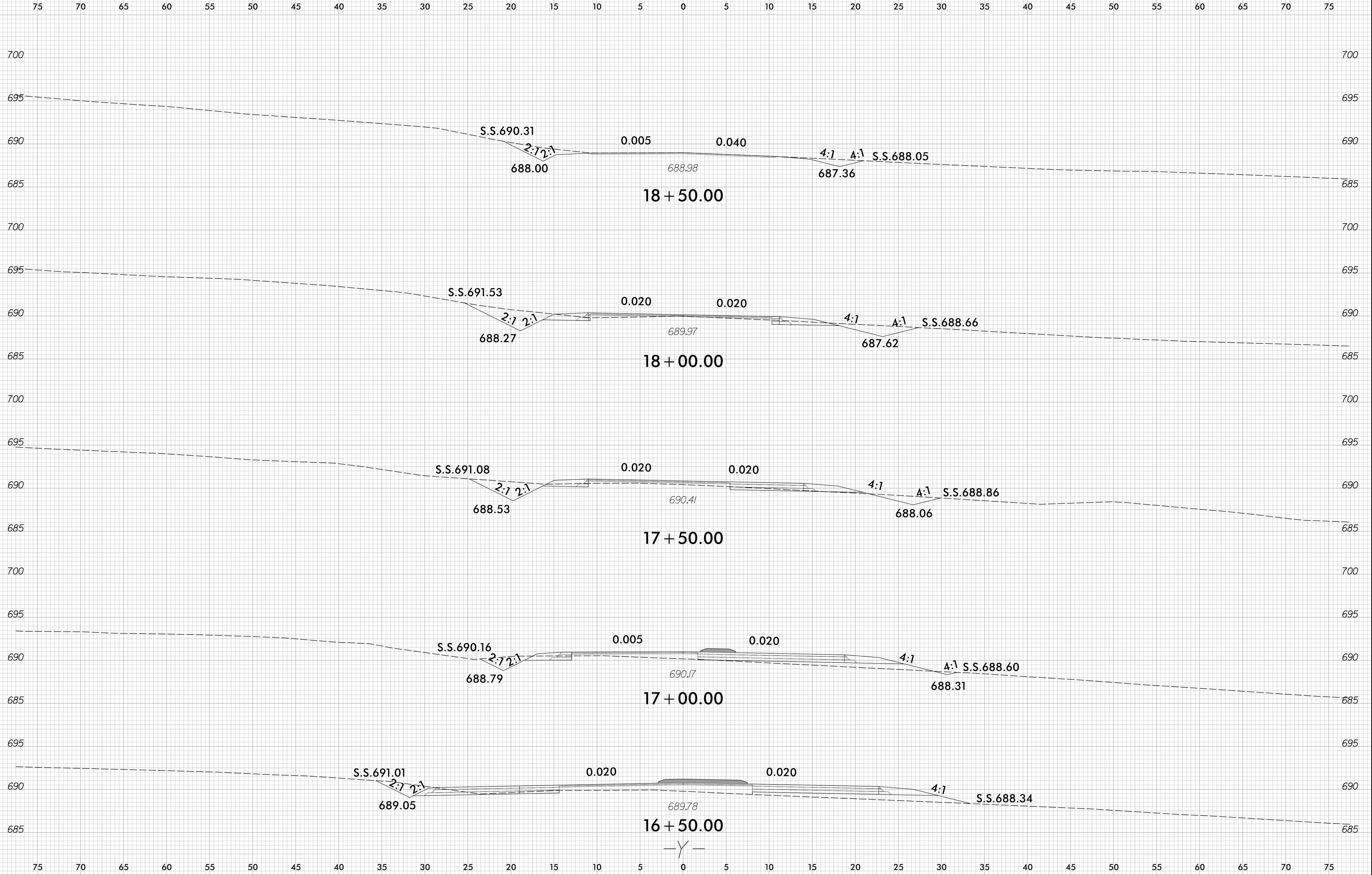


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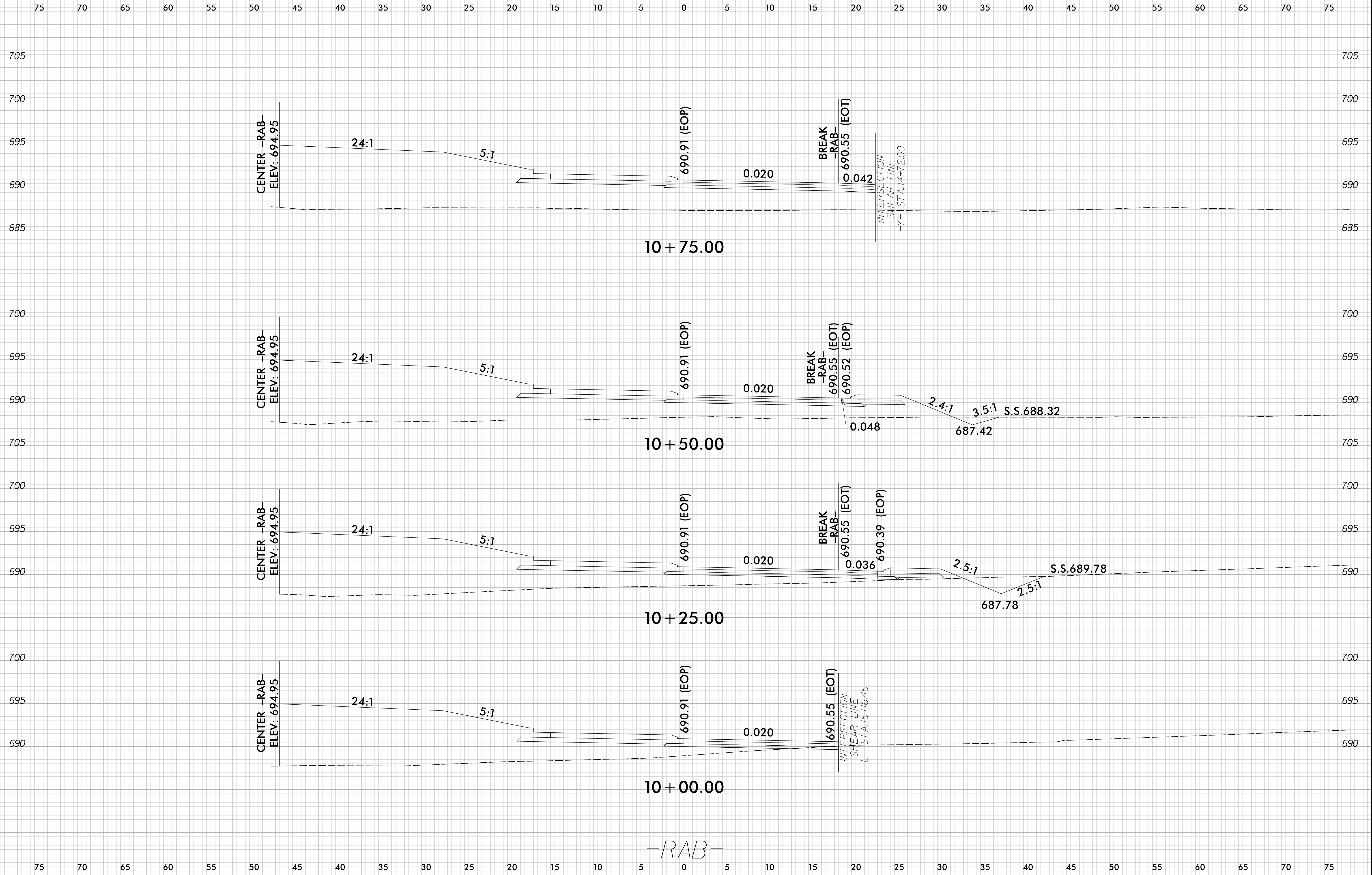




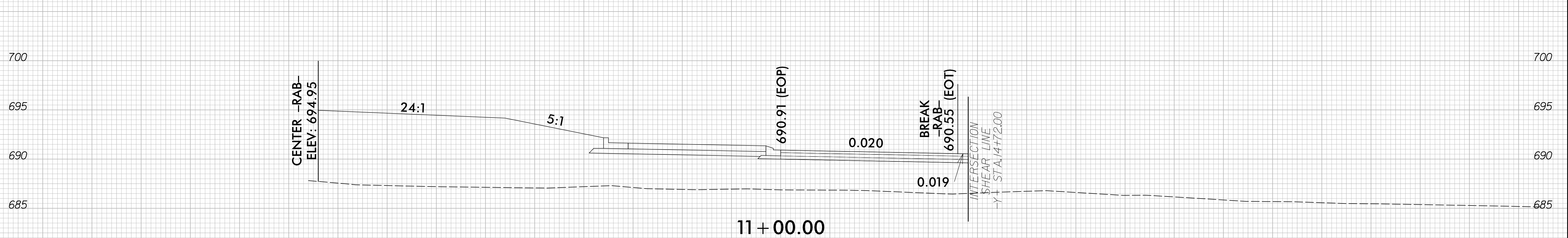
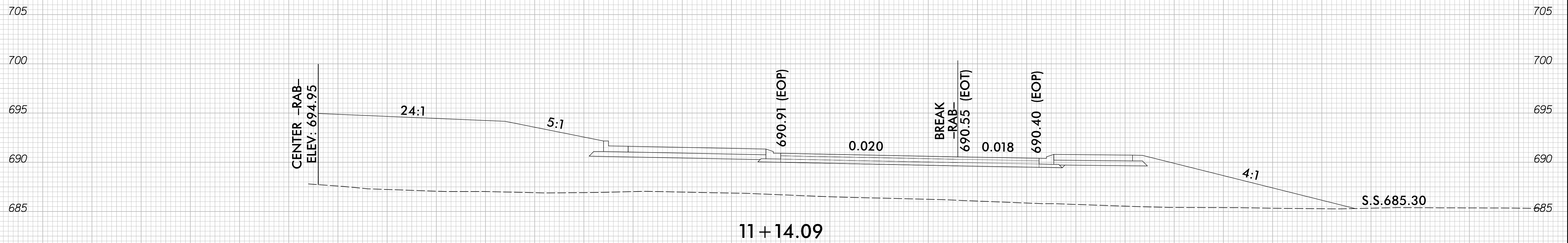
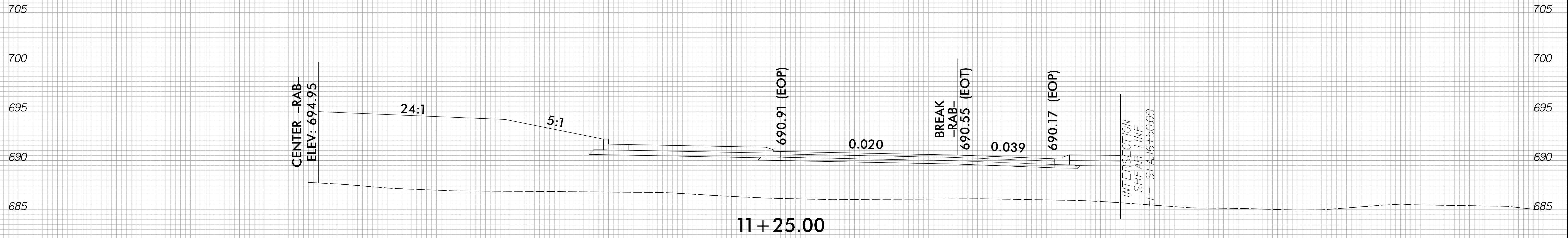








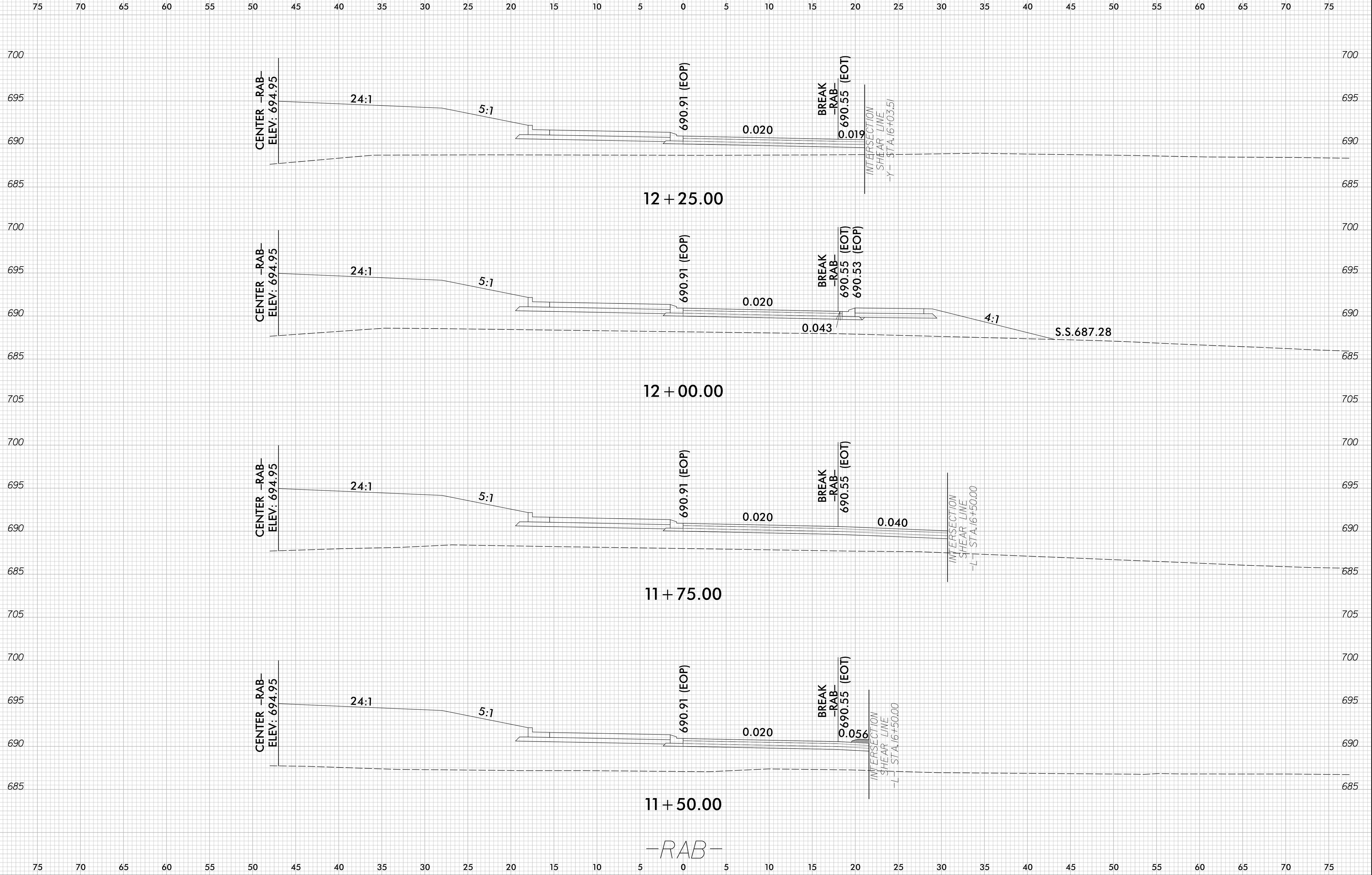
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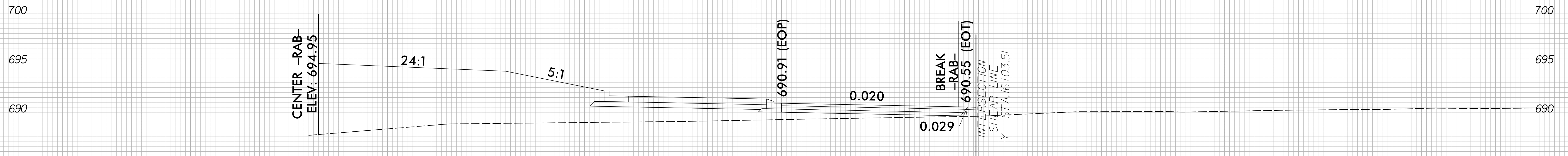
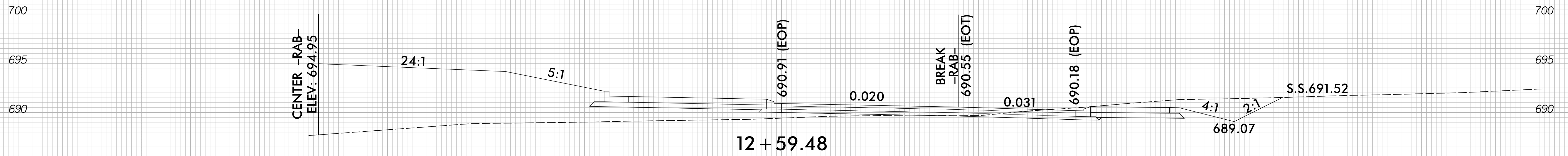
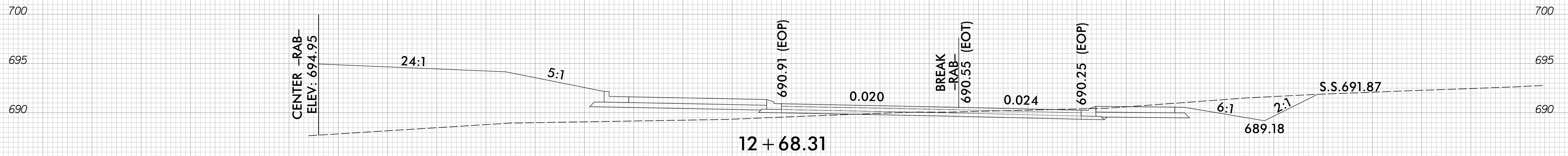
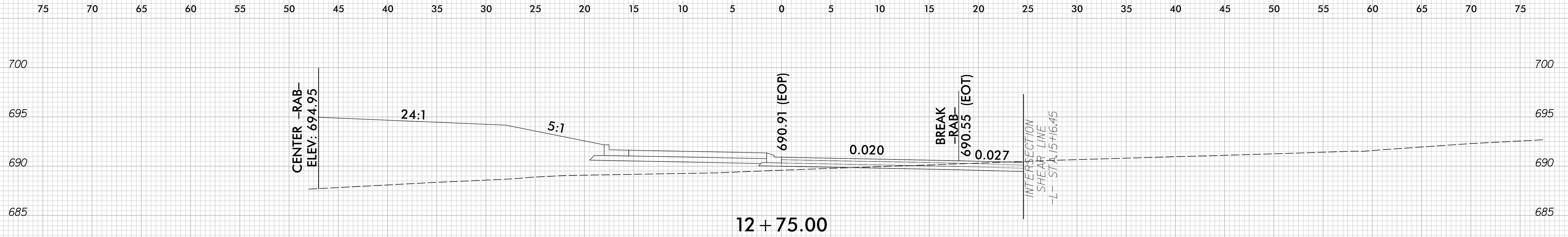


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-RAB-



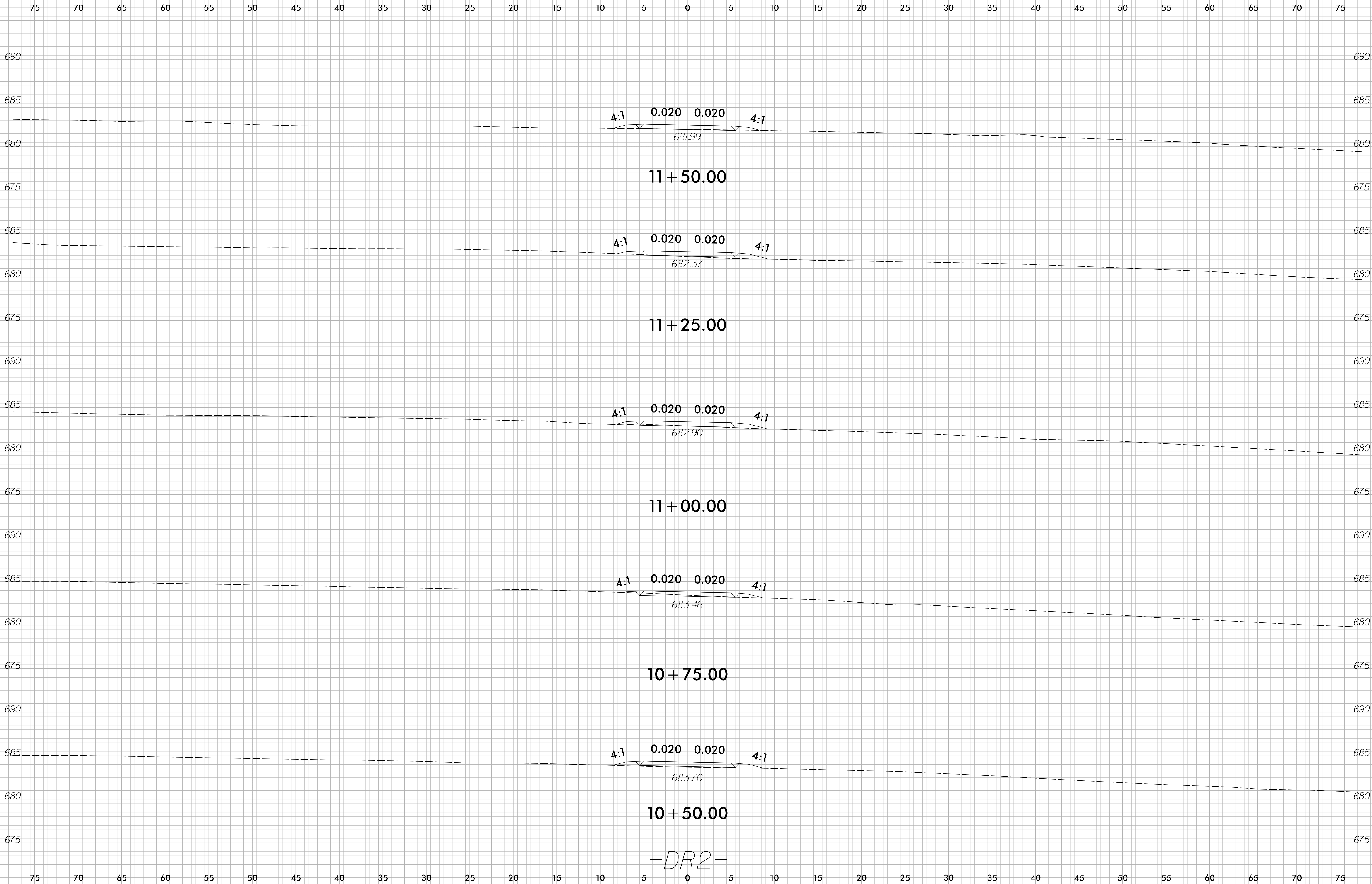




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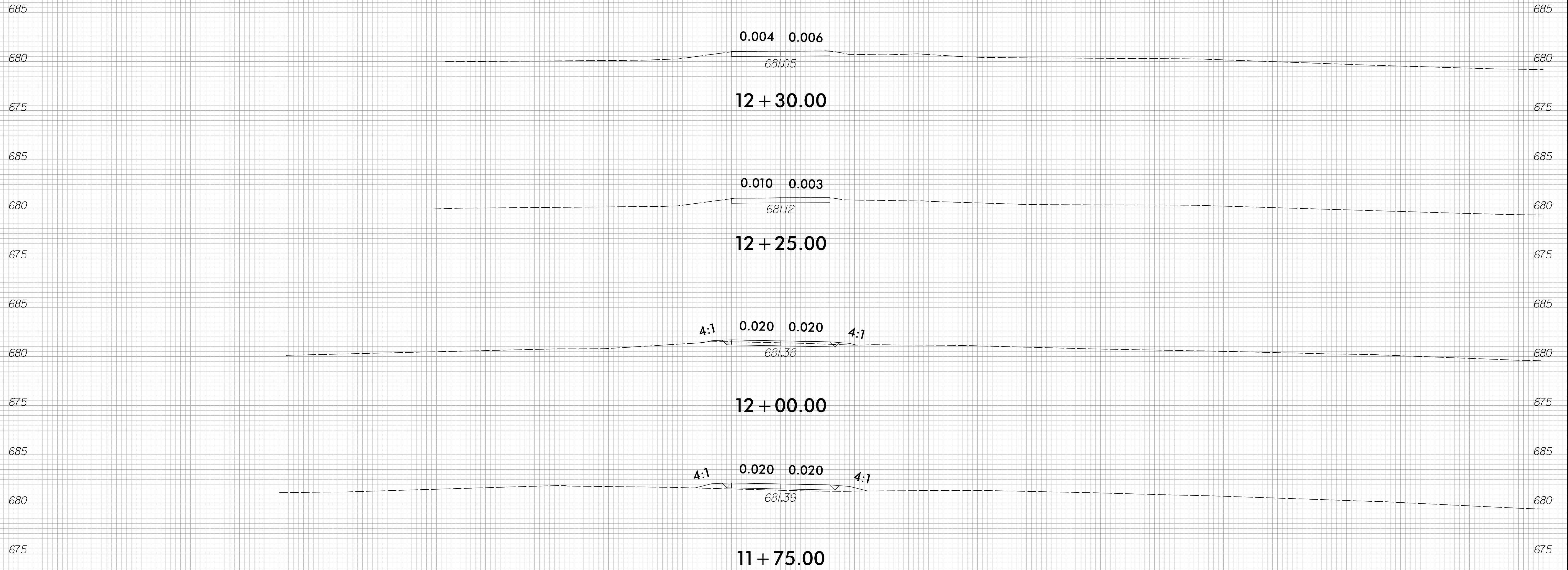




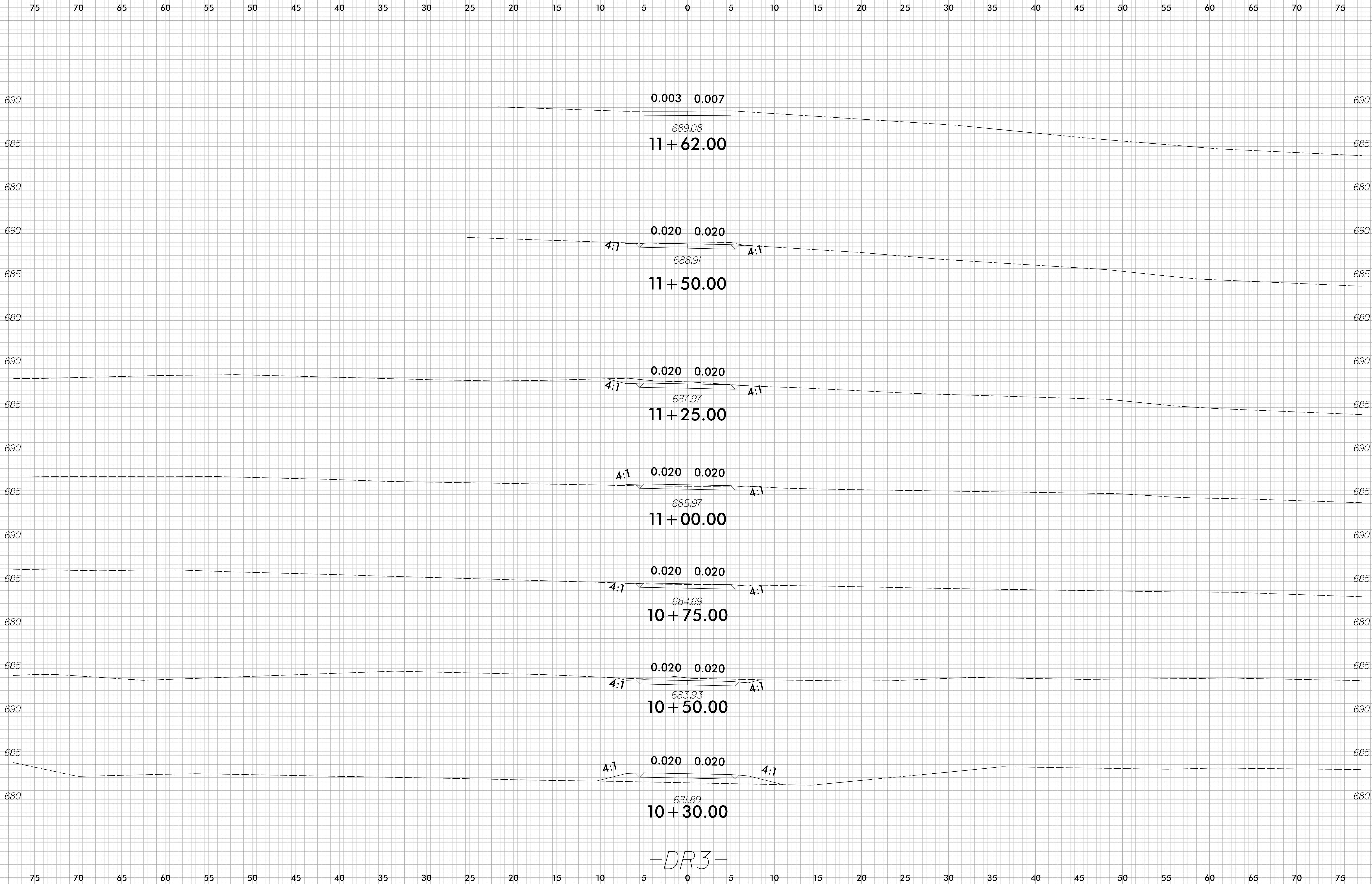
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-DR2-



-DR3-