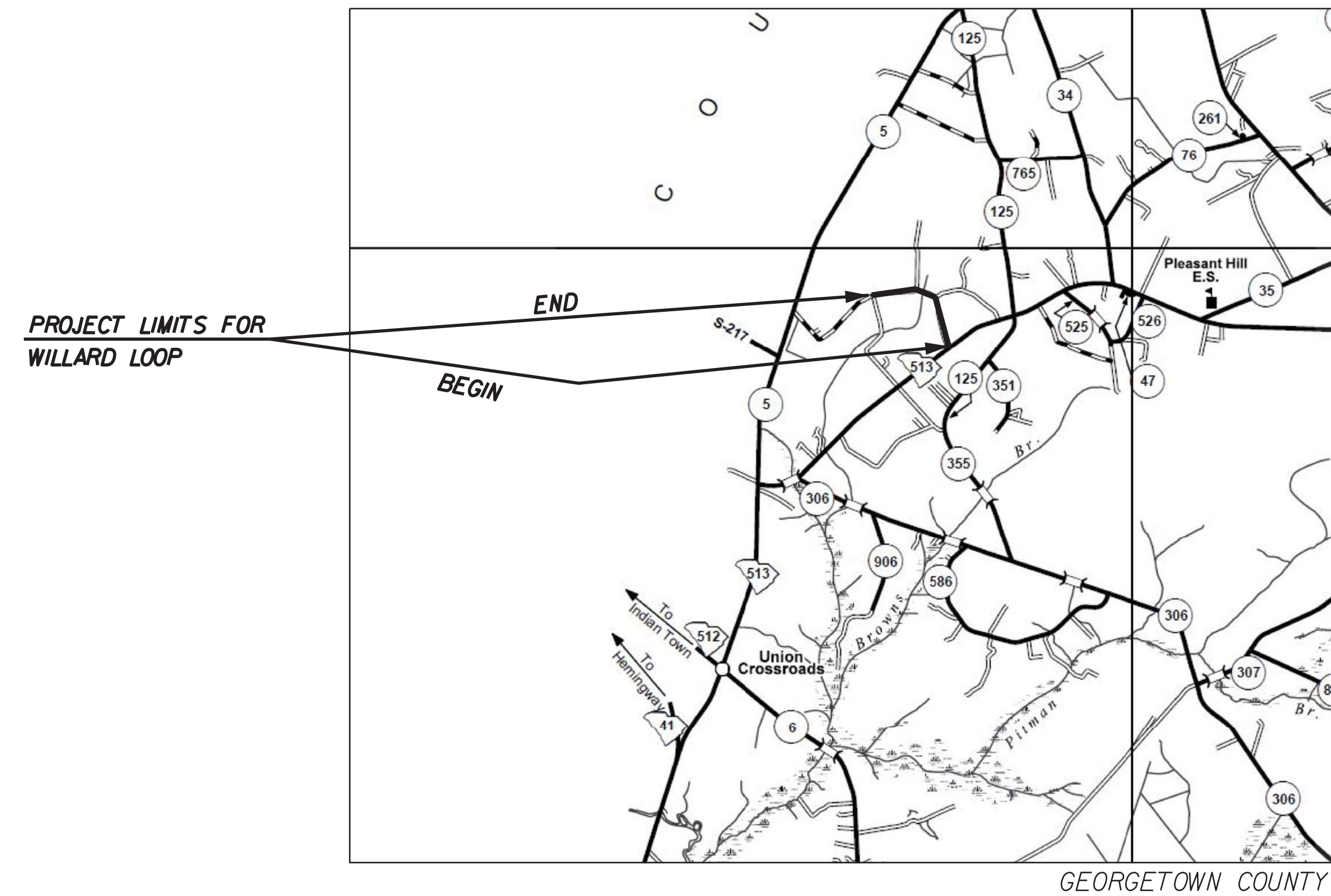


STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	ROUTE NO.	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP		1	45

# GEORGETOWN COUNTY DEPARTMENT OF PUBLIC SERVICES

## DIVISION OF PUBLIC WORKS

### PLAN OF PROPOSED IMPROVEMENTS FOR WILLARD LOOP



LAYOUT  
NTS

NPDES PERMIT INFORMATION
NPDES Disturbed Area = <u>2.79</u> Acres
Approximate Location of Roadway is: Longitude <u>79° 23' 33.07" W</u> Latitude <u>33° 40' 29.03" N</u>
Hydrology and NPDES Design provided by:  <u>Davis &amp; Floyd</u>

NET LENGTH OF ROADWAY .....	0.93	MILES
NET LENGTH OF OUTFALL .....	0.00	MILES
NET LENGTH OF PROJECT .....	0.93	MILES
LENGTH OF EXCEPTIONS .....	0.00	MILES
GROSS LENGTH OF PROJECT .....	0.93	MILES

NOTE: ALL WORKMANSHIP AND MATERIAL ON THIS PROJECT TO CONFORM WITH SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION), AND BOOK OF STANDARD DRAWINGS FOR ROAD CONSTRUCTION.

RAILROAD INVOLVEMENT? YES / <input type="radio"/> NO
---

#### INDEX OF SHEETS

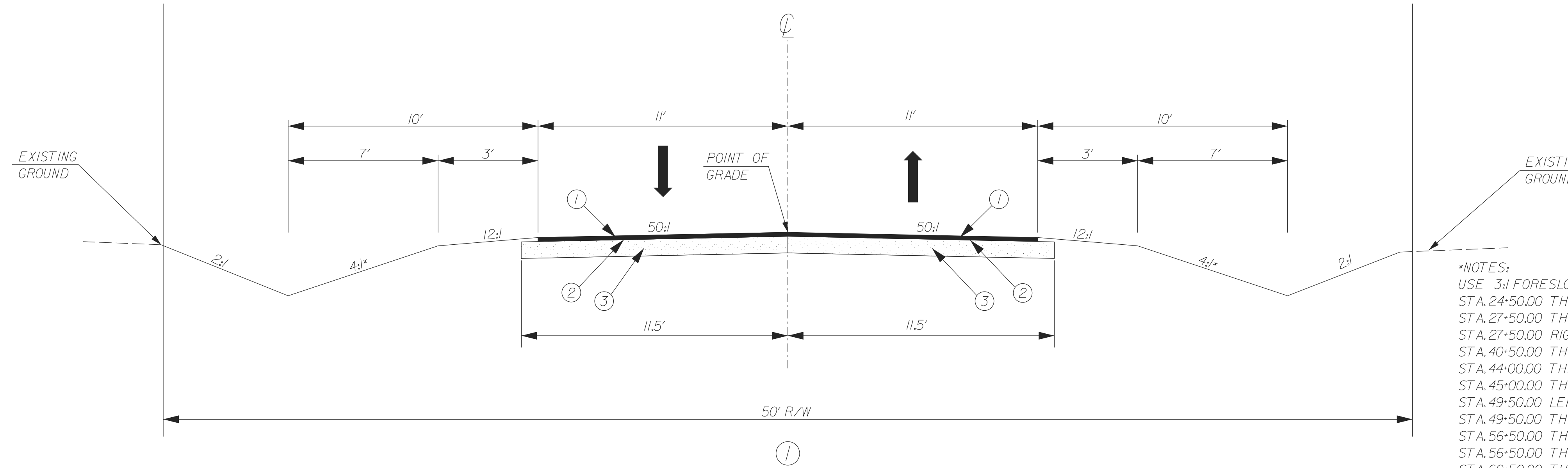
SHEET #	DESCRIPTION	SHEET TOTALS
01	TITLE SHEET	1
03	TYPICAL SECTIONS	1
05	GENERAL CONSTRUCTION NOTES	1
05A - 05B	REFERENCE DATA SHEET	2
06 - 14	PLAN AND PROFILE SHEETS	9
UI	UTILITY SHEET	1
EC1	EROSION CONTROL SHEET	1
EC2	CONTOUR SHEET	1
XI - XI7	CROSS SECTIONS	17
DOI - DIO	STANDARD DRAWINGS	10
	TOTAL SHEETS	44

3 DAYS BEFORE DIGGING IN  
SOUTH CAROLINA  
**CALL 811**  
PALMETTO UTILITY PROTECTION SERVICES, INC. (PUPS)  
ALL UTILITIES MAY NOT BE A MEMBER OF PUPS.

CONSULTING ENGINEERING FIRM	CONSULTANT - PROJECT ENGINEER
FOR CONSTRUCTION : _____ DATE _____	

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	3	

TYPICAL SECTION  
WILLARD LOOP  
GEORGETOWN COUNTY



TYPICAL SECTION  
STA. 20+12.00 TO STA. 69+19.02

- \*NOTES:  
 USE 3:1 FORESLOPE FOR  
 STA. 24+50.00 THROUGH 26+50.00 LEFT  
 STA. 27+50.00 THROUGH 29+00.00 LEFT  
 STA. 27+50.00 RIGHT  
 STA. 40+50.00 THROUGH 42+00.00 RIGHT  
 STA. 44+00.00 THROUGH 46+50.00 RIGHT  
 STA. 45+00.00 THROUGH 47+50.00 LEFT  
 STA. 49+50.00 LEFT  
 STA. 49+50.00 THROUGH 50+00.00 RIGHT  
 STA. 56+50.00 THROUGH 57+00.00 RIGHT  
 STA. 56+50.00 THROUGH 57+50.00 LEFT  
 STA. 60+50.00 THROUGH 61+00.00 LEFT  
 STA. 60+50.00 RIGHT

USE SPECIAL DITCH PROFILE  
 STA. 65+80.00 THROUGH 68+60.00 LEFT AND RIGHT

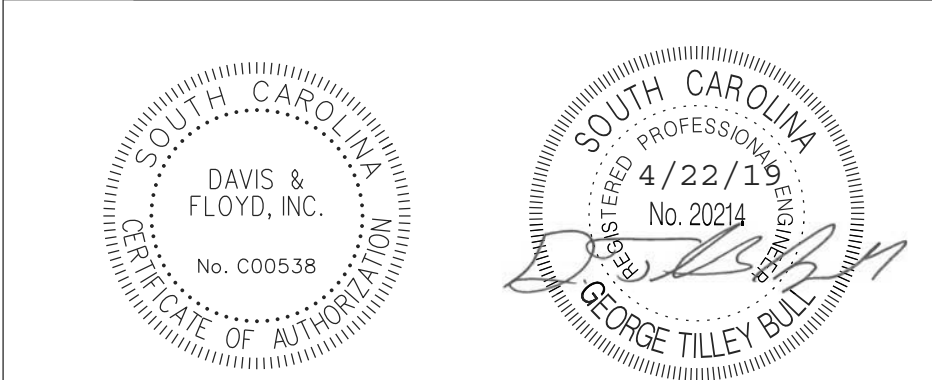
SEE PLAN SHEETS AND CROSS SECTIONS FOR GUARDRAIL LOCATION AND OFFSETS.

SEE SCDOT STANDARD DRAWING 805-215-00 FOR ADDITIONAL LENGTH POST GUARDRAIL INSTALLATION

WITHIN THE SCDOT R/W USE THE FOLLOWING PAVEMENT DESIGN  
 H/M ASPHALT CONCRETE SURFACE COURSE TYPE B (220\*/SY)  
 H/M ASPHALT CONCRETE INTERMEDIATE COURSE TYPE B (440\*/SY)  
 H/M ASPHALT CONCRETE BASE COURSE TYPE B (450\*/SY)

PAVEMENT LEGEND	
①	H/M ASPHALT CONCRETE SURFACE COURSE TYPE C (200*/SY)
②	PRIME COAT
③	8" GRADED AGGREGATE BASE COURSE

RTE. WILLARD LOOP DESIGN SPEED		
MPH	FROM STA.	TO STA.
30	20+12.00	69+19.02
EXCEPTIONS TO DESIGN SPEED		



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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
DCN.	JKL	DATE	
R/W		DATE	
CHK.	GTB	DATE	

GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM  
 WILLARD LOOP  
 TYPICAL SECTION SHEET  
 NOT TO SCALE

SCALE: 200.000 ft / in  
 SCDOT Levels 2015 B&W Plan-PDF.tbi  
 PLOT DRIVER: G:\JobsEven\31810-02\Production\Transportation\Willard\c.dgn  
 FILE: T1171912018

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	5	

**GENERAL CONSTRUCTION NOTES:**

THE CONTRACTOR MUST PERFORM ALL WORK IN ACCORDANCE WITH THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS FOR ROAD CONSTRUCTION (LATEST EDITION), SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION), SCDOT TRAFFIC SIGNAL SPECIFICATIONS, AND THE MUTCD, 2009 EDITION.

THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT THE TRANSFER OF SUSPENDED SOLIDS AND/OR CHEMICAL SOLUTIONS OFF-SITE, AND TO PREVENT EXCESSIVE SILTATION OF EXISTING DRAINAGE PIPES, CULVERTS, AND DITCHES. THE CONTRACTOR SHALL ROUTINELY INSPECT AND MAINTAIN THESE DEVICES. ALL CHECK DAMS AND RIPRAP SHOWN ARE CLASS B UNLESS OTHERWISE STATED.

THE LOCATIONS OF EXISTING UTILITIES AND STORM DRAINAGE FACILITIES SHOWN ON THE PLANS ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE UTILITIES INFORMATION SHOWN ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL UTILITIES BEFORE CONSTRUCTION. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THAT THE PROPER COORDINATION WITH THE VARIOUS UTILITY OWNERS HAS BEEN PERFORMED. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY DURING RELOCATION OPERATIONS.

THE LOCATION OF UTILITIES SHOWN IN THE PLANS SHOULD BE CONSIDERED APPROXIMATE ONLY. THE VERIFIED LOCATIONS/ELEVATIONS APPLY ONLY AT THE POINTS DESIGNATED BY A TEST HOLE. INTERPOLATIONS BETWEEN THESE POINTS HAVE NOT BEEN VERIFIED.

THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, STORM DRAINS, UTILITIES AND OTHER FACILITIES TO REMAIN AND SHALL REPAIR OR COORDINATE WITH UTILITY OWNERS TO REPAIR ANY DAMAGES DUE TO CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE OWNER.

THE CONTRACTOR SHALL NOT STORE ANY MATERIALS OR EQUIPMENT WITHIN 15 FT OF THE EDGE OF TRAVEL WAY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMISSION TO STORE EQUIPMENT ON ADJACENT PROPERTIES.

PIPE LENGTHS THAT ARE SHOWN ON THE PLANS ARE ROUNDED TO THE NEAREST 4' INCREMENT AND CALCULATED ALONG THE PIPE SLOPE FROM CENTER OF BOX TO CENTER OF BOX. FIELD ADJUSTMENTS OF THE ACTUAL PIPE LENGTHS MAY BE NECESSARY.

ANY COSTS ASSOCIATED WITH REMOVING EXISTING PIPE SHALL BE INCLUDED IN THE COST OF PLACING NEW PIPE.

FINAL SURFACE COURSE ON ALL ROADWAYS SHALL NOT BE PLACED UNTIL ALL DRAINAGE INSTALLATIONS ARE COMPLETE.

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN PROPER DEWATERING PROCEDURES TO PREVENT THE FLOW AND ACCUMULATION OF SURFACE AND GROUND WATER IN EXCAVATED AREAS. ALL OF THE WATER PUMPED OR DRAINED SHALL BE DISPOSED OF WITHOUT UNDUE INTERFERENCE WITH OTHER WORK OR DAMAGE TO PAVEMENTS AND OTHER SURFACES OR PROPERTY. DISCHARGED WATER FROM ALL DEWATERING OPERATIONS SHALL BE FILTERED IN ACCORDANCE WITH SCDHEC OR OCRM REGULATIONS OR AS APPROVED BY THE ENGINEER. A PLAN FOR DEWATERING SHALL BE SUBMITTED TO THE RESIDENT CONSTRUCTION ENGINEER AND OCRM FOR APPROVAL PRIOR TO ANY WORK BEING PERFORMED WHERE DEWATERING IS REQUIRED. ONCE APPROVED AN ADDITIONAL COPY OF THE PLAN SHOULD BE PROVIDED TO GEORGETOWN COUNTY PUBLIC WORKS.

THE CONTRACTOR SHALL PROVIDE A DETAILED CONTRACTOR'S EROSION CONTROL PLAN TO THE RESIDENT CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO COMMENCING ANY WORK ON THE PROJECT.

THE CONTRACTOR SHALL PROVIDE A DETAILED TRAFFIC CONTROL PLAN TO THE RESIDENT CONSTRUCTION MANAGER FOR APPROVAL BEFORE STARTING ANY WORK ON THE PROJECT. THIS PLAN SHALL INCLUDE DETAILS CONCERNING PLACEMENT OF REFLECTORIZED BARRELS, CONES, AND/OR TYPE 2 BARRICADES IN ACCORDANCE WITH THE 2009 MUTCD.

THE CONTRACTOR SHALL PROVIDE ALL SHEETING, SHORING, AND BRACING REQUIRED TO PROTECT ADJACENT STRUCTURES AND UTILITIES OR TO MINIMIZE TRENCH WIDTH AS REQUIRED. PAYMENT FOR SUCH MEASURES IS INCLUDED IN THE BID PRICE FOR THE ITEM BEING CONSTRUCTED.

WHERE STORM PIPES AND STRUCTURES ARE IDENTIFIED TO BE ABANDONED IN PLACE, THE FOLLOWING PROCEDURES SHALL BE UTILIZED:

- PIPES: PLUG END(S) WITH BRICK AND GROUT.
- STRUCTURES: REMOVE RIM/COVER AND CONE OR TOP SLAB.
- PLUG PIPE OPENINGS WITH BRICK AND GROUT.
- FILL STRUCTURE WITH FLOWABLE FILL TO BOTTOM OF PAVEMENT SECTION.
- TEMPORARY ASPHALT IF NEEDED.

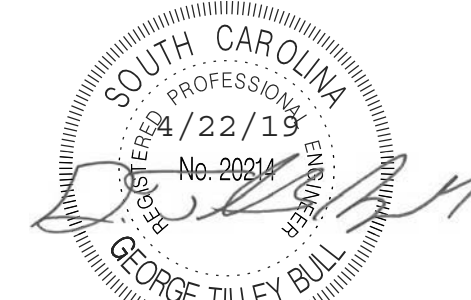
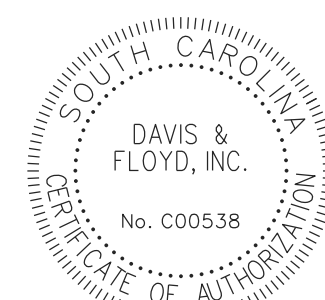
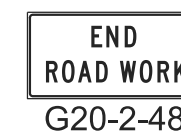
ANY COSTS ASSOCIATED WITH ABANDONING PIPES OR STRUCTURES SHALL BE INCLUDED IN THE COST OF PLACING NEW PIPE OR STRUCTURES ACCORDINGLY.

CONSTRUCTION SIGNS: CONSTRUCTION SIGN SETS SHALL BE PLACED ALONG BOTH APPROACHES OF THE ROADWAY INTERSECTING WITH THE PROJECT ROADWAY. ROAD WORK AHEAD AND DIRECTIONAL ARROW SIGNS ARE TO BE PLACED APPROXIMATELY 100' IN ADVANCE OF THE INTERSECTION OF THE ROAD UNDER CONSTRUCTION. END ROAD WORK SIGN SHOULD BE PLACED 50' AFTER THE SECOND INTERSECTION WITH THE PROJECT ROADWAY. DISCRETION SHOULD BE USED IN PLACEMENT OF THE SIGNS, NO SIGHTLINES FROM ROADWAYS OR DRIVEWAYS SHOULD BE AFFECTED BY THE PLACEMENT OF THE SIGNS.

W20-1-48-A



W20-1-48-5



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REV. NO.	BY	DATE	DESCRIPTION OF REVISION	
DCN	JKL	DATE		
R/W		DATE		
CHK	GTB	DATE		

GEORGETOWN COUNTY ENGINEERED ROADS PROGRAM	
WILLARD LOOP GENERAL CONSTRUCTION NOTES SHEET	

PAVE ALL DRIVEWAYS TO R/W LINE. UNLESS THE DRIVEWAY IS LABELED, THE STANDARD DRIVEWAY RADIUS IS 10'. THIS MAY BE MODIFIED PER DIRECTION OF THE ENGINEER TO FIT FIELD CONDITIONS.

THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS SHOWN ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING CONSTRUCTION.

THE ENGINEER RESERVES THE RIGHT TO ADJUST THE LOCATION OF ALL PROPOSED IMPROVEMENTS TO MEET FIELD CONDITIONS IF NECESSARY.

STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

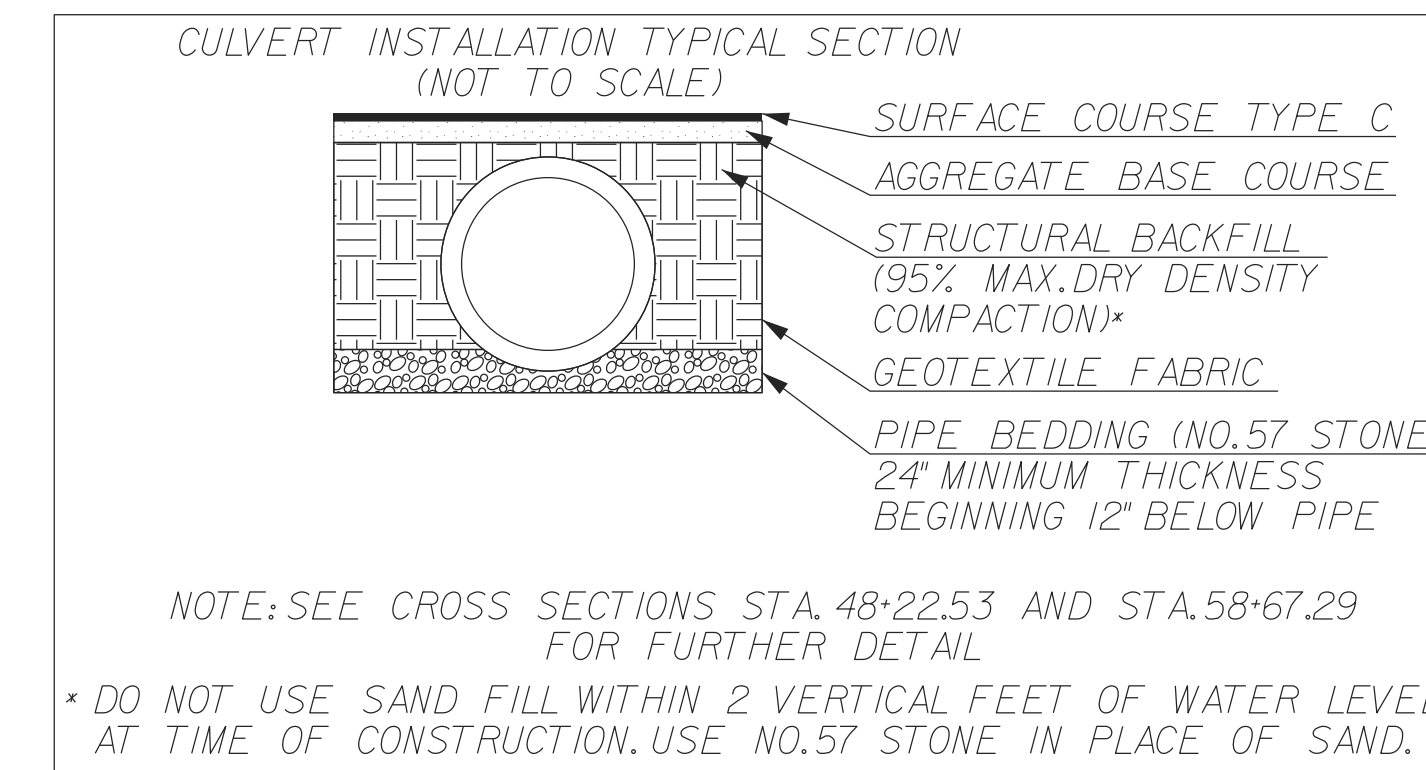
ALL DISTURBED AREAS SHALL BE SEEDED AFTER GRADING IS COMPLETE OR WITHIN 7 DAYS AFTER WORK STOPS IN AN AREA UNLESS WORK IS TO RESUME IN THAT AREA IN LESS THAN 21 DAYS.

**NOTE:**

- SEE SCDOT STANDARD DRAWING NO. 625-305-00 FOR PAVEMENT MARKING DETAILS.
- SEE SCDOT STANDARD DRAWING NO. 651-110-00 FOR FLAT SHEET MOUNTING DETAILS.
- IF A SIGN MARKED TO BE RELOCATED IS DAMAGED BY THE CONTRACTOR, THE CONTRACTOR IS RESPONSIBLE FOR REPLACING THE SIGN.
- CONTRACTOR IS TO SAW-CUT CONNECTIONS TO EXISTING ROADWAYS AND/OR DRIVEWAYS WHERE APPLICABLE.
- CONTRACTOR IS TO PAVE DRIVEWAY APRONS TO RIGHT-OF-WAY LIMITS.

RELOCATE AND MAINTAIN MAILBOXES BEYOND CONSTRUCTION LIMITS AND RESTORE TO EDGE OF PAVEMENT AFTER CONSTRUCTION. RELOCATE BUSHES AND BOLLARDS THAT ARE INSIDE CONSTRUCTION LIMITS CLEAR OF R/W

INSTALL 4" RAISED PERMANENT YELLOW BI-DIRECTIONAL PAVEMENT MARKERS EVERY 80 FEET. REFER TO SCDOT STANDARD DRAWINGS FOR GUIDANCE.

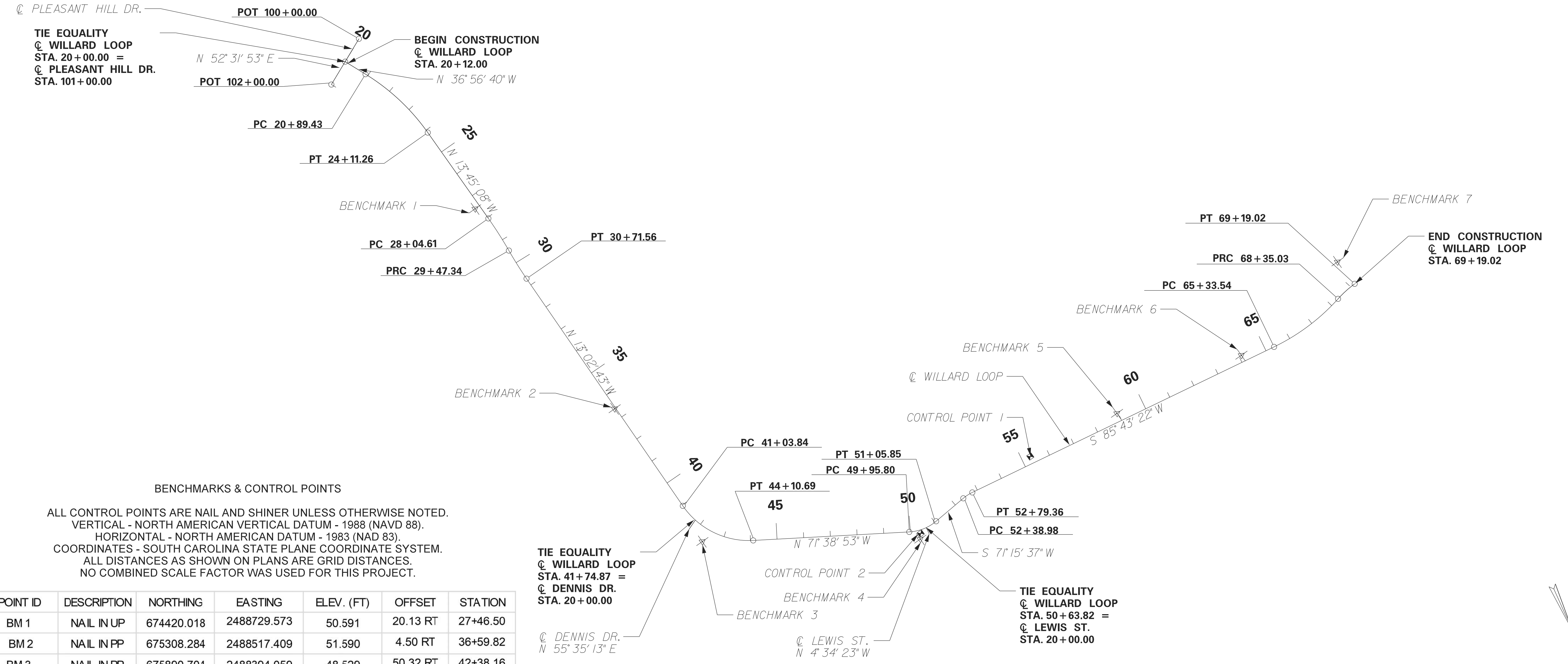


THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS WITH SUFFICIENT ADVANCE OF THE ROAD CLOSURE TO INSTALL THE PIPE CROSSINGS. PROVIDE TEMPORARY ROAD CLOSURE SIGNAGE FOR PIPE CROSSING CONSTRUCTION.

SCALE: 200.000 ft. / in.  
 PEN TABLE: SCDOT Levels 2015 B&W Plan-PDF.tbl  
 PLOT DRIVER: PDF.pltcrgr  
 FILE: G:\Jobs\Even\31810-02\Production\Transportation\Willard\c.dgn  
 4/11/2019

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	5A	

@ WILLARDLOOP1 PI Sta. 22+52.58 $\Delta$ = 23° 11' 32" (RT) Dc = 7' 12' 23" T = 163.15' L = 321.83' R = 795.07' E = 16.57' Ds = 30 MPH e(max) = 4% e = RC	@ WILLARDLOOP2 PI Sta. 28+76.03 $\Delta$ = 5° 27' 06" (RT) Dc = 3' 49' 11" T = 71.42' L = 142.73' R = 1,500.00' E = 1.70' Ds = 30 MPH e(max) = 4% e = NC	@ WILLARDLOOP3 PI Sta. 30+09.48 $\Delta$ = 4° 44' 41" (LT) Dc = 3' 49' 11" T = 62.14' L = 124.22' R = 1,500.00' E = 1.29' Ds = 30 MPH e(max) = 4% e = NC	@ WILLARDLOOP4 PI Sta. 42+72.20 $\Delta$ = 58° 36' 10" (LT) Dc = 19' 05' 55" T = 168.36' L = 306.84' R = 300.00' E = 44.01' Ds = 30 MPH e(max) = 4% e = RC	@ WILLARDLOOP5 PI Sta. 50+52.83 $\Delta$ = 37° 05' 30" (LT) Dc = 33' 42' 12" T = 57.03' L = 110.05' R = 170.00' E = 9.31' Ds = 30 MPH e(max) = 4% e = RC	@ WILLARDLOOP6 PI Sta. 52+59.28 $\Delta$ = 14° 27' 45" (RT) Dc = 35' 48' 36" T = 20.30' L = 40.39' R = 160.00' E = 1.28' Ds = 30 MPH e(max) = 4% e = RC	@ WILLARDLOOP7 PI Sta. 66+86.22 $\Delta$ = 22° 17' 21" (LT) Dc = 7' 23' 35" T = 152.68' L = 301.49' R = 775.00' E = 14.90' Ds = 30 MPH e(max) = 4% e = NC	@ WILLARDLOOP8 PI Sta. 68+77.18 $\Delta$ = 11° 56' 38" (RT) Dc = 14' 13' 14" T = 42.15' L = 83.99' R = 402.91' E = 2.20' Ds = 30 MPH e(max) = 4% e = NC
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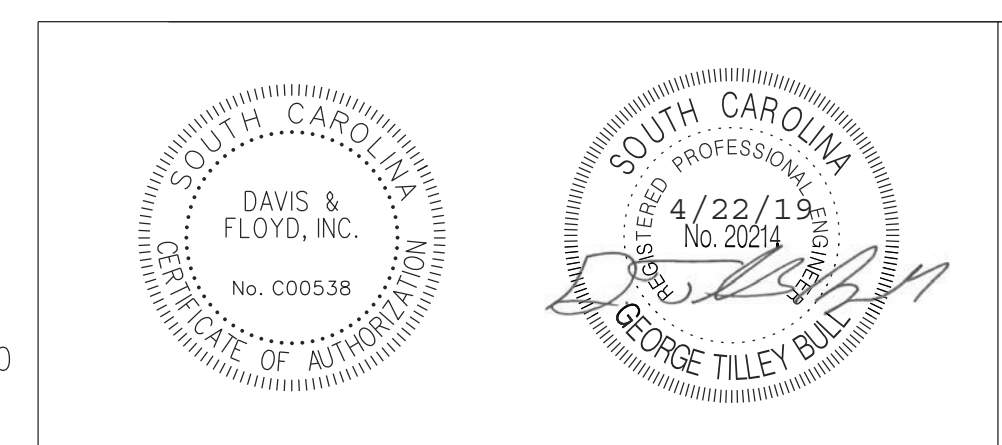
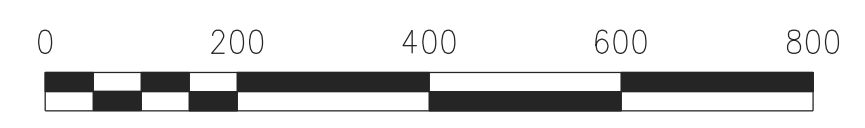


**BENCHMARKS & CONTROL POINTS**

ALL CONTROL POINTS ARE NAIL AND SHINER UNLESS OTHERWISE NOTED.  
 VERTICAL - NORTH AMERICAN VERTICAL DATUM - 1988 (NAVD 88).  
 HORIZONTAL - NORTH AMERICAN DATUM - 1983 (NAD 83).  
 COORDINATES - SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM.  
 ALL DISTANCES AS SHOWN ON PLANS ARE GRID DISTANCES.  
 NO COMBINED SCALE FACTOR WAS USED FOR THIS PROJECT.

POINT ID	DESCRIPTION	NORTHING	EASTING	ELEV. (FT)	OFFSET	STATION
BM 1	NAIL IN UP	674420.018	2488729.573	50.591	20.13 RT	27+46.50
BM 2	NAIL IN PP	675308.284	2488517.409	51.590	4.50 RT	36+59.82
BM 3	NAIL IN PP	675890.704	2488394.059	48.529	50.32 RT	42+38.16
BM 4	NAIL IN UP	676180.805	2487631.311	40.179	33.07 RT	50+29.20
BM 5	NAIL IN PP	676012.288	2486773.887	40.403	31.30 LT	58+95.61
BM 6	NAIL IN PP	675980.450	2486260.647	48.078	24.78 LT	64+09.79
BM 7	NAIL IN UP	675787.115	2485798.251	49.850	104.29 LT	69+15.93
CP 1	5/8" RBF CAP	676043.391	2487134.465		26.86 LT	55+33.43
CP 2	5/8" RBF CAP	676161.699	2487621.786		13.07 RT	50+35.79

SCALE: 200.000 ft. / in.  
 PEN TABLE: SCDOT Levels 2015 B&W Plan-PDF.tbl  
 PLOT DRIVER: PDF.pltcrig  
 FILE: G:\JobsEven\31810-02\Production\Transportation\Willard\c.dgn\Const\plpr\31810-02 Willard Reference Data Sheet 5A.dgn  
 11/17/2018



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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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1			

DGN: JKL DATE: \_\_\_\_\_  
 R/W: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHK: GTB DATE: \_\_\_\_\_

GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM

WILLARD LOOP  
REFERENCE DATA SHEET

SCALE 1" = 200'

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	5B	

\*\* 1 Describe Chain WILLARDLOOP  
 Chain WILLARDLOOP contains:  
 208 CUR WILLARDLOOP1 CUR WILLARDLOOP2 CUR WILLARDLOOP3 CUR WILLARDLOOP4 CUR WILLARDLOOP5 CUR WILLARDLOOP6 CUR WILLARDLOOP7 CUR WILLARDLOOP8

Beginning chain WILLARDLOOP description  
 =====  
 Point 208 N 676.148.7495 E 2.487.592.6811 Sta 20+00.00  
 Course from 208 to PC WILLARDLOOP1 S 29° 36' 01.53" E Dist 2,700.4434  
 End Region 1  
 -----  
 Equation: Sta 47+00.44 (BK) = Sta 20+89.43 (AH)  
 Begin Region 2

Curve Data  
 \*-----\*

Curve WILLARDLOOP1  
 P.I. Station 22+52.58 N 673.931.1287 E 2.488.828.5013  
 Delta = 23° 11' 32.30" (RT)  
 Degree = 7° 12' 23.00"  
 Tangent = 163.1487  
 Length = 321.8298  
 Radius = 795.0693  
 External = 16.5665  
 Long Chord = 319.6372  
 Mid. Ord. = 16.2284  
 P.C. Station 20+89.43 N 673.800.7375 E 2.488.926.5605  
 P.T. Station 24+11.26 N 674.089.6004 E 2.488.789.7169  
 C.C. N 674.278.6076 E 2.489.561.9937  
 Back = N 36° 56' 40.45" W  
 Ahead = N 13° 45' 08.15" W  
 Chord Bear = N 25° 20' 54.30" W

Course from PT WILLARDLOOP1 to PC WILLARDLOOP2 N 13° 45' 08.15" W Dist 393.3500

Curve Data  
 \*-----\*

Curve WILLARDLOOP2  
 P.I. Station 28+76.03 N 674.541.0446 E 2.488.679.2303  
 Delta = 5° 27' 06.49" (RT)  
 Degree = 3° 49' 10.99"  
 Tangent = 71.4178  
 Length = 142.7279  
 Radius = 1,500.0000  
 External = 1.6992  
 Long Chord = 142.6740  
 Mid. Ord. = 1.6973  
 P.C. Station 28+04.61 N 674.471.6741 E 2.488.696.2081  
 P.T. Station 29+47.34 N 674.611.7143 E 2.488.668.9202  
 C.C. N 674.828.2605 E 2.490.153.2071  
 Back = N 13° 45' 08.15" W  
 Ahead = N 8° 18' 01.65" W  
 Chord Bear = N 11° 01' 34.90" W

Curve Data  
 \*-----\*

Curve WILLARDLOOP3  
 P.I. Station 30+09.48 N 674.673.2079 E 2.488.659.9487  
 Delta = 4° 44' 41.22" (LT)  
 Degree = 3° 49' 10.99"  
 Tangent = 62.1446  
 Length = 124.2181  
 Radius = 1,500.0000  
 External = 1.2868  
 Long Chord = 124.1826  
 Mid. Ord. = 1.2857  
 P.C. Station 29+47.34 N 674.611.7143 E 2.488.668.9202  
 P.T. Station 30+71.56 N 674.733.7486 E 2.488.645.9214  
 C.C. N 674.395.1681 E 2.487.184.6332  
 Back = N 8° 18' 01.65" W  
 Ahead = N 13° 02' 42.87" W  
 Chord Bear = N 10° 40' 22.26" W

Course from PT WILLARDLOOP3 to PC WILLARDLOOP4 N 13° 02' 42.87" W Dist 1,032.2864

Curve Data  
 \*-----\*

Curve WILLARDLOOP4  
 P.I. Station 42+72.20 N 675.903.4104 E 2.488.374.9107  
 Delta = 58° 36' 09.85" (LT)  
 Degree = 19° 05' 54.94"  
 Tangent = 168.3616  
 Length = 306.8432  
 Radius = 300.0000  
 External = 44.0140  
 Long Chord = 293.6420  
 Mid. Ord. = 38.3827  
 P.C. Station 41+03.84 N 675.739.3939 E 2.488.412.9134  
 P.T. Station 44+10.69 N 675.956.4198 E 2.488.215.1121  
 C.C. N 675.671.6778 E 2.488.120.6557  
 Back = N 13° 02' 42.87" W  
 Ahead = N 71° 38' 52.71" W  
 Chord Bear = N 42° 20' 47.79" W

Course from PT WILLARDLOOP4 to PC WILLARDLOOP5 N 71° 38' 52.71" W Dist 585.1107

Curve Data  
 \*-----\*

Curve WILLARDLOOP5  
 P.I. Station 50+52.83 N 676.158.6014 E 2.487.605.6281  
 Delta = 37° 05' 30.42" (LT)  
 Degree = 33° 42' 12.24"  
 Tangent = 57.0327  
 Length = 110.0535  
 Radius = 170.0000  
 External = 9.3118  
 Long Chord = 108.1418  
 Mid. Ord. = 8.8282  
 P.C. Station 49+95.80 N 676.140.6445 E 2.487.659.7601  
 P.T. Station 51+05.85 N 676.140.2785 E 2.487.551.6189  
 C.C. N 675.979.2907 E 2.487.606.2348  
 Back = N 71° 38' 52.71" W  
 Ahead = S 71° 15' 36.86" W  
 Chord Bear = S 89° 48' 22.07" W

Course from PT WILLARDLOOP5 to PC WILLARDLOOP6 S 71° 15' 36.86" W Dist 133.1268

Curve Data  
 \*-----\*

Curve WILLARDLOOP6  
 P.I. Station 52+59.28 N 676.090.9866 E 2.487.406.3243  
 Delta = 14° 27' 44.92" (RT)  
 Degree = 35° 48' 35.50"  
 Tangent = 20.3013  
 Length = 40.3869  
 Radius = 160.0000  
 External = 1.2828  
 Long Chord = 40.2797  
 Mid. Ord. = 1.2726  
 P.C. Station 52+38.98 N 676.097.5089 E 2.487.425.5494  
 P.T. Station 52+79.36 N 676.089.4725 E 2.487.386.0795  
 C.C. N 676.249.0269 E 2.487.374.1462  
 Back = S 71° 15' 36.86" W  
 Ahead = S 85° 43' 21.79" W  
 Chord Bear = S 78° 29' 29.33" W

Course from PT WILLARDLOOP6 to PC WILLARDLOOP7 S 85° 43' 21.79" W Dist 1,254.1778

Curve Data  
 \*-----\*

Curve WILLARDLOOP7  
 P.I. Station 66+86.22 N 675.984.5447 E 2.485.983.1444  
 Delta = 22° 17' 21.20" (LT)  
 Degree = 7° 23' 34.81"  
 Tangent = 152.6757  
 Length = 301.4908  
 Radius = 775.0000  
 External = 14.8955  
 Long Chord = 299.5932  
 Mid. Ord. = 14.6146  
 P.C. Station 65+33.54 N 675.995.9318 E 2.486.135.3949  
 P.T. Station 68+35.03 N 675.916.2626 E 2.485.846.5888  
 C.C. N 675.223.0903 E 2.486.193.1969  
 Back = S 85° 43' 21.79" W  
 Ahead = S 63° 26' 00.59" W  
 Chord Bear = S 74° 34' 41.19" W

Curve Data  
 \*-----\*

Curve WILLARDLOOP8  
 P.I. Station 68+77.18 N 675.897.4126 E 2.485.808.8913  
 Delta = 11° 56' 37.69" (RT)  
 Degree = 14° 13' 13.91"  
 Tangent = 42.1477  
 Length = 83.9899  
 Radius = 402.9089  
 External = 2.1985  
 Long Chord = 83.8379  
 Mid. Ord. = 2.1866  
 P.C. Station 68+35.03 N 675.916.2626 E 2.485.846.5888  
 P.T. Station 69+19.02 N 675.886.7723 E 2.485.768.1088  
 C.C. N 676.276.6307 E 2.485.666.3934  
 Back = S 63° 26' 00.59" W  
 Ahead = S 75° 22' 38.28" W  
 Chord Bear = S 69° 24' 19.43" W

Ending chain WILLARDLOOP description  
 =====

\*\* 1 Describe Chain LEWISST

Chain LEWISST contains:  
 208 209

Beginning chain LEWISST description  
 =====

Point 208 N 676.148.7495 E 2.487.592.6811 Sta 20+00.00

Course from 208 to 209 N 4° 34' 22.55" W Dist 25.9722

Point 209 N 676.174.6390 E 2.487.590.6104 Sta 20+25.97

Ending chain LEWISST description  
 =====

\*\* 2 Describe Chain DENNISDR

Chain DENNISDR contains:  
 200 201

Beginning chain DENNISDR description  
 =====

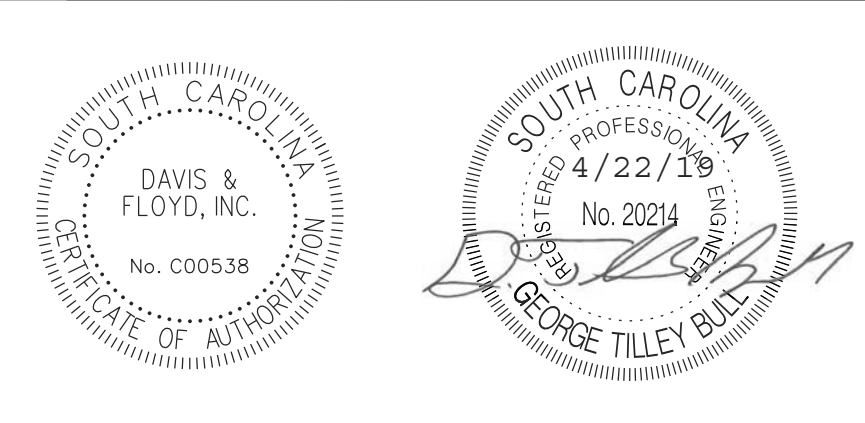
Point 200 N 675.806.0554 E 2.488.388.8770 Sta 20+00.00

Course from 200 to 201 N 55° 35' 12.55" E Dist 40.6699

Point 201 N 675.829.0403 E 2.488.422.4290 Sta 20+40.67

Ending chain DENNISDR description  
 =====

SCALE: 200.000 ft / in  
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 11/19/2018



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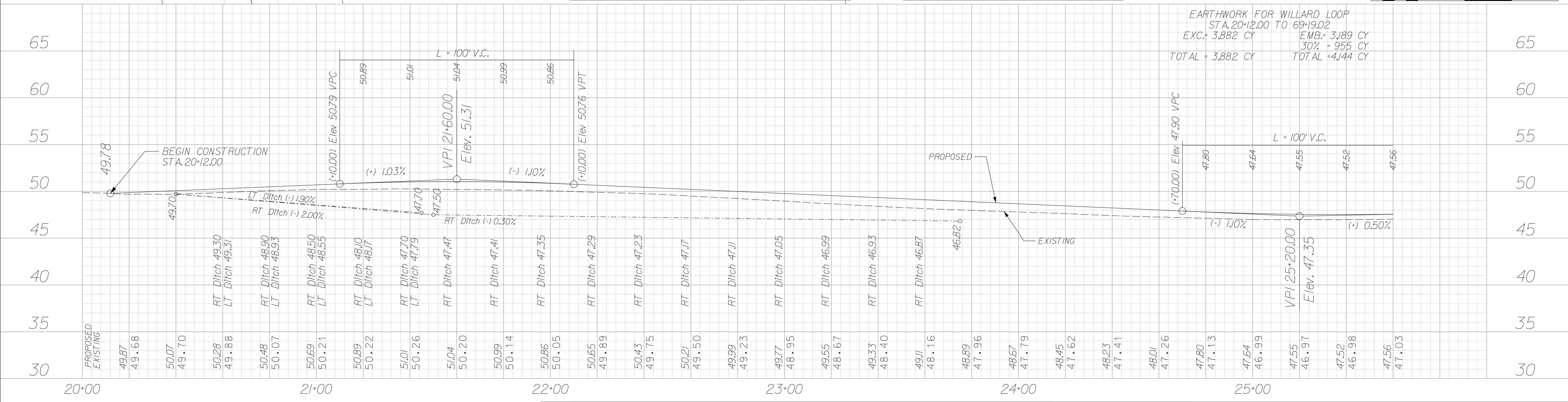
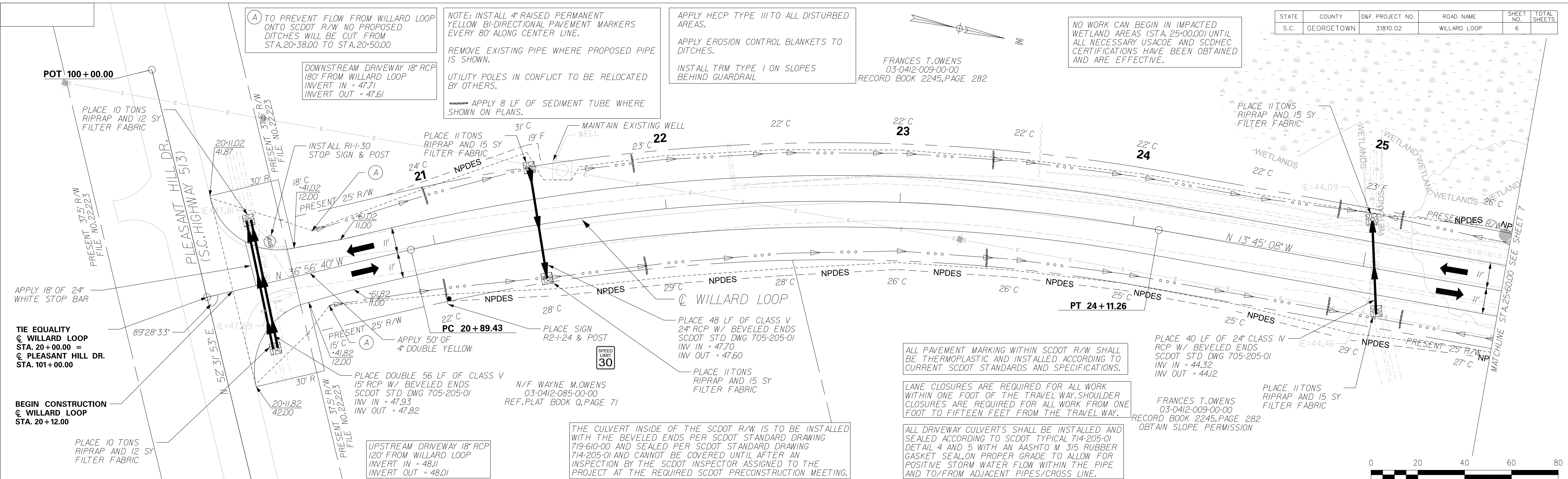
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GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM

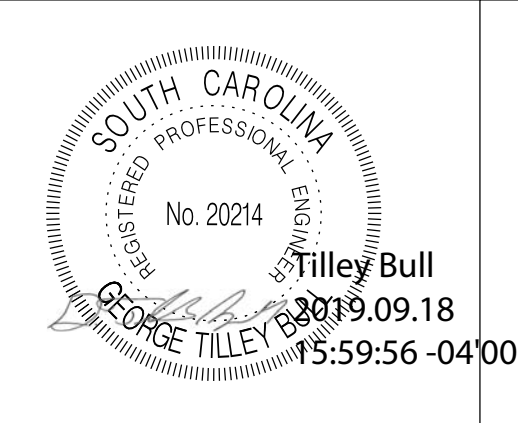
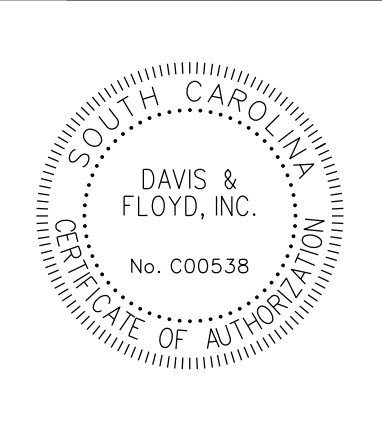
WILLARD LOOP  
 REFERENCE DATA SHEET

NTS

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	6	



SCALE: 20,000 ft. / in.  
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 9/18/2019



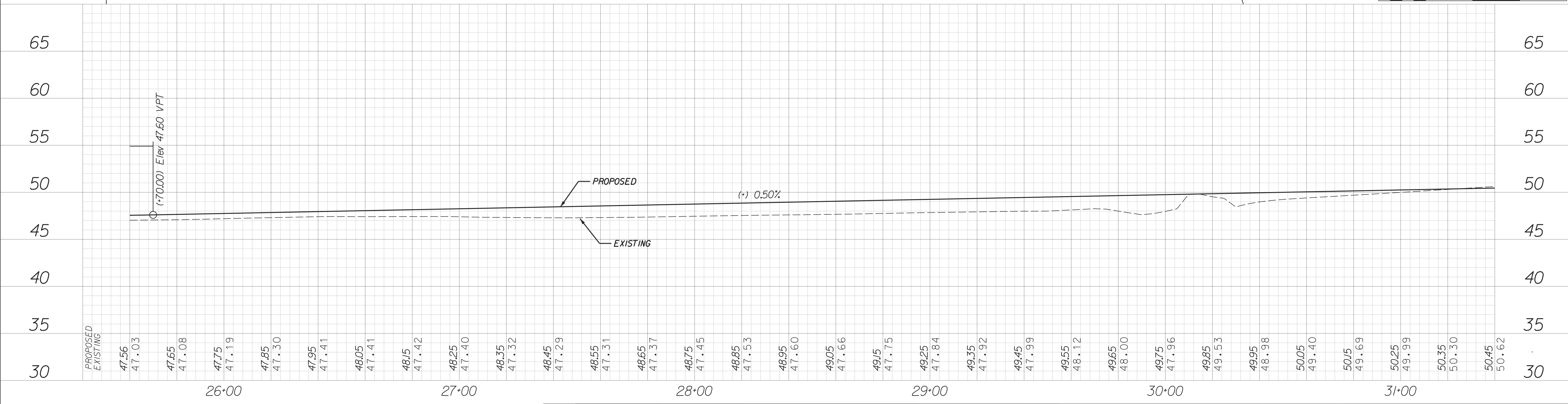
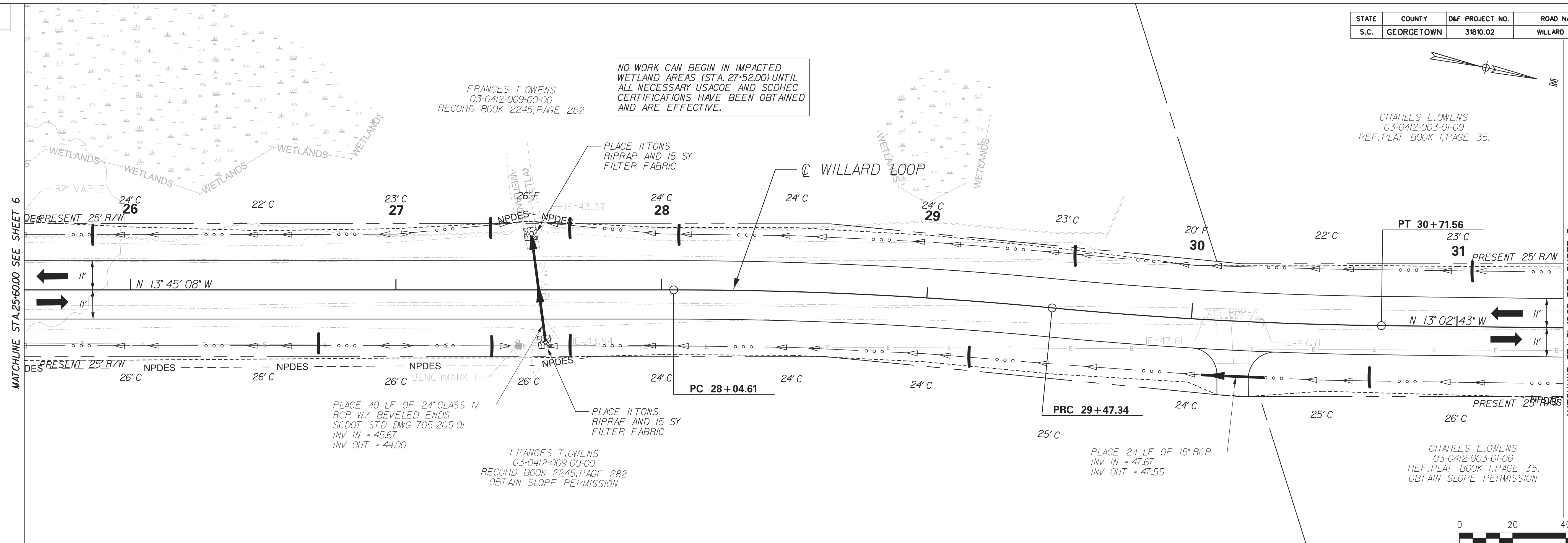
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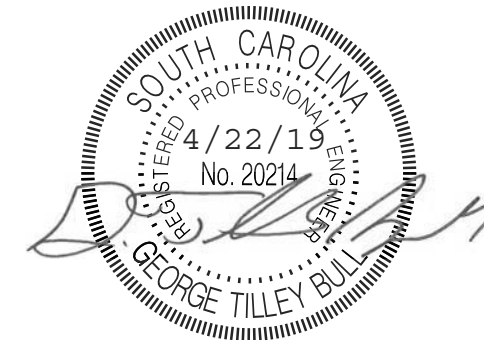
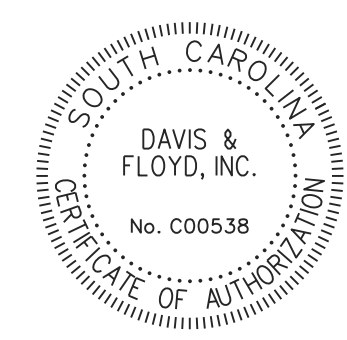
REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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1	JUG	05/02/2019	ADJUSTED DITCHES, ADDED NOTES FOR EX. PIPES

GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM  
 WILLARD LOOP  
 PLAN AND PROFILE SHEET  
 STA. 20+00.00 TO STA. 25+60.00  
 SCALE 1" = 20' HOR. 1" = 5' VER.

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	7	



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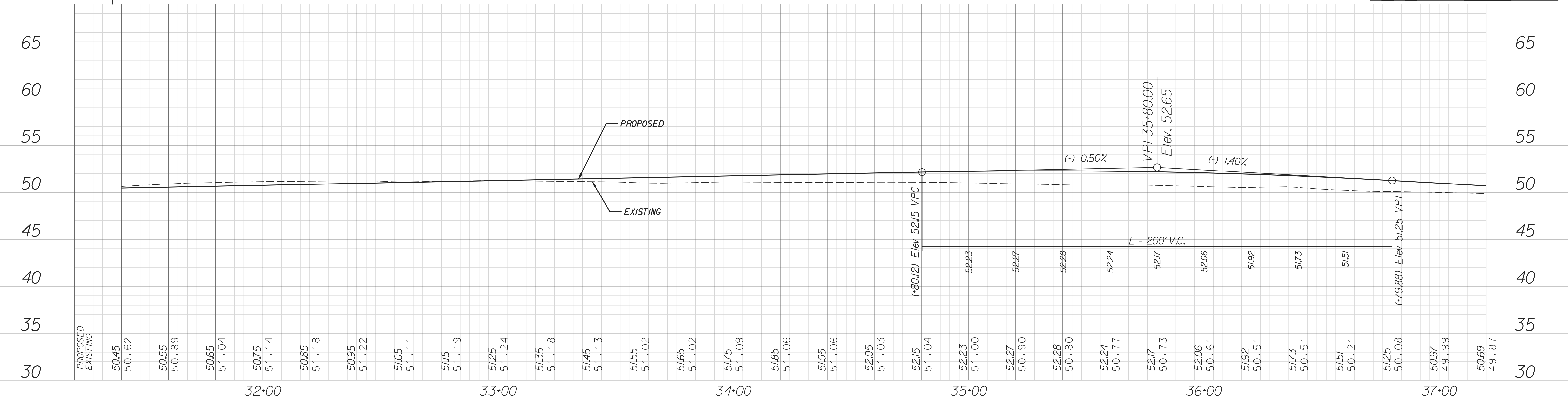
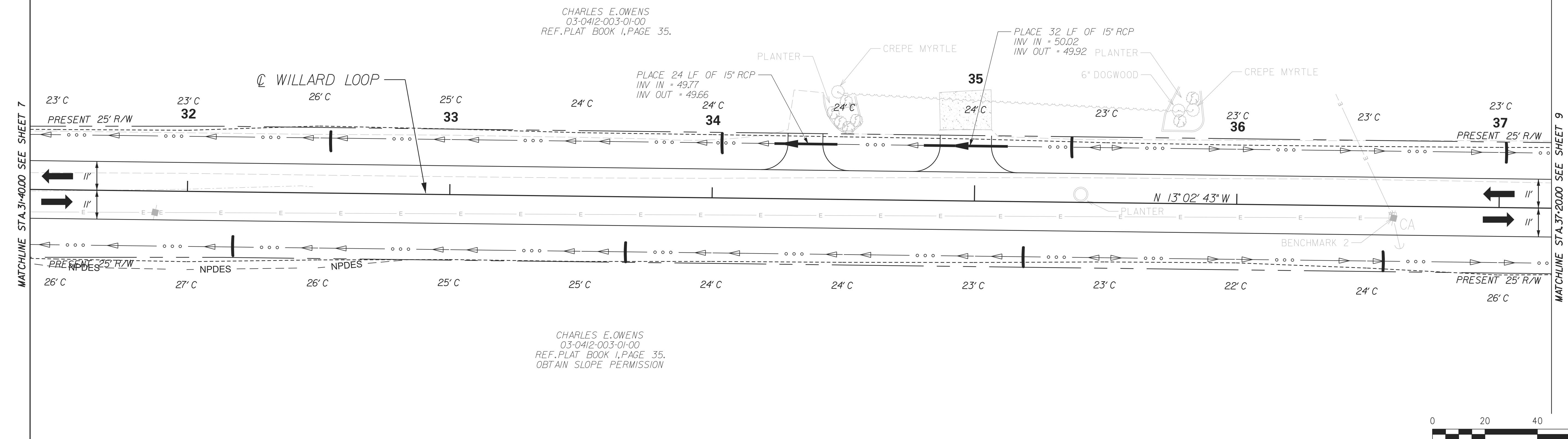
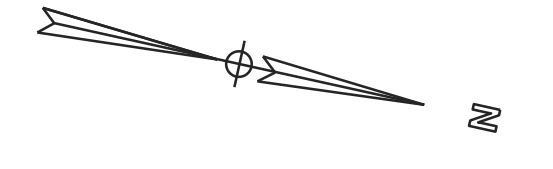
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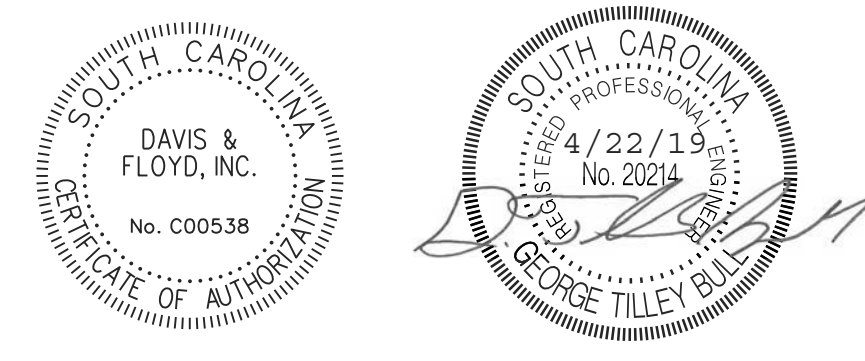
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R/W		DATE	
CHK.	GTB	DATE	

GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM  
**WILLARD LOOP**  
 PLAN AND PROFILE SHEET  
 STA. 25+60.00 TO STA. 31+40.00  
 SCALE 1" = 20' HOR. 1" = 5' VER.

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	8	



SCALE: 20,000 ft. / in.  
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FILE: G:\JobsEven\31810-02\Production\Transportation\Willard\c.dgn  
T1/17/2018



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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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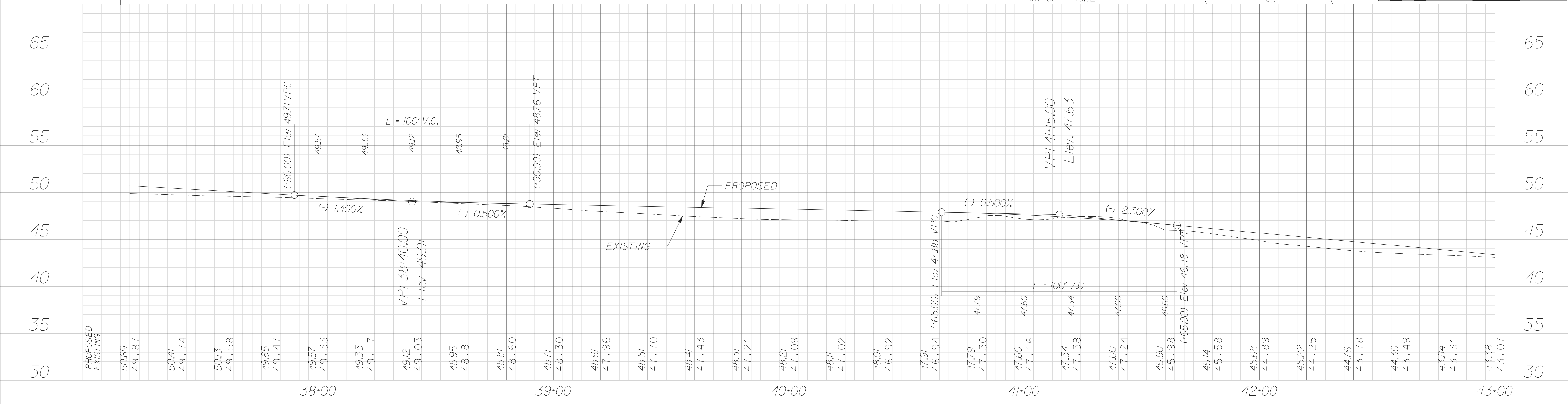
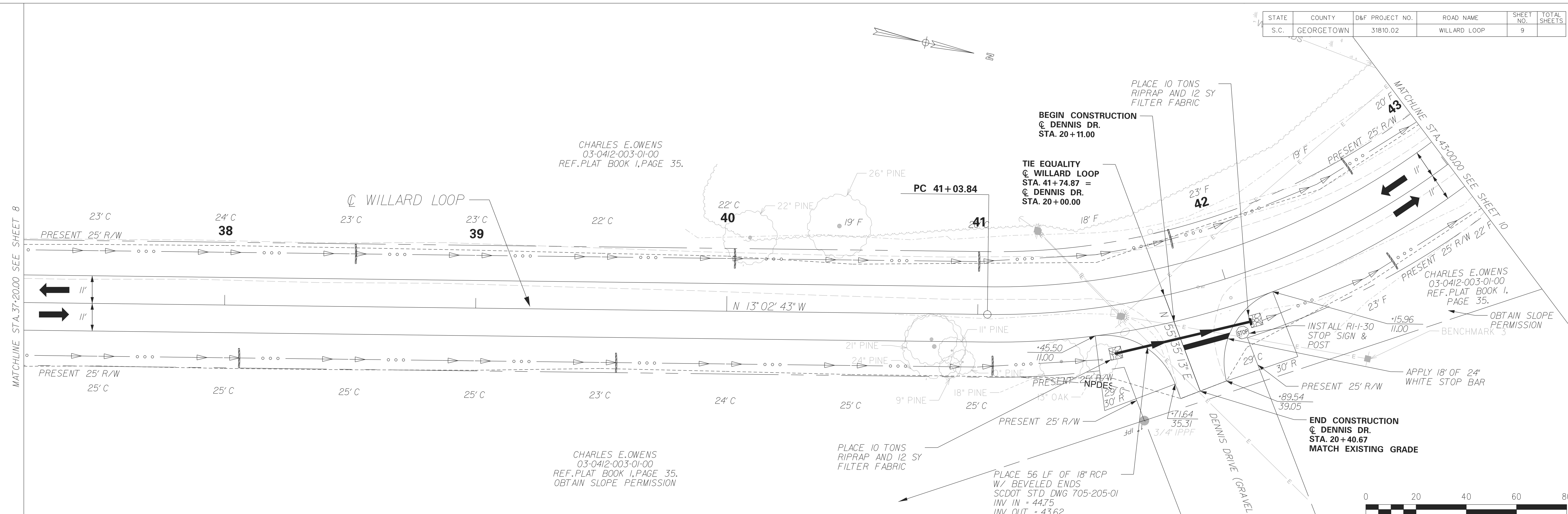
GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM

WILLARD LOOP  
PLAN AND PROFILE SHEET  
STA. 31+40.00 TO STA. 37+20.00

SCALE 1" = 20' HOR. 1" = 5' VER.



STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	9	



SCALE: 20,000 ft / in.  
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W		DATE	
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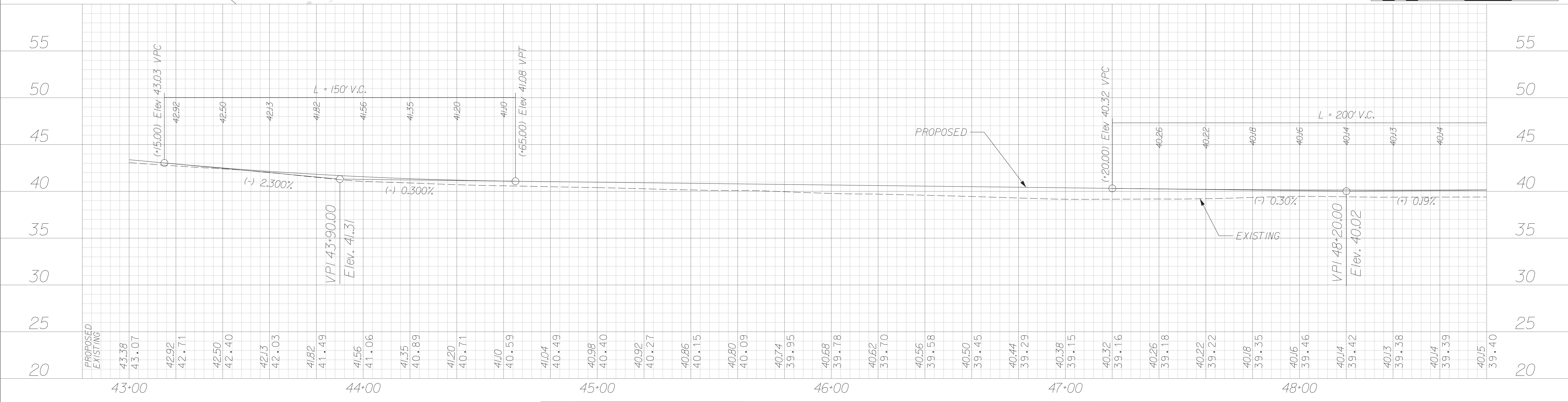
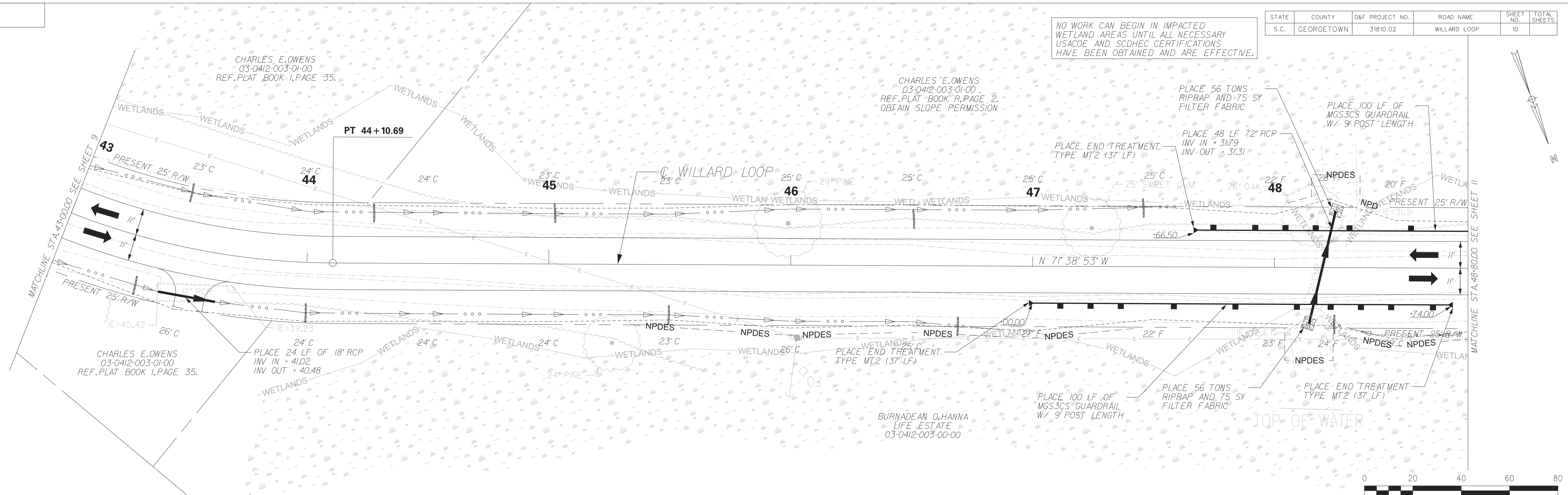
GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM

WILLARD LOOP  
PLAN AND PROFILE SHEET  
STA. 37+20.00 TO STA. 43+00.00

SCALE 1" = 20' HOR. 1" = 5' VER.

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	10	

NO WORK CAN BEGIN IN IMPACTED WETLAND AREAS UNTIL ALL NECESSARY USACOE AND SCDHEC CERTIFICATIONS HAVE BEEN OBTAINED AND ARE EFFECTIVE.



SCALE: 20,000 ft / in.  
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 T1/17/2018



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GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM

WILLARD LOOP  
 PLAN AND PROFILE SHEET  
 STA. 43+00.00 TO STA. 48+80.00

SCALE 1" = 20' HOR. 1" = 5' VER.

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S.C.	GEORGETOWN	31810.02	WILLARD LOOP	11	

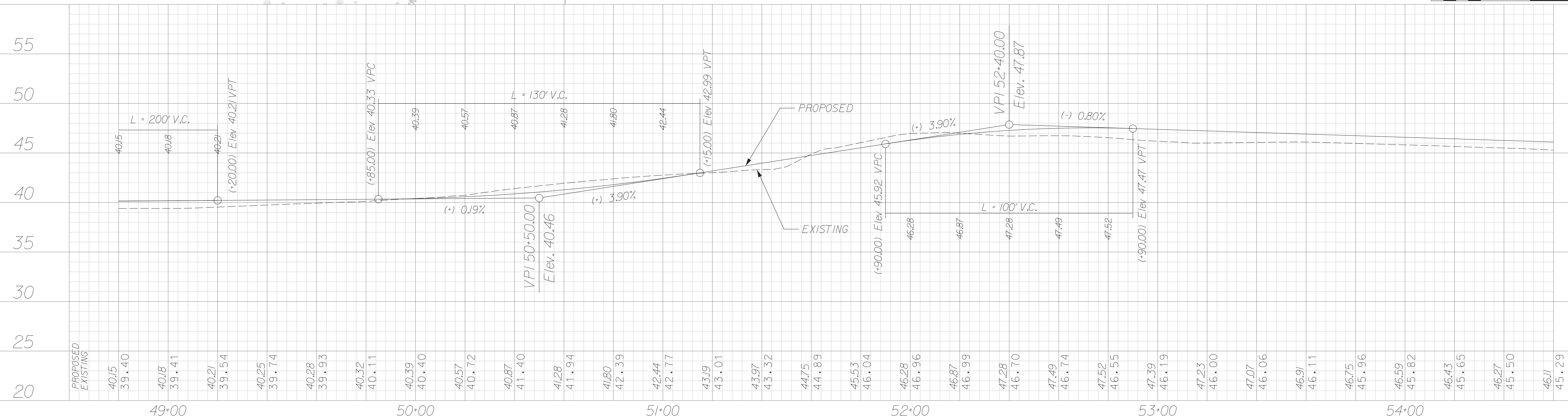
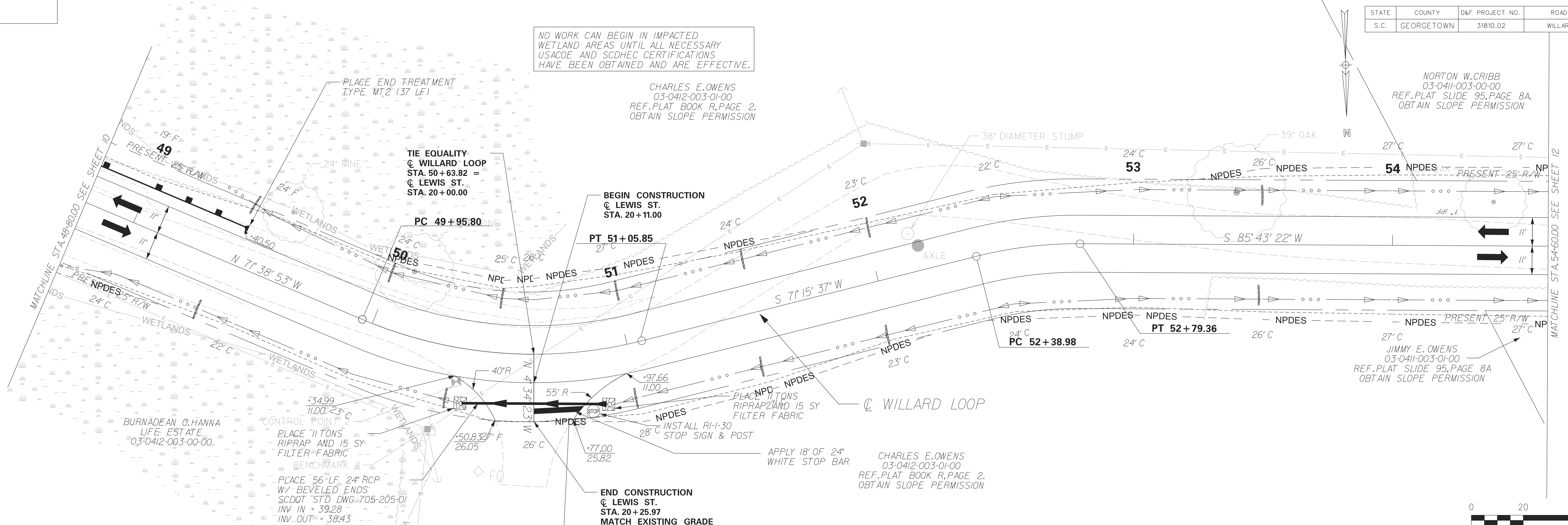
NO WORK CAN BEGIN IN IMPACTED WETLAND AREAS UNTIL ALL NECESSARY USACOE AND SCDHEC CERTIFICATIONS HAVE BEEN OBTAINED AND ARE EFFECTIVE.

CHARLES E. OWENS  
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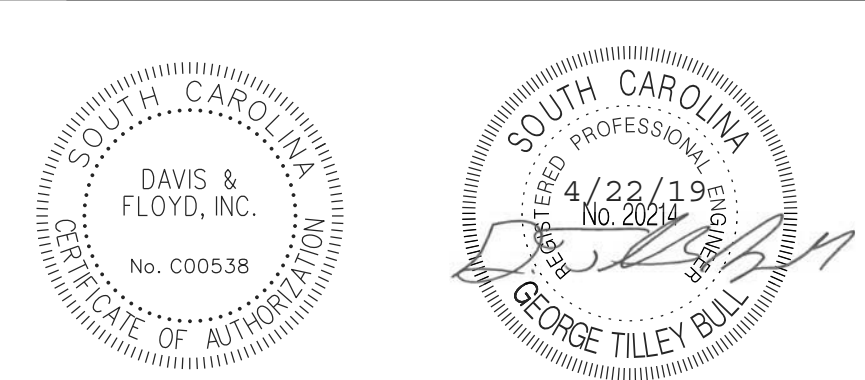
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REF. PLAT SLIDE 95, PAGE 8A,  
OBTAIN SLOPE PERMISSION

JIMMY E. OWENS  
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REF. PLAT SLIDE 95, PAGE 8A,  
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CHARLES E. OWENS  
03-0412-003-01-00  
REF. PLAT BOOK R, PAGE 2,  
OBTAIN SLOPE PERMISSION



SCALE: 20,000 ft / in.  
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REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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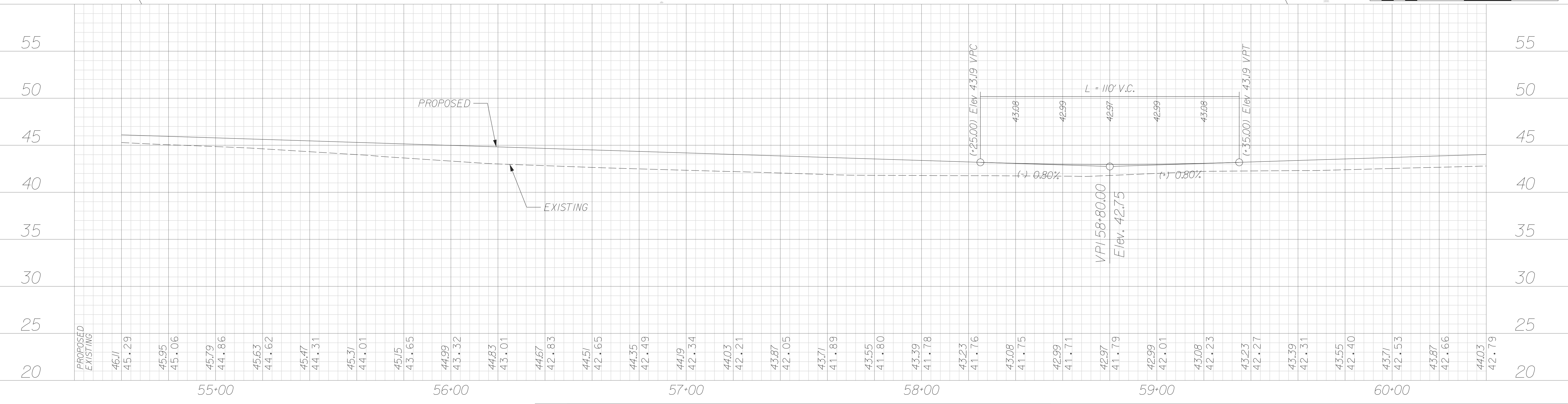
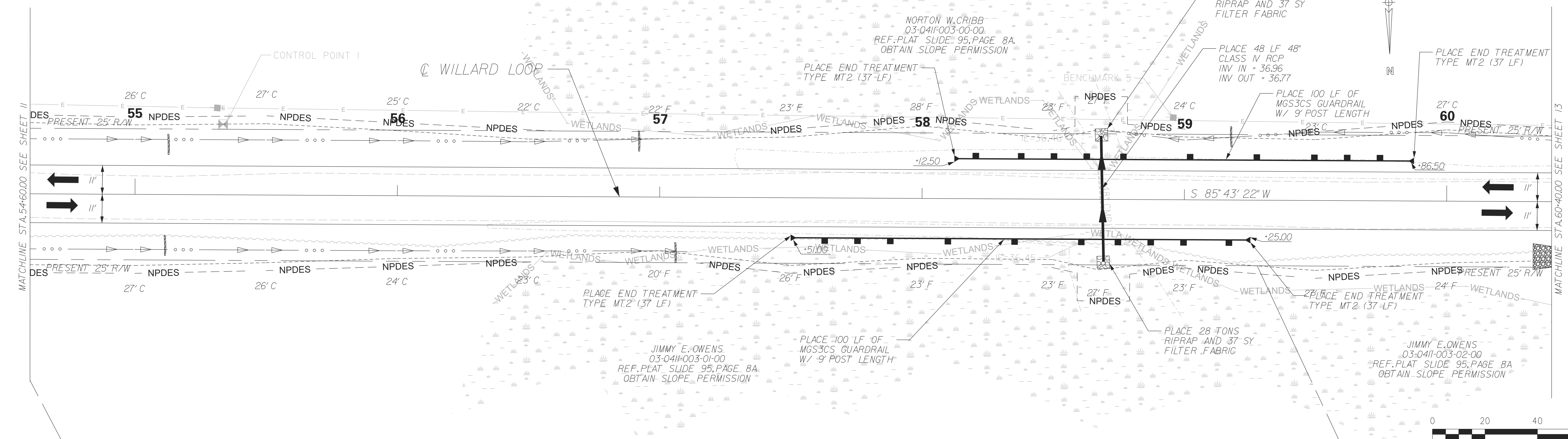
GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM

WILLARD LOOP  
PLAN AND PROFILE SHEET  
STA. 48+80.00 TO STA. 54+60.00

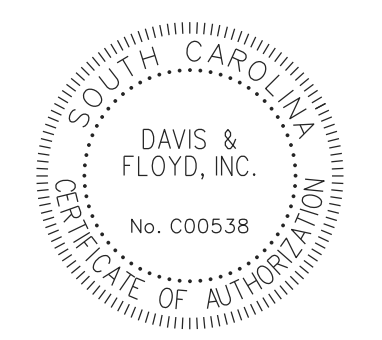
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STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	12	

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 11/19/2018



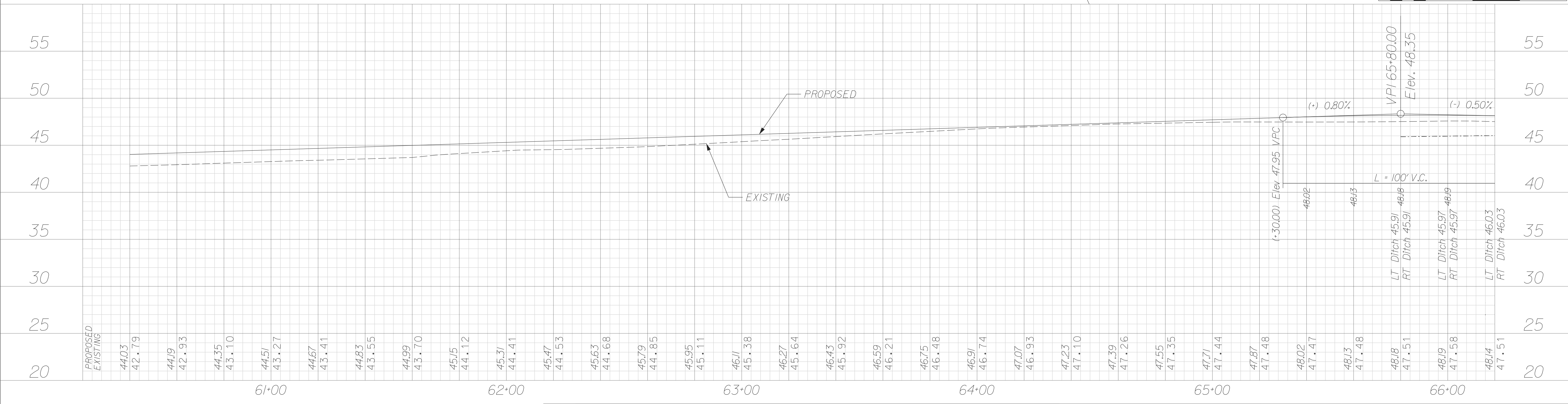
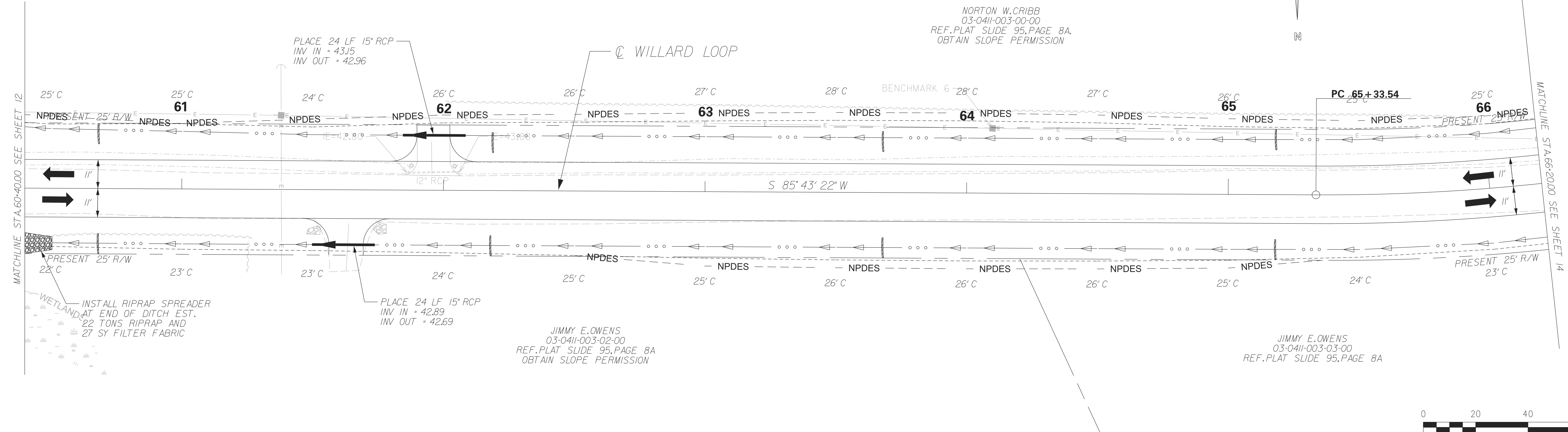
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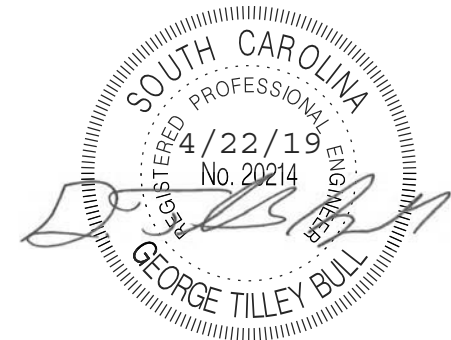
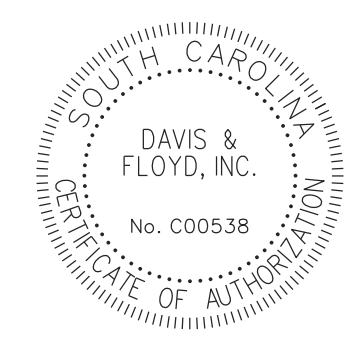
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GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM  
 WILLARD LOOP  
 PLAN AND PROFILE SHEET  
 STA. 54+60.00 TO STA. 60+40.00  
 SCALE 1" = 20' HOR. 1" = 5' VER.

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	13	



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 11/19/2018

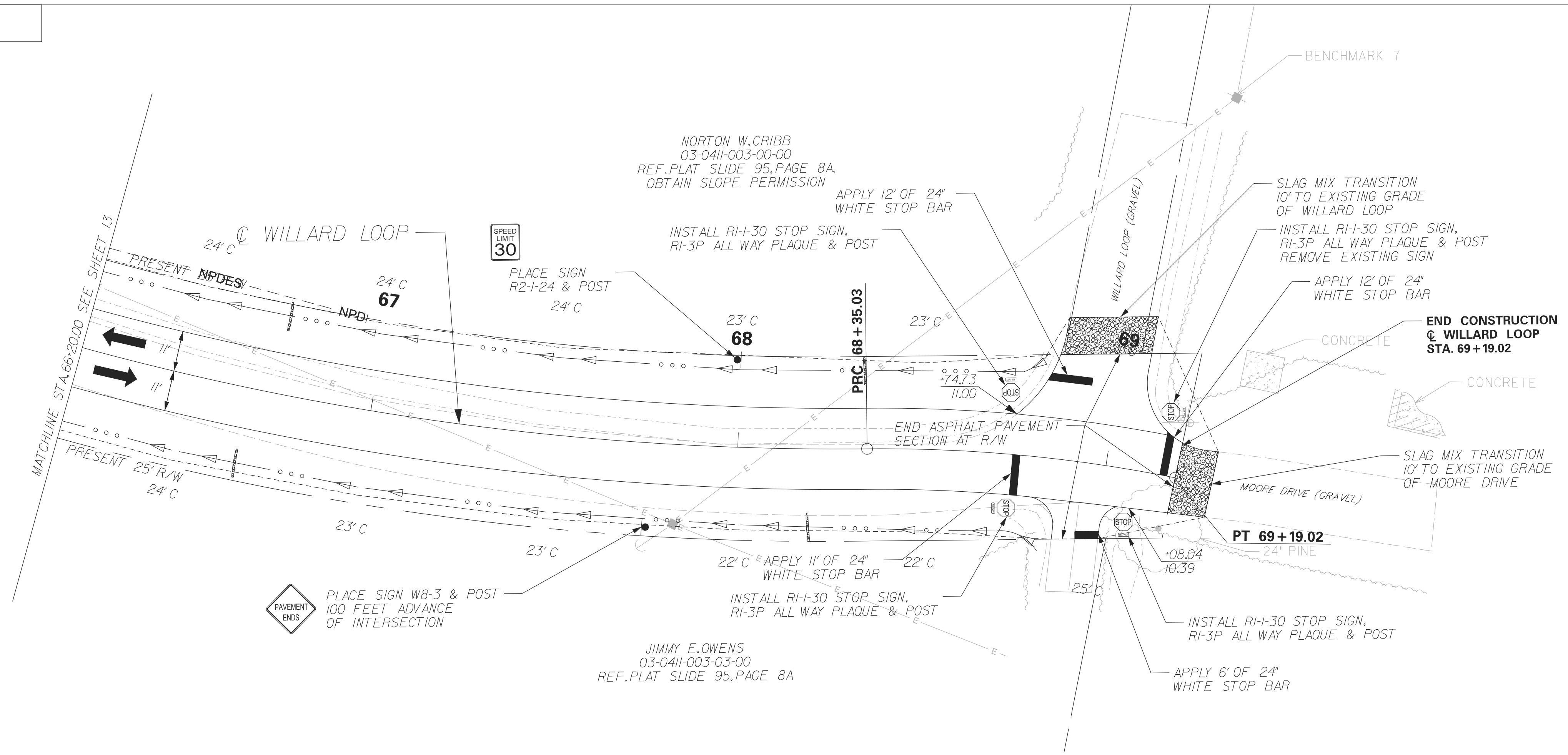
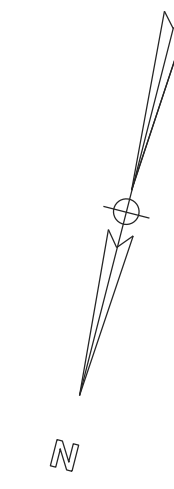


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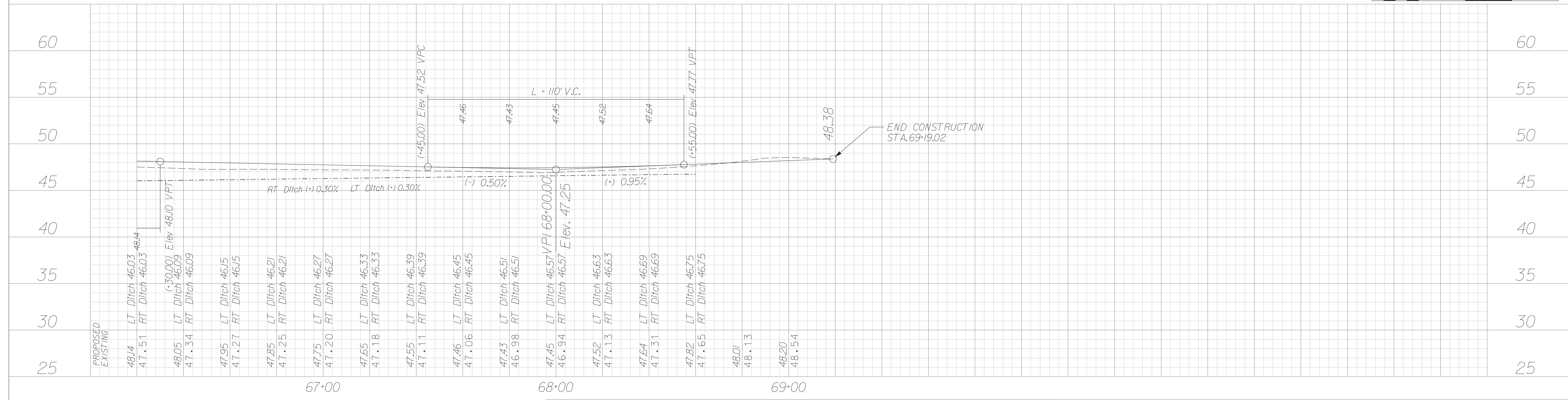
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CHK.	GTB	DATE	

GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM  
 WILLARD LOOP  
 PLAN AND PROFILE SHEET  
 STA. 60+40.00 TO STA. 66+20.00  
 SCALE 1" = 20' HOR. 1" = 5' VER.

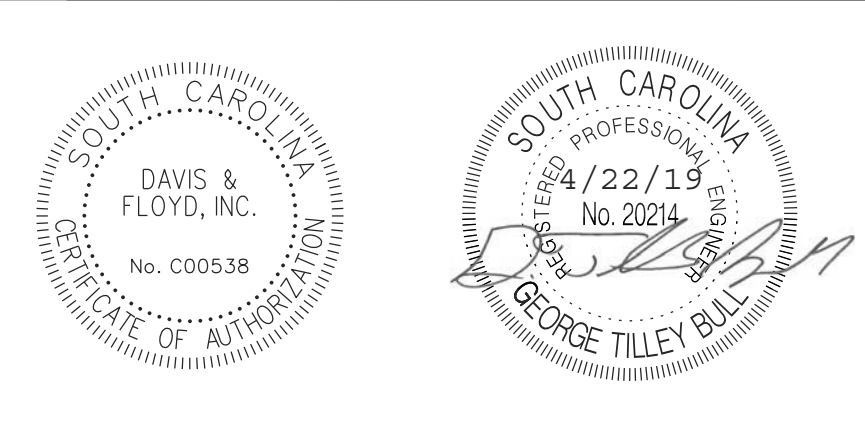
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S.C.	GEORGETOWN	31810.02	WILLARD LOOP	14	



MARTHA NELL BOYD  
03-0411-025-00-00  
REF. PLAT BOOK K, PAGE 245.



SCALE: 20,000 ft. / in.  
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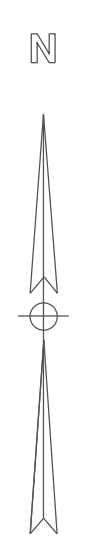
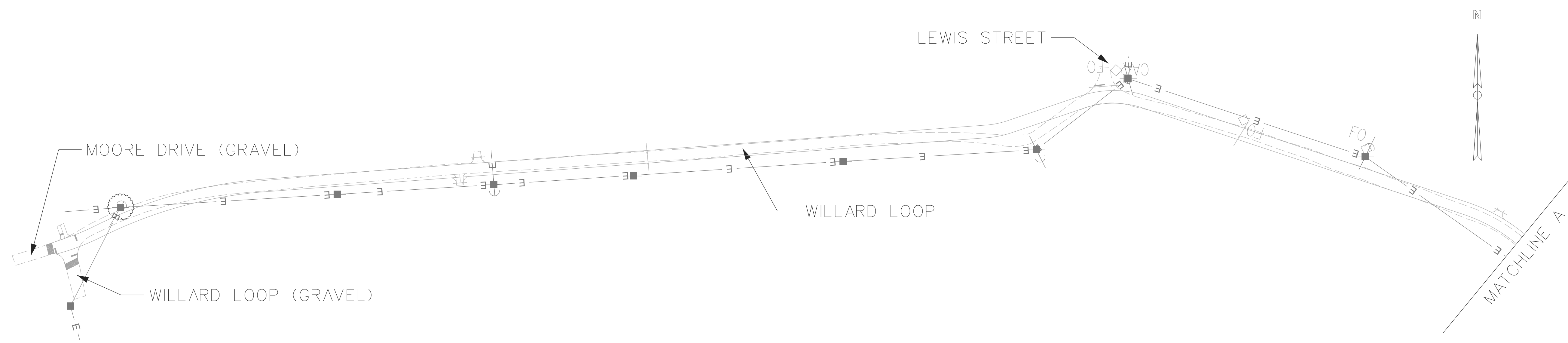
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GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM

WILLARD LOOP  
PLAN AND PROFILE SHEET  
STA. 66+20.00 TO STA. 69+19.02

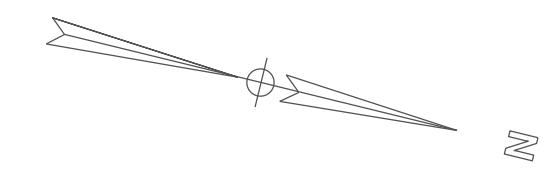
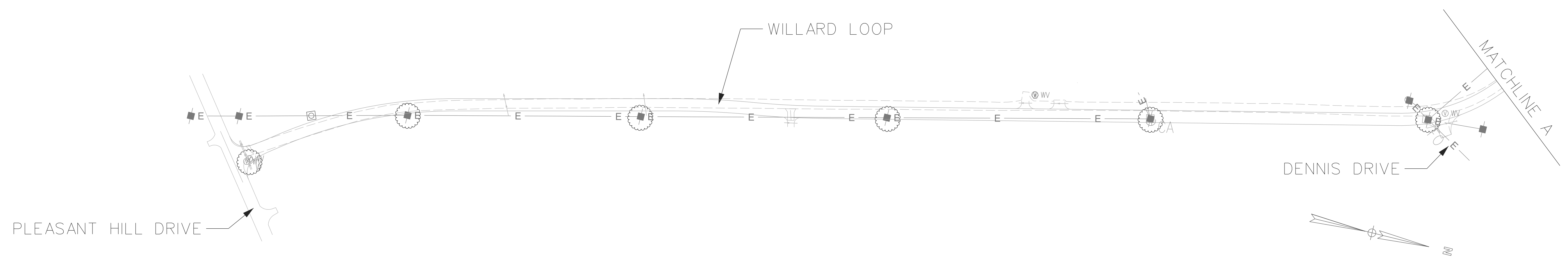
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STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	U1	



MATCHLINE A

◇ FO	TELECOM
⊙ W	WATER
— E —	POWER
⊙	POTENTIAL CONFLICT



MATCHLINE A

FOR INFORMATION ONLY  
CONTRACTOR SHALL CALL  
PUPS (811) BEFORE DIGGING

FOR UTILITY  
COORDINATION ONLY

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CHK.	GTB	DATE	

GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM

WILLARD LOOP  
UTILITY SHEET

SCALE: 1" = 100'

SCALE: 100,000 ft. / in.  
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11/17/2018

STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	EC1	

### OCRM STANDARD NOTES

- If necessary, slopes which exceed eight (8) feet should be stabilized with synthetic or vegetative mats, in addition to hydroseeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed until the slope is brought to grade.
- Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased, except as stated below:
  - Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions stabilization measures must be initiated as soon as practicable.
  - Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the site.
- All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspection or other information indicates that a BMP has been inappropriately or incorrectly installed, the Permittee must address the necessary replacement or modification required to correct the BMP within 48 hours of identification.
- Provide silt fence and or other control devices, as may be required, to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded, and stabilized immediately after the utility installation. Fill, cover, and temporary seeding at the end of each day are recommended. If water is encountered while trenching, the water should be filtered to remove any sediments before being pumped back into any waters of the state.
- All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.
- The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from the construction area and the generation of dust. The contractor shall daily remove mud/soil from pavement, as may be required.
- Residential subdivisions require erosion control features for infrastructure as well as for individual lot construction. Individual property owners shall follow these plans during construction or obtain approval of an individual plan in accordance with S.C. REG. 72-300 ET SEQ. and SCR100000.
- Temporary diversion berms and or ditches will be provided as needed during construction to protect work areas from upslope runoff and or to divert sediment laden water to appropriate traps or stable outlets.
- All waters of the state (WOS), including wetlands, are to be flagged or otherwise clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and all WOS. A 10-foot buffer should be maintained between the last row of silt fence and all WOS.
- Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from being a pollutant source in storm water discharges.
- A copy of the SWPPP, inspections records, and rainfall data must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilization is reached.
- Initiate stabilization measures on any exposed steep slope (3H:1V or greater) where land-disturbing activities have permanently or temporarily ceased, and will not resume for a period of 7 calendar days.
- Minimize soil compaction and, unless infeasible, preserve topsoil.
- Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
- Minimize the discharge of pollutants from dewatering of trenches and excavated areas. These discharges are to be routed through appropriate BMPs (sediment basin, filter bag, etc.).
- The following discharges from sites are prohibited:
  - Wastewater from washout of concrete, unless managed by an appropriate control;
  - Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
  - Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
  - Soaps or solvents used in vehicle and equipment washing.
- After construction activities begin, inspections must be conducted at a minimum of at least once every calendar week and must be conducted until final stabilization is reached on all areas of the construction site.
- If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMPs must be implemented as soon as reasonably possible.
- A Pre-Construction Conference must be held for each construction site with an approved On-Site SWPPP prior to the implementation of construction activities. For non-linear projects that disturb 10 acres or more this conference must be held on-site unless the Department has approved otherwise.

### SEEDING INSTALLATION

- Seed all disturbed areas of construction (excluding riprap lined ditches).
- No seeding should be undertaken in windy or unfavorable weather, when the ground is too wet to rake easily, when it is in a frozen condition, or too dry.
- The subgrade of all areas to be seeded shall be raked and all rubbish, sticks, roots, and stones larger than 2 IN shall be removed.
- Fertilizer shall be uniformly spread and disked or roto-tilled to a depth of at least 4 IN.
- Immediately following this preparation the seed shall be uniformly applied and lightly raked into the surface. Lightly roll the surface and water with fine spray. Seed shall be applied, depending on the period of year, at the rates indicated in Section 810 of the SCDOT Standard Specifications for Highway Construction (Edition 2007).
 

All seeded areas shall be mulched with clean small-grain straw at a rate of 1 1/2 to 2 tons per acre. Asphalt emulsion shall be applied uniformly at a rate of 300 GAL per acre to tack the mulch, unless otherwise shown on the plans. Mechanical tacking will be considered on a case-by-case basis as approved by the Engineer.
- All seeded areas shall be watered and maintained in good condition. Reseeding shall be done if and when necessary until a good, healthy, uniform growth is established over the entire area seeded.
- Slopes shall be protected against washouts by an approved method. Any washout which occurs shall be regraded and reseeded until good sod is established.

### SEQUENCE OF CONSTRUCTION

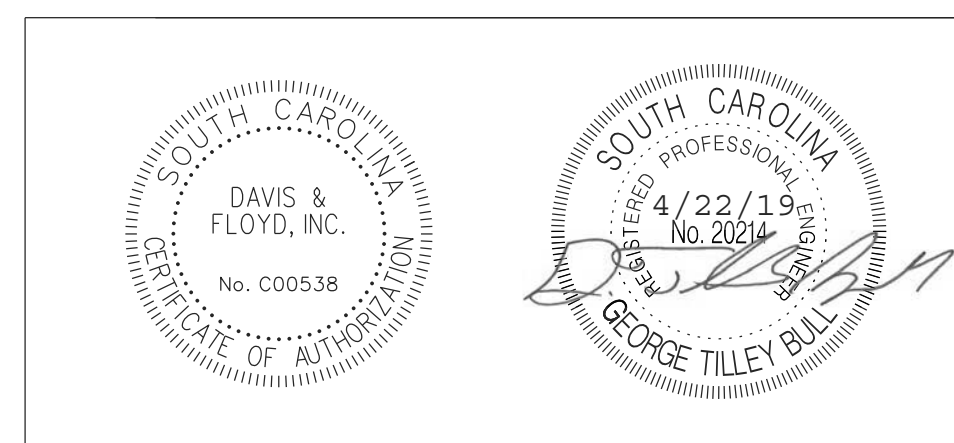
- Obtain all permits.
- Contact the office of Ocean and Coastal Resource Management (OCRM) at (843)238-4528 prior to commencing construction activities.
- Install sediment erosion controls as follows:
  - Silt Fences shall be used to prevent silt from leaving the limits of construction.
  - Stabilized Graveled Construction Entrances shall be used at locations where construction vehicles access public non-construction areas. Vehicles shall be washed down as necessary to prevent tracking of silt offsite.
  - A temporary rock filter dam or sediment tube shall be used as ditch checks as directed by the Engineer.
  - Adhere by all of the OCRM Standard Notes listed on the right of this sheet and install BMP's per the SCDOT Standard Drawings for Erosion Control.
- A recommended sequence of construction follows:
  - Clear and grub only areas necessary for perimeter erosion and sediment control silt fence, hay bales, and temporary sediment traps.
  - Construct perimeter controls.
  - Construct new drainage appurtenances within the areas protected by perimeter controls.
  - Install protection around inlets and stabilize disturbed areas as soon as possible (within 7 calendar days).
  - Proceed with construction. Limit disturbed areas to areas with work in progress to limit disruption to traffic. Schedule work to maintain access to all driveways as long as possible.
  - Erosion controls may be removed after the area contributing flow to that particular erosion control device has been stabilized.
  - Stabilize all remaining areas.
  - Clean out temporary sediment controls as needed; check controls every seven (7) days.
  - Remove sediment controls 30 days after all disturbed areas have stabilized.

### STANDARD EROSION CONTROL DRAWINGS

DRAWING NO.	DRAWING DESCRIPTION	LATEST REVISION
815-205-00	SEDIMENT TUBE DITCH APPLICATION	8/2012
815-605-00	TEMPORARY EROSION & SEDIMENTATION CONTROL	8/2012
804-305-00	RIPRAP (OUTLET PROTECTION W/ NO DEFINED CHANNEL)	2/2015
804-310-00	RIPRAP (OUTLET PROTECTION W/ DEFINED CHANNEL)	2/2015

Copies of SCDOT Standard Drawings are available at the following web address <http://www.scdot.org/business/standard-drawings.aspx>

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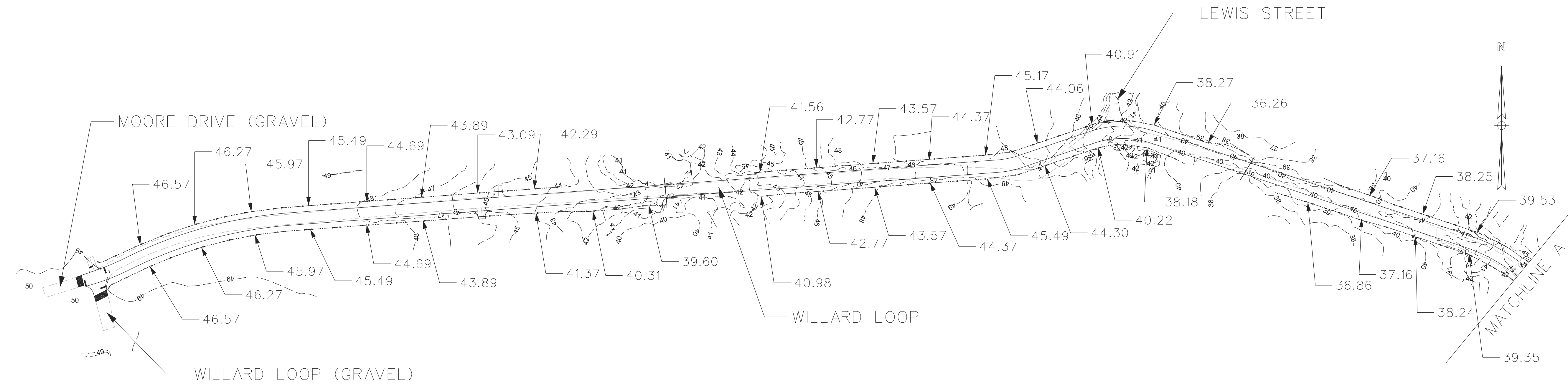
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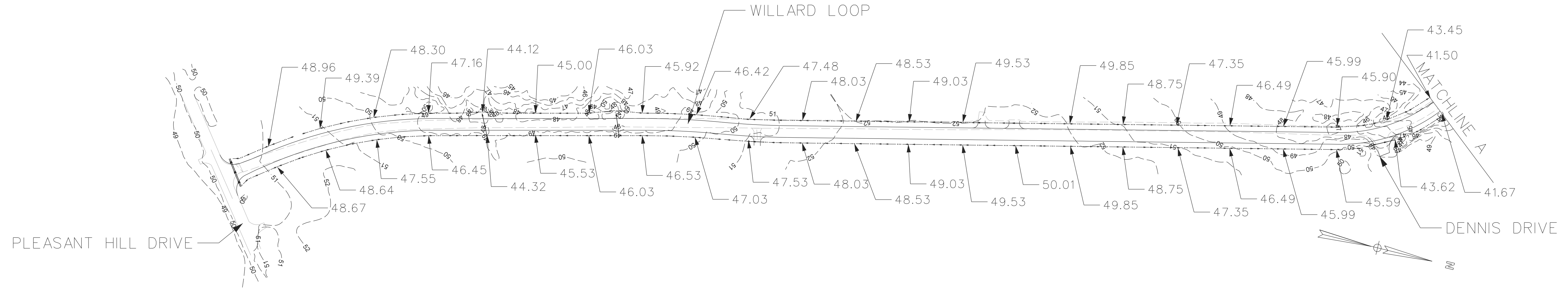
GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM  
 WILLARD LOOP  
 EROSION CONTROL NOTES SHEET



STATE	COUNTY	D&F PROJECT NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	GEORGETOWN	31810.02	WILLARD LOOP	EC2	



LEGEND	
	EXISTING CONTOUR
	PROPOSED DITCH SPOT ELEVATION
	PROPOSED DITCH LINE



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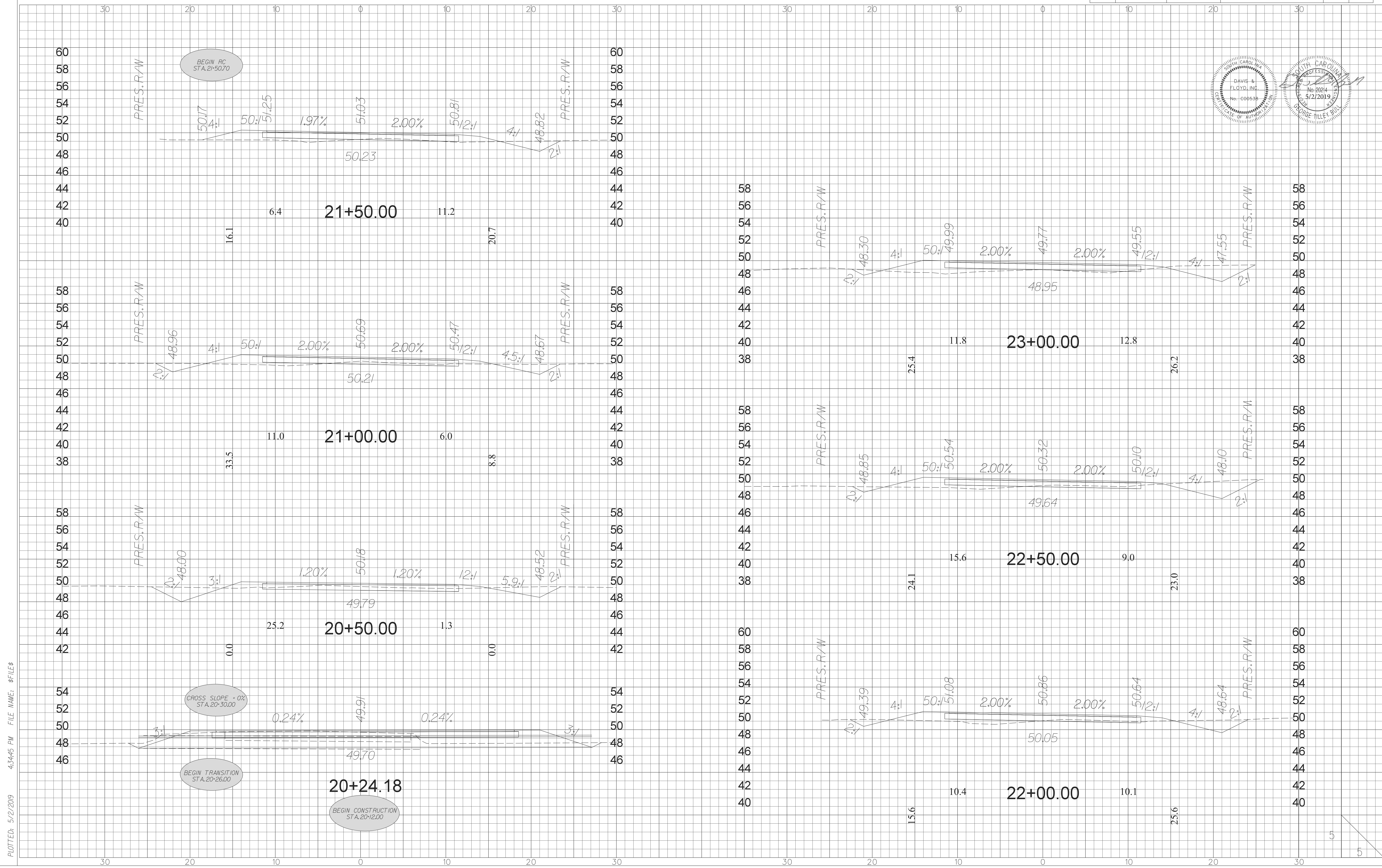
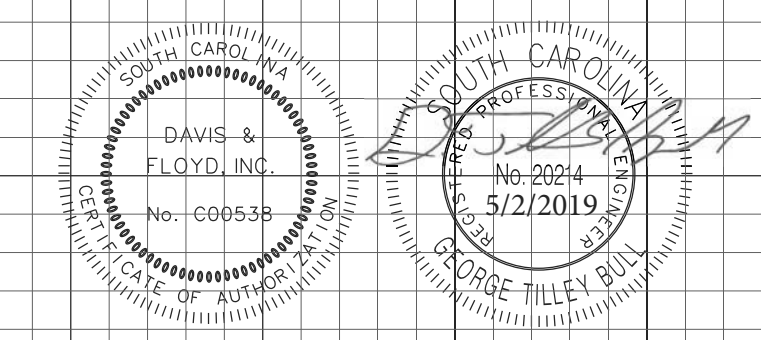
**DAVIS & FLOYD**  
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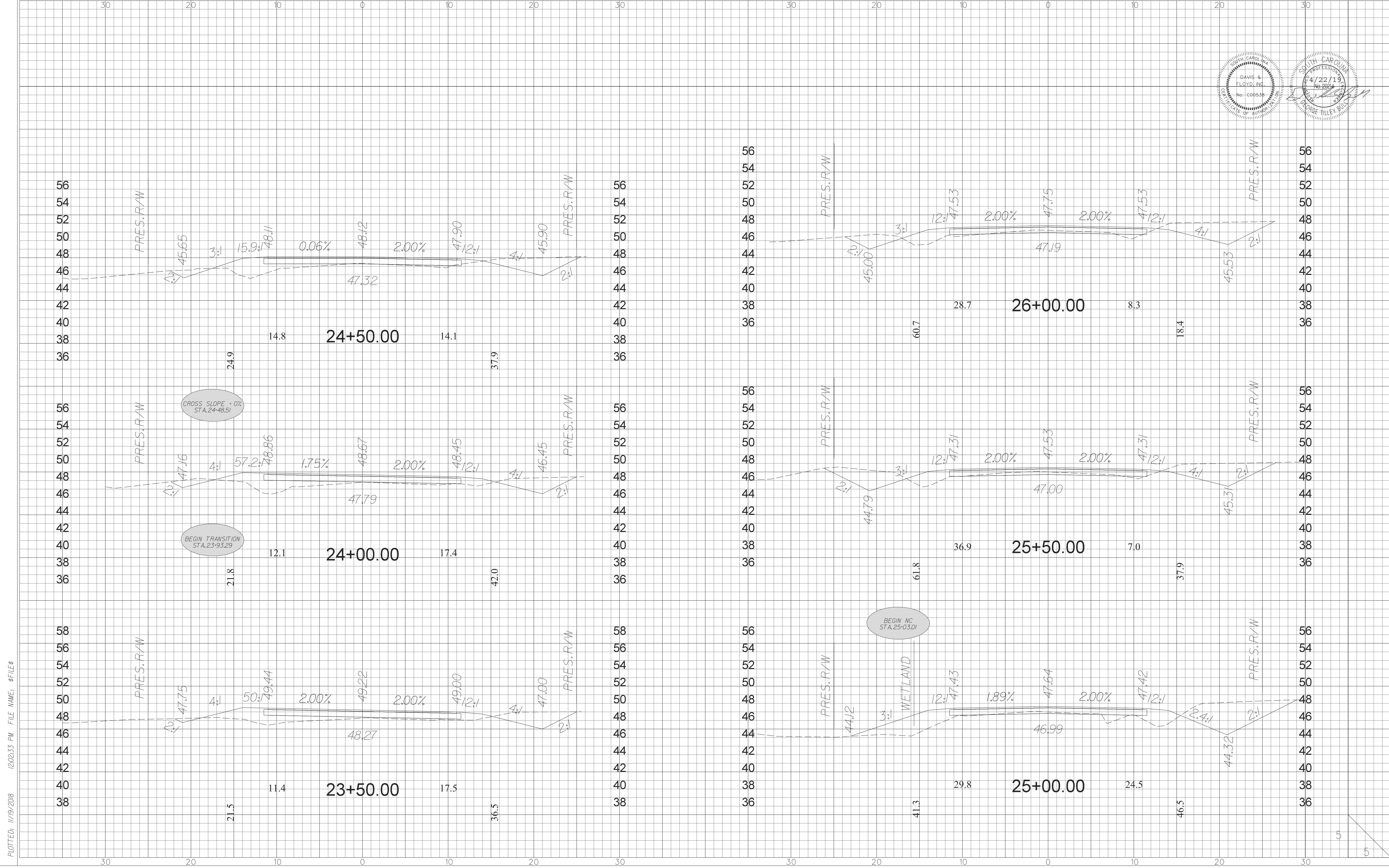
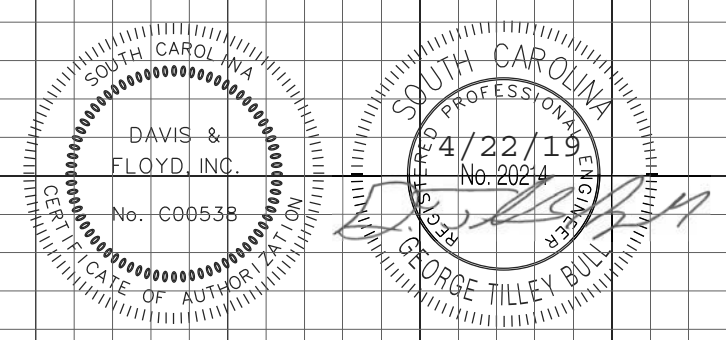
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 ENGINEERED ROADS PROGRAM

WILLARD LOOP  
 CONTOUR SHEET

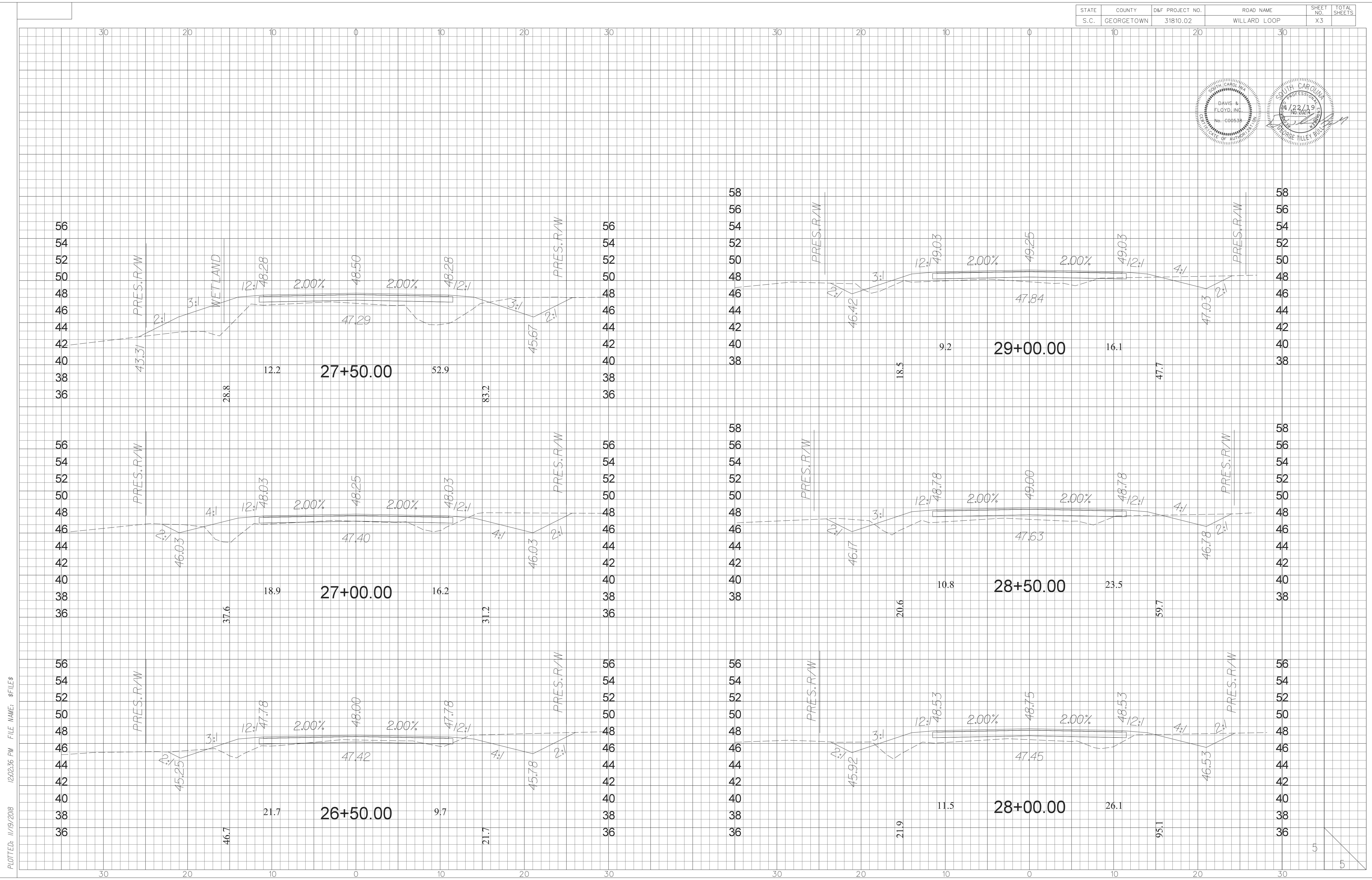
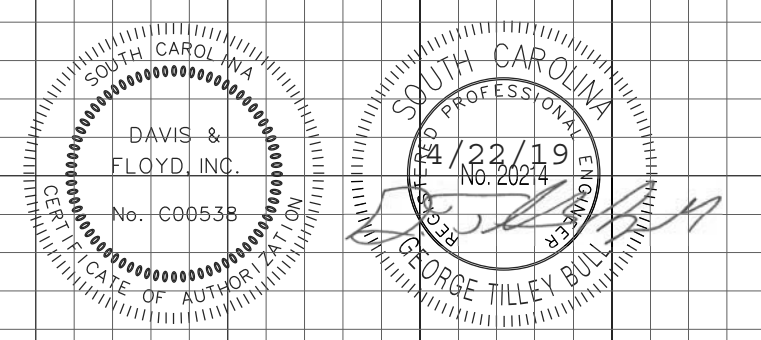
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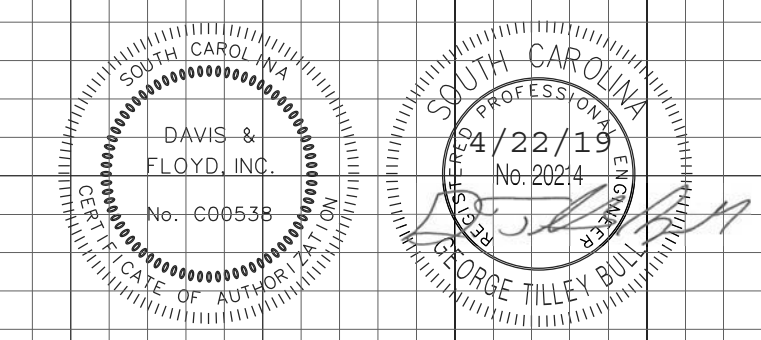
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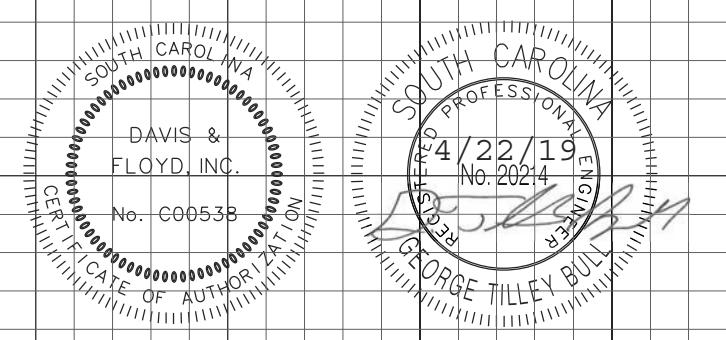


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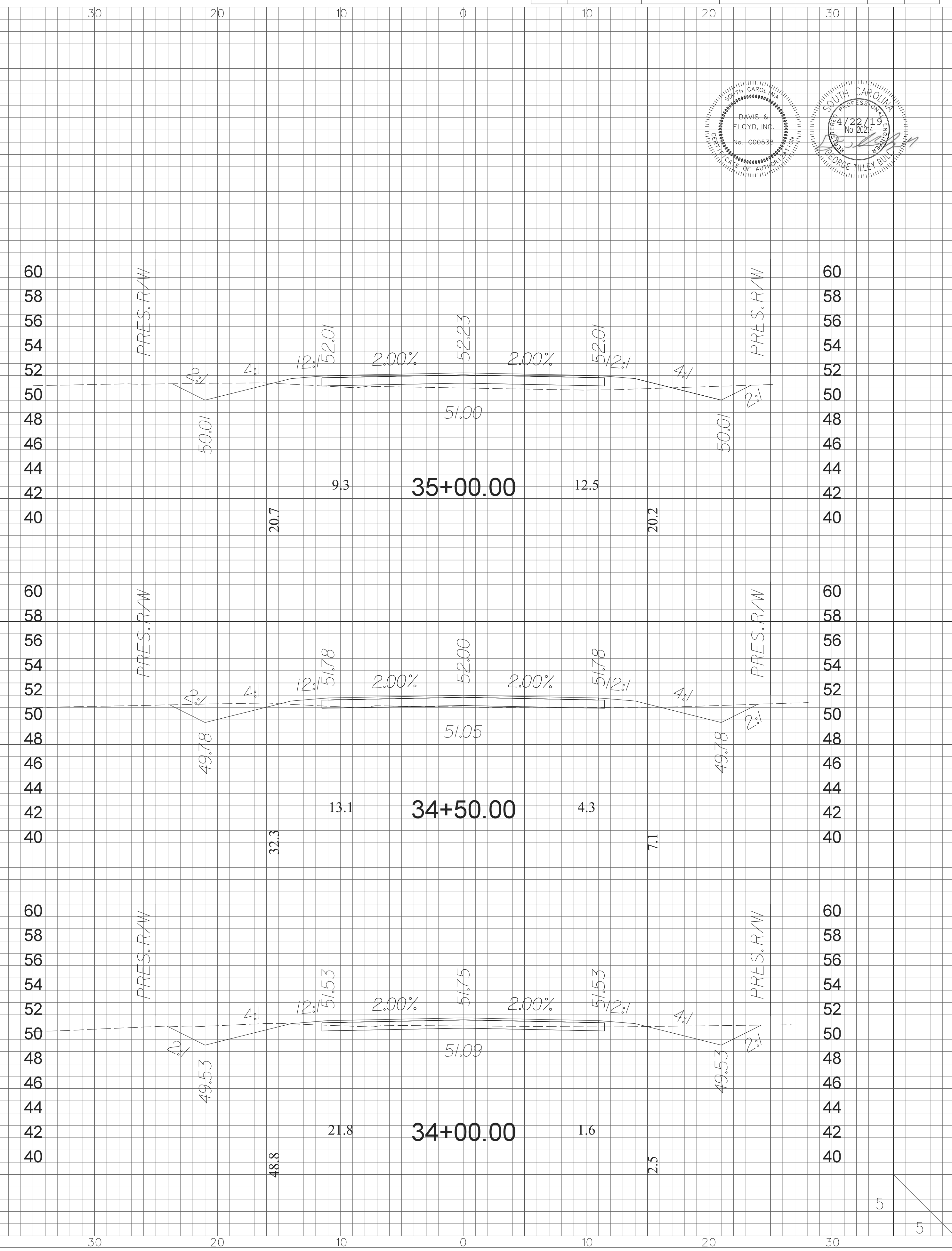
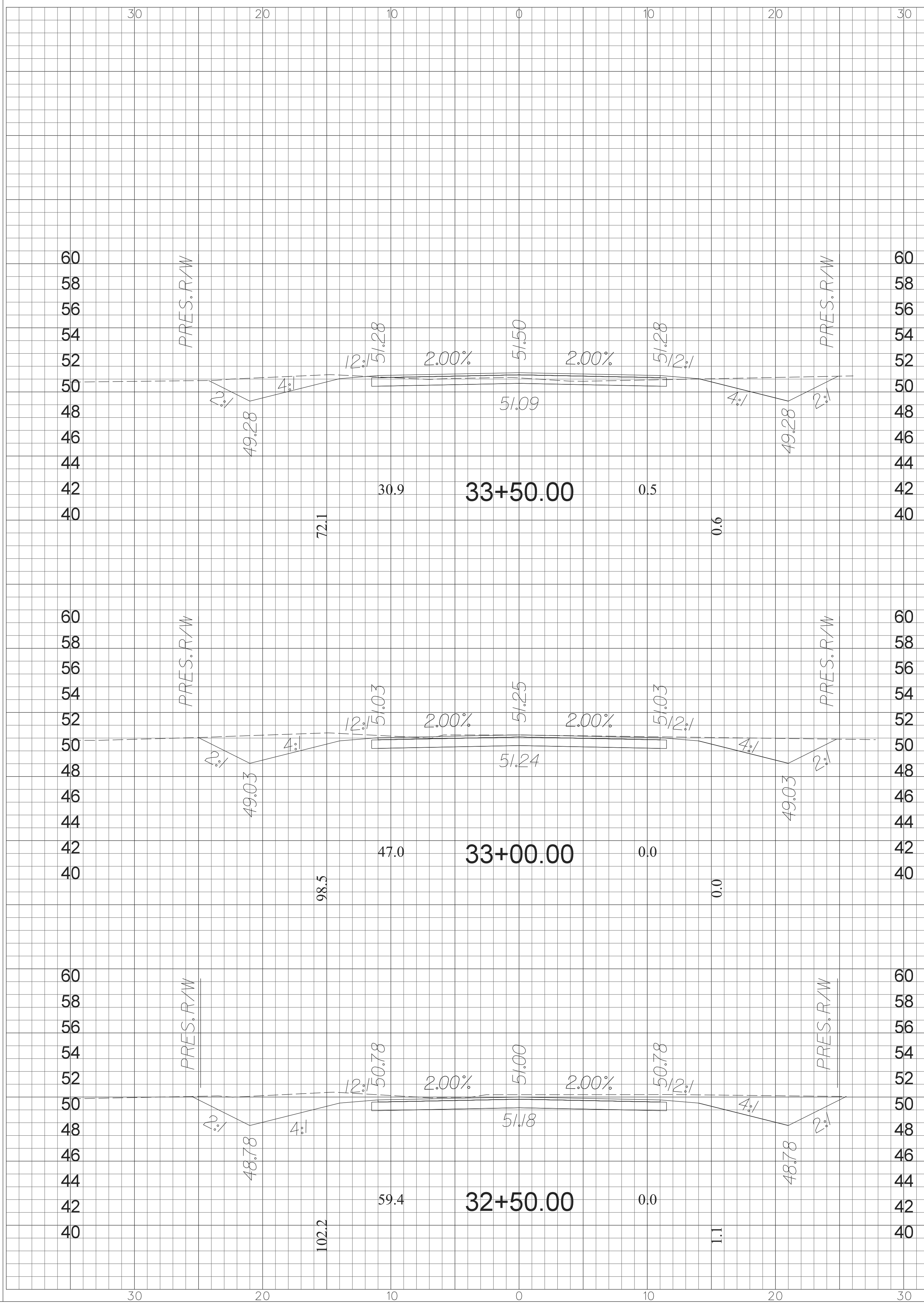


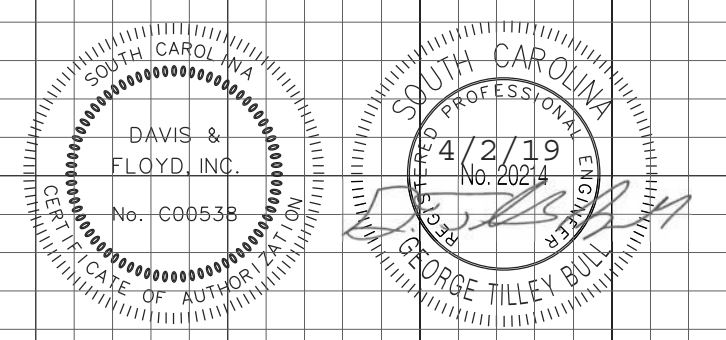
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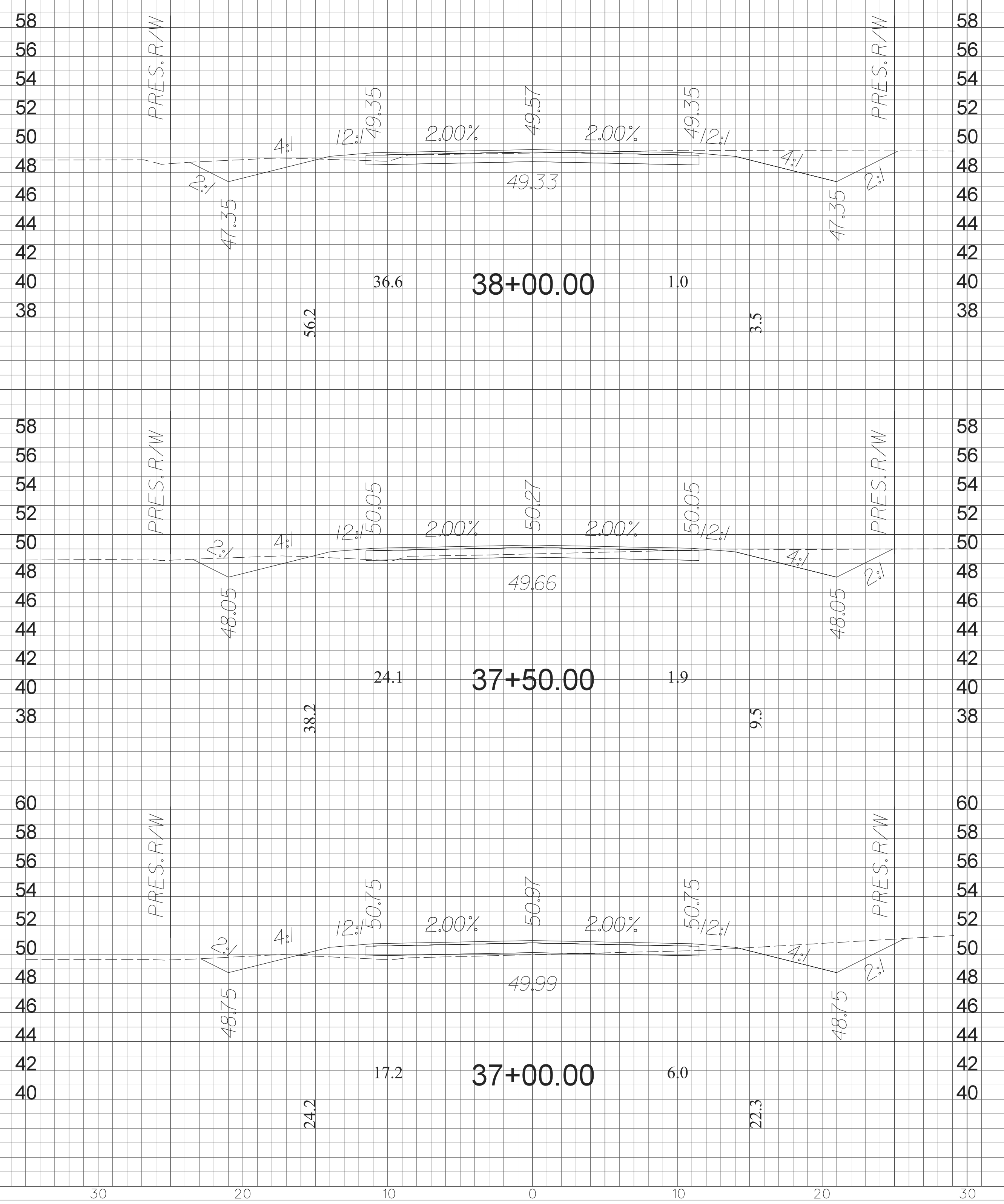
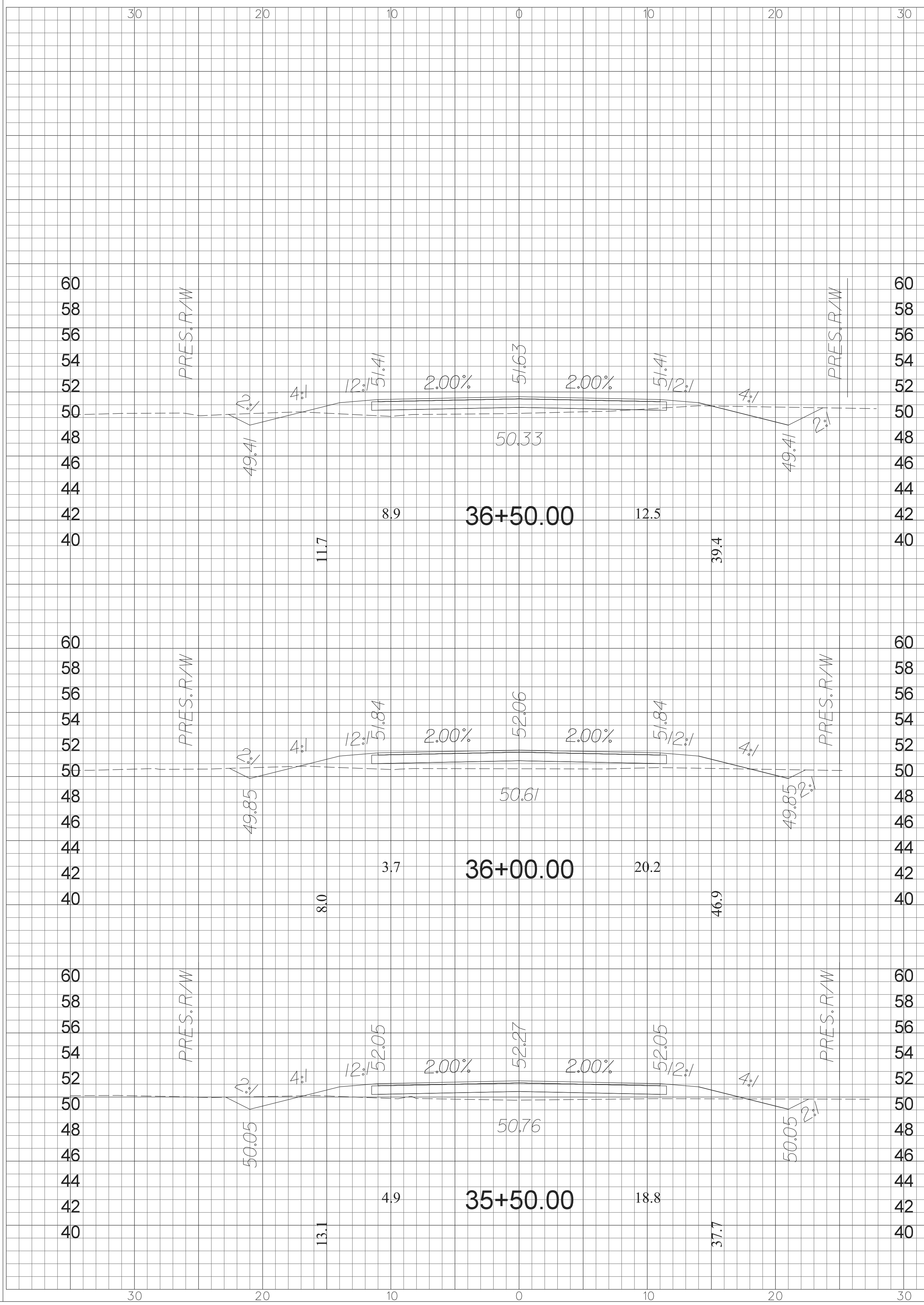


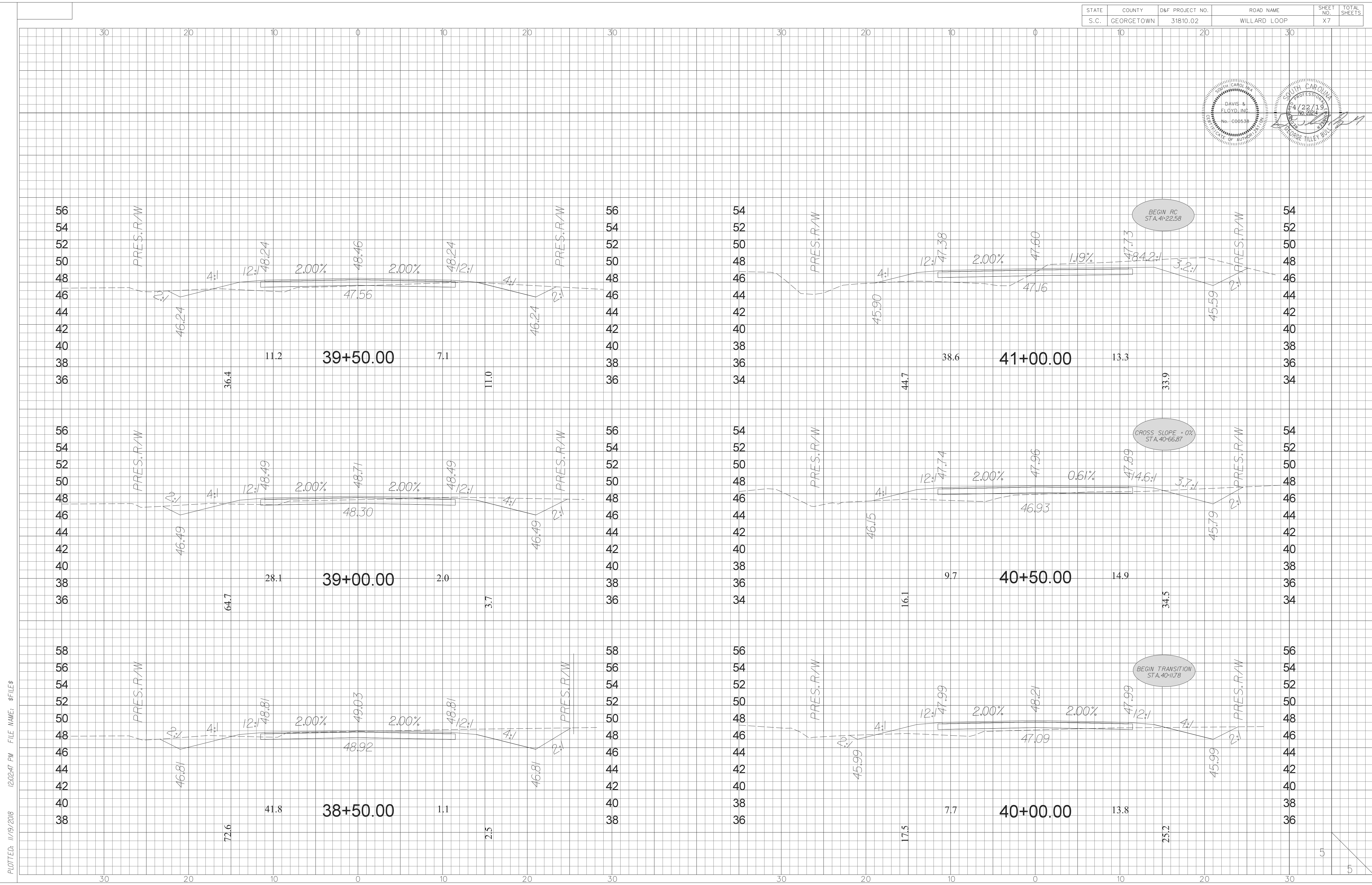
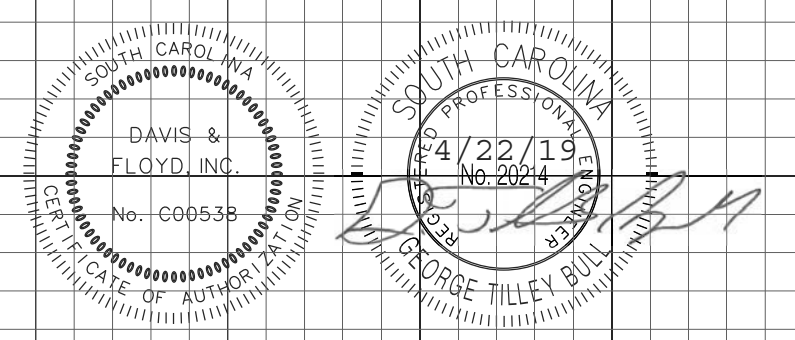
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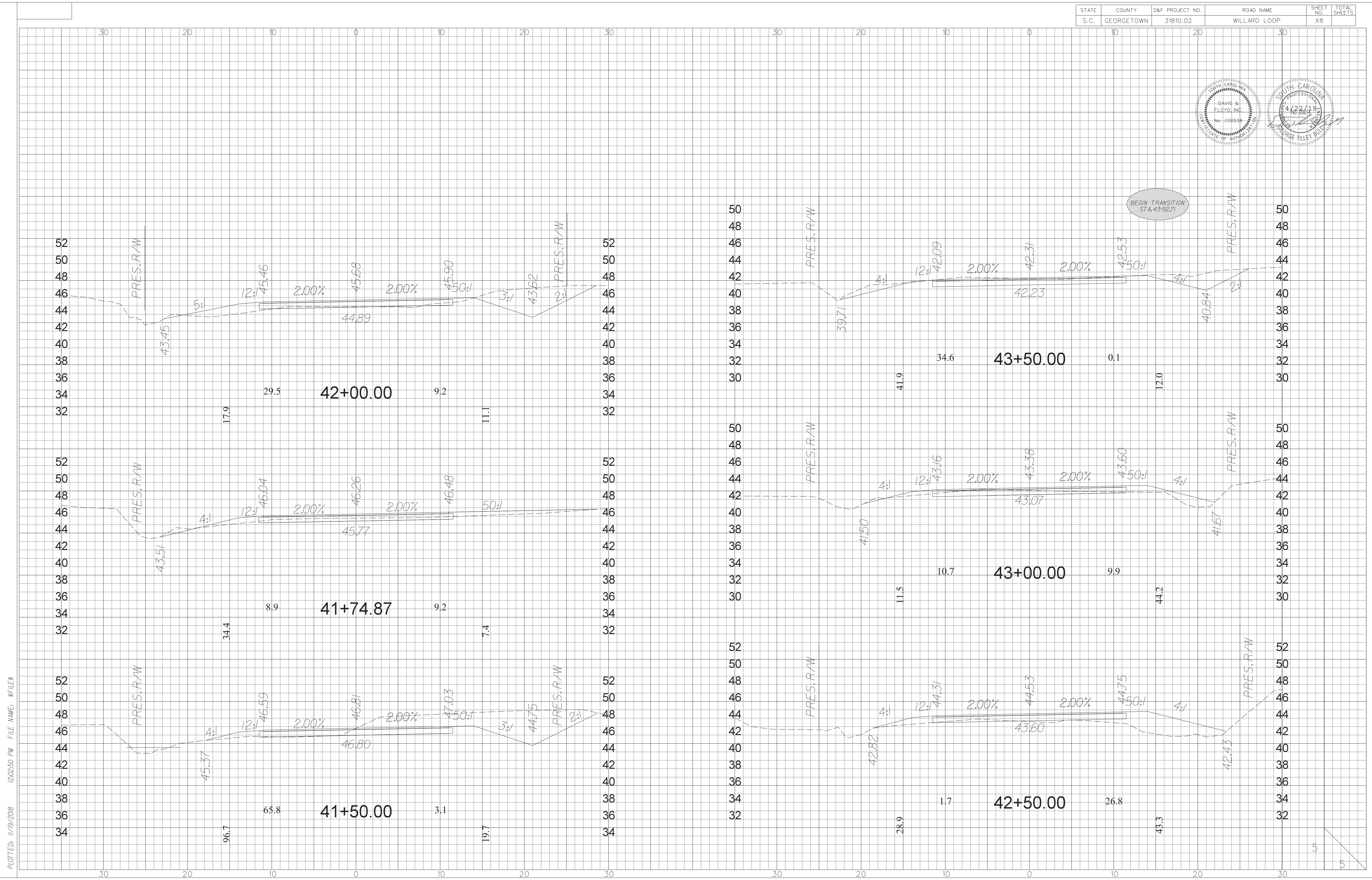
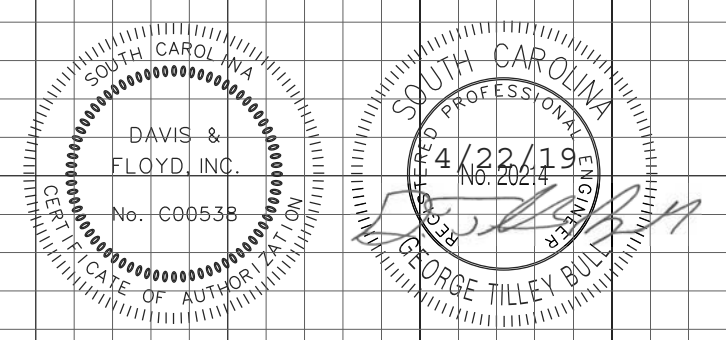
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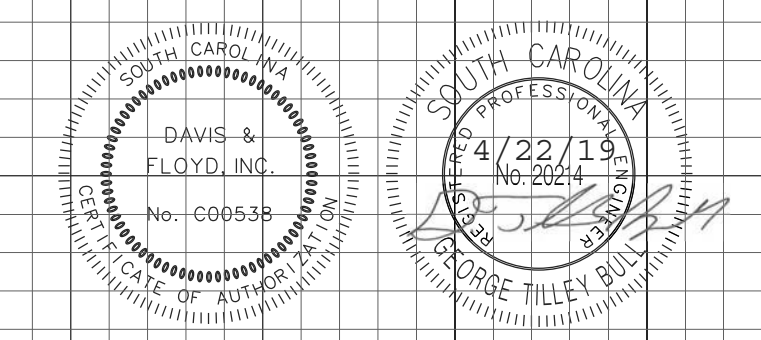


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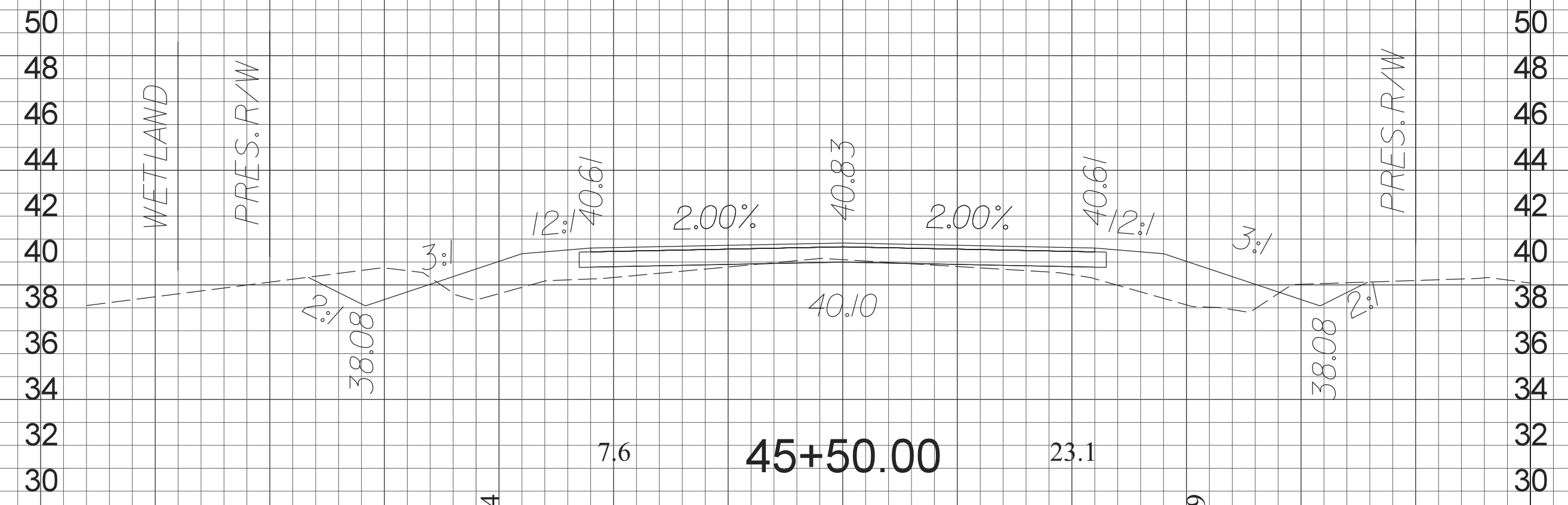
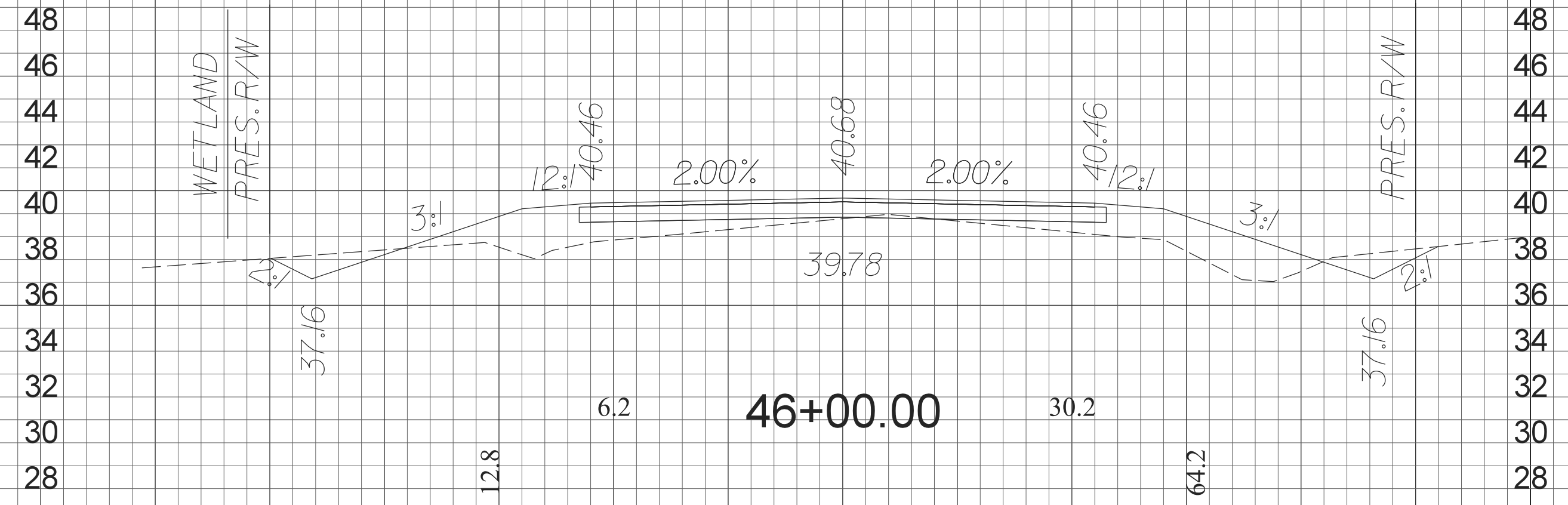
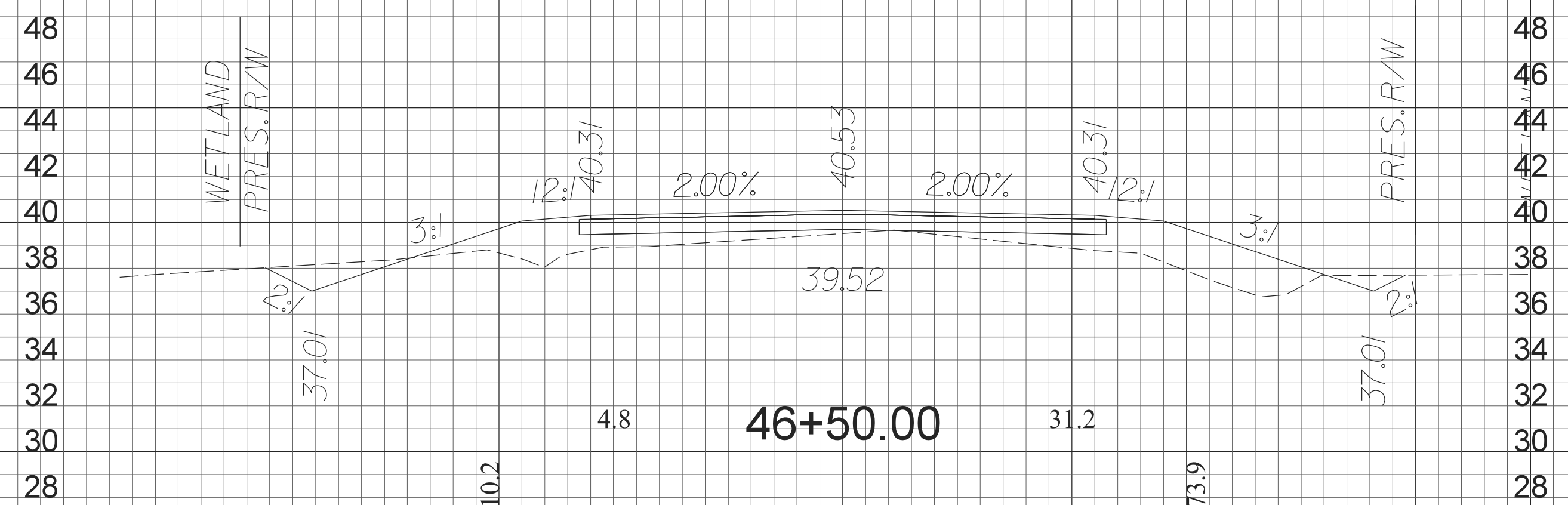
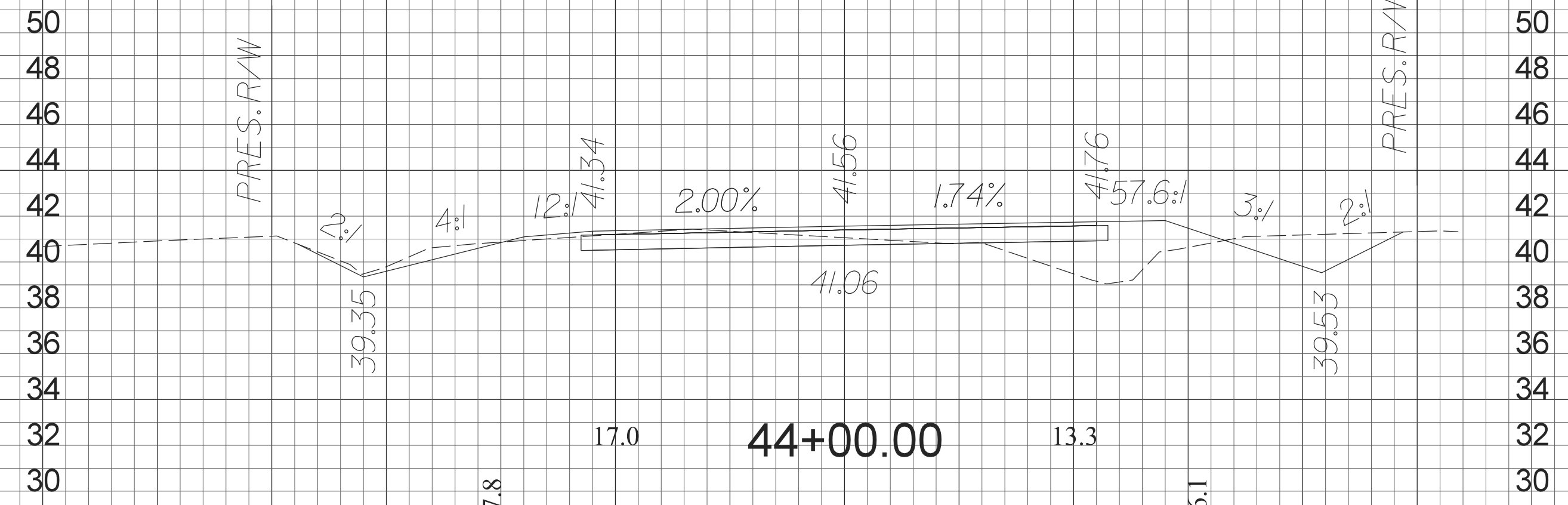
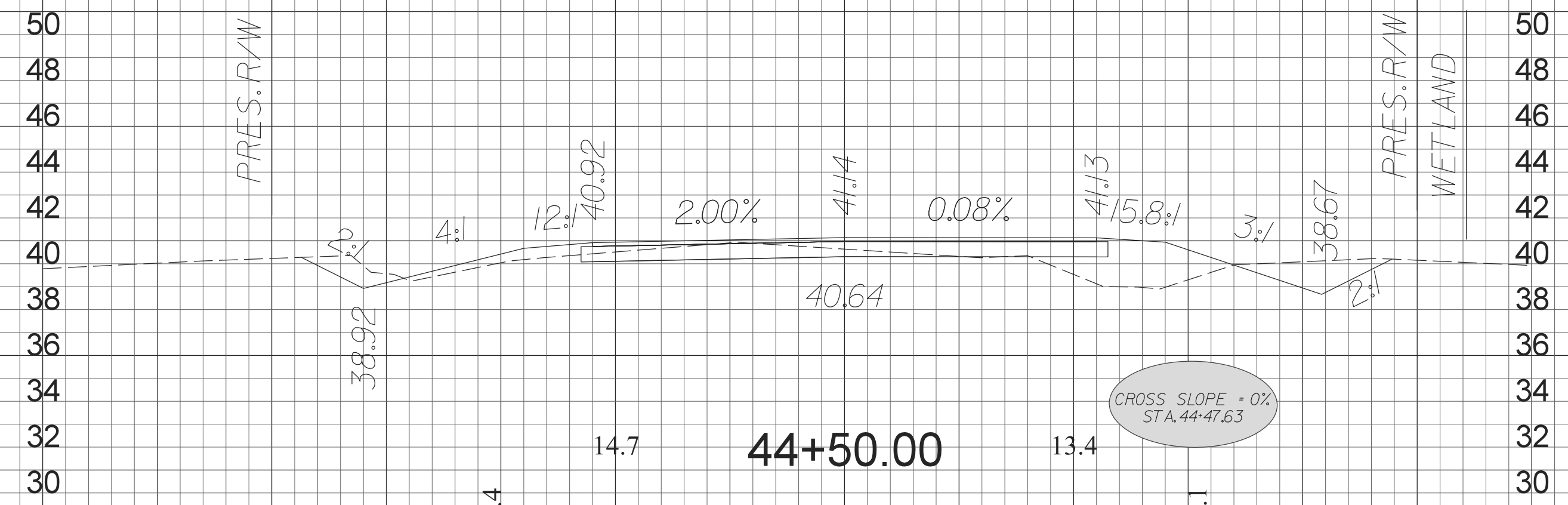
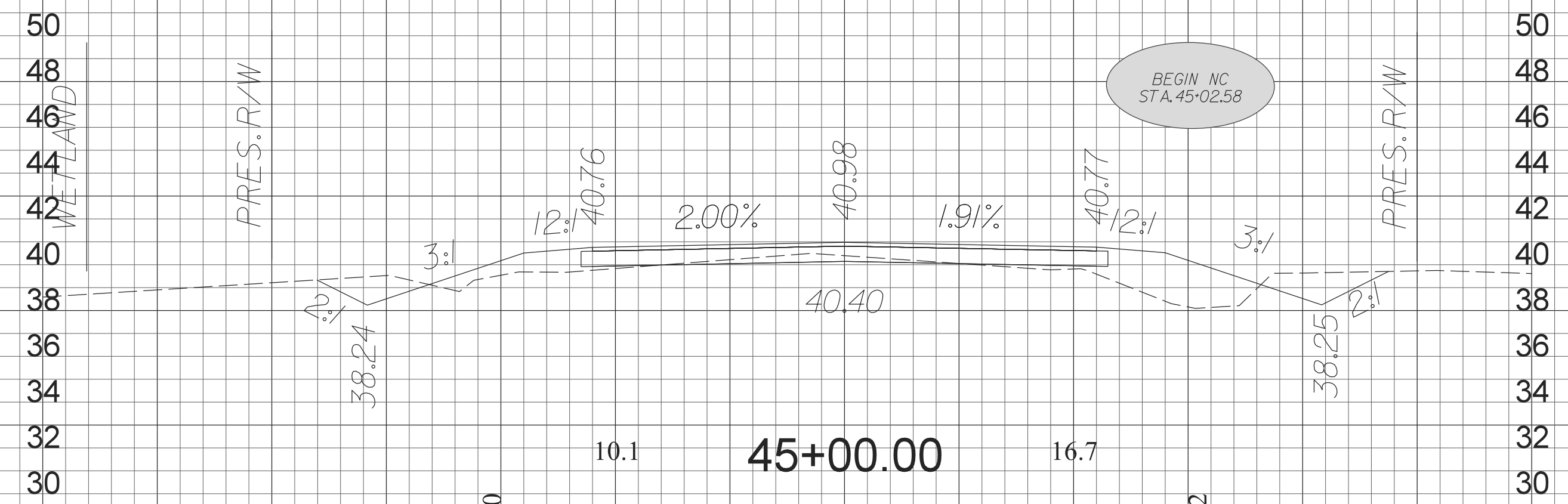


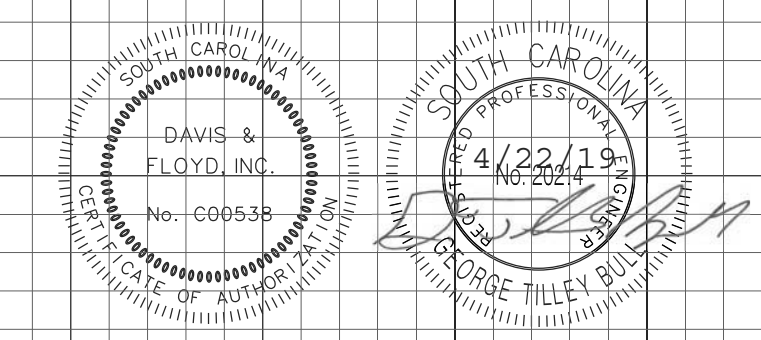


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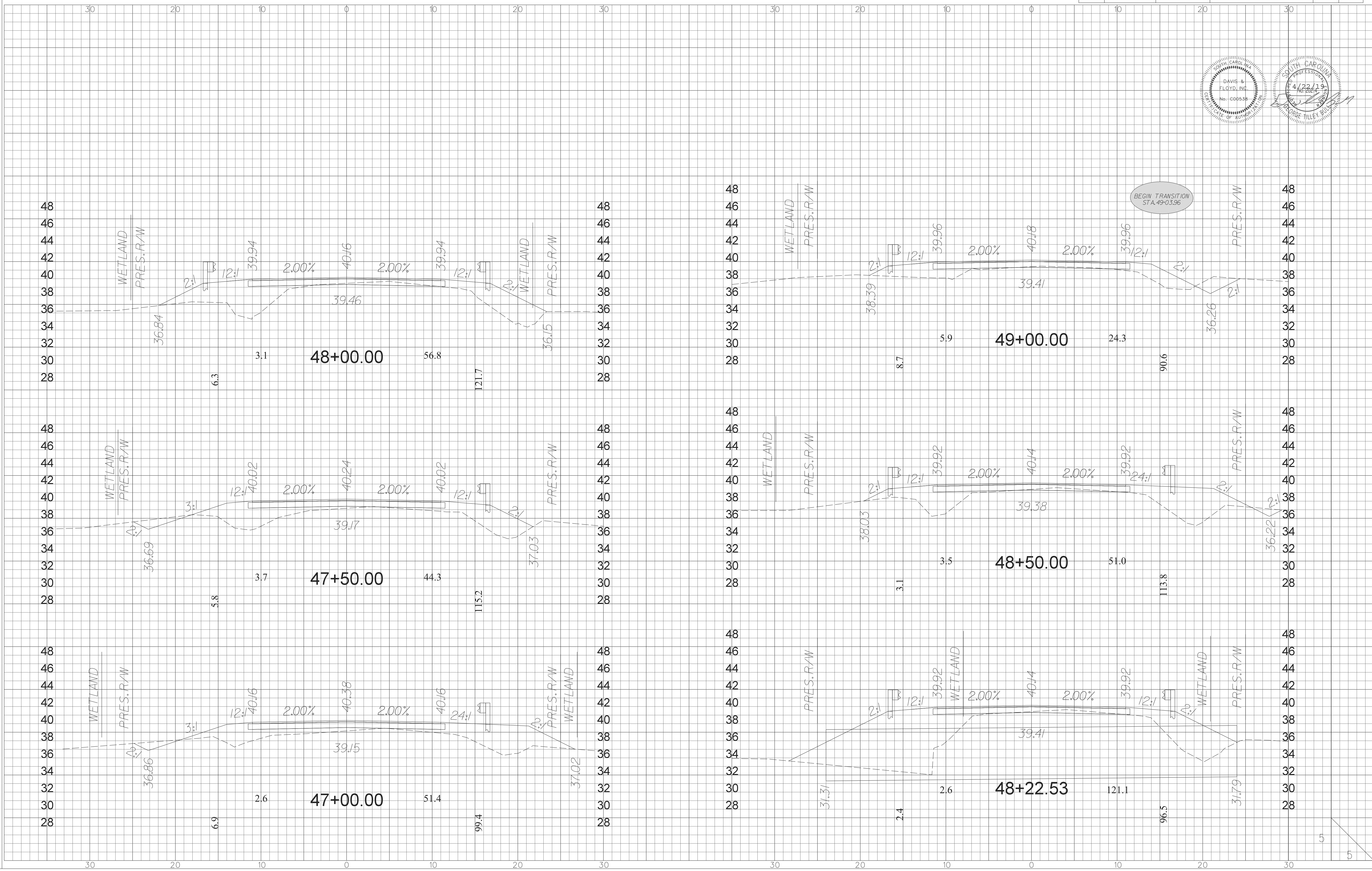


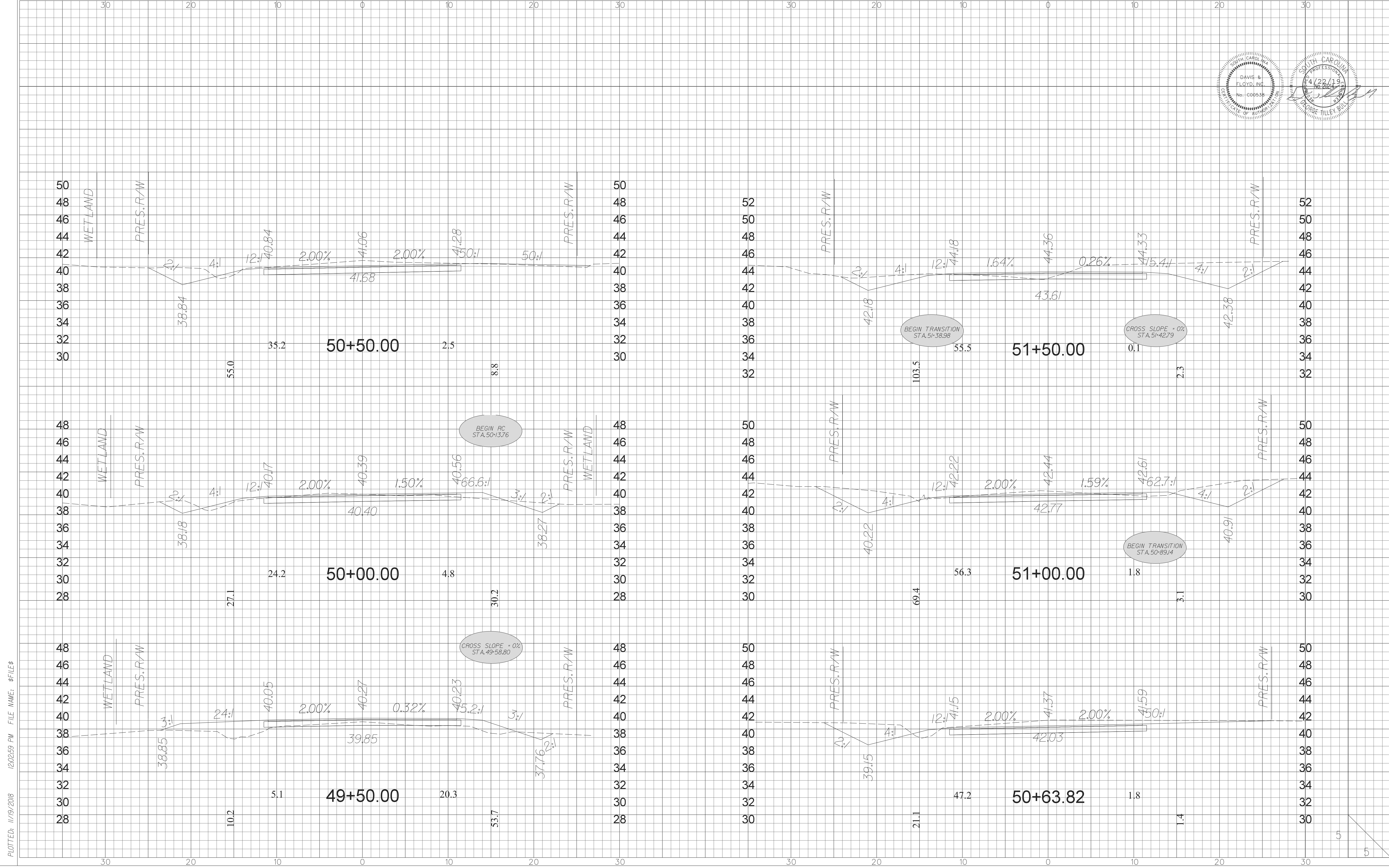
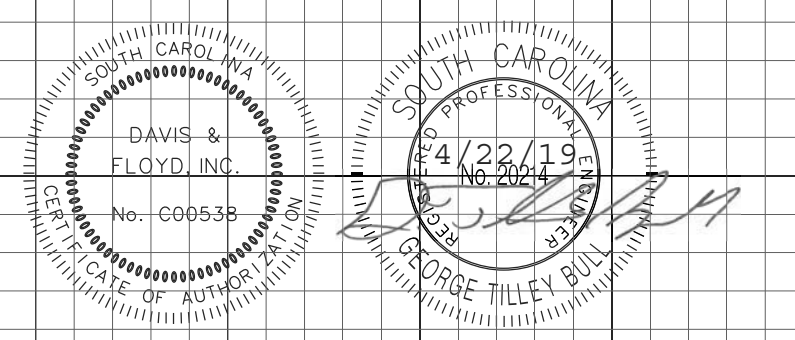
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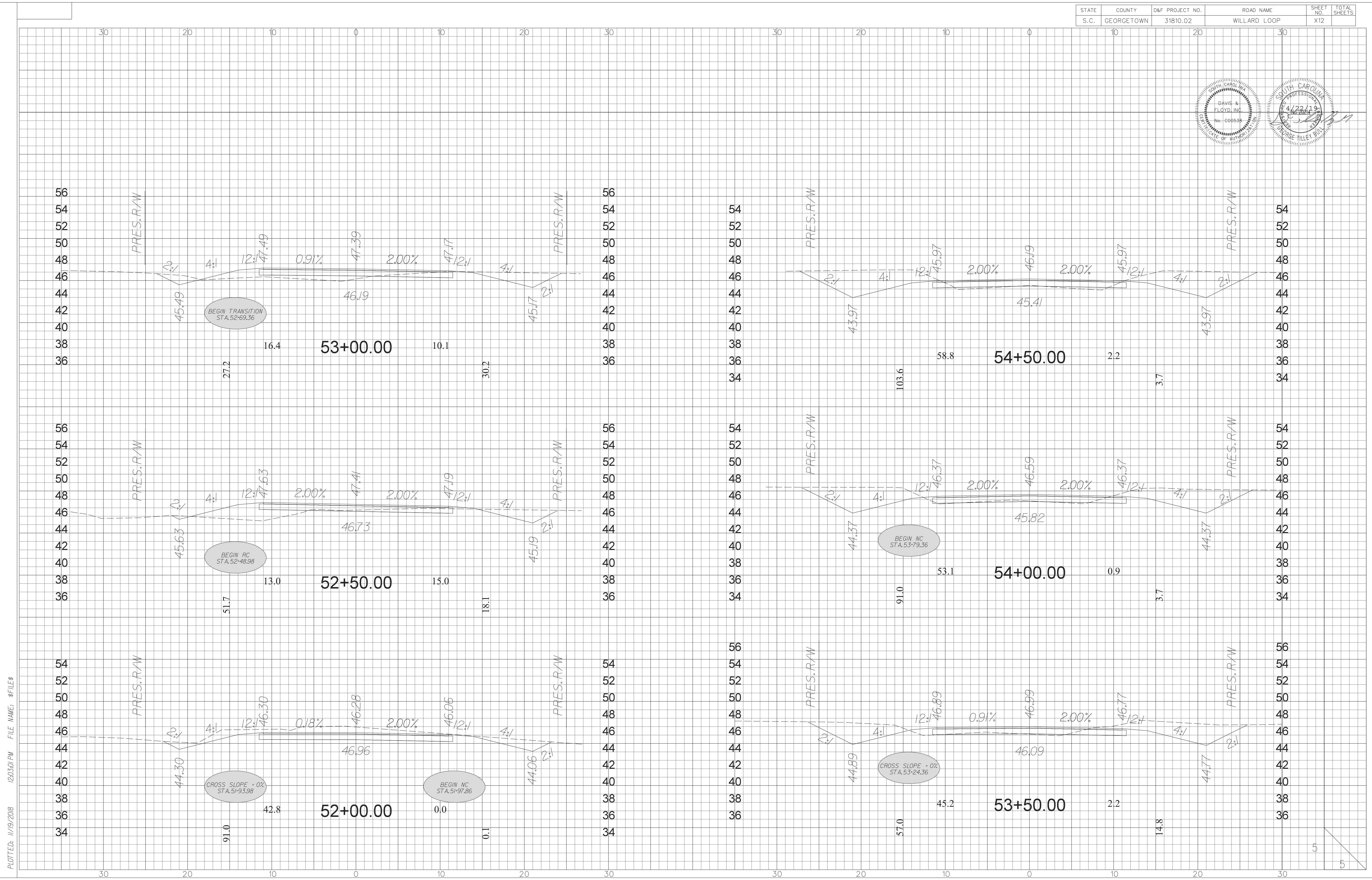
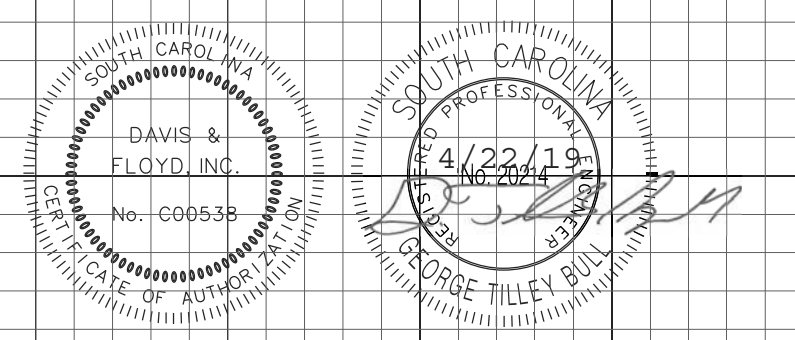


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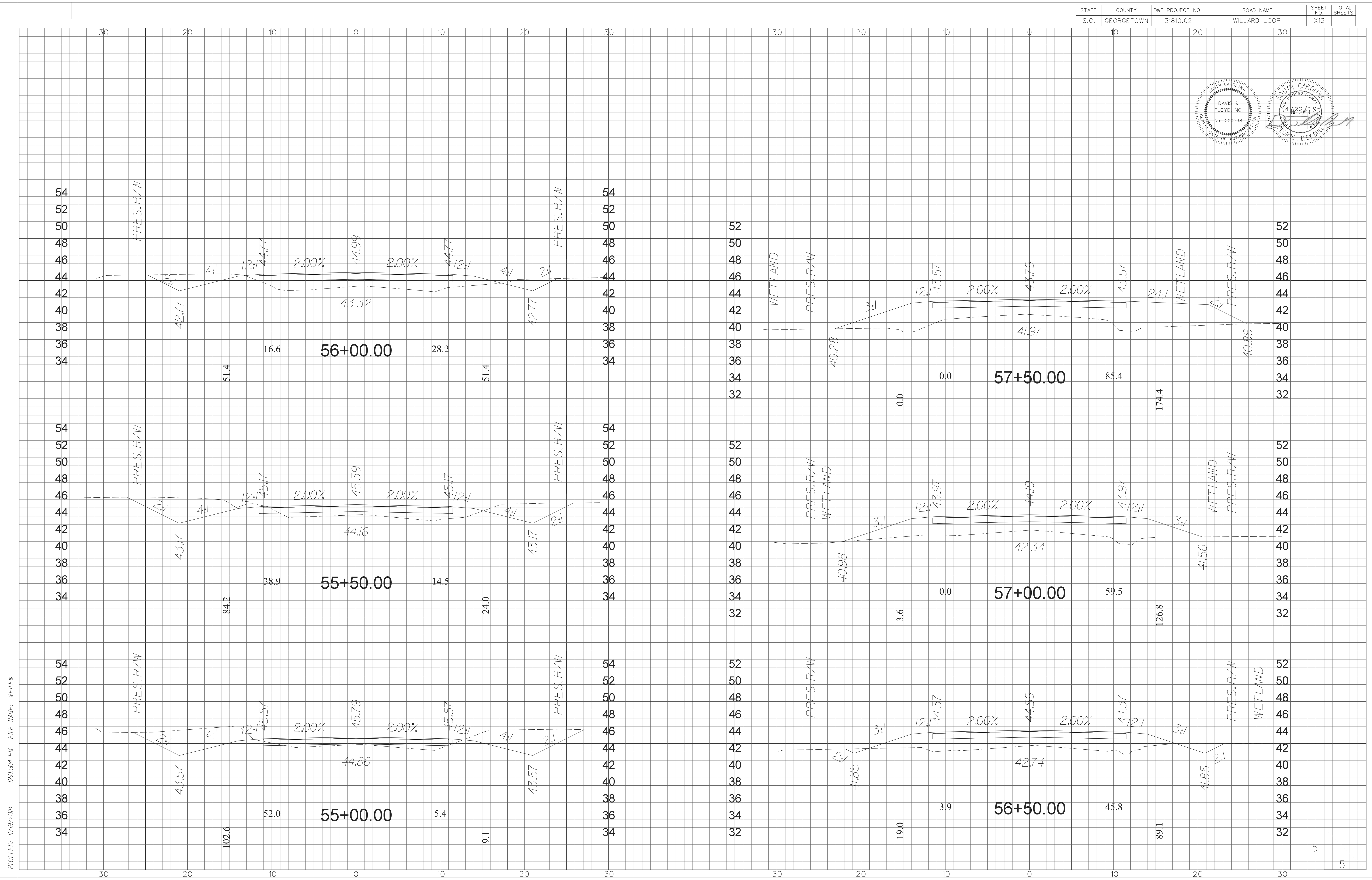
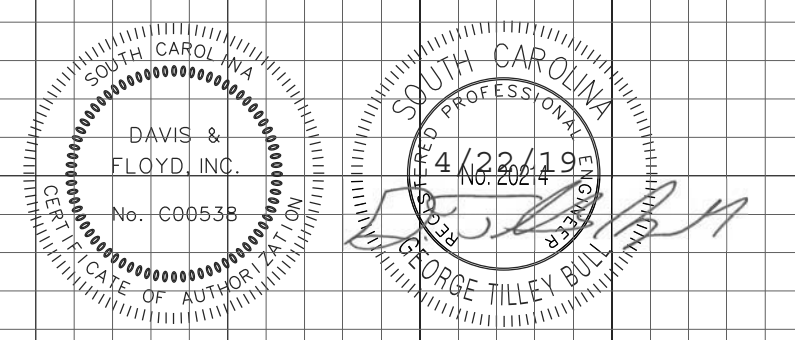




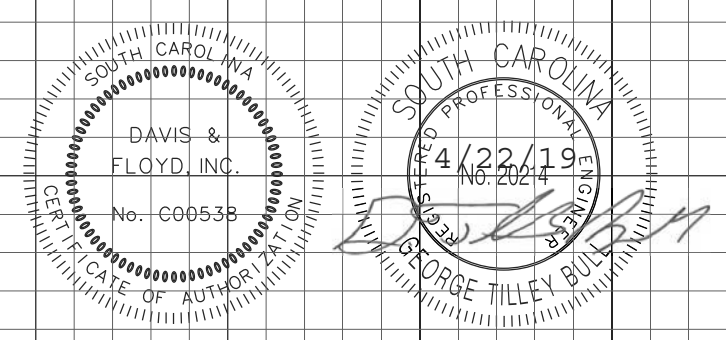
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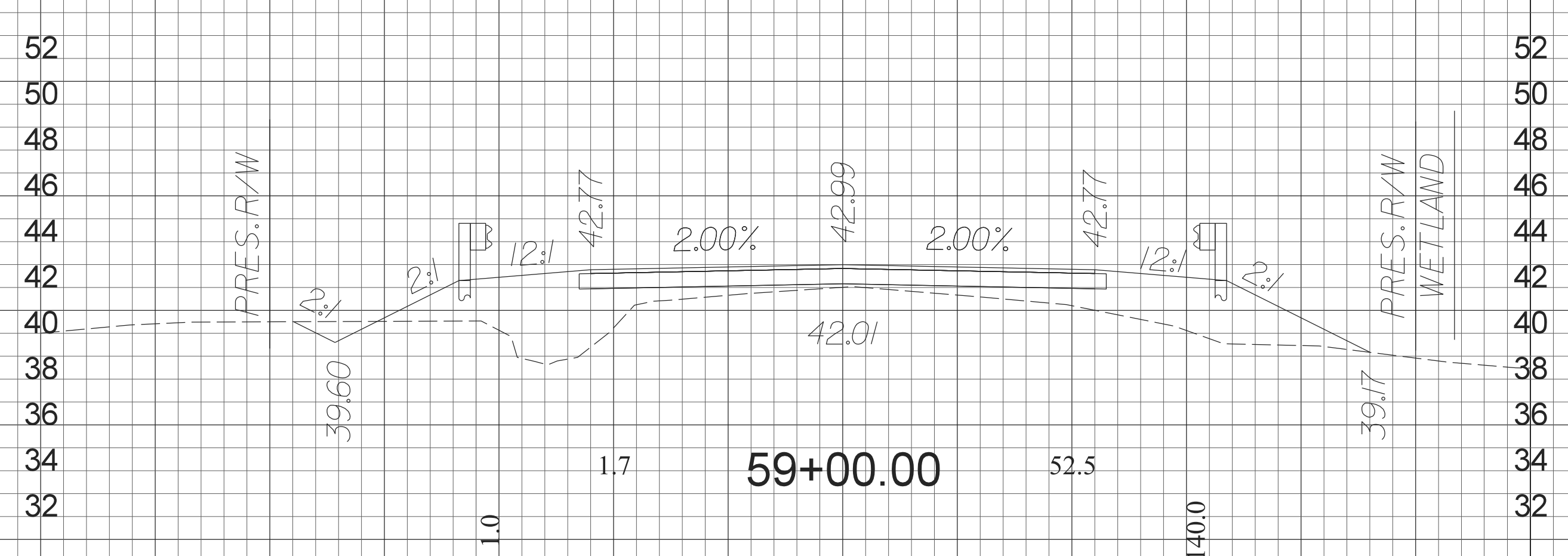
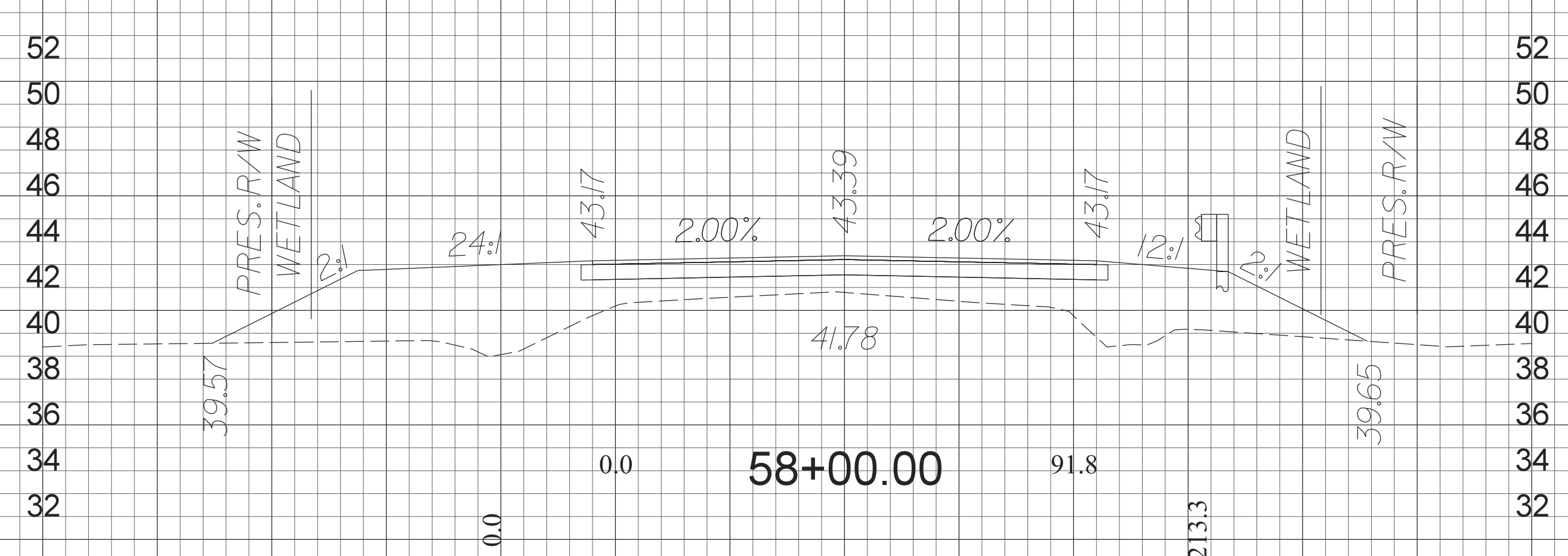
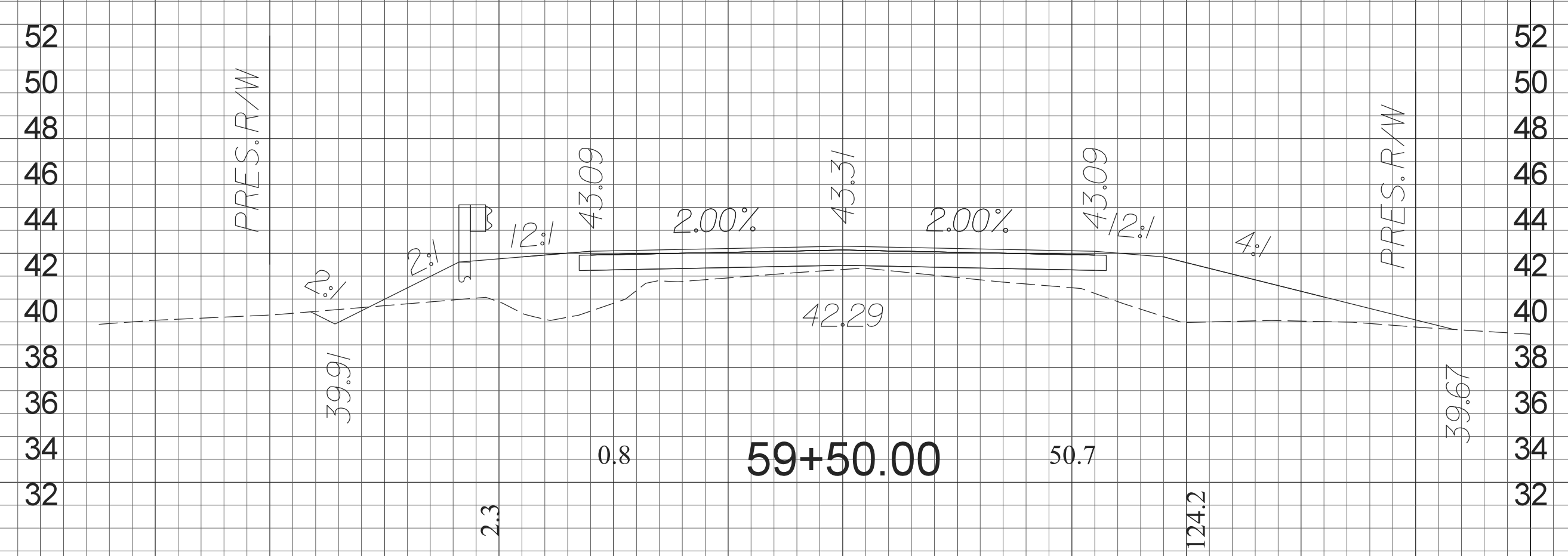
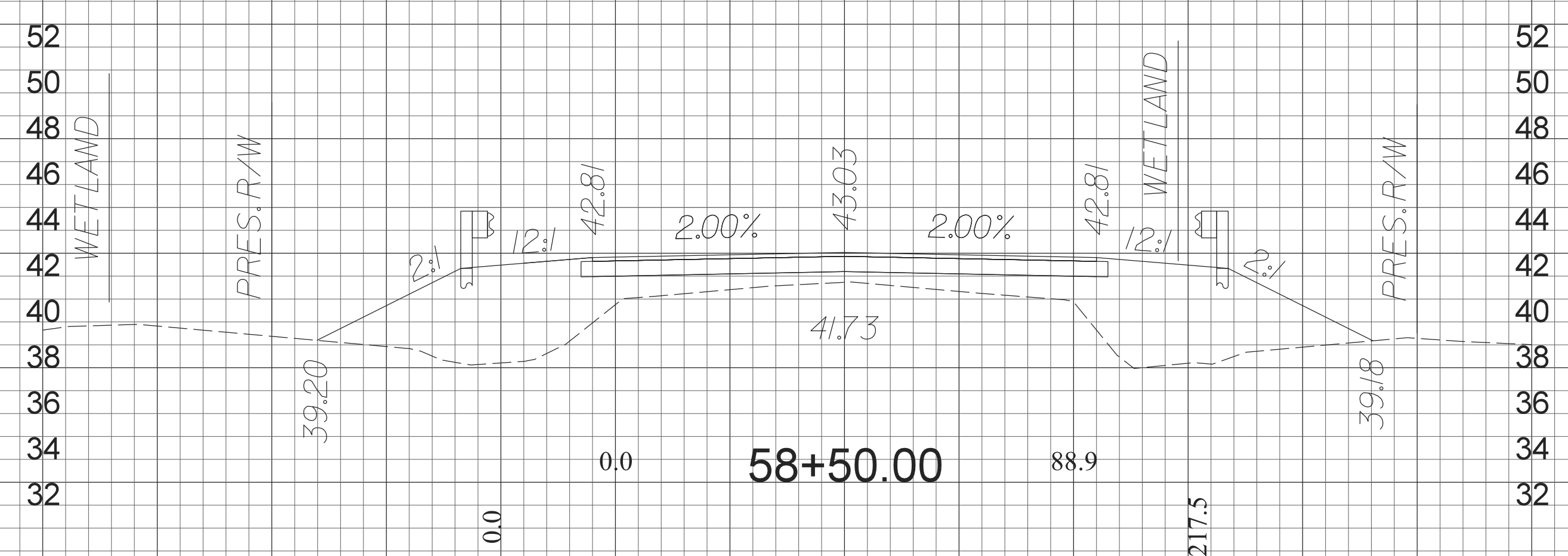
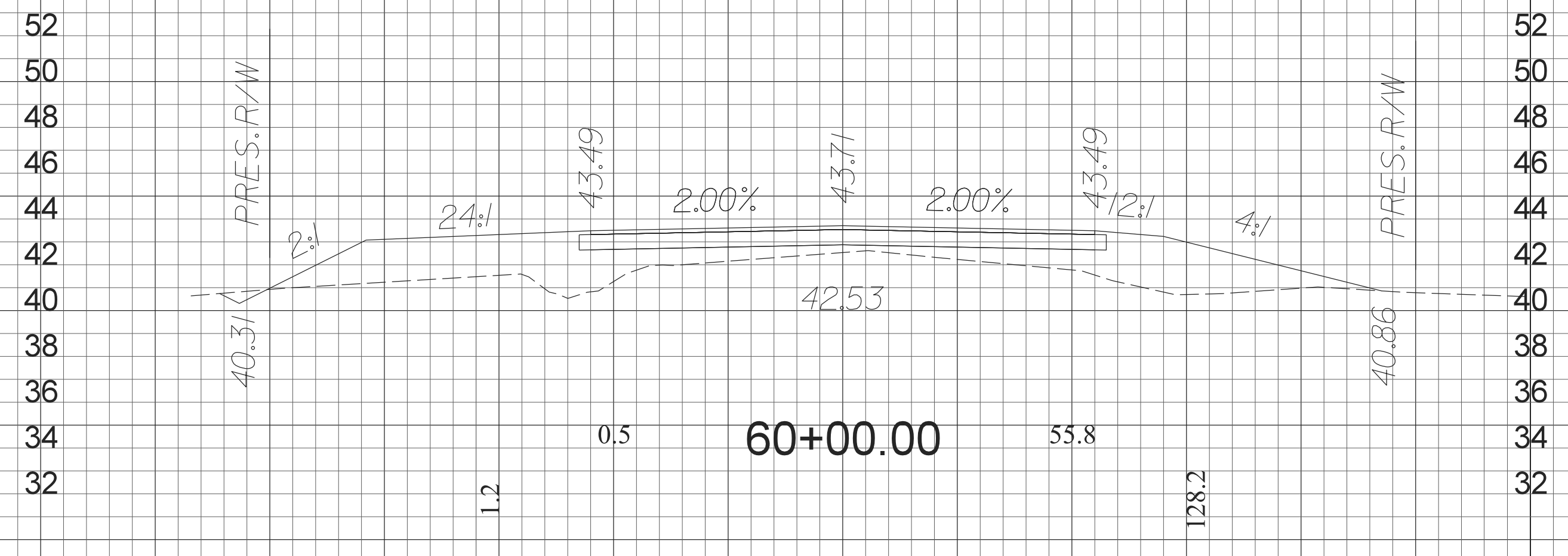
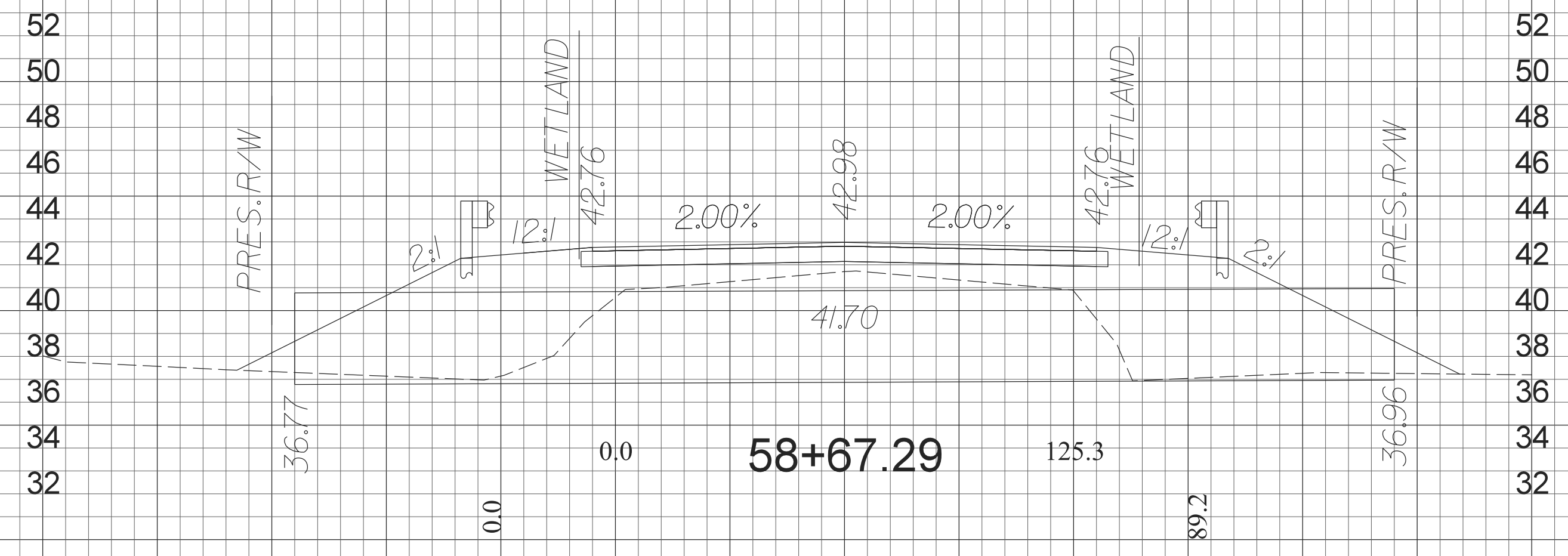
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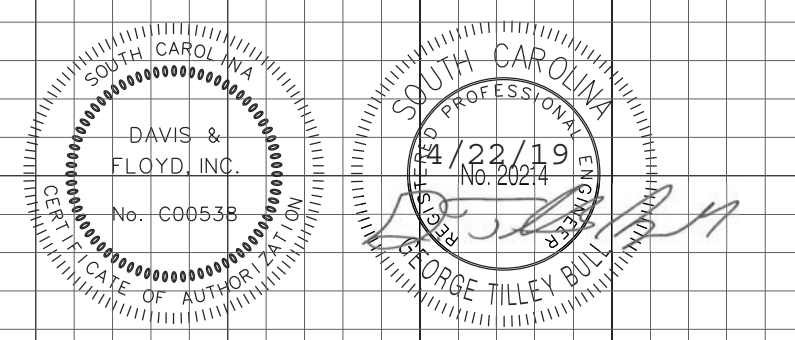


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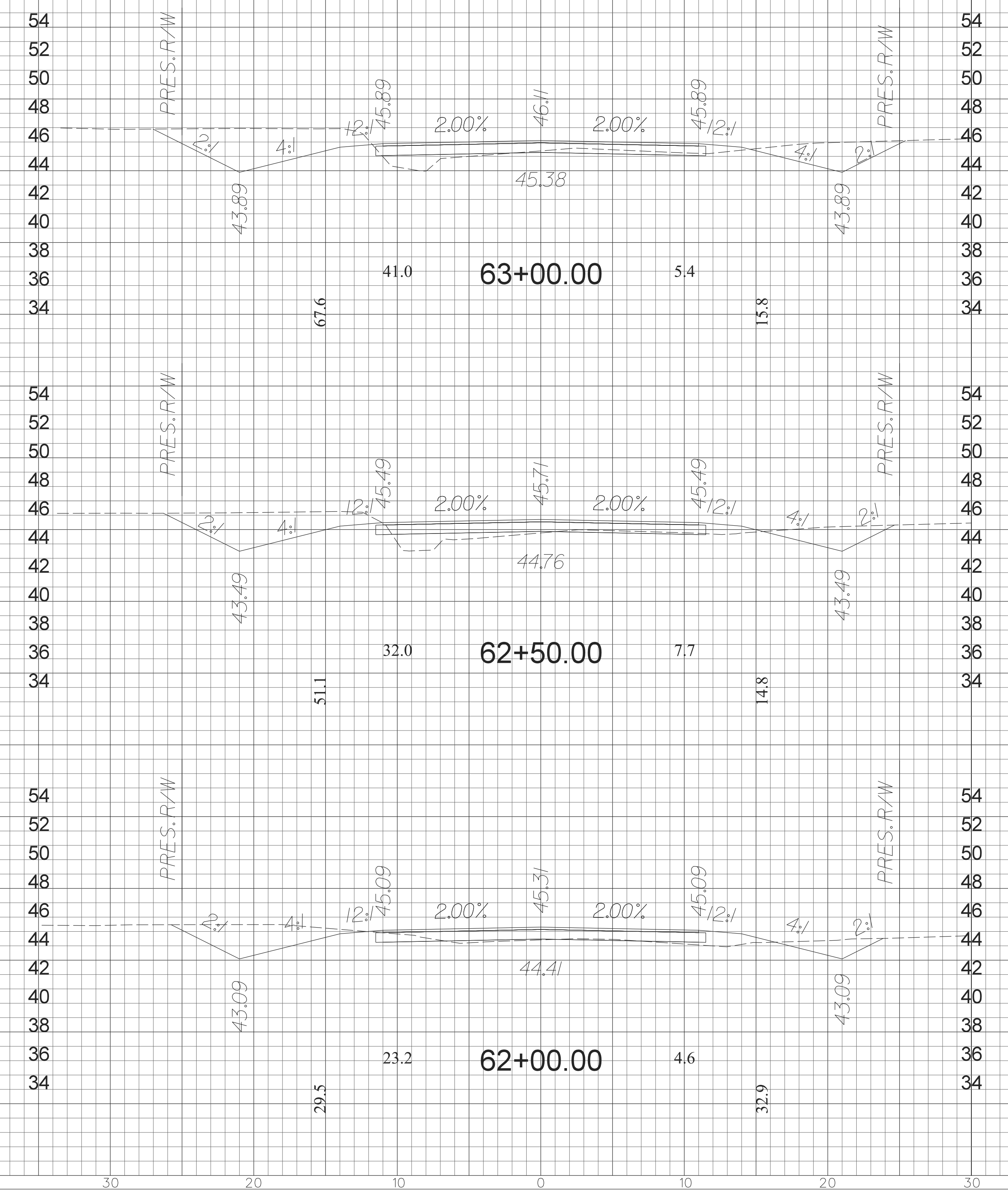
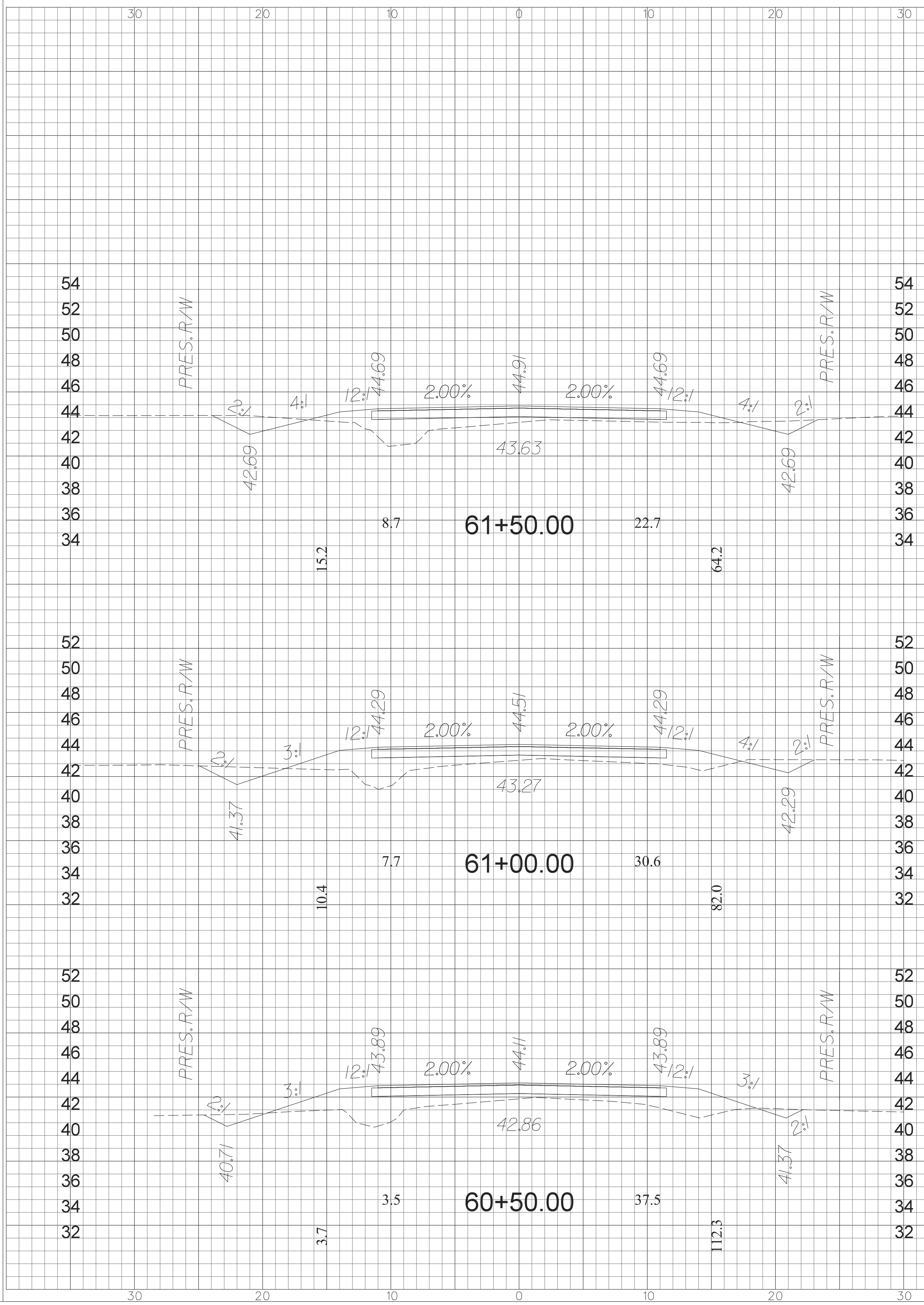


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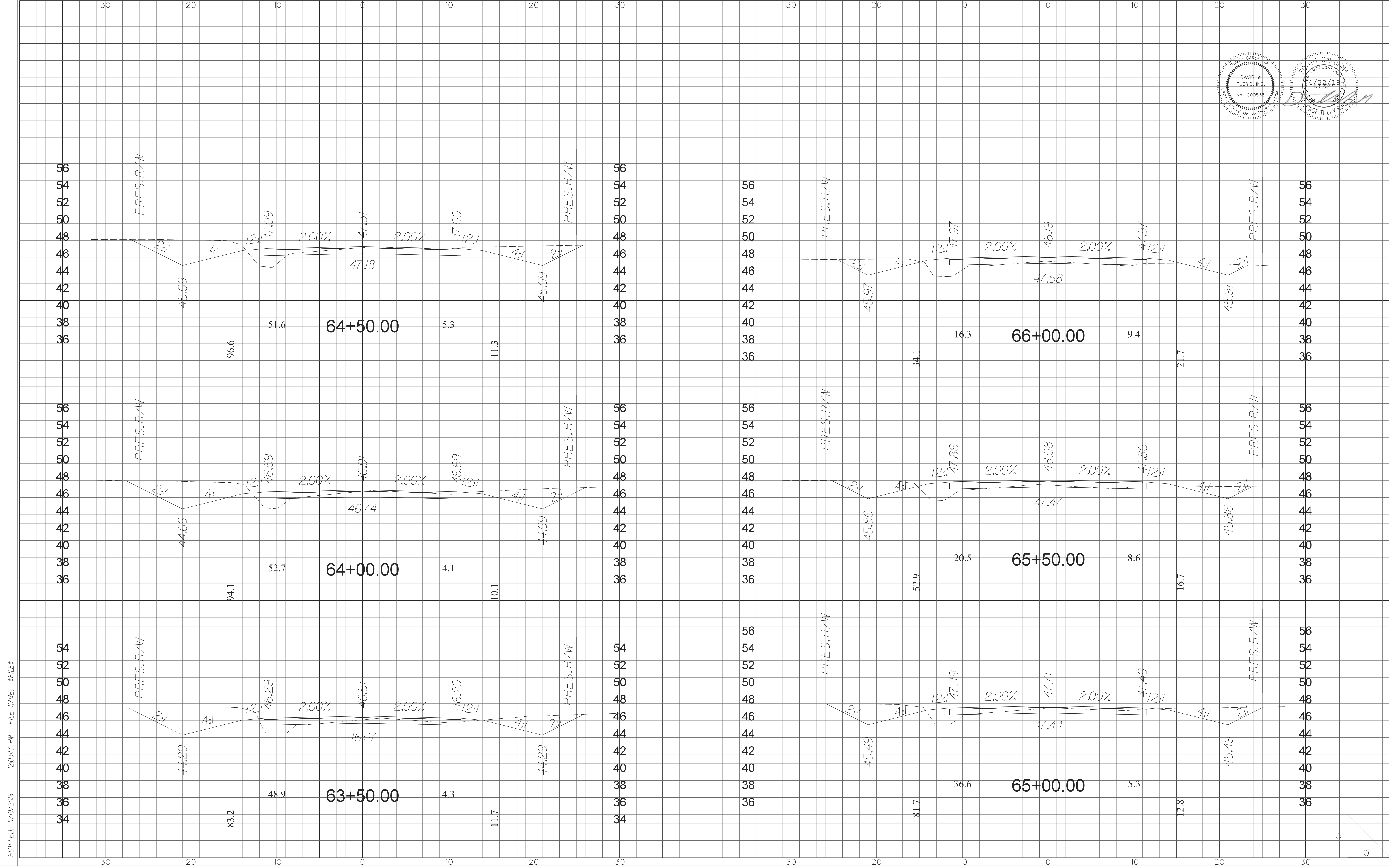
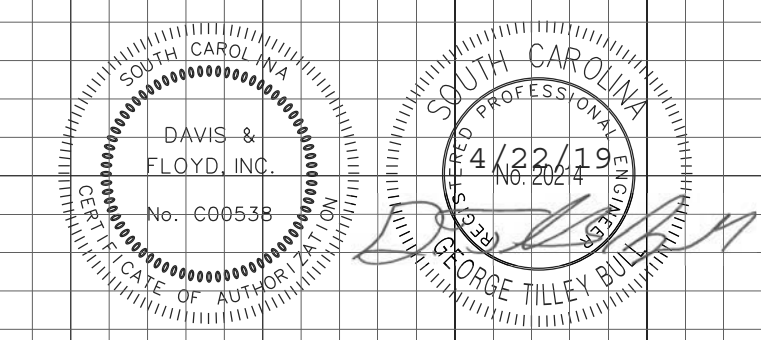




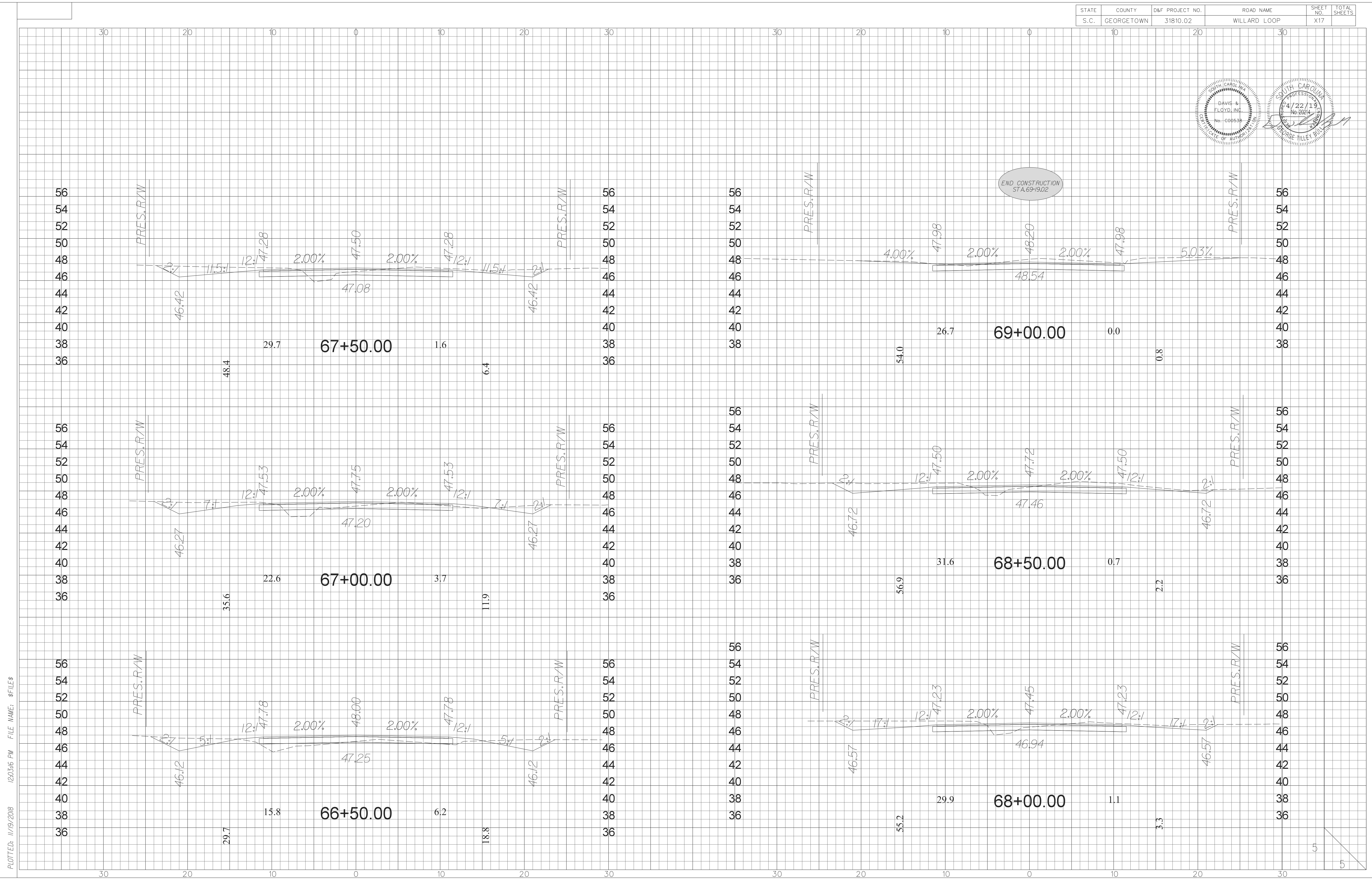
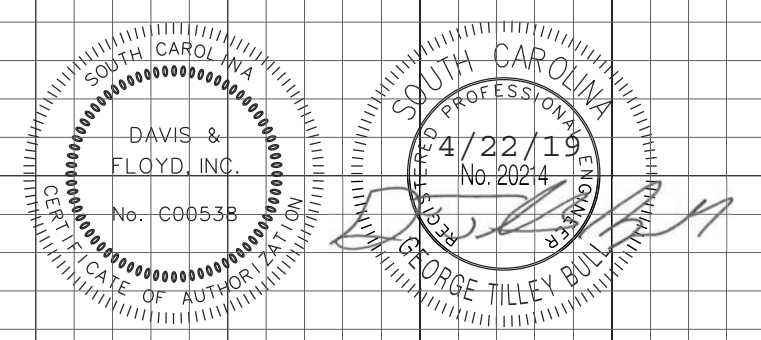
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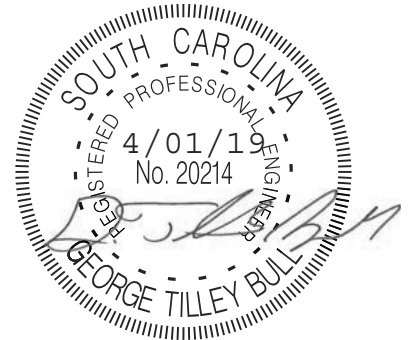
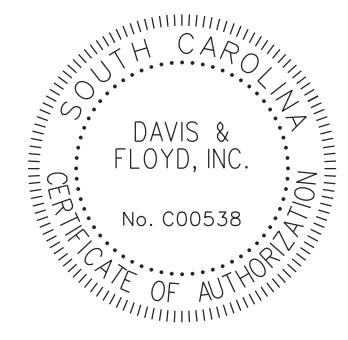


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PERMANENT SEEDING - COASTAL													
SPECIES	LBS/Ac	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SANDY, DROUGHTY SITES													
BROWNTOP MILLET	10 LBS/Ac												
BAHIAGRASS	40 LBS/Ac												
BROWNTOP MILLET	10 LBS/Ac												
BAHIAGRASS	30 LBS/Ac												
SERICEA LESPEDEZA	40 LBS/Ac												
BROWNTOP MILLET	10 LBS/Ac												
ATLANTIC COASTAL PANICGRASS	15 LBS/Ac PLS												
BROWNTOP MILLET	10 LBS/Ac												
SWITCHGRASS (ALAMO)	8 LBS/Ac PLS												
LITTLE BLUESTEM	4 LBS/Ac												
SERICEA LESPEDEZA	20 LBS/Ac												
BROWTOP MILLET	10 LBS/Ac												
WEEPING LOVEGRASS	8 LBS/Ac												
WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET	10 LBS/Ac												
BAHIAGRASS	40 LBS/Ac												
RYE, GRAIN	10 LBS/Ac												
BAHIAGRASS	40 LBS/Ac												
CLOVER, CRIMSON (ANNUAL)	5 LBS/Ac												
BROWTOP MILLET	10 LBS/Ac												
BAHIAGRASS	30 LBS/Ac												
SERICEA LESPEDEZA	40 LBS/Ac												
BROWTOP MILLET	10 LBS/Ac												
BERMUDA, COMMON	10 LBS/Ac												
SERICEA LESPEDEZA	40 LBS/Ac												
BROWNTOP MILLET	10 LBS/Ac												
BERMUDA, COMMON	12 LBS/Ac												
KOBE LESPEDEZA (ANNUAL)	10 LBS/Ac												
BROWNTOP MILLET	10 LBS/Ac												
BAHIAGRASS	20 LBS/Ac												
BERMUDA, COMMON	6 LBS/Ac												
SERICEA LESPEDEZA	40 LBS/Ac												
BROWNTOP MILLET	10 LBS/Ac												
SWITCHGRASS	8 LBS/Ac												
LITTLE BLUESTEM	PLS												
INDIANGRASS	3 LBS/Ac												
	PLS												
	3 LBS/Ac												
	PLS												
TEMPORARY SEEDING - COASTAL													
SPECIES	LBS/Ac	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SANDY, DROUGHTY SITES													
BROWNTOP MILLET	40 LBS/Ac												
RYE, GRAIN	56 LBS/Ac												
RYEGRASS	50 LBS/Ac												
WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET OR JAPANESE MILLET	40 LBS/Ac												
RYE, GRAIN OR	56 LBS/Ac												
OATS	75												
RYEGRASS	50 LBS/Ac												

NOTES:

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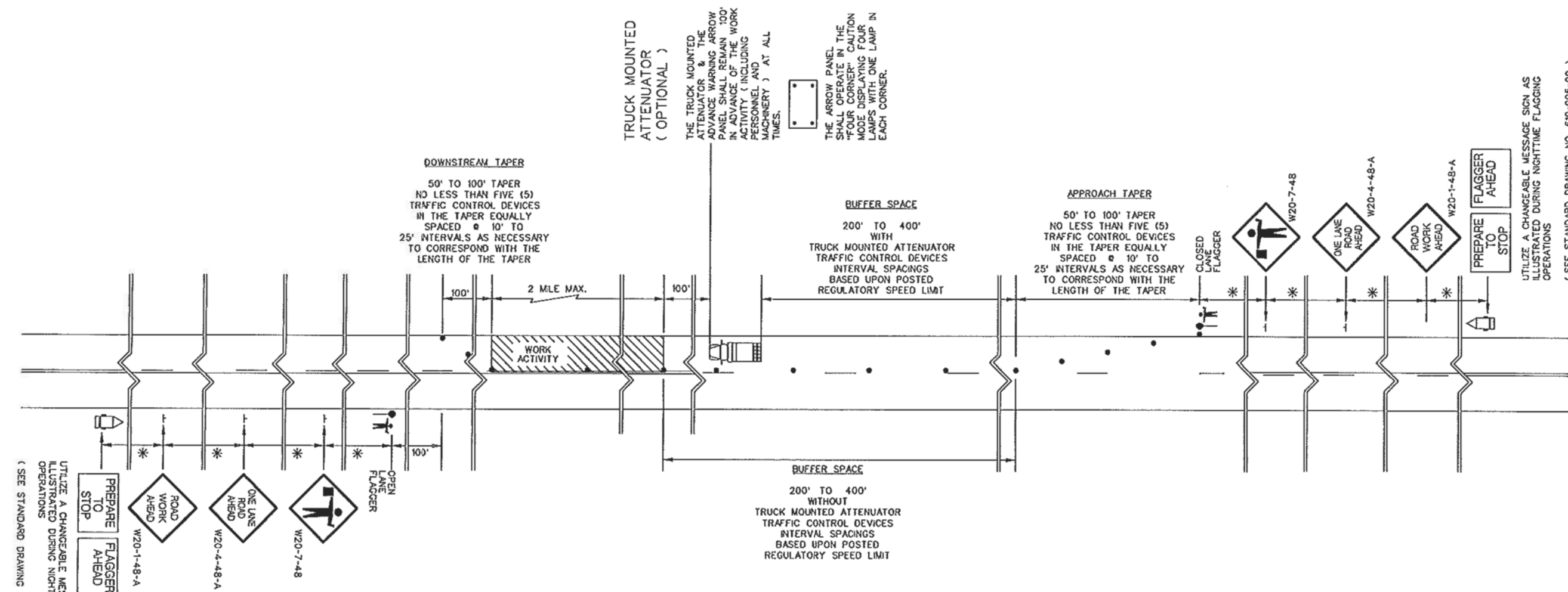
2229 W. MONTAGUE AVENUE  
COLUMBIA, SC 29918  
(843) 554-8602

GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM  
SEEDING SCHEDULE

N.T.S.

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UTILIZE A CHANGABLE MESSAGE SIGN AS SPECIFIED IN THE STANDARD DRAWINGS FOR NIGHTTIME FLAGGING OPERATIONS (SEE STANDARD DRAWING NO. 80-0505-05)

UTILIZE A CHANGABLE MESSAGE SIGN AS SPECIFIED IN THE STANDARD DRAWINGS FOR NIGHTTIME FLAGGING OPERATIONS (SEE STANDARD DRAWING NO. 80-0505-05)

### FLAGGING OPERATIONS GENERAL NOTES

( ALL NOTES, SPECIFICATIONS AND REQUIREMENTS ON THIS STANDARD DRAWING APPLY TO ALL SUBSEQUENT STANDARD DRAWINGS REGARDING FLAGGING OPERATIONS UNLESS OTHERWISE NOTED )

#### FLAGGING OPERATIONS -

##### 1. KEY FEATURES RELEVANT TO FLAGGING OPERATIONS:

- APPROACH TAPER** - THIS IS A ONE-LANE TWO-WAY TAPER PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE. THIS TAPER PRECEDES THE BUFFER SPACE AND THE WORK ACTIVITY AREA. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES EQUALLY SPACED AT 10' TO 25' INTERVALS AS NECESSARY TO CORRESPOND WITH THE LENGTH OF THE TAPER.
- DOWNSTEAM TAPER** - THIS TAPER, PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE, FOLLOWS THE WORK ACTIVITY AREA AND SERVES AS THE TERMINATION AREA FOR THE CLOSURE OF THE TRAVEL LANE. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES IN THIS TAPER.
- CLOSED LANE FLAGGER** - THIS FLAGGER IS STATIONED ADJACENT TO THE FIRST TRAFFIC CONTROL DEVICE IN THE APPROACH TAPER WHO CONTROLS THE TRAFFIC THAT REQUIRES RELOCATION FROM THE TRAVEL LANE BEING CLOSED TO TRAFFIC.
- OPEN LANE FLAGGER** - THIS FLAGGER IS STATIONED 100 FEET BEYOND THE LAST TRAFFIC CONTROL DEVICE IN THE DOWNSTEAM TAPER WHO CONTROLS THE TRAFFIC OPERATING IN THE TRAVEL LANE REMAINING OPEN TO TRAFFIC.
- WORK ACTIVITY AREA** - PERSONNEL, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. ARE PRESENT WITHIN THIS AREA TO CONDUCT THE WORK.
- LIMITS OF THE WORK ACTIVITY AREA** - THIS IS THE BOUNDARY OF THE WORK ACTIVITY AREA FIRST ENCOUNTERED, FROM EITHER DIRECTION, BY MOTORISTS PASSING BY THE WORK ACTIVITY AREA IN THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC AND CONTROLLED BY THE FLAGGERS.
- APPROACH LANE** - TRAFFIC APPROACHES AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.
- DEPARTURE LANE** - TRAFFIC DEPARTS FROM AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.
- MANLINE APPROACH** - THIS IS AN APPROACH TO THE WORK ACTIVITY AREA ON THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.
- SIDE ROADS** - THESE ROADS INTERSECT THE ROADWAY ON WHICH THE WORK ACTIVITY AREA IS LOCATED.
- LIMITS OF THE INTERSECTION** - THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION OF STOP BARS WHEN PRESENT. WHEN STOP BARS ARE ABSENT, THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION POINTS WHERE THE CORNER ROADS BETWEEN ADJACENT ROADWAY APPROACHES THE TO THE EDGE OF PAVEMENT OR THE EDGE OF TRAVEL LANE ADJACENT TO THE EDGE OF PAVEMENT OF EACH ROADWAY.

1. INSTALL, CONDUCT AND MAINTAIN TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, THE STANDARD DRAWINGS, THE WORK ACTIVITY AREA AND THE "SOUTH CAROLINA FLAGGER'S HANDBOOK" UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. INSTALL ALL SIGNS RELATIVE TO A FLAGGING OPERATION PRIOR TO INITIATION OF THE OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION. EQUIP EACH FLAGGER WITH A 24" x 24" STOP/SLOW PADDLE MOUNTED ON A RIGID HANDLE WITH A MINIMUM LENGTH OF 7 FEET. THE DEPARTMENT PROHIBITS THE USE OF FLAGS EXCEPT DURING EMERGENCY SITUATIONS.
2. LANE CLOSURES FOR FLAGGING OPERATIONS ARE RESTRICTED TO A MAXIMUM DISTANCE OF 2 MILES UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE WORK LIMITS WILL COMPLY WITH THE CONTRACT AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO BEGINNING THE WORK.
3. INSTALL AND MAINTAIN THE PROPER ARRAY OF ADVANCE WARNING SIGNS FOR EACH "MANLINE APPROACH" WHEN A FLAGGING OPERATION IS IN PLACE AND ACTIVE. WHEN NECESSARY TO RELOCATE THE "FLAGGER STATION" WHILE ACTIVELY MAINTAINING THE FLAGGING OPERATION, INSTALL AN ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS AT THE LOCATION RELATIVE TO THE NEW "FLAGGER STATION" AND REMOVE THE ORIGINAL ARRAY OF ADVANCE WARNING SIGNS IMMEDIATELY UPON COMPLETION OF THE RELOCATION OF THE FLAGGER TO THE NEW "FLAGGER STATION".
4. INSTALL ALL ADVANCE WARNING SIGNS IMMEDIATELY PRIOR TO INITIATING A FLAGGING OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION.
5. MAINTAIN TWO-WAY RADIO COMMUNICATIONS BETWEEN ALL FLAGGERS.

#### NIGHTTIME FLAGGING OPERATIONS -

1. EACH FLAGGER SHALL WEAR SAFETY APPAREL IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI/ISEA 107 STANDARD PERFORMANCE FOR CLASS 3 RISK EXPOSURE, LATEST REVISION, WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
2. ILLUMINATE EACH "FLAGGER STATION" WITH ANY COMBINATION OF PORTABLE LIGHTS, STANDARD ELECTRIC LIGHTS, EXISTING STREET LIGHTS, ETC. THAT WILL PROVIDE A MINIMUM ILLUMINATION LEVEL OF 108 LUX OR 10 FC WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
3. SUPPLEMENT EACH ARRAY OF ADVANCE WARNING SIGNS ON EACH "MANLINE APPROACH" WITH A TRAILER MOUNTED CHANGABLE MESSAGE SIGN. THESE CHANGABLE MESSAGE SIGNS ARE NOT REQUIRED ON THE "SIDE ROADS" INTERSECTING THE ROADWAY WHERE THE "WORK ACTIVITY AREA" IS LOCATED. ALSO, THESE CHANGABLE MESSAGE SIGNS ARE NOT REQUIRED DURING DAYTIME FLAGGING OPERATIONS UNLESS OTHERWISE DIRECTED BY THE STANDARD DRAWINGS. INSTALL THE CHANGABLE MESSAGE SIGNS IN ADVANCE OF THE ADVANCE WARNING SIGN ARRAYS. THE MESSAGES SHOULD BE "PREPARE TO STOP", "FLAGGER AHEAD". A TRUCK MOUNTED CHANGABLE MESSAGE SIGN IS NOT AN ACCEPTABLE ALTERNATIVE TO A TRAILER MOUNTED CHANGABLE MESSAGE SIGN DURING NIGHTTIME FLAGGING OPERATIONS.
4. UTILIZE PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES IN PLACE OF 36" STANDARD TRAFFIC CONES DURING NIGHTTIME FLAGGING OPERATIONS.

#### BUFFER SPACE -

1. THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE BASED UPON THE LEGAL POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING THE WORK.
2. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE "BUFFER SPACE" IS PROHIBITED. A TRUCK MOUNTED ATTENUATOR IS THE ONLY VEHICLE THAT MAY TEMPORARILY ENDOACH UPON THE "BUFFER SPACE" IN ACCORDANCE WITH THE CONDITIONS SPECIFIED IN THE FOLLOWING NOTE WHEN APPROVED BY THE ENGINEER. SEE NOTE NO. 3.
3. WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS, IT MAY BE NECESSARY FOR A TRUCK MOUNTED ATTENUATOR TO TEMPORARILY ENDOACH UPON THE "BUFFER SPACE" WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED ATTENUATOR IS THE ONLY VEHICLE PERMITTED TO TEMPORARILY ENDOACH UPON THE "BUFFER SPACE" AND THIS ENDOACHMENT IS ONLY PERMITTED WHEN ALL REASONABLE OPTIONS TO AVOID DOING SO HAVE BEEN EXHAUSTED. WHEN ENDOACHMENT UPON THE "BUFFER SPACE" IS APPROVED BY THE ENGINEER, MINIMIZE THE TIME DURATION OF THE ENDOACHMENT BY REMOVAL OF THE TRUCK MOUNTED ATTENUATOR FROM THE "BUFFER SPACE" AT THE FIRST OPPORTUNITY THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" BECOME AVAILABLE.

TABLE A  
SIGN PLACEMENT INTERVALS

SPEED LIMIT	*
≤ 35 MPH # LOW SPEED	200
40 - 50 MPH # INTERMEDIATE SPEED	350
55 MPH # HIGH SPEED	500
# REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK	

TABLE B  
TRAFFIC CONTROL DEVICE SPACING INTERVALS  
WORK ACTIVITY / BUFFER SPACE AREAS

SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

#### SIGNS AND TRAFFIC CONTROL DEVICES -

1. MEASURE THE ADVANCE WARNING SIGN LOCATIONS FOR EACH APPROACH FROM THE "FLAGGER STATION" LOCATED ON THAT APPROACH.
2. INSTALL THE ADVANCE WARNING SIGNS AS SPACING INTERVALS BASED UPON THE POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING ANY WORK. THE ADVANCE WARNING SIGN SPACING INTERVALS INDICATED ARE FOR NORMAL CONDITIONS. ADJUSTMENTS TO THESE DISTANCES MAY BE NECESSARY DUE TO EXISTING SIGNS, INTERSECTING ROADWAYS, HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS. SEE TABLE A.
3. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF MCHRP REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED DEPARTMENT'S WEB SITE AT: www.scdot.org" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org
7. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IN THE EVENT A DAYTIME FLAGGING OPERATION EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE II OR GREATER FLEXIBLE MICROPRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
8. DELINEATE THE TANGENT AREA OF THE LANE CLOSURE WITH THE NECESSARY TRAFFIC CONTROL DEVICES TO MINIMIZE ENDOACHMENT BY MOTORISTS INTO THE CLOSED TRAVEL LANE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 35 MPH OR LESS, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 25 FEET. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 40 MPH OR GREATER, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 50 FEET. SEE TABLE B.

#### ADVANCE WARNING ARROW PANEL -

1. DURING FLAGGING OPERATIONS, AN ADVANCE WARNING ARROW PANEL SHALL OPERATE IN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS SPECIFIC TO A FLAGGING OPERATION. OPERATION OF AN ADVANCE WARNING ARROW PANEL IN AN ARROW, CHEVRON OR ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS AS SPECIFIED HEREBEFORE IS PROHIBITED.
2. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION. THE SPECIFIC LOCATION OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS.

#### TRUCK MOUNTED ATTENUATOR -

1. A TRUCK MOUNTED ATTENUATOR IS OPTIONAL. UTILIZATION OF A TRUCK MOUNTED ATTENUATOR SHOULD BE CONSIDERED WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS. HOWEVER, A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL MAY BE UTILIZED IN PLACE OF A TRUCK MOUNTED ATTENUATOR DURING TRAFFIC CONTROL SETUPS FOR WORK ACTIVITIES SUCH AS ASPHALT CONCRETE PLACEMENT OPERATIONS WHEN APPROVED BY THE ENGINEER.
2. WHEN UTILIZING A TRUCK MOUNTED ATTENUATOR, ENSURE THE TRUCK HAS THE CORRECT GROSS VEHICULAR WEIGHT (GVW) REQUIRED FOR THE TYPE OF TRUCK MOUNTED ATTENUATOR BEING UTILIZED. A DIRECT TRUCK MOUNTED TRUCK MOUNTED ATTENUATOR, A UNIT MOUNTED AND ATTACHED TO BRACKETS OR SIMILAR DEVICES CONNECTED TO THE FRAME OF THE TRUCK, REQUIRES A TRUCK WITH A MINIMUM GVW OF 15,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. A TRAILER TOWED TRUCK MOUNTED ATTENUATOR, A TRAILER TYPE UNIT TOWED FROM BEHIND AND ATTACHED TO THE FRAME OF THE TRUCK VIA A PINLE HOOK / BITCH, REQUIRES A TRUCK WITH A MINIMUM GVW OF 10,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR (4) SIDES AND A BOTTOM. A TRUCK MOUNTED ATTENUATOR SHALL BE ATTACHED TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE IN ITS ENTIRETY AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
3. LOCATE THE TRUCK MOUNTED ATTENUATOR APPROXIMATELY 100 FEET IN ADVANCE OF THE "WORK ACTIVITY AREA" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

#### GENERAL -

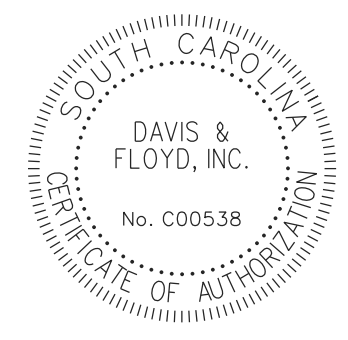
1. CONDUCT THE WORK IN SUCH A MANNER SO AS NOT TO ENDOACH ONTO THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
2. IF WORK IS BEING CONDUCTED AT TWO DIFFERENT LOCATIONS AT THE SAME TIME, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 2 MILES FROM THE LAST TRAFFIC CONTROL DEVICE IN THE "DOWNSTEAM TAPER" OF THE FIRST LANE CLOSURE TO THE FIRST TRAFFIC CONTROL DEVICE IN THE "APPROACH TAPER" OF THE SECOND LANE CLOSURE ENCOUNTERED BY A MOTORIST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.

TABLE A  
SIGN PLACEMENT INTERVALS

SPEED LIMIT	*
≤ 35 MPH # LOW SPEED	200
40 - 50 MPH # INTERMEDIATE SPEED	350
55 MPH # HIGH SPEED	500
# REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK	

TABLE B  
TRAFFIC CONTROL DEVICE SPACING INTERVALS  
WORK ACTIVITY / BUFFER SPACE AREAS

SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET



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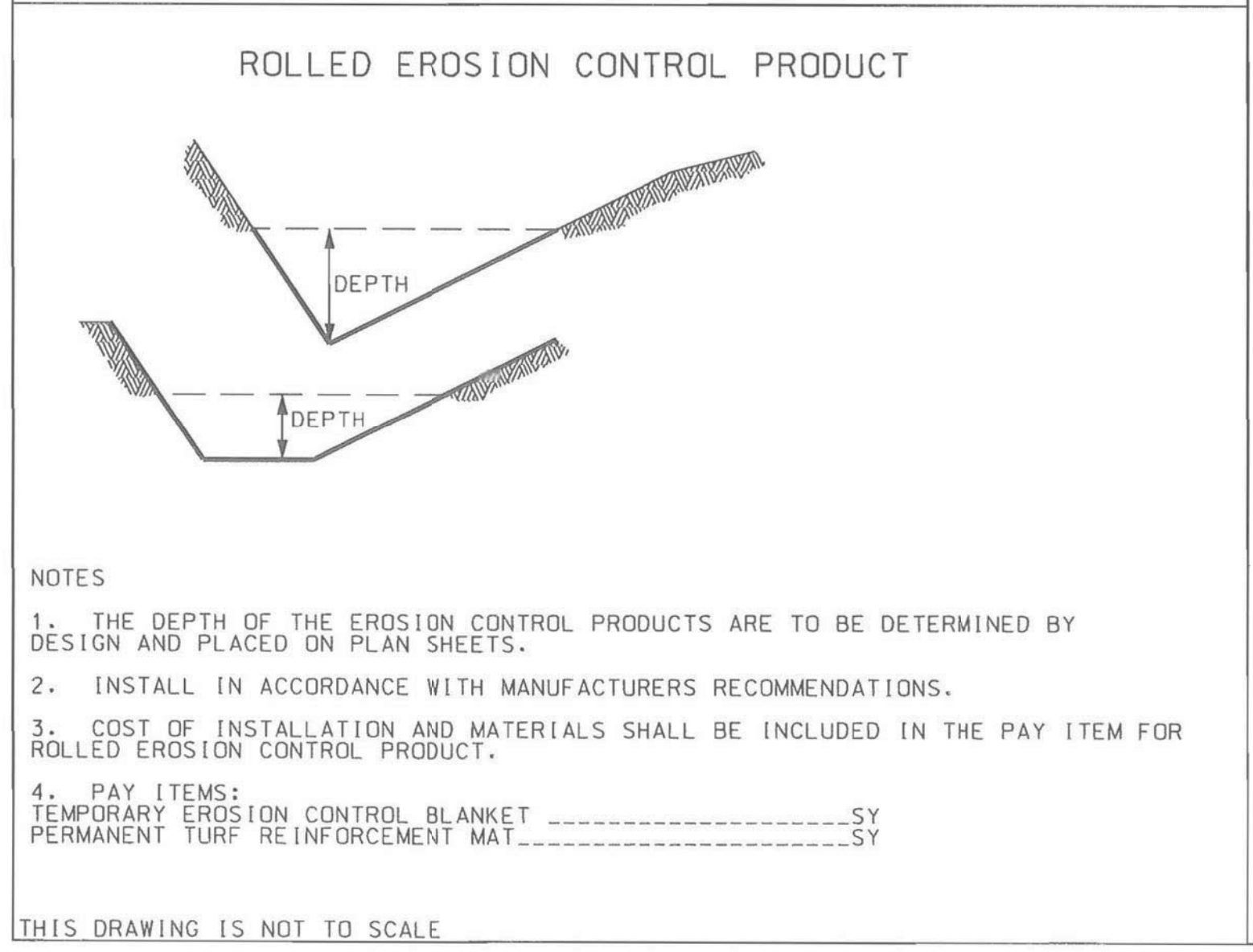
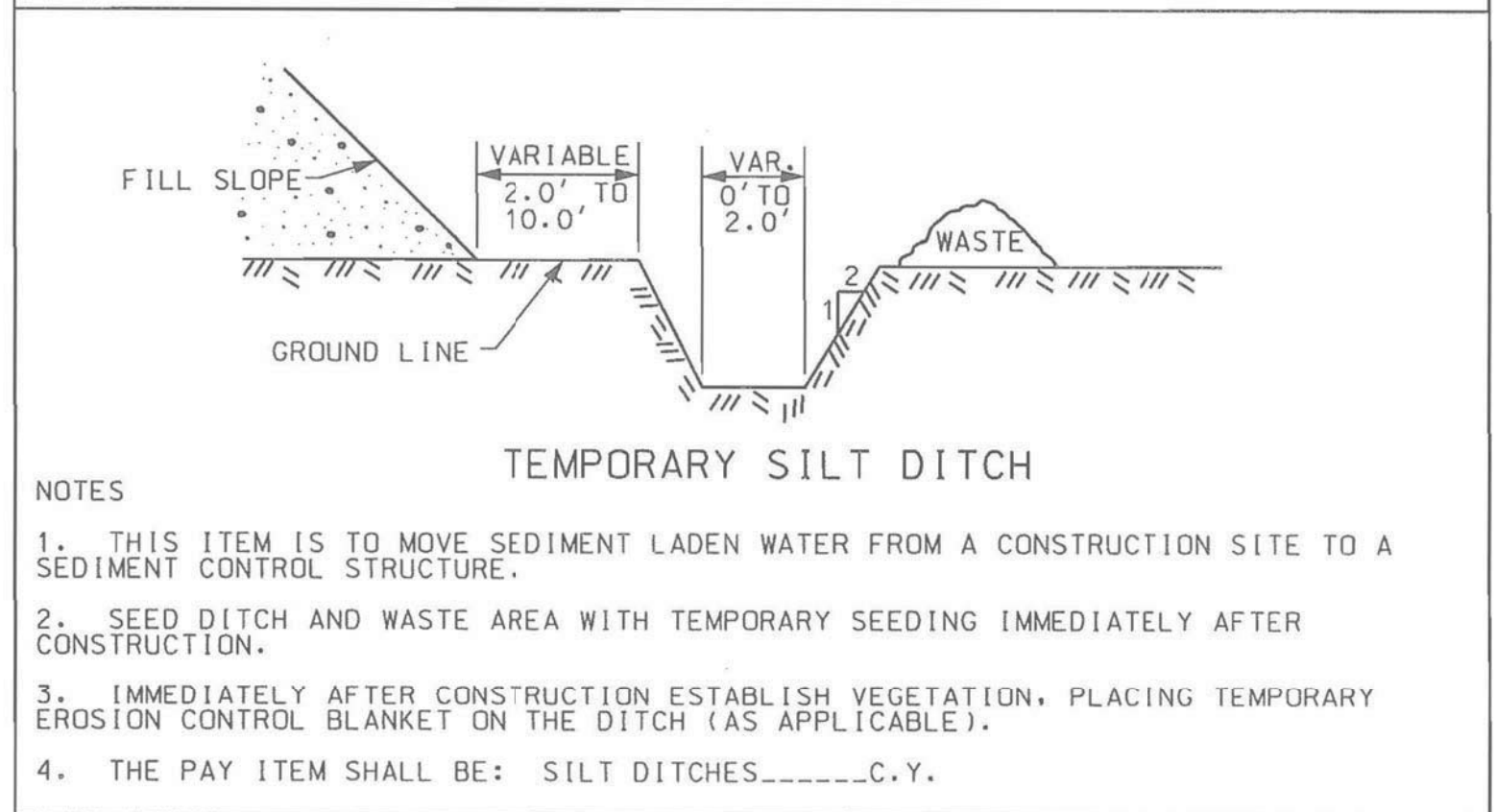
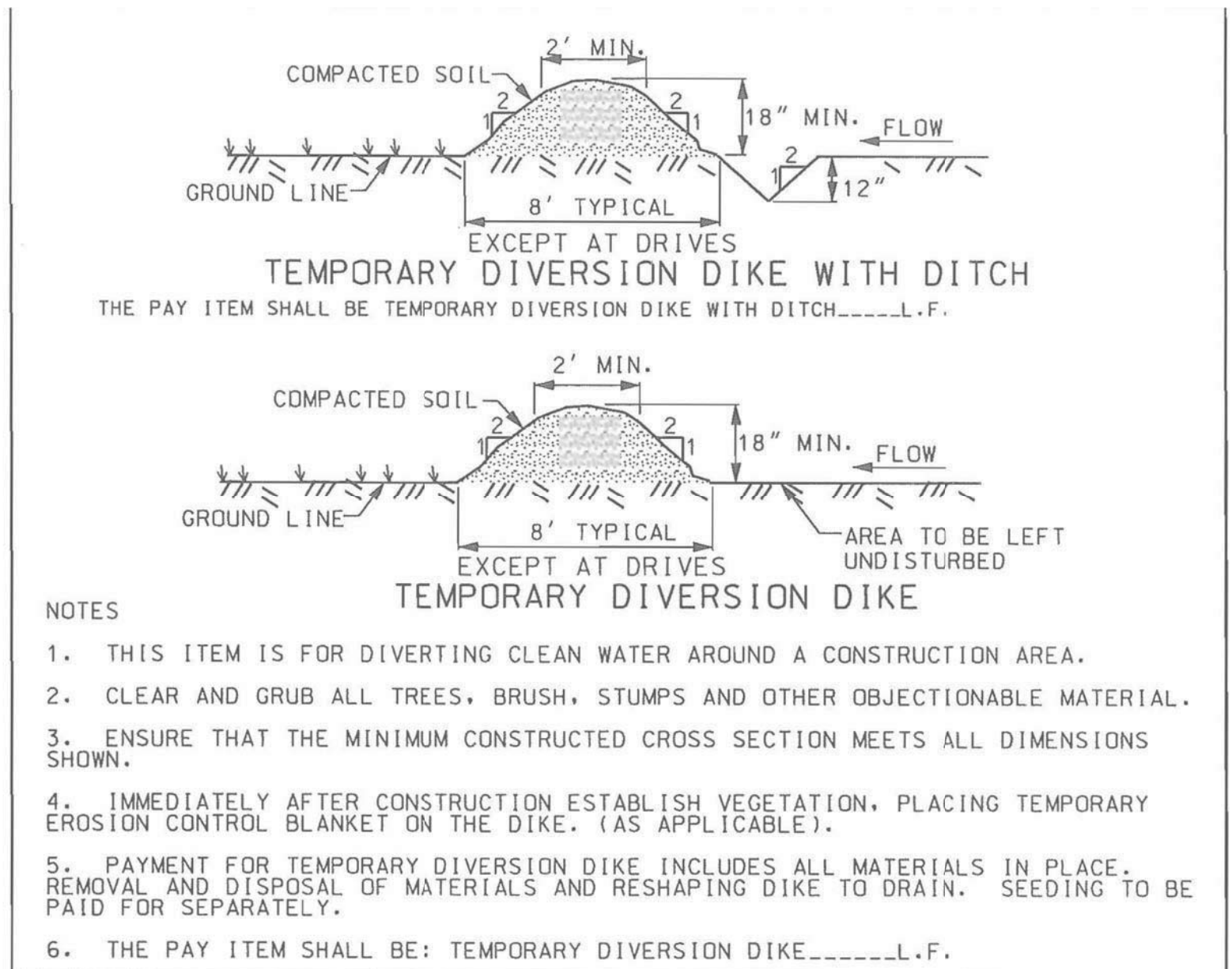
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GEORGETOWN COUNTY  
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LANE CLOSURE

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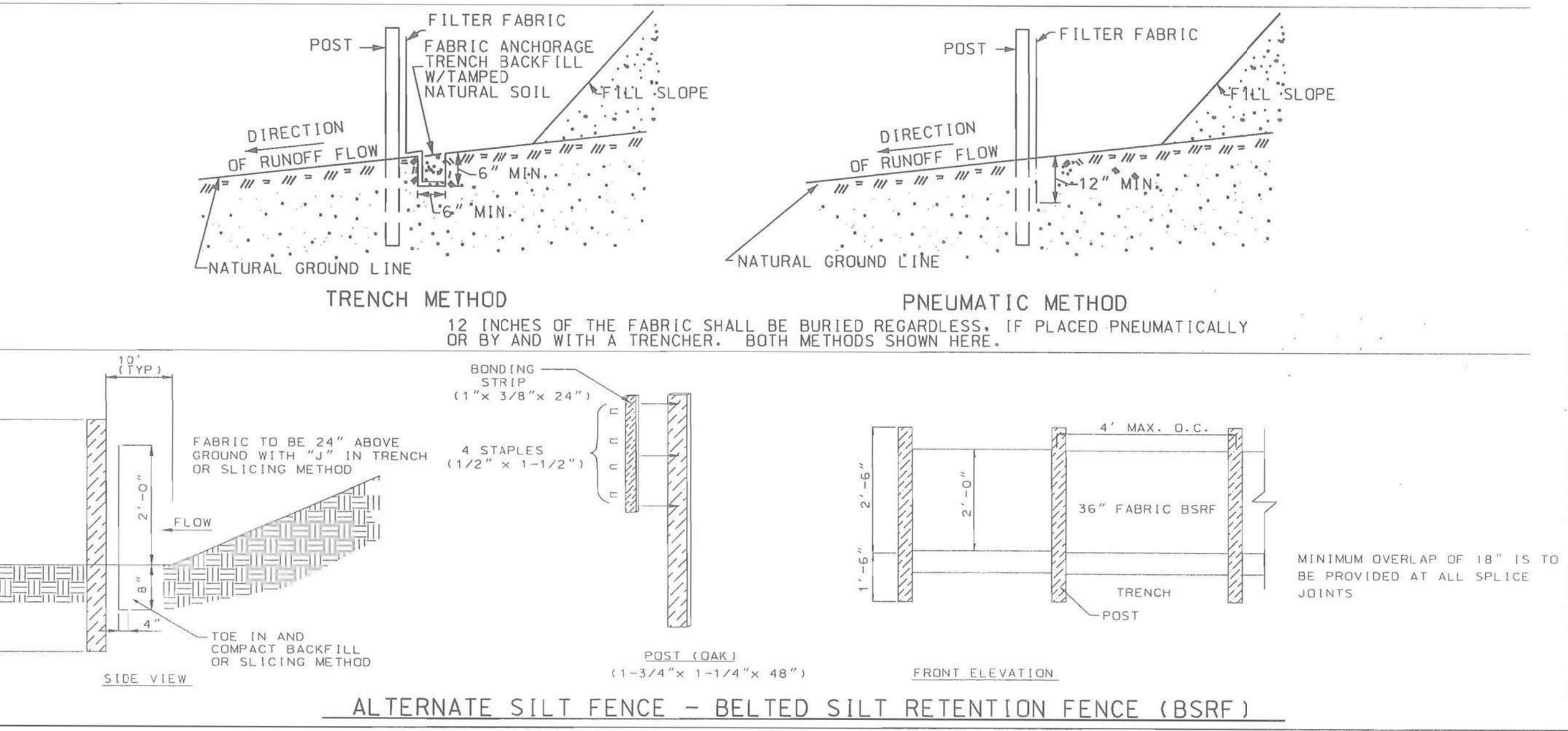
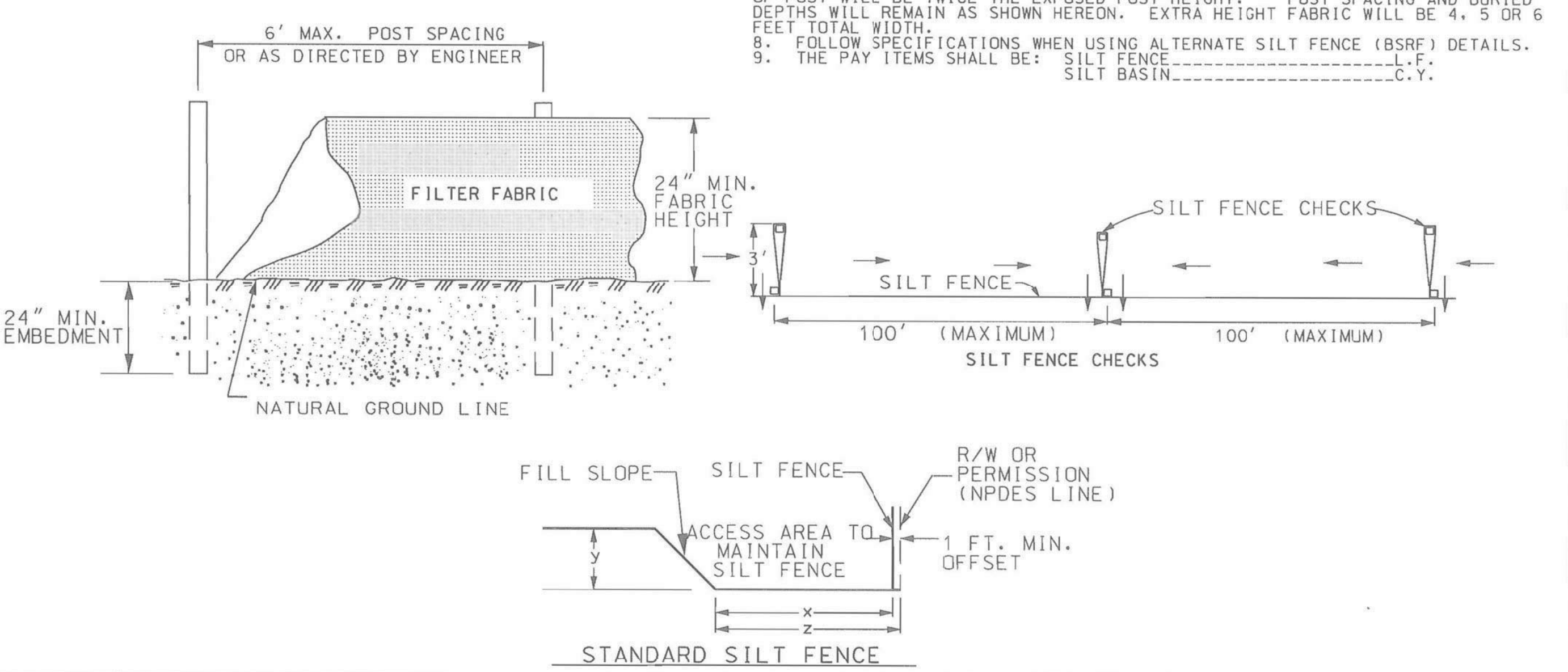


**SILT FENCE**

HEIGHT OF FILL (y) IN FEET	FILL SLOPE	MINIMUM SILT FENCE OFFSET FROM TOE OF SLOPE (x) IN FEET	MINIMUM RIGHT OF WAY OFFSET FROM TOE OF SLOPE (NPDES LINE) (z) IN FEET	CHECK LENGTH IN FEET**
<6	2:1	2	3	2
	4:1 6:1			
6-10	2:1	12*	13*	5
	4:1 6:1	3	4	3
>10	2:1	12*	13*	5
	4:1 6:1	4	5	4

\*THESE MINIMUM OFFSETS MAY BE REDUCED WHEN CURB AND GUTTER OR SOME OTHER FEATURE REDUCES THE FLOW OF WATER DOWN THE SLOPE. THE SMALL OFFSETS OF EACH GROUP OF HEIGHT OF FILL CANNOT BE REDUCED.  
\*\*SILT FENCE CHECKS WILL HAVE A MAXIMUM LENGTH OF FIVE (5) FEET OR UNTIL THEY TIE BACK INTO THE SLOPE.

- NOTES**
- SILT FENCE CHECKS MUST BE LOCATED EVERY 100 FT. MAXIMUM AND AT LOW POINTS. FILTER FABRICS SHALL CONFORM TO SCODOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).
  - USE POSTS CONFORMING TO SCODOT STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS. POSTS SHALL BE A MINIMUM OF 8 FEET LONG AND INSTALLED TO A MINIMUM DEPTH OF 24 INCHES WITH NO MORE THAN 3 FEET OF THE POST ABOVE GROUND. AT LEAST 1 TO 2 INCHES OF THE POSTS SHALL EXTEND ABOVE THE TOP OF THE FABRIC. POST SPACING WILL BE A MAXIMUM OF 6 FEET ON CENTER.
  - POSTS SHALL HAVE PROJECTIONS FOR FASTENING THE FABRIC TO THE POST. POSTS SHALL ALSO HAVE A SOIL PLATE NEAR THE BOTTOM OF THE POST, EXCEPT WHEN HEAVY CLAY SOILS ARE PRESENT ON-SITE.
  - ATTACH FABRIC TO POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED AND PLACED IN A MANNER TO PREVENT SAGGING OR TEARING OF THE FABRIC. IN ALL CASES, TIES SHOULD BE AFFIXED IN NO LESS THAN 4 PLACES.
  - SILT SHALL BE REMOVED AND DISPOSED OF WHEN SILT ACCUMULATES TO 1/3 THE HEIGHT OF THE FENCE. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. MAINTENANCE OF SILT FENCE WILL BE MEASURED AND PAID FOR BY THE ITEM OF SILT BASIN.
  - TYPICAL SILT FENCE APPLICATIONS REQUIRE 24 INCHES OF THE FABRIC TO BE ABOVE GROUND. WHEN NEEDED, THE HEIGHT OF SILT FENCE FABRIC ABOVE THE GROUND MAY BE GREATER THAN 24". SEE PLANS FOR APPLICATION OF HIGHER SILT FENCE. PAY ITEMS AND INSTALLATION METHODS.
  - IN TIDAL AREAS, EXTRA SILT FENCE HEIGHT MAY BE REQUIRED. THE LENGTH OF POST WILL BE TWICE THE EXPOSED POST HEIGHT. POST SPACING AND BURIED DEPTHS WILL REMAIN AS SHOWN HEREON. EXTRA HEIGHT FABRIC WILL BE 4, 5 OR 6 FEET TOTAL WIDTH.
  - FOLLOW SPECIFICATIONS WHEN USING ALTERNATE SILT FENCE (BSRF) DETAILS.
  - THE PAY ITEMS SHALL BE: SILT FENCE-----L.F.  
SILT BASIN-----C.Y.



- NOTES:**
- ANY REFERENCES TO PAYMENT IS SUPERCEDED BY PROJECT SPECIFICATIONS IN THE CONTRACT.
  - FIELD ADJUSTMENTS TO IMPLEMENT DETAILS MAY BE REQUIRED AND CAN BE APPROVED BY THE COUNTY RESIDENT CONSTRUCTION MANAGER OR THE PROJECT ENGINEER.

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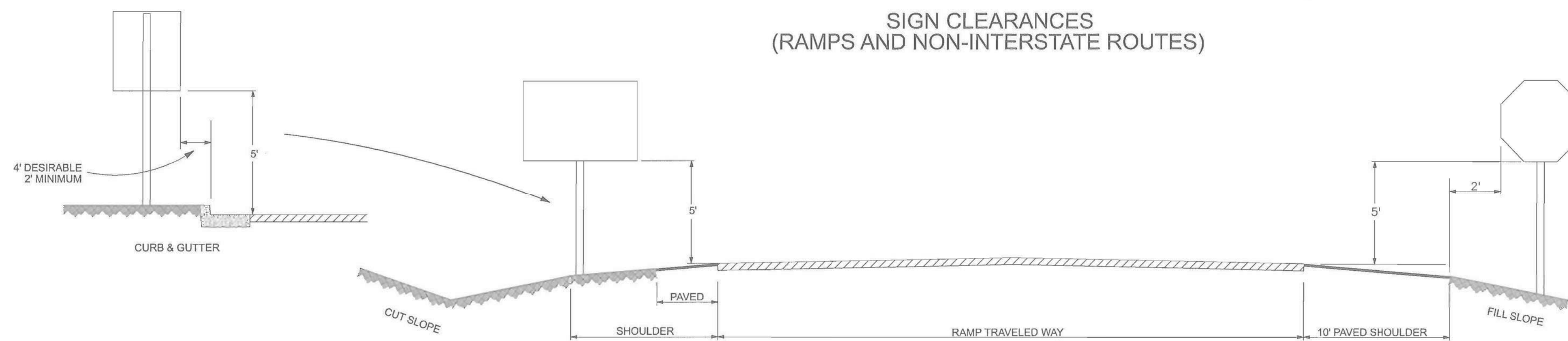
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N.T.S.

# TYPICAL INSTALLATION GUIDE (2)

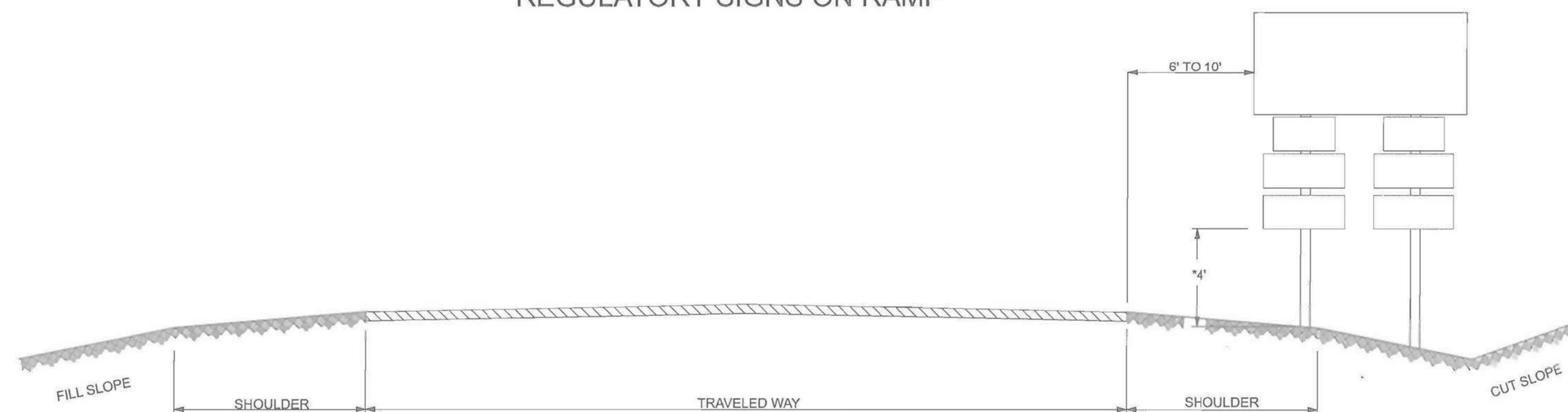
## SIGN CLEARANCES (RAMPS AND NON-INTERSTATE ROUTES)



- NOTES:
- 1) ANY REFERENCES TO PAYMENT IS SUPERCEDED BY PROJECT SPECIFICATIONS IN THE CONTRACT.
  - 2) FIELD ADJUSTMENTS TO IMPLEMENT DETAILS MAY BE REQUIRED AND CAN BE APPROVED BY THE COUNTY RESIDENT CONSTRUCTION MANAGER OR THE PROJECT ENGINEER.

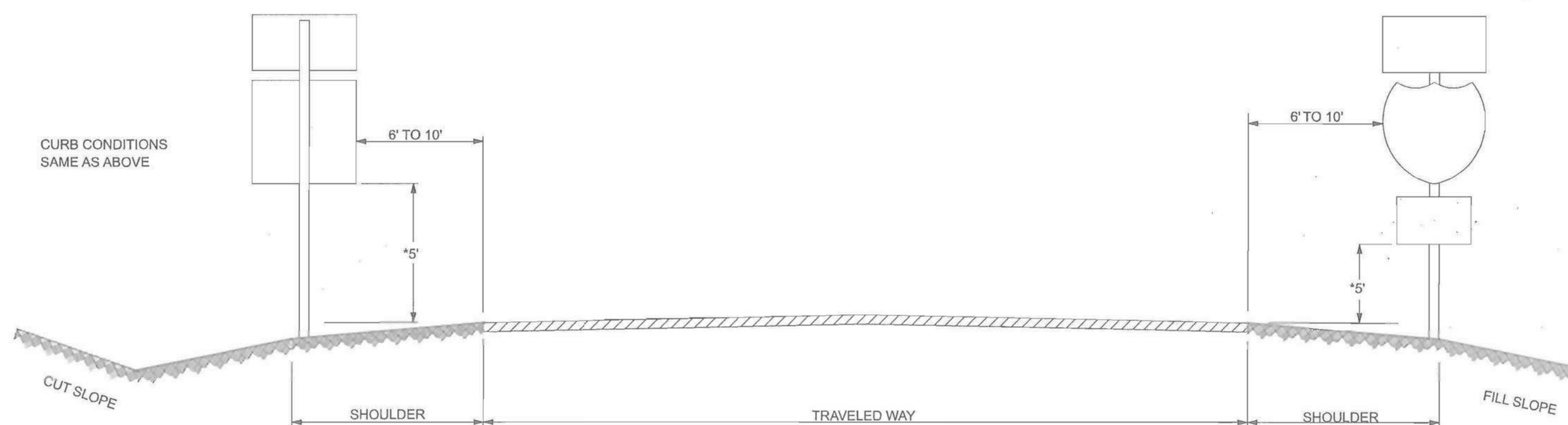
### REGULATORY SIGNS ON RAMP

× (1) USE 4' VERTICAL CLEARANCE WHERE A PLATE (EITHER SUPPLEMENTARY, DISTANCE, ADVISORY SPEED, ETC.) IS USED UNDER A SIGN.

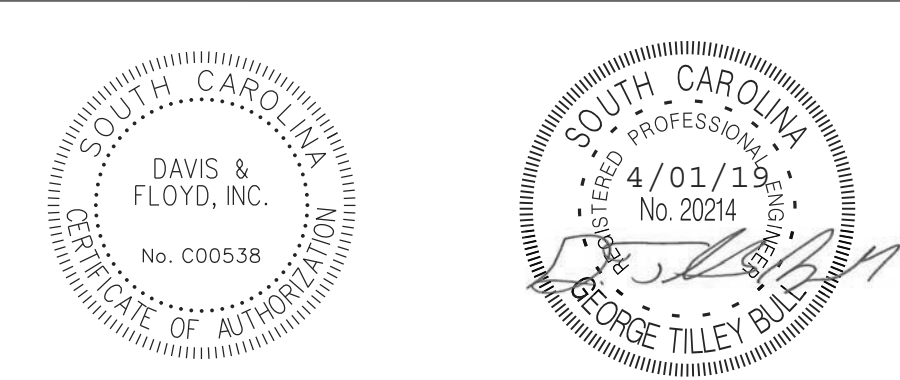


### DESTINATION SIGNS ON RAMPS

× (1) USE 7' VERTICAL CLEARANCE WHERE PARKING OR PEDESTRIAN TRAFFIC IS PREVALENT.  
 (2) USE 4' VERTICAL CLEARANCE WHERE A PLATE (EITHER SUPPLEMENTARY, DISTANCE, ADVISORY SPEED, ETC.) IS USED UNDER A SIGN.



### CROSS ROADS AND FRONTAGE ROADS



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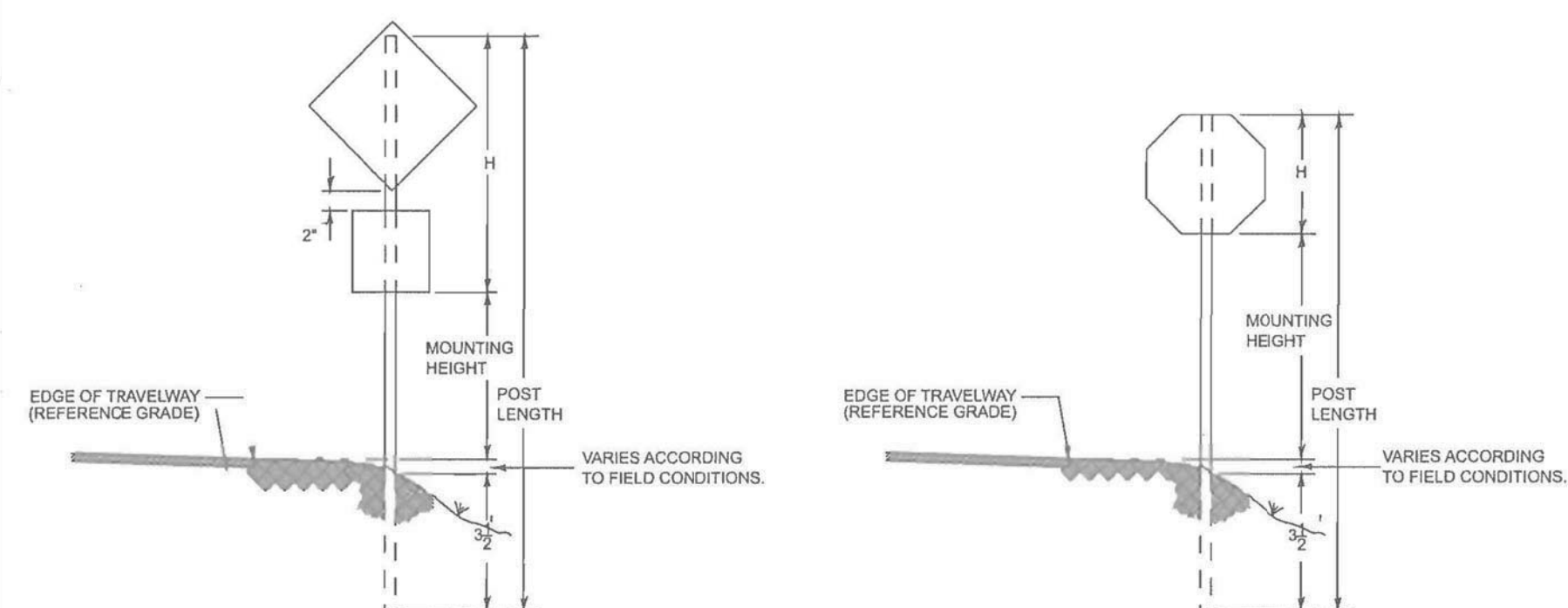
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 GREENVILLE, SC 29615  
 (864) 254-8602

GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM

SIGN INSTALLATION DETAIL

N.T.S.

# FLAT SHEET SIGN MOUNTING DETAILS



SIGNS MOUNTED ON FREEWAY RAMP  
AND CONVENTIONAL ROADS

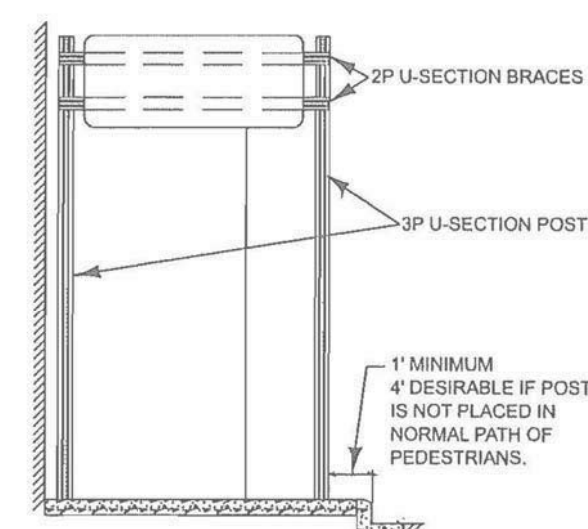
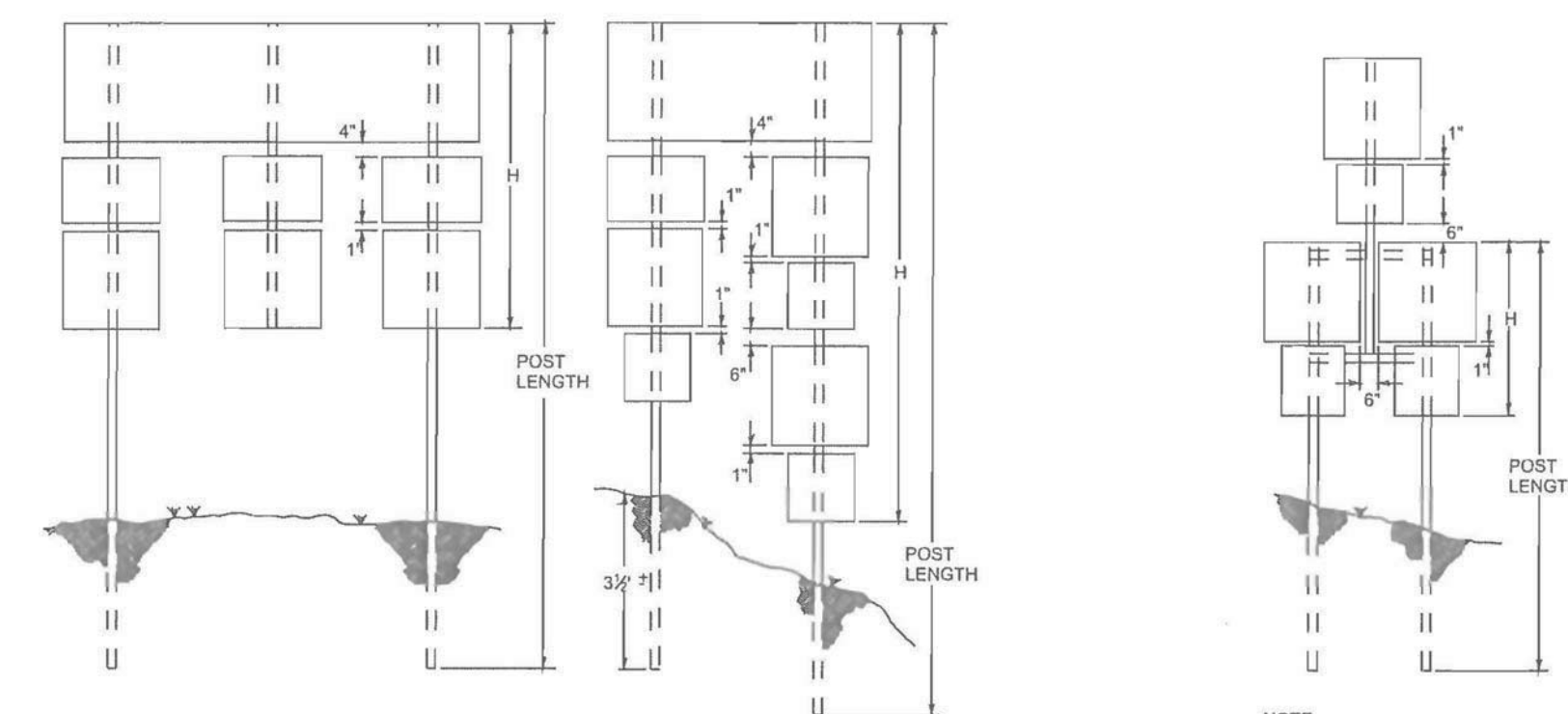


ILLUSTRATION OF SIGN ASSEMBLY  
SPANNING SIDEWALK

NOTE:  
THE PURPOSE OF SPANNING THE SIDEWALK IS TO PROVIDE AN UNOBSTRUCTED WAY FOR PEDESTRIANS, AND AT THE SAME TIME LOCATE SIGNS WITHIN RIGHT-OF-WAY, WITH GOOD VISIBILITY FOR TRAFFIC. EACH INSTALLATION MUST BE INDIVIDUALLY PLANNED AND CONSTRUCTED TO ACCOMPLISH THIS PURPOSE. THE PROJECT ENGINEER SHOULD APPROVE THE CONTRACTOR'S PLAN FOR SUPPORTING SIGNS SPANNING SIDEWALKS BEFORE THEY ARE ERECTED.

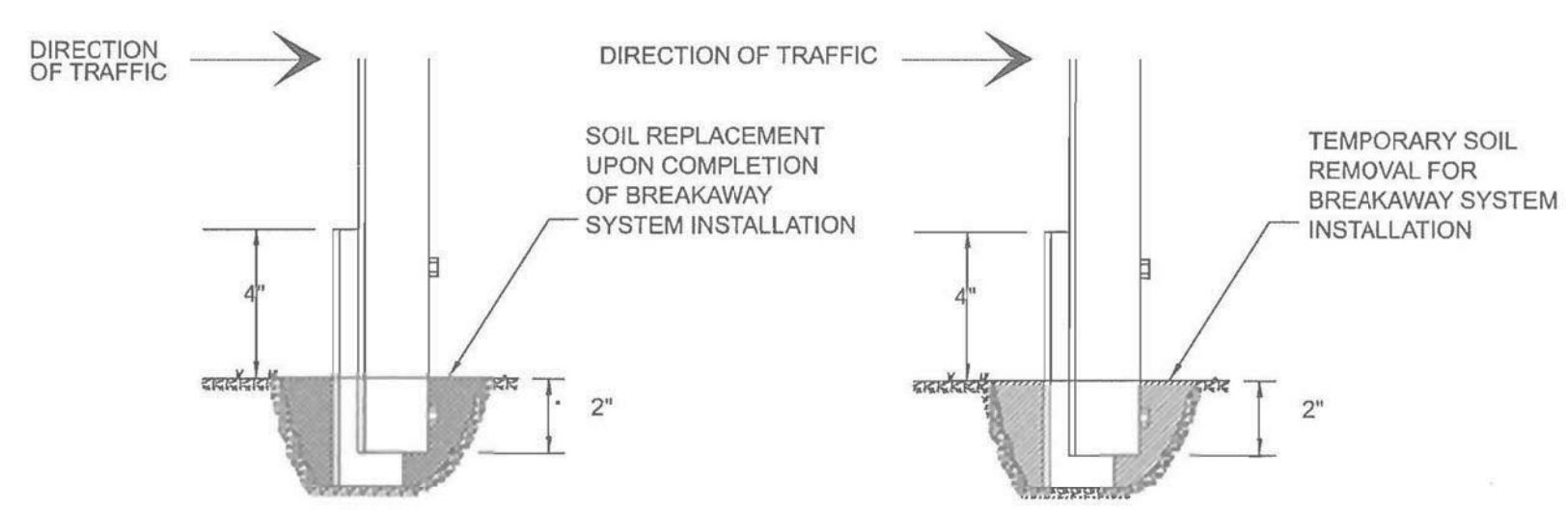


THIS TABLE GIVES APPROXIMATE POST LENGTH FOR NORMAL CONDITIONS. WHEN CUT OR FULL SECTIONS ARE SIGNIFICANT, POST LENGTH SHALL BE ADJUSTED ACCORDINGLY.

WHEN H IS LESS THAN 2'	2' TO 2'-11"	3' TO 3'-11"	4' TO 4'-11"	5' AND LONGER
POST LENGTH (FT.) FOR 5' MOUNTING HGT.	12'	13'	14'	H PLUS 10'

NOTE: ADD 2' TO POST LENGTH FOR 7' MOUNTING HEIGHT.

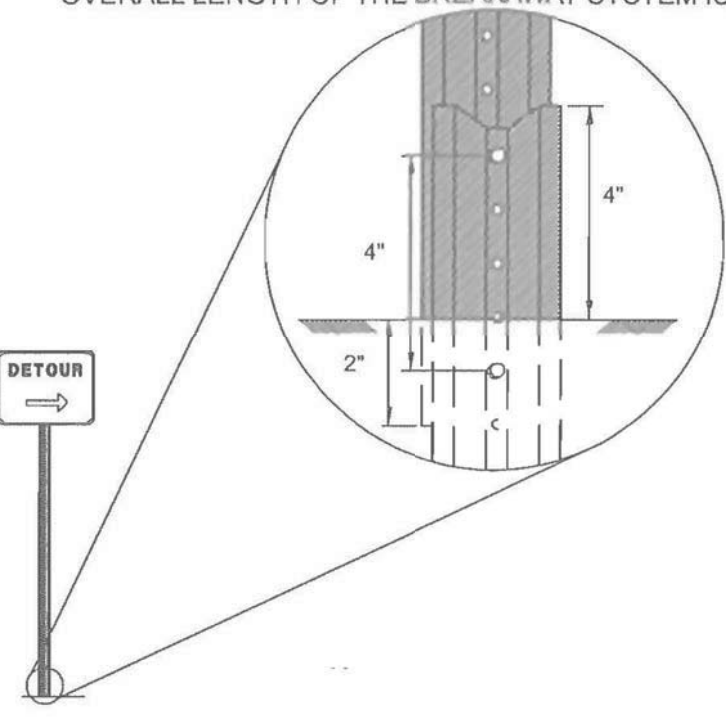
NOTE: POST LENGTHS NOT SHOWN ON THIS SHEET ARE SHOWN ON THE PLAN SHEETS.



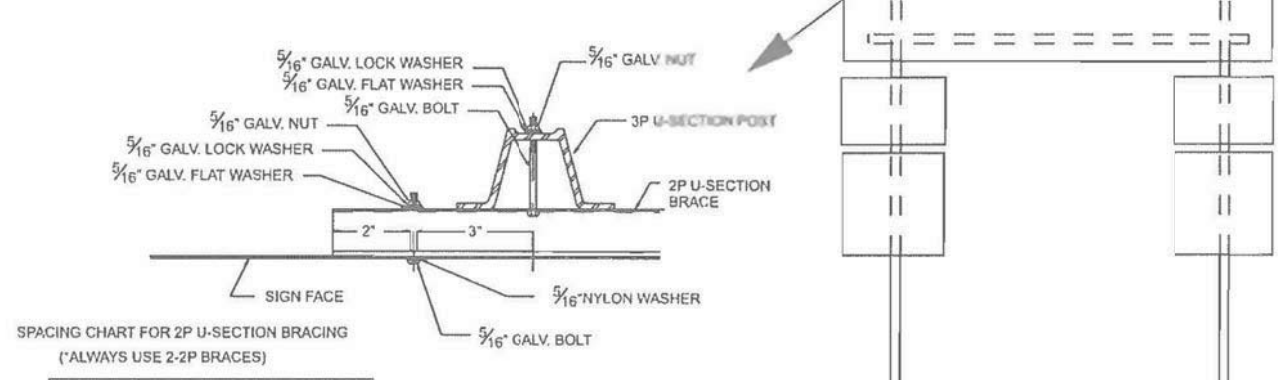
DRIVE THE GROUND SUPPORT (STUB) APPROXIMATELY 30" TO 36" INTO THE GROUND AS SPECIFIED BY THE MANUFACTURER OF THE BREAKAWAY SYSTEM SO THAT NO MORE THAN 4" OF THE GROUND SUPPORT (STUB) EXTENDS ABOVE THE GROUND. REMOVE ENOUGH SOIL FROM AROUND THE GROUND SUPPORT (STUB) TO PERMIT ACCESS TO THE HOLES FOR THE INSERTION AND TIGHTENING OF THE LOWER BOLT OF THE BREAKAWAY SYSTEM. UPON COMPLETING THE INSTALLATION OF THE BREAKAWAY SYSTEM, REPLACE THE SOIL AND TAMP.

LAP SPlice FOR U-SECTION POSTS

BOLTS MUST BE 4" APART. THE GROUND SUPPORT (STUB) SHALL NOT EXTEND HIGHER THAN 4" ABOVE THE GROUND. ATTACH THE SIGN SUPPORT TO THE BACK OF THE GROUND SUPPORT (STUB) WITH THE APPROPRIATE HARDWARE PROVIDED BY THE MANUFACTURER OF THE BREAKAWAY SYSTEM. OVERALL LENGTH OF THE BREAKAWAY SYSTEM IS 6".



### 'D' SIGN BRACING



SPACING CHART FOR 2P U-SECTION BRACING (ALWAYS USE 2-2P BRACES)

SIGN WIDTH	BRACE LENGTH
72"	56"
78"	60"
84"	64"
90"	68"
96"	72"
102"	76"
108"	80"
114"	84"
120"	88"
126"	92"
132"	96"
138"	100"
144"	104"
150"	108"
156"	112"

1.) ALL "D" TYPE SIGNS ARE TO BE SUPPORTED BY 2 VERTICAL U-SECTION POSTS. ALL "D" TYPE SIGNS WHICH ARE 8' WIDE OR WIDER WILL BE HORIZONTALLY BRACED WITH 2, 2P U-SECTION POSTS. ADDITIONALLY, ANY ASSEMBLY OF SIGNS ATTACHED BETWEEN VERTICAL SUPPORTS WILL BE ATTACHED WITH A PRESCRIBED LENGTH OF U-SECTION POST.

2.) ALL 2P POSTS USED AS CENTER VERTICAL MEMBERS IN SIGN ASSEMBLIES SHALL HAVE HOLES ON 1" CENTERS FOR ENTIRE LENGTH.

### SIZE & LENGTH OF U-SECTION POSTS FOR SINGLE SIGNS

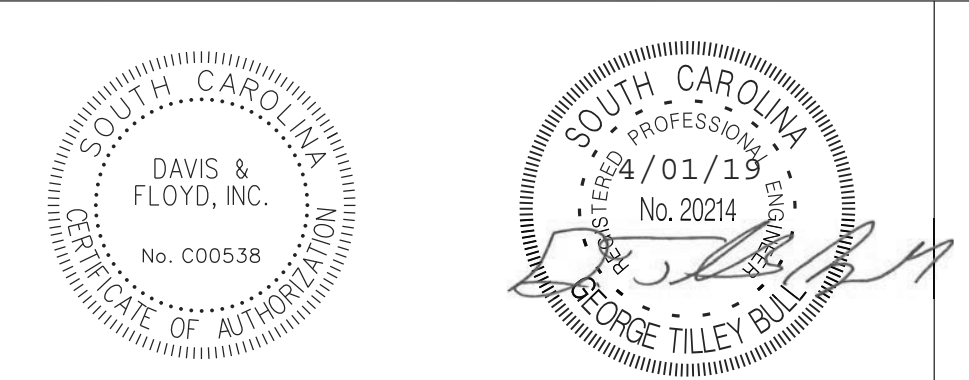
POST QUANTITY, SIZE & LENGTH FOR INSTALLATIONS HAVING MORE THAN ONE SIGN ARE SHOWN ON THE PLANS.

SIGN NO.	NO. OF POSTS	POST SIZES				SIGN NO.	NO. OF POSTS	POST SIZES				SIGN NO.	NO. OF POSTS	POST SIZES				SIGN NO.	NO. OF POSTS	POST SIZES			
		5' MTG. HT. LBS./FT.	7' MTG. HT. LBS./FT.	5' MTG. HT. LBS./FT.	7' MTG. HT. LBS./FT.			5' MTG. HT. LBS./FT.	7' MTG. HT. LBS./FT.	5' MTG. HT. LBS./FT.	7' MTG. HT. LBS./FT.			5' MTG. HT. LBS./FT.	7' MTG. HT. LBS./FT.	5' MTG. HT. LBS./FT.	7' MTG. HT. LBS./FT.			5' MTG. HT. LBS./FT.	7' MTG. HT. LBS./FT.		
R1-1-24	1	3P	12	3P	14	R11-1-24	1	3P	12	3P	14	W2-1-24	1	3P	12	3P	14	THE FOLLOWING TO BE MOUNTED AT 4' HT.					
R1-1-30	1	3P	12	3P	14	R11-1-36	2	3P	14	3P	16	W2-1-36	1	3P	13	3P	15	D10-1-12-XX	1	2P	10		
R1-1-48	2	3P	14	3P	16	R11-1-48	2	3P	12	3P	14	W2-1-36	1	3P	14	3P	16	D10-2-12-XX	1	2P	11		
R1-2-36	1	3P	12	3P	14	R11-2-36	2	3P	12	3P	14	W2-2-24	1	3P	12	3P	14	D10-3-12-XX	1	2P	12		
R1-2-48	2	3P	13	3P	15	R11-2-48	2	3P	12	3P	14	W2-2-36	1	3P	13	3P	15	THE FOLLOWING TO BE MOUNTED AT 6' HT.					
R2-1-24	1	3P	12	3P	14	R11-3-30	1	3P	12	3P	14	W3-1-36	1	3P	14	3P	16	R1-2-60	2	3P			
R2-2-24	1	3P	12	3P	14	R18-1-30	1	3P	13	3P	15	W3-2-36	1	3P	14	3P	16	R4-3-48	2	3P			
R2-2-48	2	3P	15	3P	17							W5-1-36	1	3P	14	3P	16	R4-4-48	2	3P			
R2-2-24	1	3P	12	3P	14							W5-1-36	1	3P	14	3P	16	R11-1-48	2	3P			
R4-1-24	1	3P	12	3P	14							W5-2-36	1	3P	14	3P	16	W13-2-48	2	3P			
R4-2-24	1	3P	12	3P	14	W1-1-30	1	3P	13	3P	15	W5-3-36	1	3P	13	3P	15						
R4-3-24	1	3P	12	3P	14	W1-1-36	1	3P	14	3P	14	W11-1-24	1	3P	12	3P	14						
R4-3-36	2	3P	14	3P	16	W1-2-30	1	3P	13	3P	15	W11-1-30	1	3P	13	3P	15						
R4-4-42	2	3P	14	3P	16	W1-2-36	1	3P	14	3P	16	W6-4-48	2	3P	14	3P	16						
R5-1-30	1	3P	12	3P	14	W1-3-30	1	3P	13	3P	15	W10-1-36	1	3P	13	3P	15						
R5-1-36	2	3P	13	3P	15	W1-3-36	1	3P	14	3P	16												
R5-1a-36	2	3P	12	3P	14	W1-4-30	1	3P	13	3P	15												
R5-1b-30	1	3P	13	3P	14	W1-4-36	1	3P	14	3P	16												
R6-1-36	1	3P	10	3P	12	W1-8-30	1	3P	13	3P	15												
R8-4-36	2	3P	12	3P	14	W1-6-48	2	3P	12	3P	14												
R8-4-42	2	3P	12	3P	14	W1-7-48	2	3P	12	3P	14												

DELIMITER POSTS SHALL BE 2P U-SECTION POSTS 7'2" LONG.

NOTE:  
POST LENGTHS SHOWN IN THIS CHART ARE GENERAL AND SHOULD BE USED FOR BID PURPOSES ONLY. CONTRACTOR IS REQUIRED TO VERIFY FIELD CONDITIONS TO DETERMINE EXACT LENGTHS OF POSTS NEEDED.

NOTES:  
1) ANY REFERENCES TO PAYMENT IS SUPERCEDED BY PROJECT SPECIFICATIONS IN THE CONTRACT.  
2) FIELD ADJUSTMENTS TO IMPLEMENT DETAILS MAY BE REQUIRED AND CAN BE APPROVED BY THE COUNTY RESIDENT CONSTRUCTION MANAGER OR THE PROJECT ENGINEER.



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SIGN MOUNTING DETAIL  
N.T.S.

- NOTES:
1. GEOTEXTILE FABRIC TO BE USED UNDER RIPRAP WHEN INCLUDED IN THE PLANS
  2. ALTERNATE PIPE END TREATMENTS ARE ALSO AVAILABLE. SEE STANDARD DRAWING SECTION 719-600-00.
  3. PAY ITEMS:  
 8041xxx RIP-RAP (CLASS   ) -  
 8048xxx GEOTEXTILE FOR EROSION CONTROL UNDER RIPRAP (CLASS   ) TYPE    SY

- NOTES:
- 1) ANY REFERENCES TO PAYMENT IS SUPERCEDED BY PROJECT SPECIFICATIONS IN THE CONTRACT.
  - 2) FIELD ADJUSTMENTS TO IMPLEMENT DETAILS MAY BE REQUIRED AND CAN BE APPROVED BY THE COUNTY RESIDENT CONSTRUCTION MANAGER OR THE PROJECT ENGINEER.

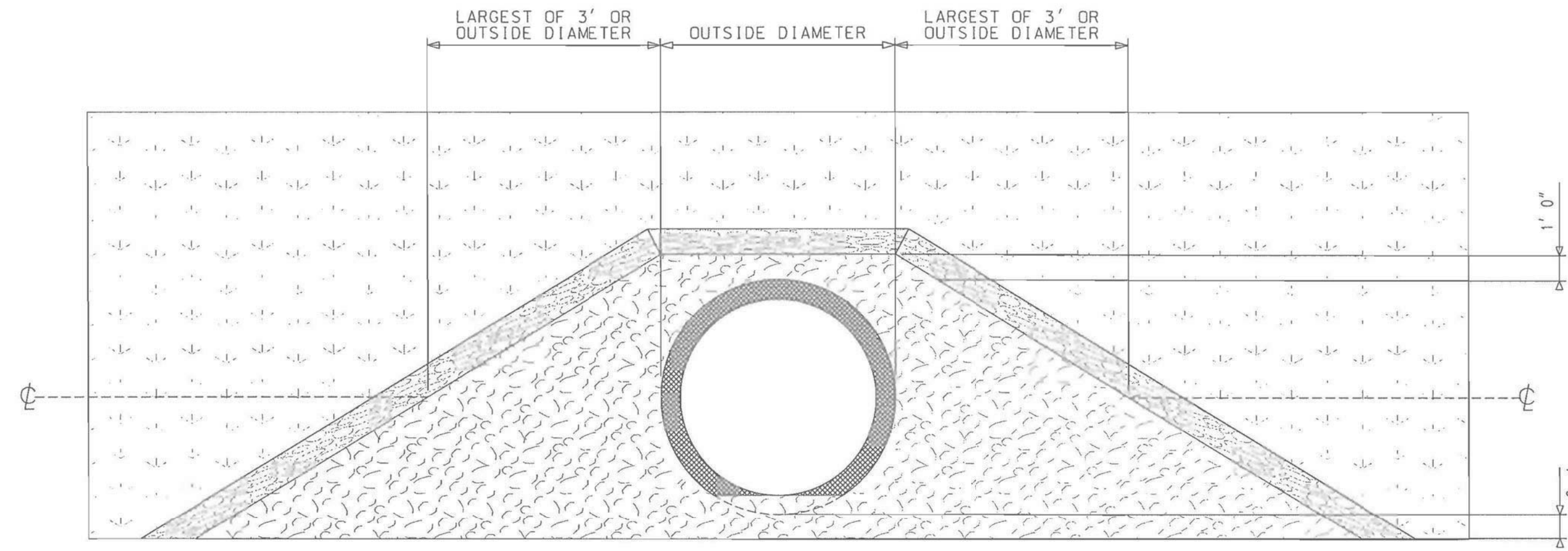
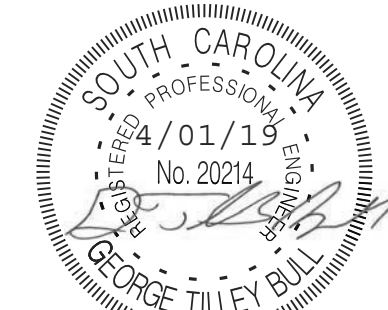
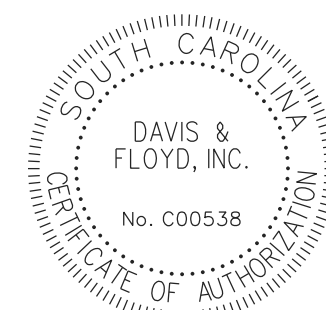
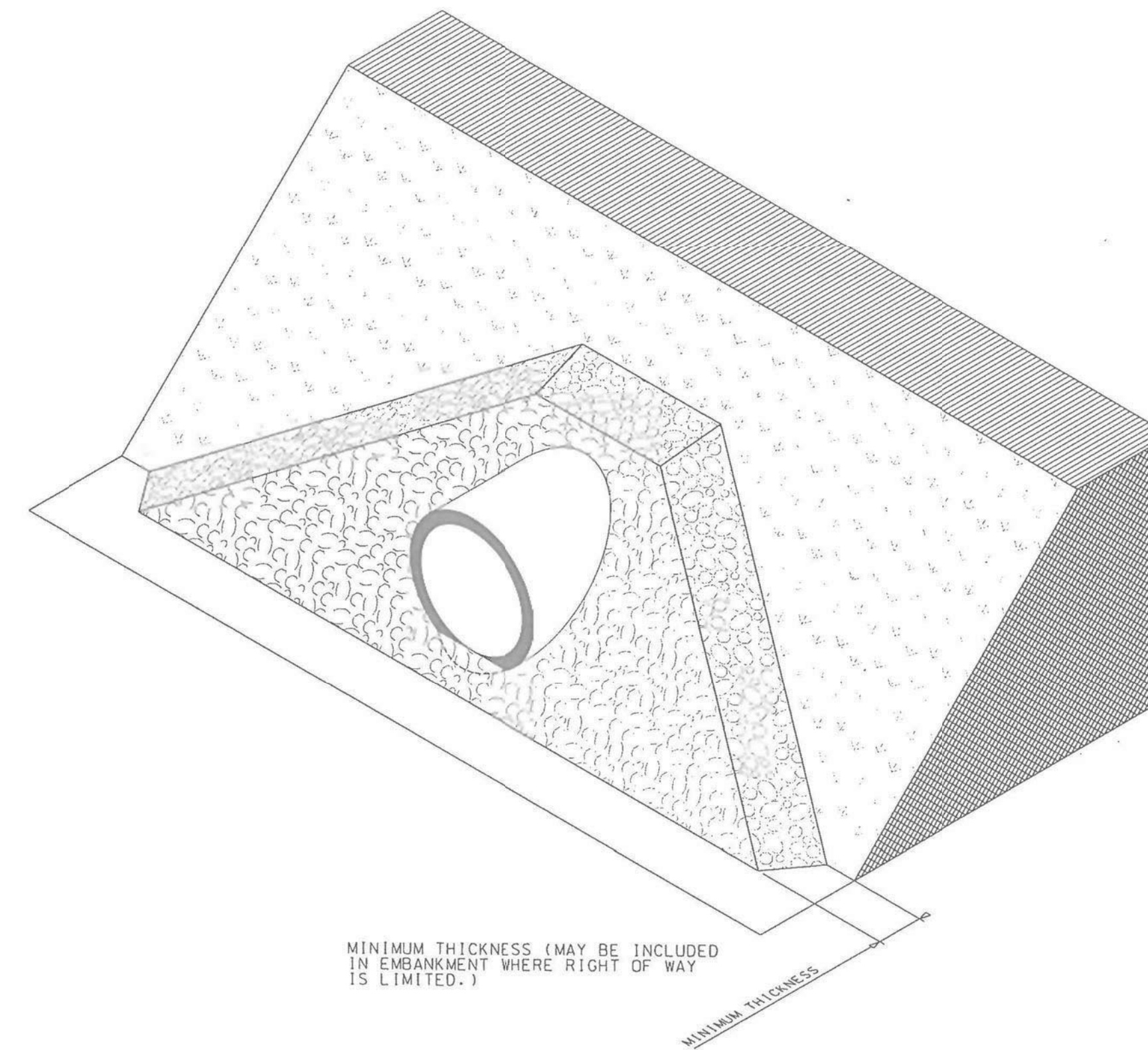
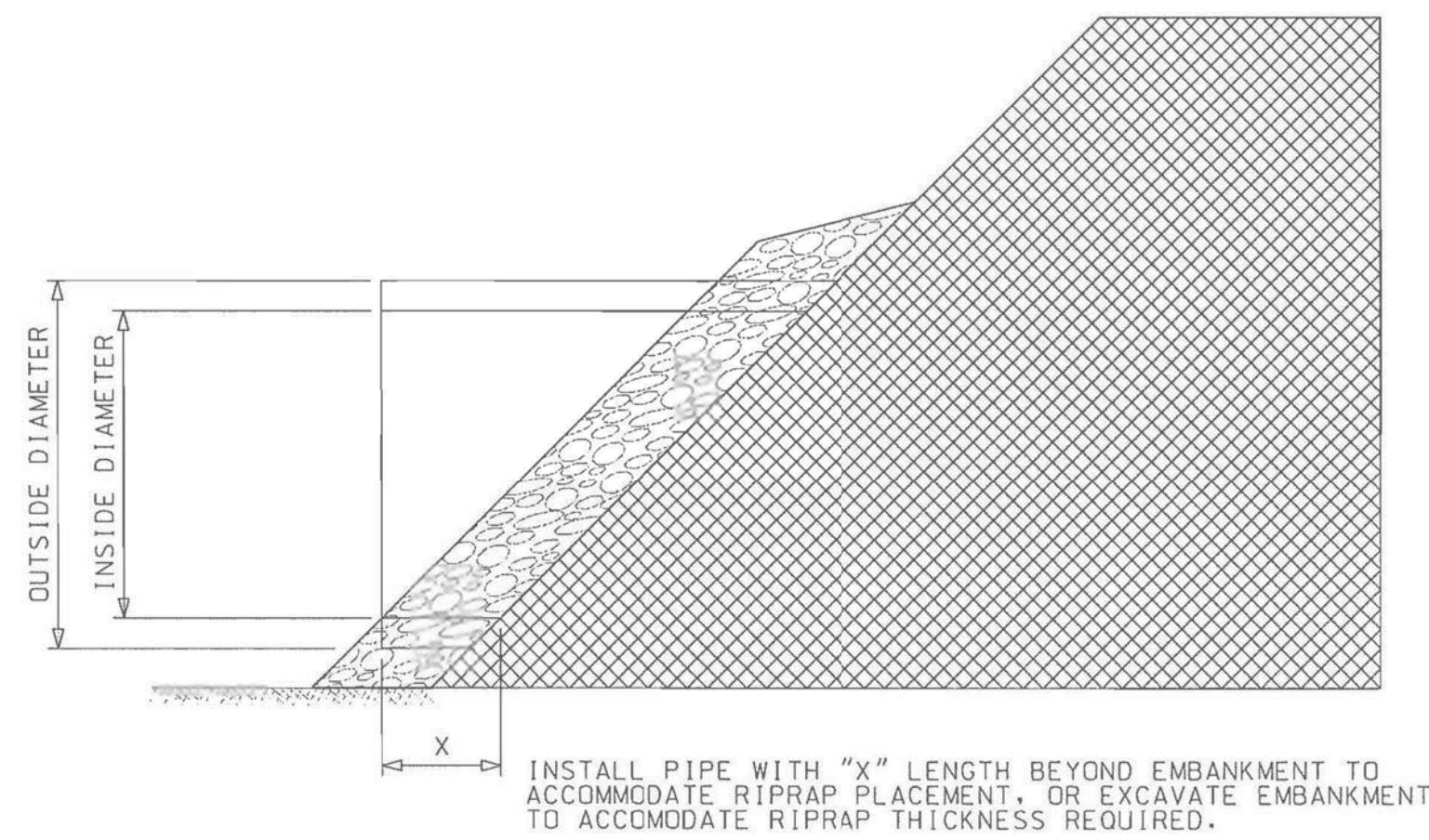


CHART 804-305A  
RIPRAP PLACEMENT

MINIMUM CLASS	D <sub>50</sub> (FT)	MINIMUM THICKNESS (FT)	PIPE DIAMETER
B	0.75	1.50	UP TO 84"
C	1.30	2.60	LARGER THAN 84"



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GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM  
 RIPRAP PIPE DETAIL

N.T.S.

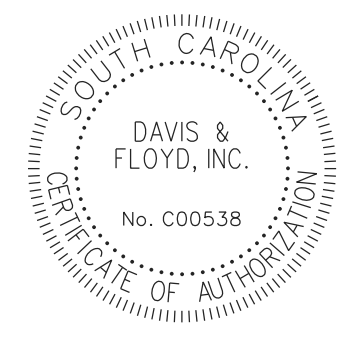
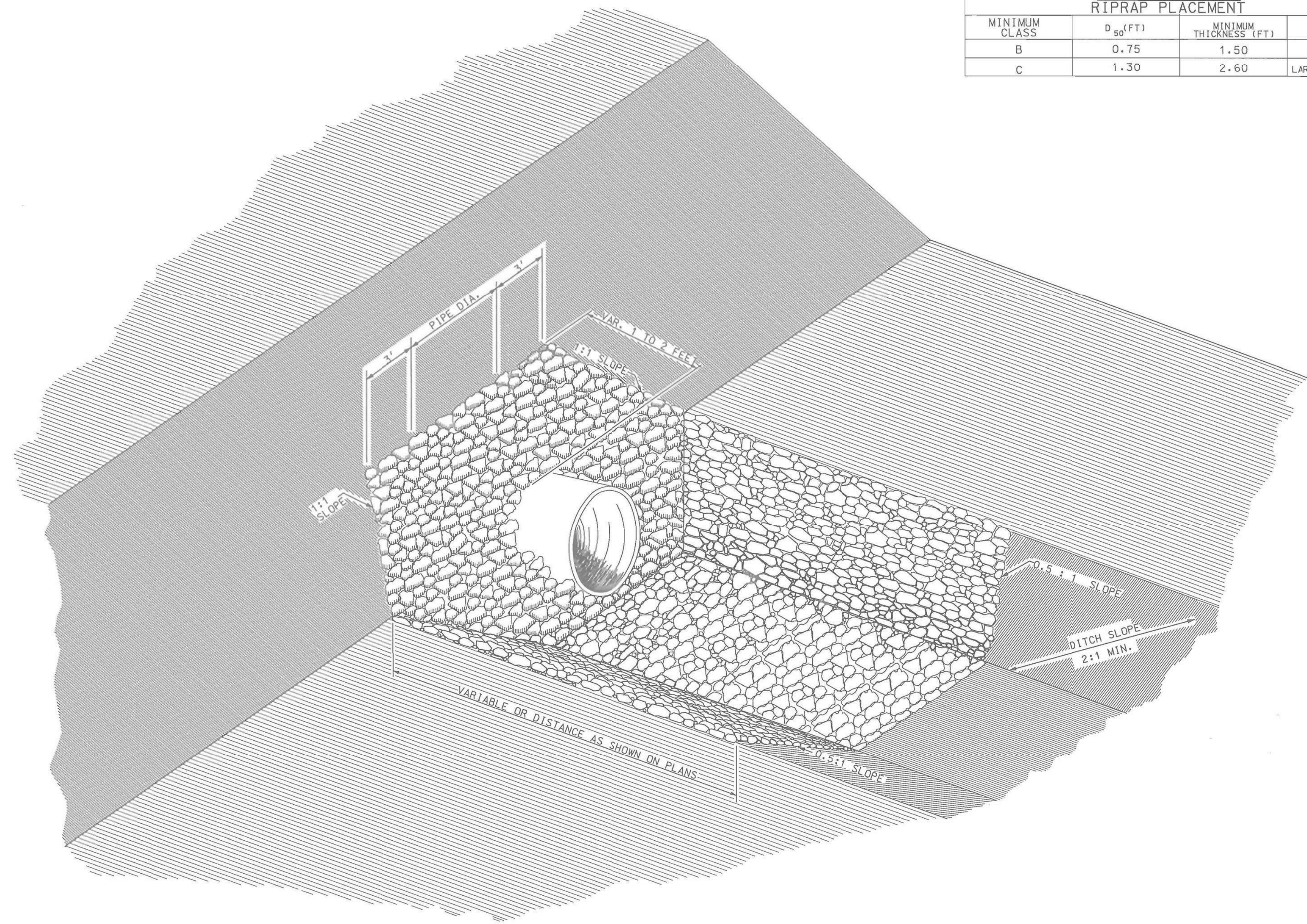


- NOTES:
1. GEOTEXTILE FABRIC TO BE USED UNDER RIPRAP WHEN INCLUDED IN THE PLANS.
  2. SEE STANDARD DRAWINGS SECTION 719-600-00 FOR ADDITIONAL PIPE END TREATMENT OPTIONS.
  3. THE PAY ITEMS SHALL BE:  
 RIPRAP CLASS \_\_\_\_\_ TON  
 GEOTEXTILE FOR EROSION CONTROL UNDER RIPRAP (CLASS 1) TYPE \_\_\_\_\_ S.Y.

- NOTES:
- 1) ANY REFERENCES TO PAYMENT IS SUPERCEDED BY PROJECT SPECIFICATIONS IN THE CONTRACT.
  - 2) FIELD ADJUSTMENTS TO IMPLEMENT DETAILS MAY BE REQUIRED AND CAN BE APPROVED BY THE COUNTY RESIDENT CONSTRUCTION MANAGER OR THE PROJECT ENGINEER.

**CHART 804-310A  
RIPRAP PLACEMENT**

MINIMUM CLASS	D <sub>50</sub> (FT)	MINIMUM THICKNESS (FT)	PIPE DIAMETER
B	0.75	1.50	UP TO 84"
C	1.30	2.60	LARGER THAN 84"



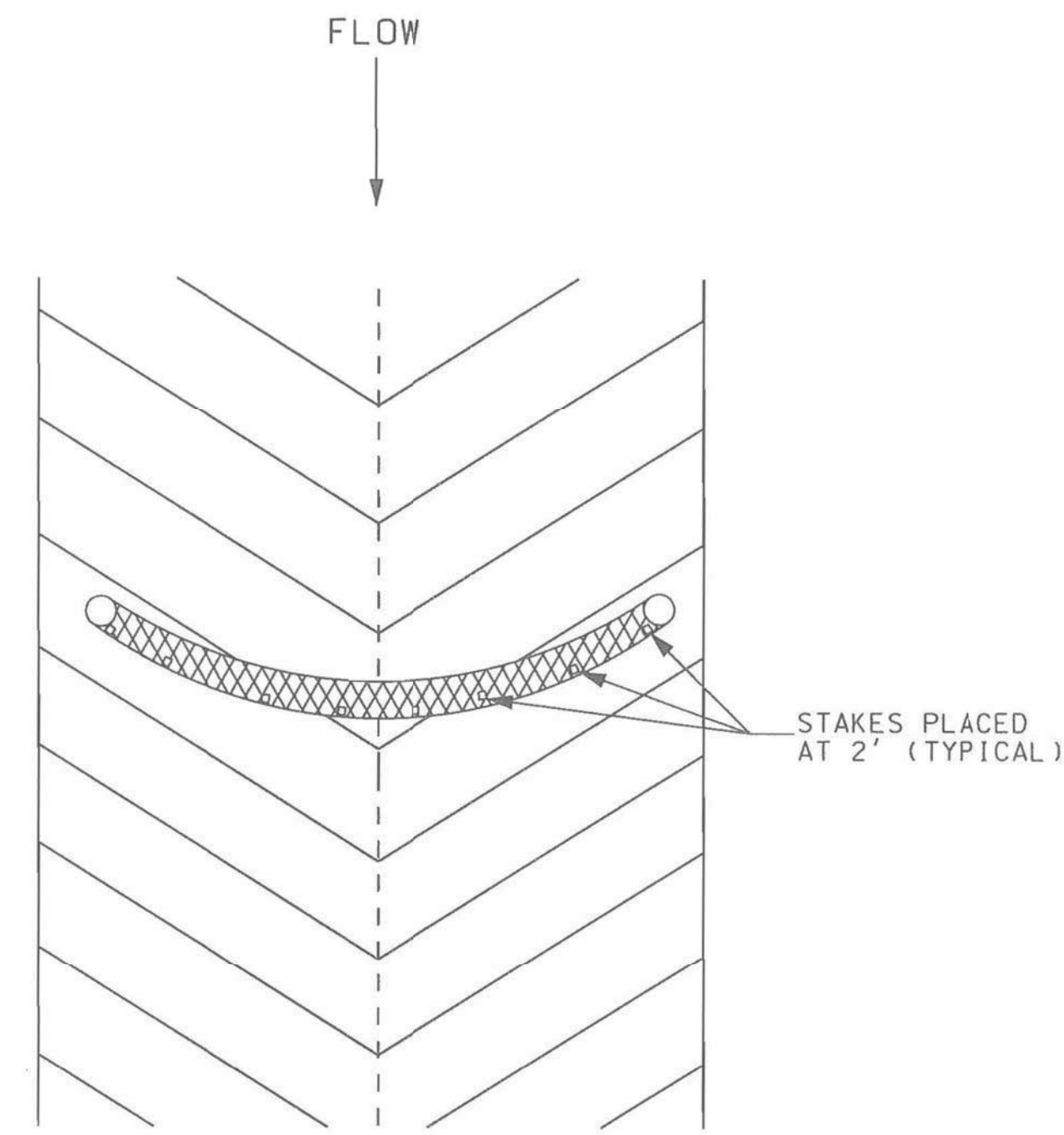
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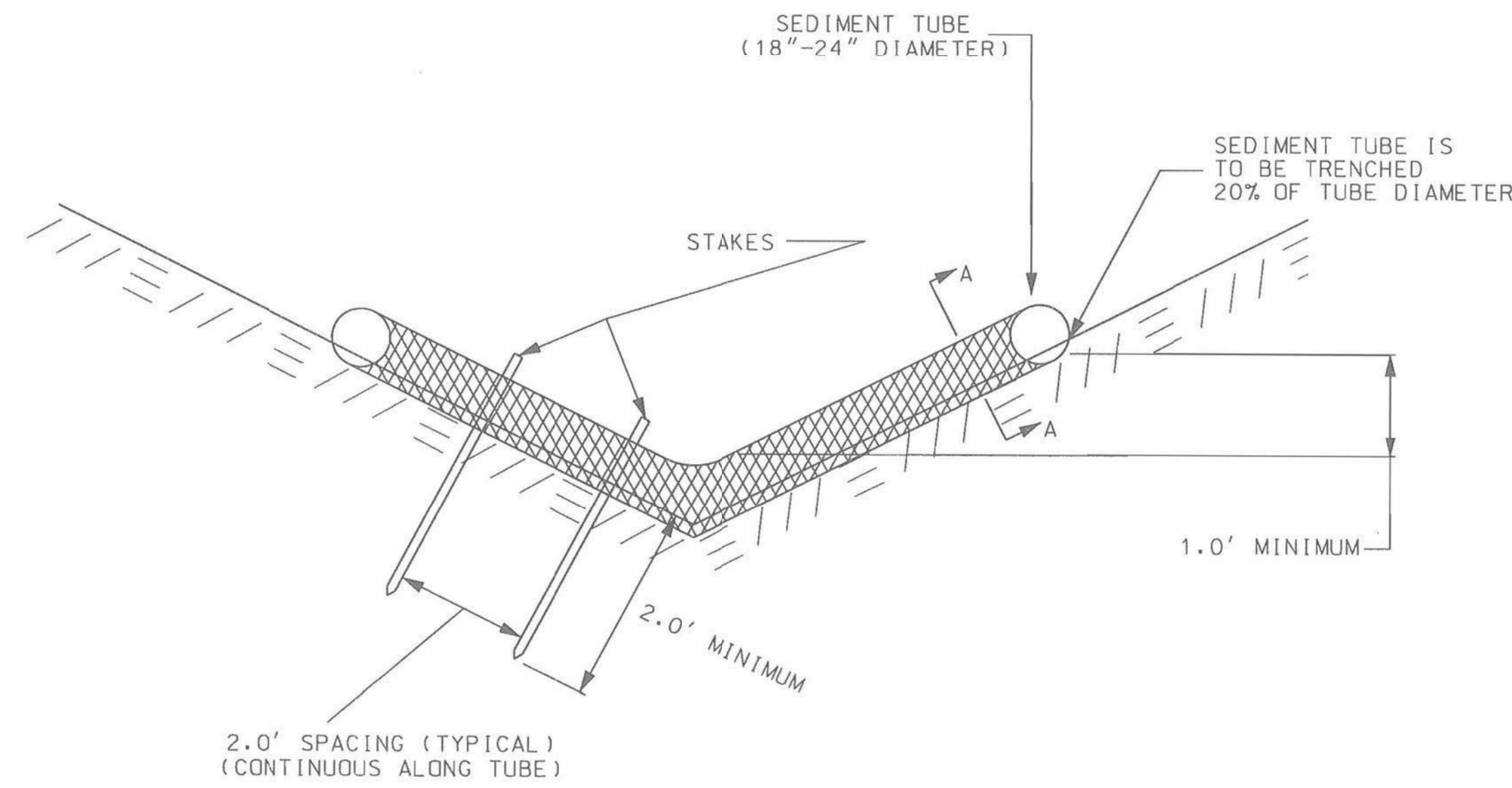
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GEORGETOWN COUNTY  
ENGINEERED ROADS PROGRAM  
RIPRAP DITCH DETAIL

N.T.S.



TOP VIEW OF DITCH



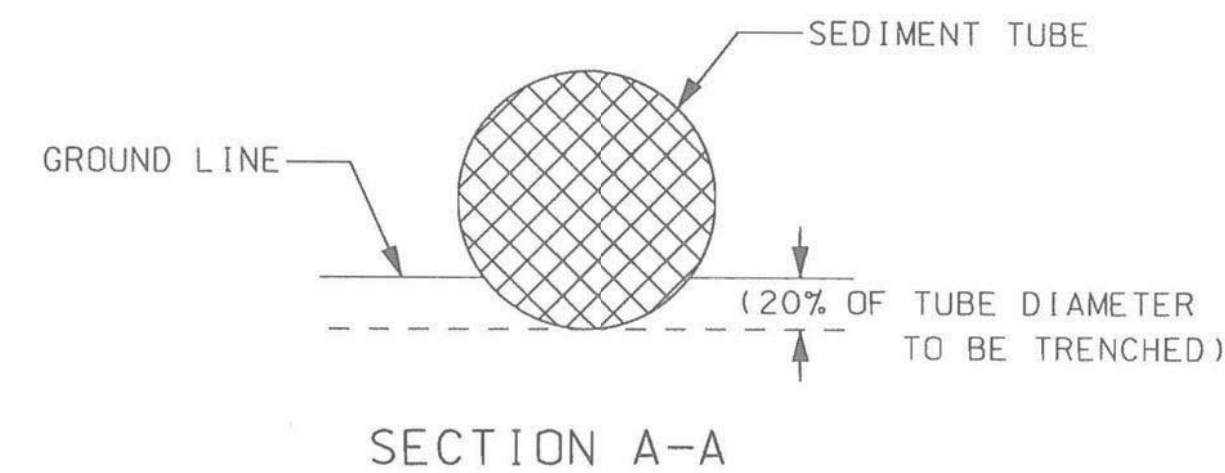
END VIEW OF DITCH

NOTES:

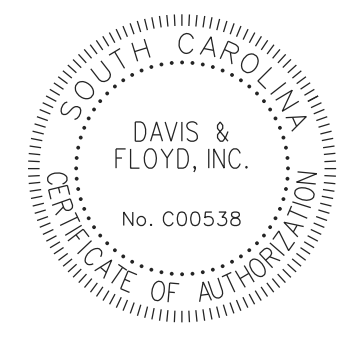
1. SEDIMENT TUBE SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 815 OF THE SCOTT STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION (LATEST EDITION), AND MUST BE LISTED ON SCOTT QUALIFIED PRODUCT LIST NUMBER 57. SEDIMENT TUBES MUST MEET THE CRITERIA OUTLINED IN THE SUPPLEMENTAL SPECIFICATIONS BEFORE BEING LISTED ON OPL, AND BE FREE FROM DEFECTS OR TRANSPORTATION DAMAGE.
2. PROPER SITE PREPARATION IS ESSENTIAL TO ENSURE SEDIMENT TUBES ARE IN COMPLETE CONTACT WITH UNDERLYING SOIL. SEDIMENT TUBES ARE TO BE 18-24 INCHES IN DIAMETER AND ARE TO BE TRENCHED TO A DEPTH OF 20% OF TUBE DIAMETER. LAY THE SEDIMENT TUBE FLAT IN THE U-SHAPED TRENCH AND COMPACT THE UPSTREAM SEDIMENT TUBE SOIL INTERFACE. PLACE AND ANCHOR THE SEDIMENT TUBE ENDS SO THEY ARE POSITIONED UPSTREAM OF THE SEDIMENT TUBE CENTER POINT. SEDIMENT TUBES FOR DITCH CHECKS WEIGHING MORE THAN 18 POUNDS PER FOOT DO NOT REQUIRE TRENCHING.
3. SEDIMENT TUBE SHALL BE INSTALLED IMMEDIATELY AFTER GRADING AND CONSTRUCTION. SEDIMENT TUBE SHALL BE MAINTAINED DURING SUBGRADE AND BASE PREPARATION UNTIL BASE COURSE IS COMPLETE. SEDIMENT TUBES MAY BE TEMPORARILY MOVED DURING CONSTRUCTION.
4. SEDIMENT TUBES ARE TO BE INSTALLED PERPENDICULAR TO WATER FLOW AND EXTEND UP SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE DESIGN FLOW DEPTH. SPACE TUBES ACCORDING TO THE FOLLOWING TABLE:

SLOPE	MAXIMUM SEDIMENT TUBE SPACING
LESS THAN 2%	150 FEET
2%	100 FEET
3%	75 FEET
4%	50 FEET
5%	40 FEET
6%	30 FEET
GREATER THAN 6%	25 FEET

5. STAKE SEDIMENT TUBES FOR DITCH CHECKS USING STAKES WITH A MINIMUM MEASURED DIMENSION OF 3/4" X 3/4" AND A MAXIMUM MEASURED DIMENSION OF 2" X 2", OR USING STEEL POSTS (1.25 lbs/ft near foot) A MINIMUM OF 4" IN LENGTH. USE STEEL POSTS WITHOUT A KICK PLATE AND PAINTING IS NOT REQUIRED. SPACE POSTS OR STAKES ON 2' CENTERS AND DRIVE THEM INTO THE GROUND TO A DEPTH OF 2' OR TO THE MAXIMUM EXTENT PRACTICABLE. INSTALL THE STAKES ON THE DOWNSTREAM THIRD OF THE SEDIMENT TUBE. SEDIMENT TUBES FOR DITCH CHECKS WEIGHING MORE THAN 18 POUNDS PER FOOT DO NOT REQUIRE STAKING.
6. SELECT PROPER LENGTH OF TUBE TO MINIMIZE THE NUMBER NEEDED TO SPAN THE WIDTH OF DRAINAGE AREA. ONE CONTINUOUS LENGTH IS PREFERRED COMPARED TO TWO OVERLAPPING TUBES. IF NECESSARY, SEDIMENT TUBES CAN BE LAPPED A MINIMUM OF 6 INCHES TO PREVENT PASSAGE OF FLOW AND SEDIMENT THROUGH FIELD JOINT.
7. INSTALL SEDIMENT TUBES FOR DITCH CHECKS OVER BARE SOIL, MULCHED AREAS, OR EROSION CONTROL BLANKETS. KEEP SEDIMENT TUBES FOR DITCH CHECKS IN PLACE UNTIL FULLY ESTABLISHED VEGETATION AND ROOT SYSTEMS HAVE COMPLETELY DEVELOPED AND CAN SURVIVE ON THEIR OWN.
8. INSPECT SEDIMENT TUBES AFTER INSTALLATION FOR GAPS UNDER THE SEDIMENT TUBES AND FOR GAPS BETWEEN THE JOINTS OF ADJACENT ENDS OF SEDIMENT TUBES. INSPECT SEDIMENT TUBES EVERY 7 DAYS. REPAIR ALL RILLS, GULLIES, AND UNDERCUTTING NEAR SEDIMENT TUBES. REMOVE ALL SEDIMENT DEPOSITS THAT IMPAIR THE FILTRATION CAPABILITY OF SEDIMENT TUBES WHEN THE SEDIMENT REACHES 1/3 THE HEIGHT OF THE EXPOSED SEDIMENT TUBE.
9. REMOVE AND/OR REPLACE INSTALLED SEDIMENT TUBES AS REQUIRED TO ADAPT TO CHANGING CONSTRUCTION SITE CONDITIONS. REMOVE SEDIMENT TUBES WHEN THE FUNCTIONAL LONGEVITY IS EXCEEDED AS DETERMINED BY THE ENGINEER, INSPECTOR, OR MANUFACTURER'S REPRESENTATIVE. GATHER SEDIMENT TUBES AND DISPOSE OF THEM IN REGULAR MEANS AS NON-HAZARDOUS, INERT MATERIAL.
10. PRIOR TO FINAL STABILIZATION, BACKFILL ALL TRENCHES, DEPRESSIONS, AND OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF SEDIMENT TUBES.
11. CLEAN OUT OF TUBES WILL BE PAID FOR AS SILT BASIN IN C.Y.
12. PAYMENT SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, EQUIPMENT, MAINTENANCE, AND INCIDENTALS NECESSARY TO COMPLETE WORK.
13. PAY ITEM SHALL BE:  
SEDIMENT TUBE ..... LF



NOTES:  
 1) ANY REFERENCES TO PAYMENT IS SUPERCEDED BY PROJECT SPECIFICATIONS IN THE CONTRACT.  
 2) FIELD ADJUSTMENTS TO IMPLEMENT DETAILS MAY BE REQUIRED AND CAN BE APPROVED BY THE COUNTY RESIDENT CONSTRUCTION MANAGER OR THE PROJECT ENGINEER.



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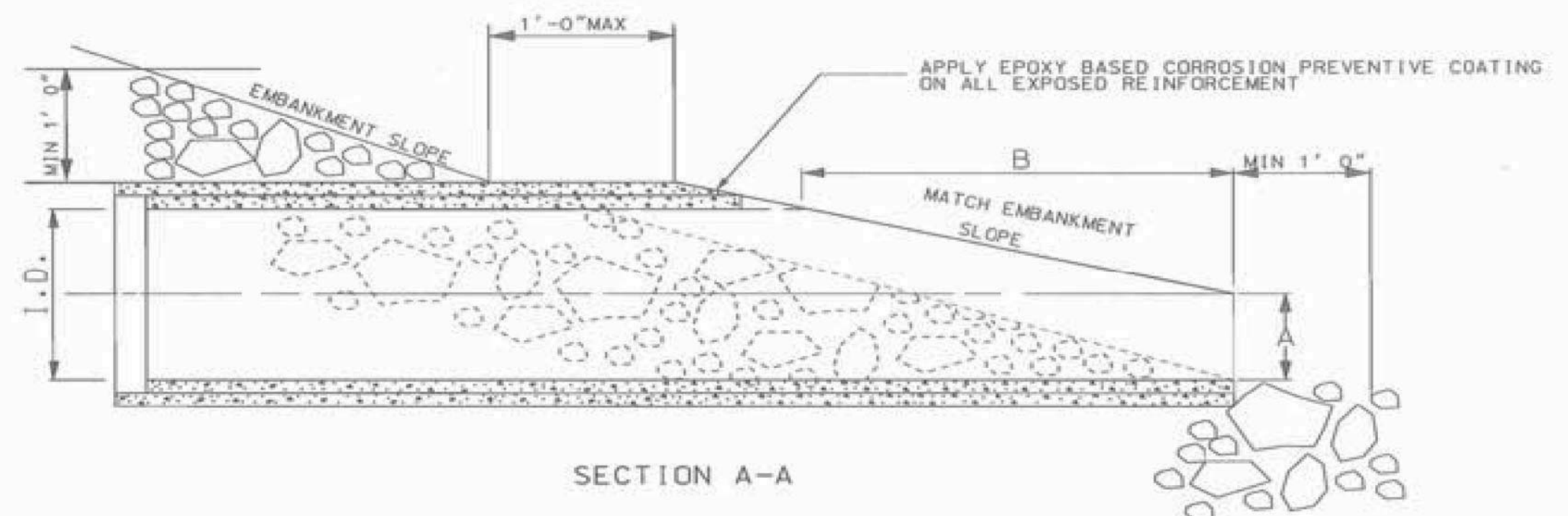
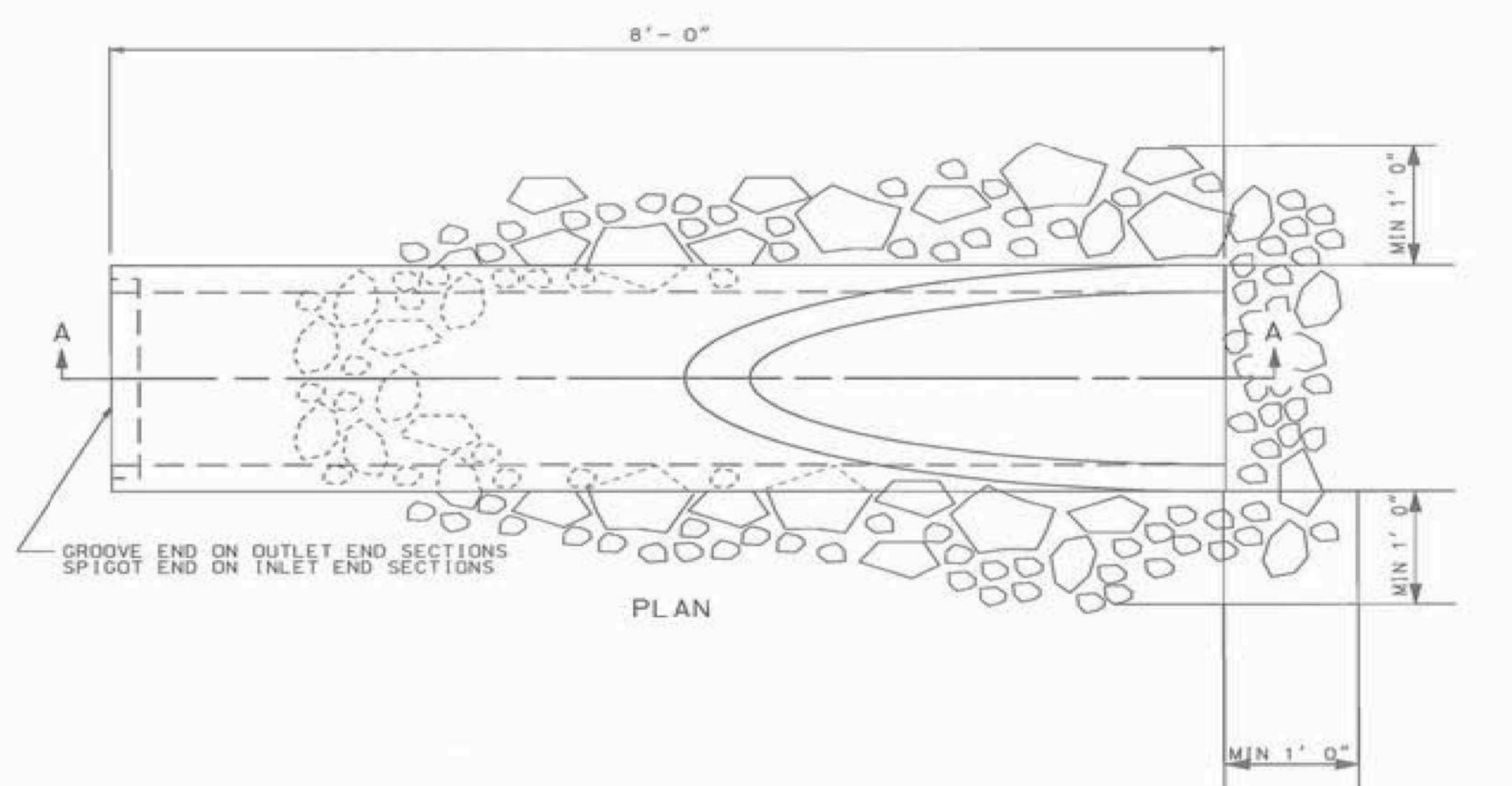
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 ENGINEERED ROADS PROGRAM

SEDIMENT TUBE DETAIL

NOTES:  
 1) ANY REFERENCES TO PAYMENT IS SUPERCEDED BY PROJECT SPECIFICATIONS IN THE CONTRACT.  
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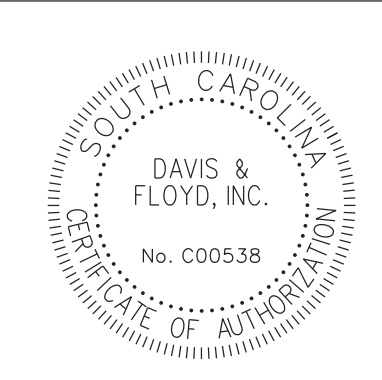
NOTES:  
 1. BEVELED END SECTIONS WILL BE MANUFACTURED IN ACCORDANCE WITH SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATIONS SC-M-714. THESE SPECIAL PIPE SECTIONS WILL BE MADE DURING THE MANUFACTURING OF OTHER STATE APPROVED REINFORCED CONCRETE PIPE.  
 2. THE PIPE BEVEL MAY BE SAWS IN THE FIELD IN LIEU OF BEING MANUFACTURED. IN FIELD SAWING, THE PIPE OPENING MAY COME TO A POINT AT THE PIPE CREST RATHER THAN A RADIUS IF APPROVED BY THE PIPE MANUFACTURER. ALTERNATE PIPE FOR SIDELINES MUST HAVE EACH END BEVELED TO MATCH THE ADJACENT SLOPES.  
 3. PLACE RIPRAP AS DIRECTED BY THE RCE.  
 4. PAYMENT FOR BEVELED END SECTIONS WILL BE AS DIRECTED IN SC-M-714.  
 5. THE PAY ITEM SHALL BE:  
 7199100 BEVELING OF PIPE ENDS-----EA.  
 8041XXX RIPRAP (CLASS 1)-----TON  
 8048XXX GEOTEXTILE FOR EROSION CONTROL UNDER RIPRAP (CLASS 2) TYPE-----S.Y.

CHART 719-610B  
 RIPRAP PLACEMENT

CLASS	D <sub>50</sub> (FT)	MINIMUM THICKNESS (FT)
B	0.75	1.50
C	1.30	2.60

TABLE 719-610A  
 EMBANKMENT SLOPE

I.D. (IN)	A (IN)	B (BEVELED LENGTH) (IN)				
		6:1	5:1	4:1	3:1	2:1
15	6	54	45	36	27	18
18	9	54	45	36	27	18
24	10	NA	70	56	42	28
30	12	NA	NA	72	54	36
36	15	NA	NA	NA	63	42
42	20	NA	NA	NA	66	44
48	24	NA	NA	NA	72	48
54	24	NA	NA	NA	NA	60
60	24	NA	NA	NA	NA	72



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GEORGETOWN COUNTY  
 ENGINEERED ROADS PROGRAM

END TREATMENT  
 (RCP BEVELED END)

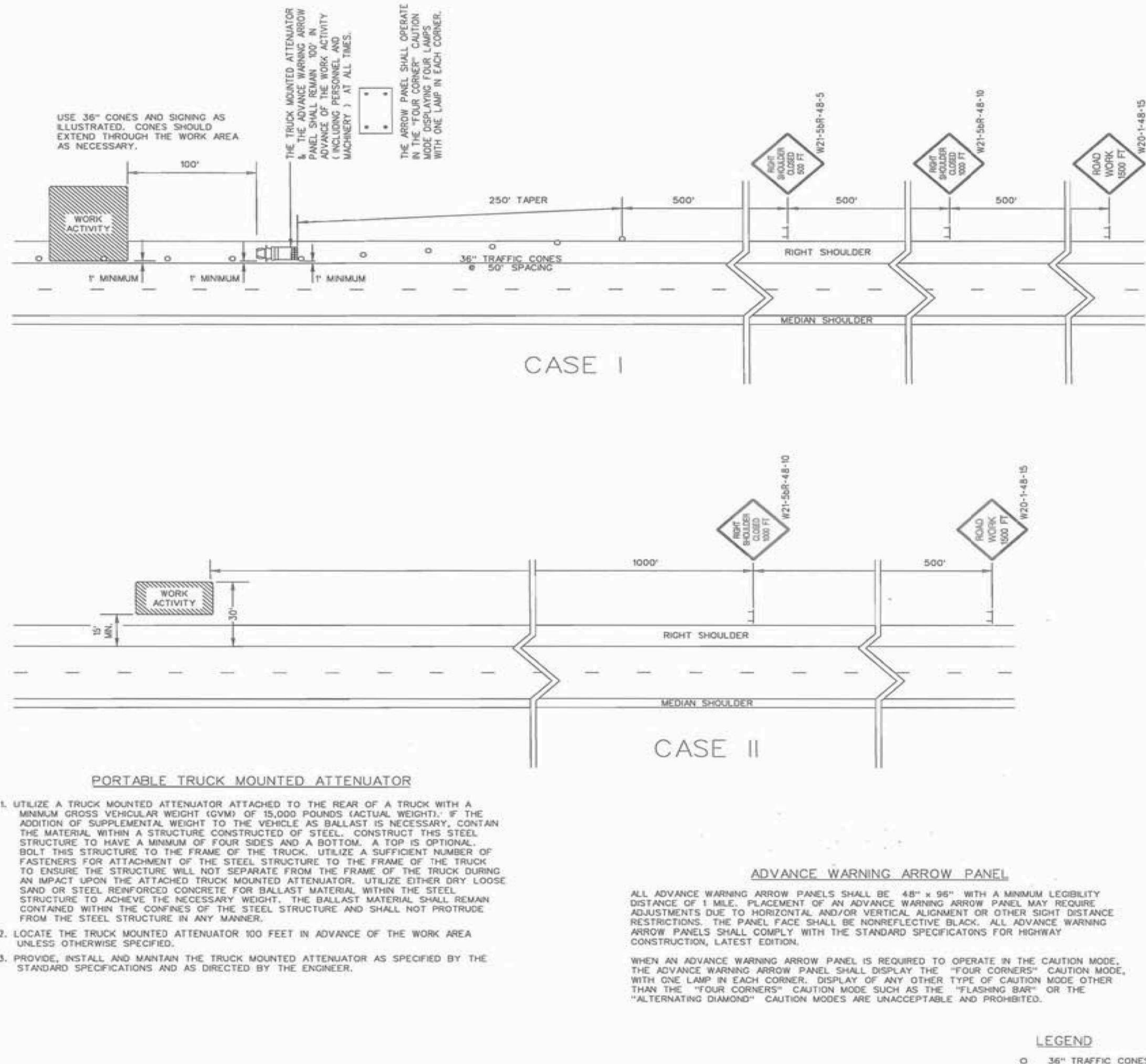
N.T.S.

NOTES:

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- 2) FIELD ADJUSTMENTS TO IMPLEMENT DETAILS MAY BE REQUIRED AND CAN BE APPROVED BY THE COUNTY RESIDENT CONSTRUCTION MANAGER OR THE PROJECT ENGINEER.

GENERAL NOTES

1. ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
2. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & CUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
3. SPACINGS INDICATED ARE FOR NORMAL CONDITIONS; ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: [www.ncdot.org](http://www.ncdot.org)
7. THE CONTRACTOR SHALL PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL.
8. THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR DAYTIME SHOULDER CLOSURES ARE 36" CONES. THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR NIGHTTIME SHOULDER CLOSURES ARE PORTABLE PLASTIC DRUMS. DURING DAYTIME SHOULDER CLOSURES, 42" OVERSIZED CONES MAY BE SUBSTITUTED FOR 36" CONES. DURING NIGHTTIME SHOULDER CLOSURES, 42" OVERSIZED CONES ARE PROHIBITED FOR USE. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE HOURS OF DARKNESS, REPLACE ALL CONES, 36" OR 42" OVERSIZED, WITH PORTABLE PLASTIC DRUMS.
9. THE 36" CONES UTILIZED DURING DAYLIGHT HOURS ARE NOT REQUIRED TO BE REFLECTORIZED. REFLECTORIZE ALL 42" OVERSIZED CONES UTILIZED DURING DAYTIME SHOULDER CLOSURES WITH TYPE II FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
11. THE DEPARTMENT PROHIBITS CONDUCTING WORK ON PRIMARY AND SECONDARY ROUTES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE UNDER A SHOULDER CLOSURE. ALL WORK THAT MAY REQUIRE THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE SHALL BE CONDUCTED UNDER A LANE CLOSURE.
  - CASE I: WHENEVER ANY PORTION OF THE SHOULDER AREA WITHIN 15' BUT NOT CLOSER THAN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE MUST BE OCCUPIED BY EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES TO CONDUCT THE WORK, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL DEVICES AS ILLUSTRATED.
  - CASE II: WHENEVER THE WORK IS CONDUCTED BEYOND 15' BUT WITHIN 30' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE, INCLUDING THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL AS ILLUSTRATED.
12. CONDUCT THE WORK IN SUCH A MANNER THAT WILL NOT REQUIRE ENCROACHMENT OF TRAFFIC CONTROL DEVICES, EQUIPMENT, PERSONNEL, MATERIALS OR ANY WORK RELATED VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
13. PLACE THE TRUCK MOUNTED ATTENUATOR AT A LOCATION 100' IN ADVANCE OF THE WORK ACTIVITY AND NO CLOSER THAN 1' FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
14. FOR A CASE I SCENARIO IN THE RIGHT SHOULDER AREA, ADJUST THE TAPER AS NECESSARY TO FIT THE WIDTH OF THE SHOULDER WHILE MAINTAINING THE REQUIRED 250' TAPER LENGTH.
15. IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS AT THE SAME TIME UNDER CASE I SHOULDER CLOSURES, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 1 MILE FROM THE END OF THE FIRST CASE I CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CASE I CLOSURE. A MINIMUM SEPARATION DISTANCE OF ONE-HALF MILE IS RECOMMENDED BETWEEN SHOULDER CLOSURES WHEN ONE OR BOTH SHOULDER CLOSURES IS A CASE II CLOSURE.
16. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.
17. THIS TRAFFIC CONTROL SETUP APPLIES TO THE INSTALLATION OF SHOULDER CLOSURES IN THE RIGHT SHOULDER AREAS OF PRIMARY AND SECONDARY ROADWAYS.



PORTABLE TRUCK MOUNTED ATTENUATOR

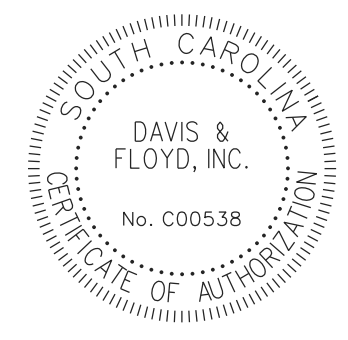
1. UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVW) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
2. LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
3. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

ADVANCE WARNING ARROW PANEL

ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL FACE SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

WHEN AN ADVANCE WARNING ARROW PANEL IS REQUIRED TO OPERATE IN THE CAUTION MODE, THE ADVANCE WARNING ARROW PANEL SHALL DISPLAY THE "FOUR CORNERS" CAUTION MODE, WITH ONE LAMP IN EACH CORNER. DISPLAY OF ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE SUCH AS THE "FLASHING BAR" OR THE "ALTERNATING DIAMOND" CAUTION MODES ARE UNACCEPTABLE AND PROHIBITED.

LEGEND  
○ 36" TRAFFIC CONES



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