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TGSL1W1014

COMPUTED BY: BJH DATE: 03-15-22
CHECKED BY: REL DATE: 03-15-22

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. A-0009CA SHEET NO. 3D-7

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

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

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC), C. S. PIPE, R. C. PIPE CLASS III, R. C. PIPE CLASS IV, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes a SHEET TOTALS row at the bottom.

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

TGSL1W1014

COMPUTED BY: BJH DATE: 03-15-22
CHECKED BY: REL DATE: 03-15-22

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. A-0009CA SHEET NO. 3D-8

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

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

Table with columns for Line & Station, Offset, Structure Number, Invert Elevation, Drainage Pipe, C.S. Pipe, R.C. Pipe Class III, R.C. Pipe Class IV, Quantities for Drainage Structures, Frame, Grates, and Hood, and Abbreviations. Includes a SHEET TOTALS row at the bottom.

TGSL1W1014

COMPUTED BY: BJH DATE: 03-15-22
CHECKED BY: REL DATE: 03-15-22

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. A-0009CA SHEET NO. 3D-11

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

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

Main data table with columns for Line & Station, Offset, Structure Number, Drainage Pipe, C.S. Pipe, R.C. Pipe Class III, R.C. Pipe Class IV, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, Grate Type, and Remarks. Includes sub-totals for SHEET TOTALS and PROJECT TOTALS.

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

REMARKS

SHEET TOTALS and PROJECT TOTALS summary rows with numerical values for various categories.

COMPUTED BY: D. Matthew Brewer DATE: 6/1/22
 CHECKED BY: Robert E. Kral DATE: 6/1/2022

(12-17-19)

PROJECT NO. A-0009CA SHEET NO. 3G-1

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L-	124+00	132+00	LT/RT	SD	1200
-L-	191+00	193+00	RT	SD	400
-L-	205+00	207+00	LT/RT	SD	400
CONTINGENCY				SD	500
TOTAL LF:					2500

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

**SUMMARY OF GEOTEXTILE
 FOR PAVEMENT STABILIZATION**

LINE	Station	Station	Geotextile for Pavement Stabilization SY	Class IV Subgrade Stabilization TONS
-L-	31+50	33+50	470	200
-L-	34+50	36+50	470	210
-L-	42+50	46+00	1030	440
-L-	47+00	47+50	1170	510
-L-	55+00	59+20	430	190
-L-	64+50	67+50	250	110
-L-	72+00	72+50	520	220
-L-	79+00	80+50	1740	750
-L-	108+50		130	60
-L-	114+00	119+50	1480	640
-L-	135+00	140+00	1420	610
-L-	150+50	151+50	250	110
-L-	157+50	158+00	210	90
-L-	162+00	163+50	490	210
-L-	165+00	167+50	640	280
-L-	172+00	175+50	820	350
-L-	177+50	178+50	290	130
-L-	180+00		110	50
-L-	182+00	187+50	1350	580
-L-	194+50	195+00	130	60
CONTINGENCY				
TOTAL SY/TONS:			13400	5800*

*Total tons of "Class IV Subgrade Stabilization" is only the estimated quantity for pavement stabilization and may only represent a portion of the subgrade stabilization quantity shown in the Item Sheets of the Proposal.

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU (1)	12	1000	2000	3000	600	0
TOTAL CY/TONS/SY:					1000	2000**	3000**	600	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization

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

SUMMARY OF REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL

LINE	Beginning Slope/ RSS (H:V)	Approx. Station	Ending Slope/ RSS (H:V)	Approx. Station	Location LT/RT	Reinforced Soil Slope (RSS) SY	Geocells SY	Coir Fiber Mat SY	Matting for Erosion Control SY
-L-	1.5:1	60+25	1.5:1	63+75	RT			2700	
-L-	1.5:1	70+25	1.5:1	71+25	RT			680	
-L-	1.5:1	74+25	1.5:1	77+75	RT			3480	
-L-	1.5:1	86+75	1.5:1	87+25	LT			380	
TOTAL SY:						0	0	7240*	

*Total square yards of "Coir Fiber Mat" is only the estimated quantity for slopes steeper than 2:1 (H:V) and may only represent a portion of the coir fiber mat quantity shown in the Item Sheets of the Proposal.

**Total square yards of "Matting for Erosion Control" is only the estimated quantity for RSS and may only represent a portion of the matting quantity shown in the Item Sheets of the Proposal.

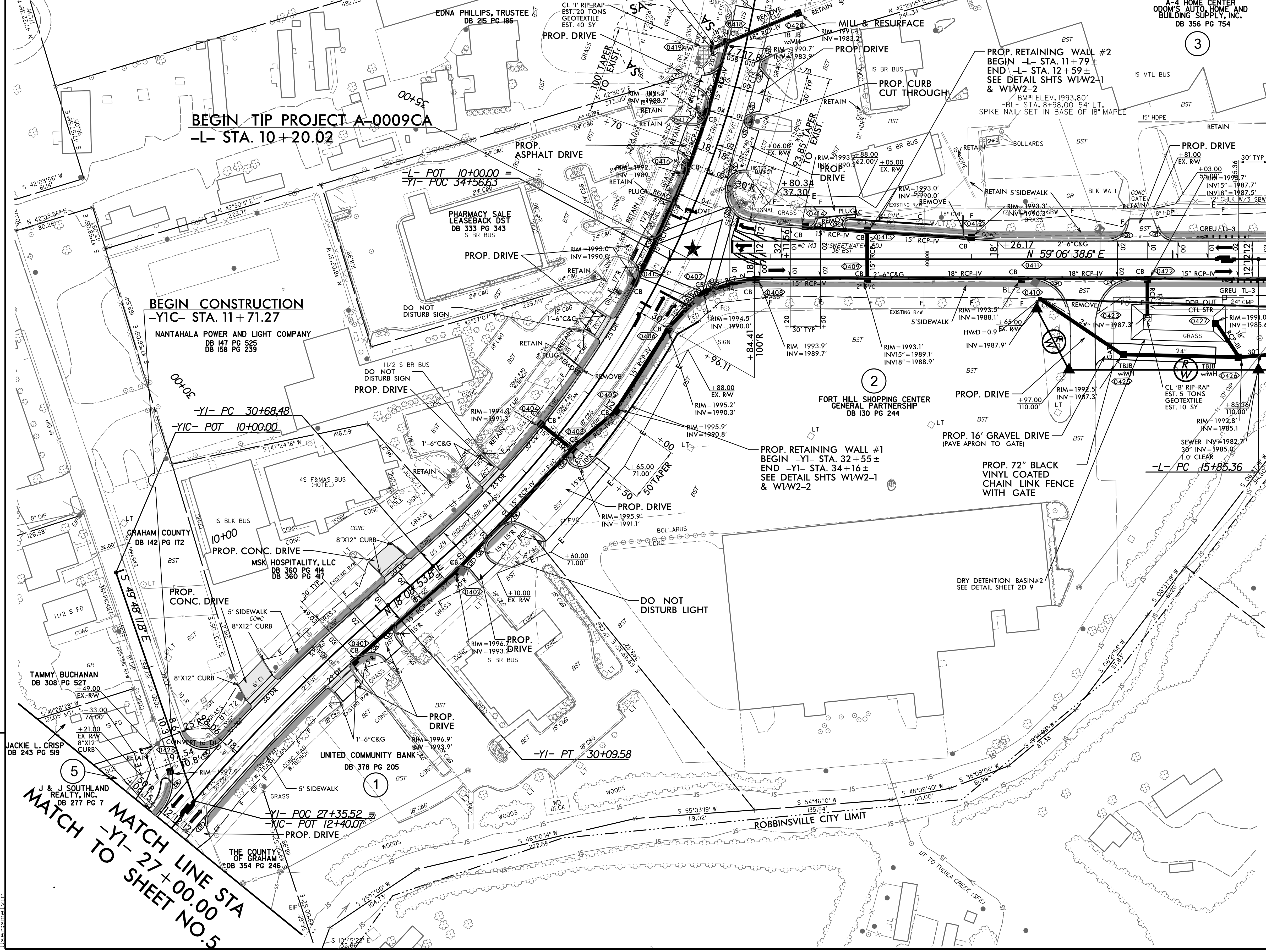
SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	1.5:1	42+00	1.5:1	45+64	LT	2	*	1430
-L-	1.5:1	44+50	1.5:1	45+00	RT	2	*	180
-L-	1.5:1	47+14	1.75:1	48+00	RT	2	*	410
-L-	1.5:1	56+00	1.5:1	58+00	RT	2	*	1110
-L-	1.5:1	57+00	1.5:1	59+50	LT	2	*	1110
TOTAL SY:								4240

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

-YI- CURVE DATA		-L- CURVE DATA	
PI Sta 24+35.36	PI Sta 36+22.21	PI Sta 21+39.93	PI Sta 21+39.93
$\Delta = 38^{\circ}00'53.8"$ (RT)	$\Delta = 59^{\circ}11'14.3"$ (LT)	$\Delta = 51^{\circ}06'09.7"$ (RT)	$\Delta = 51^{\circ}06'09.7"$ (RT)
$D = 3^{\circ}10'59.2"$	$D = 5^{\circ}52'35.4"$	$D = 4^{\circ}56'21.4"$	$D = 4^{\circ}56'21.4"$
$L = 1,94.27'$	$L = 1,007.19'$	$L = 1,034.62'$	$L = 1,034.62'$
$T = 620.05'$	$T = 553.73'$	$T = 554.57'$	$T = 554.57'$
$R = 1,800.00'$	$R = 975.00'$	$R = 1,600.00'$	$R = 1,600.00'$
$SE = 0.03$	$SE = 0.04$	$SE = 0.04$	$SE = 0.04$
$DS = 45$ MPH	$DS = 50$ MPH	$DS = 50$ MPH	$DS = 50$ MPH

END CONSTRUCTION
-YI- STA. 37 + 20.00



PROJECT REFERENCE NO. A-0009CA	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

MATCH LINE STA -L- 16 + 00.00
MATCH TO SHEET NO.6

NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED. END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

- SA ELIGIBLE AND UNASSESSED SITES
- PROP CONC SIDEWALK
- PROPOSED SIGNAL

AVERAGE DAILY TRAFFIC			
		9,500	12,900
	200	3,600	7,200
	300	4,300	8,500
COMMERCIAL DRIVE	700	3,500	4,100
	900	4,100	4,100
	400	3,500	4,100
	500	4,100	4,100
		9,600	12,900
		-L- NC 143	

2019 ADT
2045ADT

FOR -L- PROFILE, SEE SHEET NO. 20
FOR -YI- PROFILE, SEE SHEET NO. 28

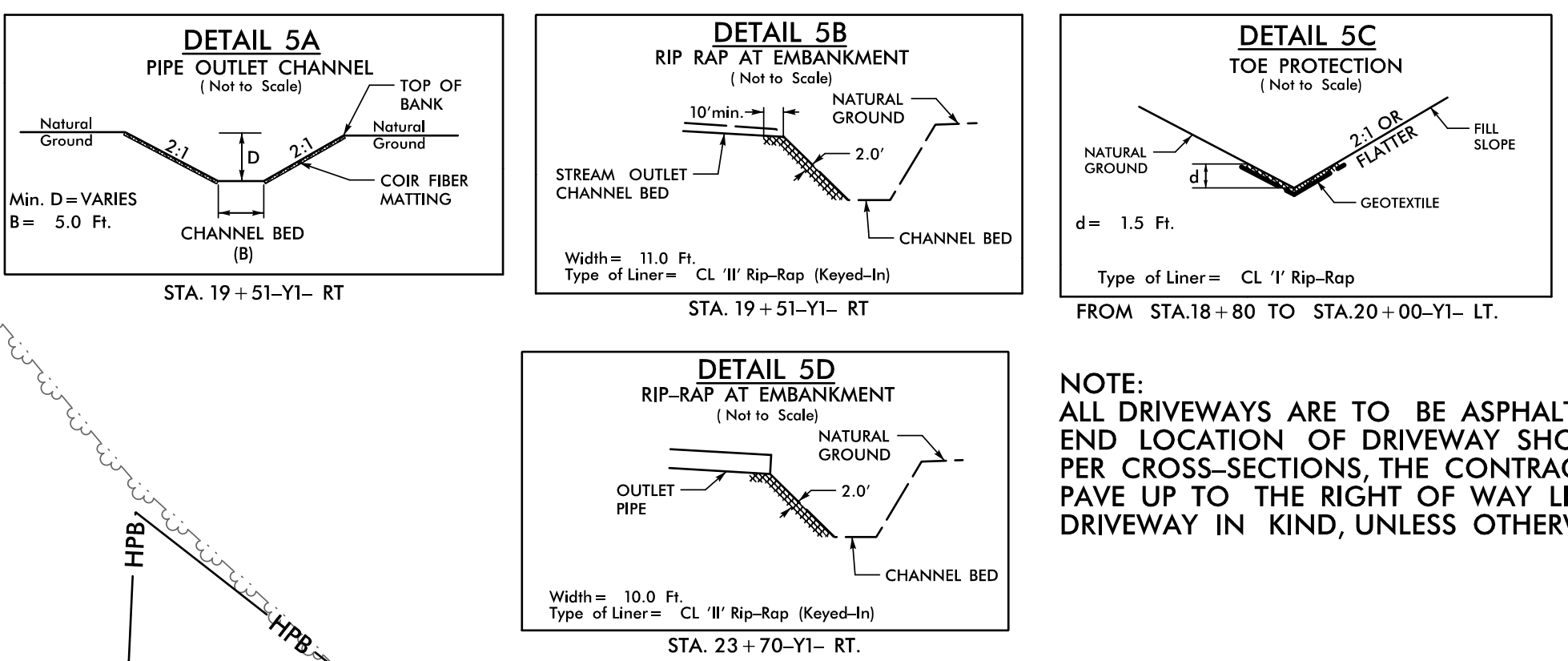
REVISIONS

5/10/2022 A-0009CA_0009CA.dwg
J & J SOUTHLAND REALTY, INC. DB 277 PG 7
JACKIE L. CRISP DB 243 PG 519
TAMMY BUCHANAN DB 308 PG 527
GRAHAM COUNTY DB 142 PG 172
MSK HOSPITALITY, LLC DB 360 PG 418 DB 360 PG 417
UNITED COMMUNITY BANK DB 378 PG 205
THE COUNTY OF GRAHAM DB 354 PG 246
SHEETS: A-0009CA_0009CA_Plan
SHEETS: A-0009CA_Rdy_psh_04.dgn

MATCH LINE STA -YI- 27 + 00.00
MATCH TO SHEET NO.5

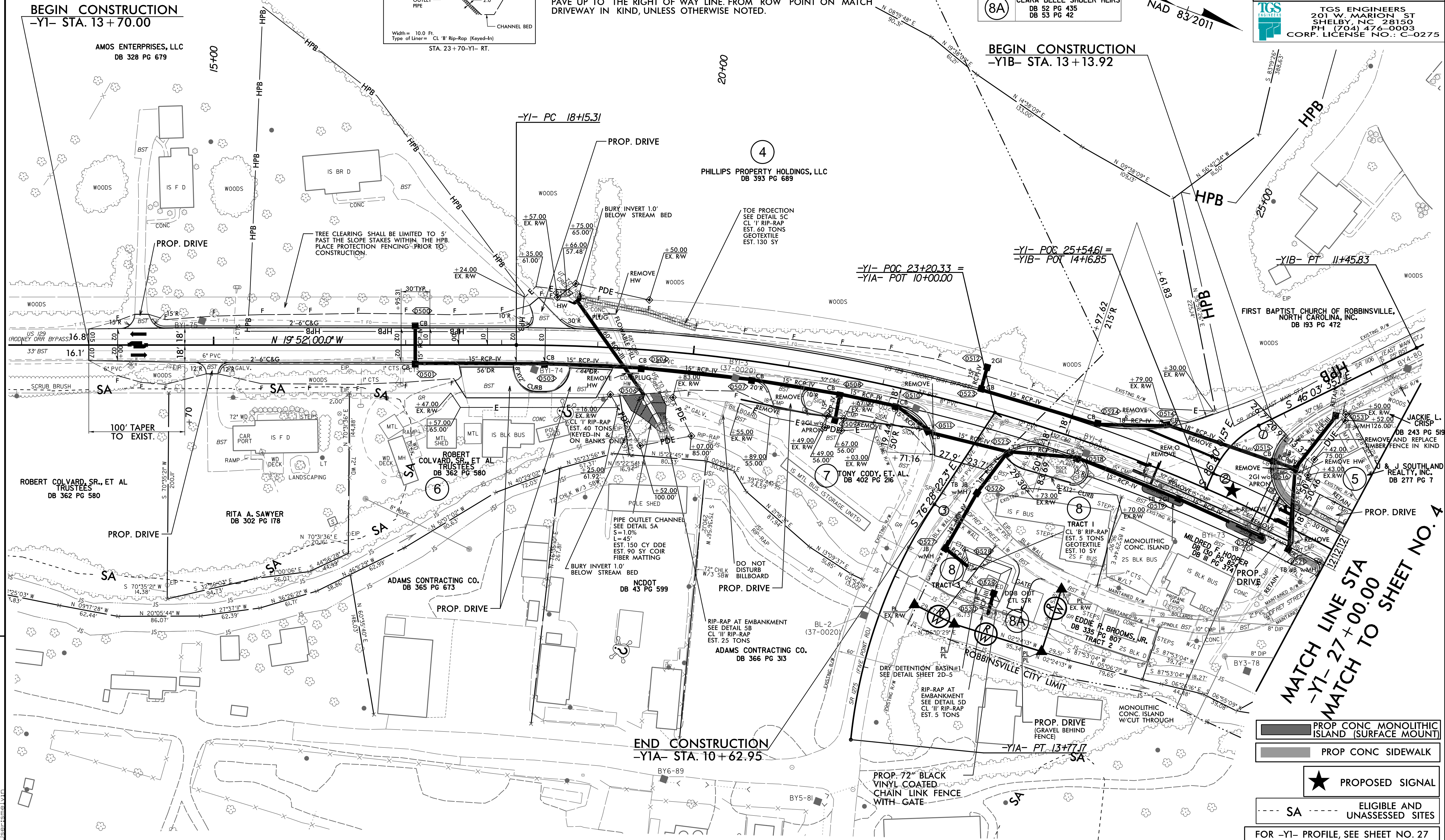
PROJECT REFERENCE NO. A-0009CA	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

-YIA- CURVE DATA	-YIB- CURVE DATA	-YI- CURVE DATA
PI Sta 12+48.39 $\Delta = 27^\circ 40' 40.3" (LT)$ $D = 10' 31' 56.3"$ $L = 262.79'$ $T = 134.01'$ $R = 544.00'$	PI Sta 10+93.09 $\Delta = 7^\circ 33' 51.9" (RT)$ $D = 7' 09' 43.1"$ $L = 105.62'$ $T = 52.89'$ $R = 800.00'$	PI Sta 13+65.73 $\Delta = 40' 16' 26.4" (LT)$ $D = 57' 17' 44.8"$ $L = 70.29'$ $T = 36.67'$ $R = 100.00'$
③ -YIA- PC 11+4.38	① -YIB- PC 13+29.06 ② -YIB- PT 13+99.35	PI Sta 24+35.36 $\Delta = 38^\circ 00' 53.8" (RT)$ $D = 3' 10' 59.2"$ $L = 1,194.27'$ $T = 620.05'$ $R = 1,800.00'$ SE = 0.03 DS = 45 MPH



NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

8	EDDIE R. BROOMS, JR. DB 335 PG 807
8A	CLARA BELLE SHULER HEIRS DB 52 PG 435 DB 53 PG 42



**MATCH LINE STA -YI- 27+00.00
MATCH TO SHEET NO. 4**

	PROP CONC MONOLITHIC ISLAND (SURFACE MOUNT)
	PROP CONC SIDEWALK
	PROPOSED SIGNAL
	ELIGIBLE AND UNASSESSED SITES

FOR -YI- PROFILE, SEE SHEET NO. 27

REVISIONS

5/20/2022 Roadway\Proj\A-0009CA_Plan_Sheets\A-0009CA_Rdy_psh_05.dgn

8/17/99

NOTE:
PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION,
PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED
BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA,
AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN
PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND
PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH
DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

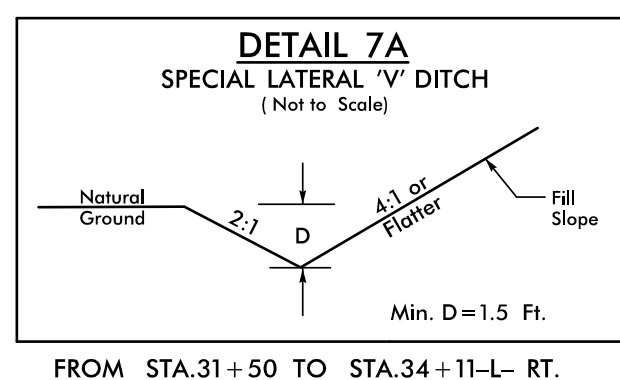
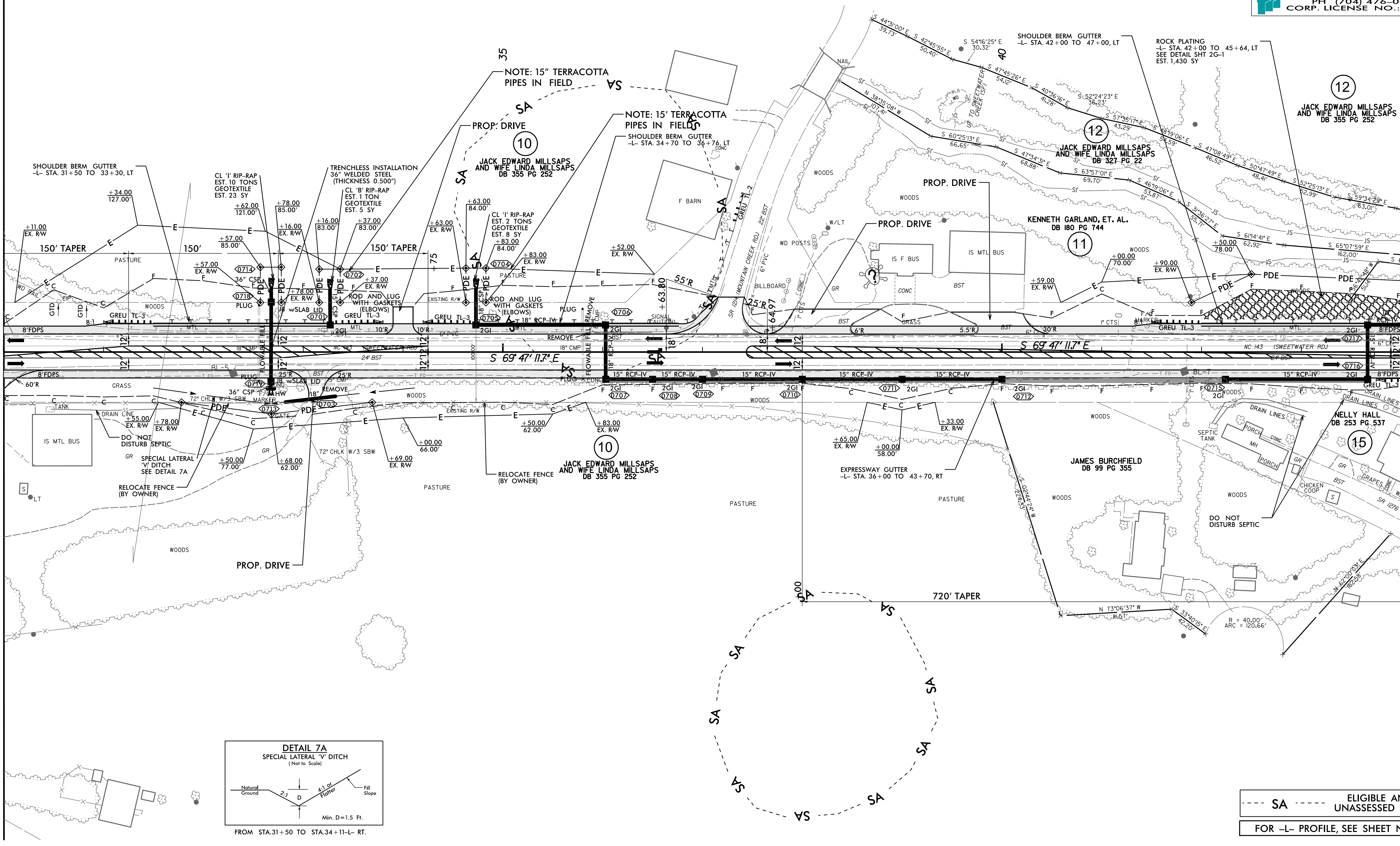
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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



MATCH LINE STA -L- 30+00.00
MATCH TO SHEET NO. 6

MATCH LINE STA -L- 44+00.00
MATCH TO SHEET NO. 8



--- SA --- ELIGIBLE AND UNASSESSED SITES
FOR -L- PROFILE, SEE SHEET NO. 21

REVISIONS

5/25/2022
X:\Roadway\A-0009CA\Roadway\Proj\A-0009CA_Plan
Sheets\A-0009CA_Rdy_psh_07.dgn

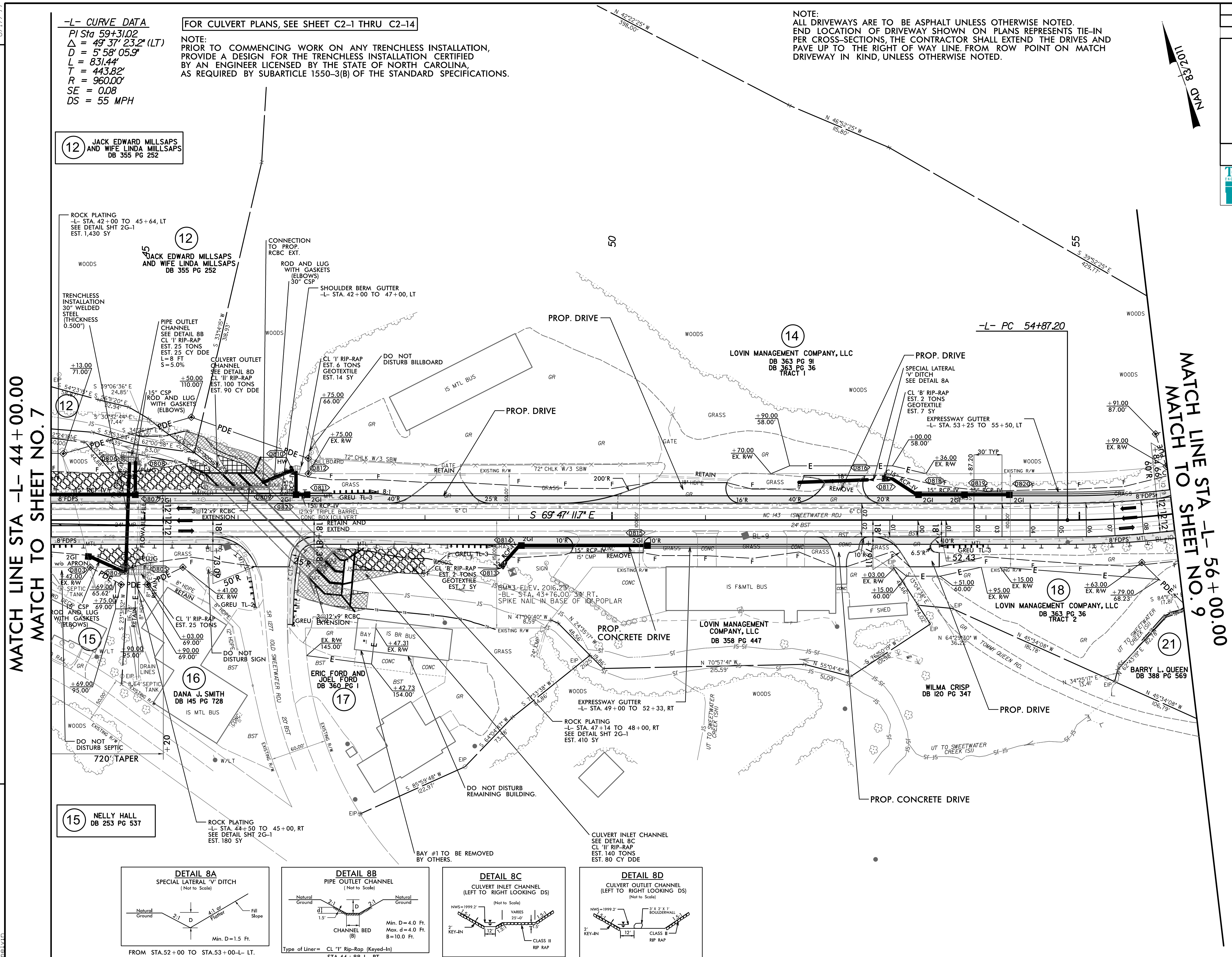
PROJECT REFERENCE NO. A-0009CA	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275	

-L- CURVE DATA
 PI Sta 59+31.02
 $\Delta = 49^\circ 37' 23.2''$ (LT)
 $D = 5^\circ 58' 05.9''$
 $L = 831.44'$
 $T = 443.82'$
 $R = 960.00'$
 $SE = 0.08$
 $DS = 55$ MPH

FOR CULVERT PLANS, SEE SHEET C2-1 THRU C2-14

NOTE:
 PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED. END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE. FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.



12 JACK EDWARD MILLSAPS AND WIFE LINDA MILLSAPS DB 355 PG 252

12 JACK EDWARD MILLSAPS AND WIFE LINDA MILLSAPS DB 355 PG 252

14 LOVIN MANAGEMENT COMPANY, LLC DB 363 PG 91 DB 363 PG 36 TRACT 1

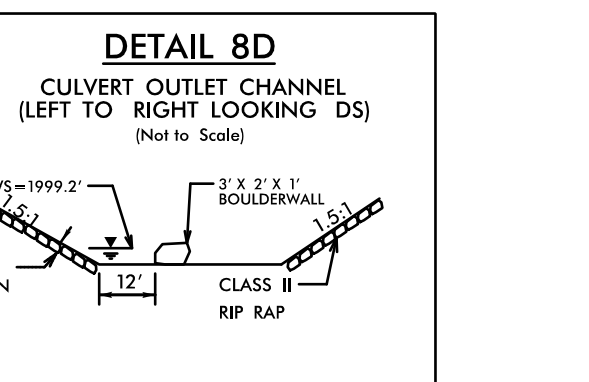
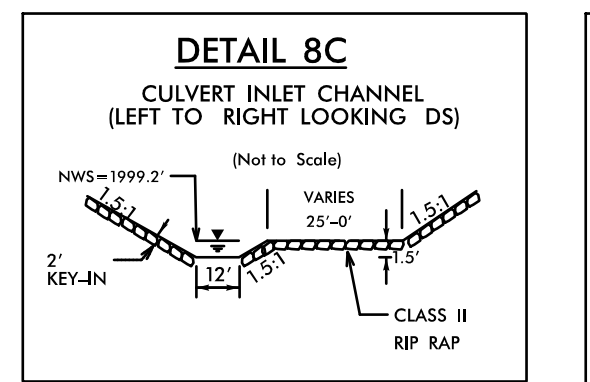
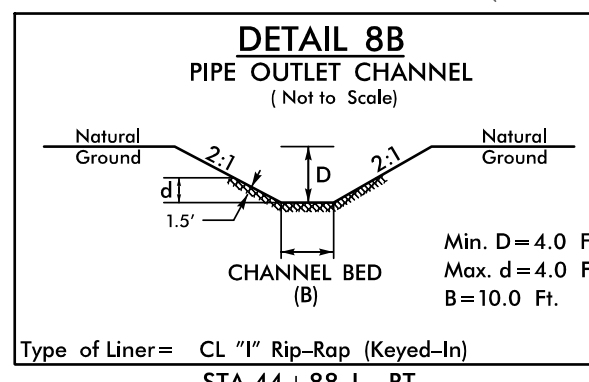
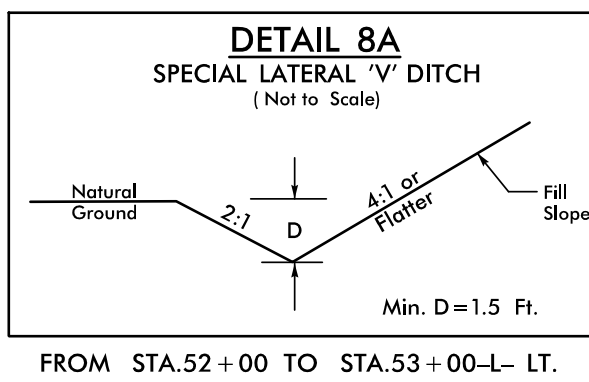
18 LOVIN MANAGEMENT COMPANY, LLC DB 363 PG 36 TRACT 2

15 NELLY HALL DB 253 PG 537

16 DANA J. SMITH DB 145 PG 728

17 ERIC FORD AND JOEL FORD DB 360 PG 1

21 BARRY L. QUEEN DB 388 PG 569



FOR -L- PROFILE, SEE SHEET NO. 21

REVISIONS

5/25/2022 R.A.-0009CA-0009CA_Plan Sheets\A-0009CA_Rdy_psh_08.dgn

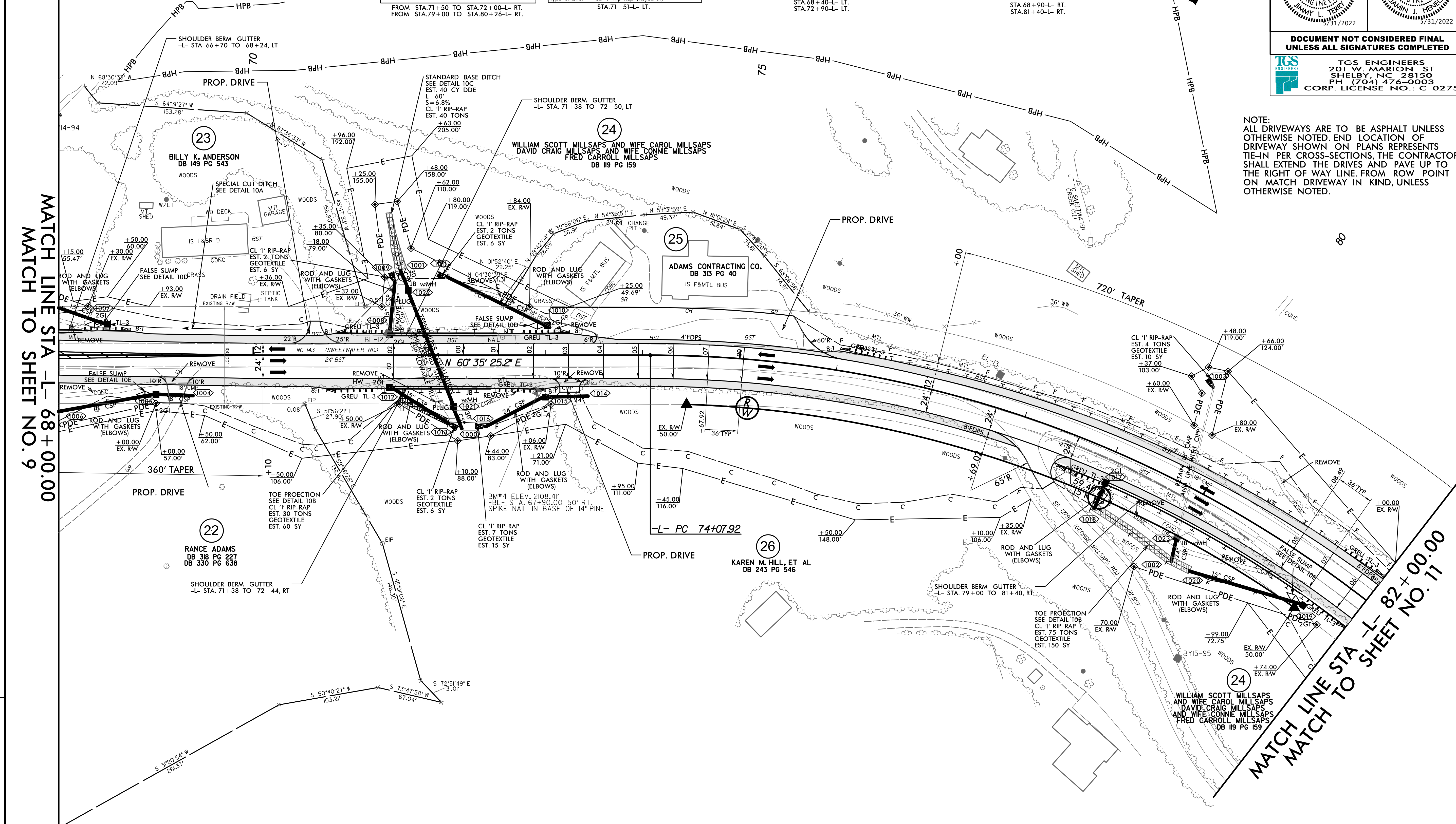
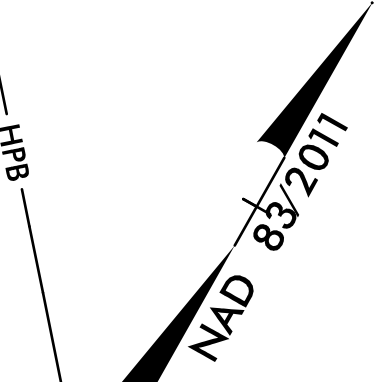
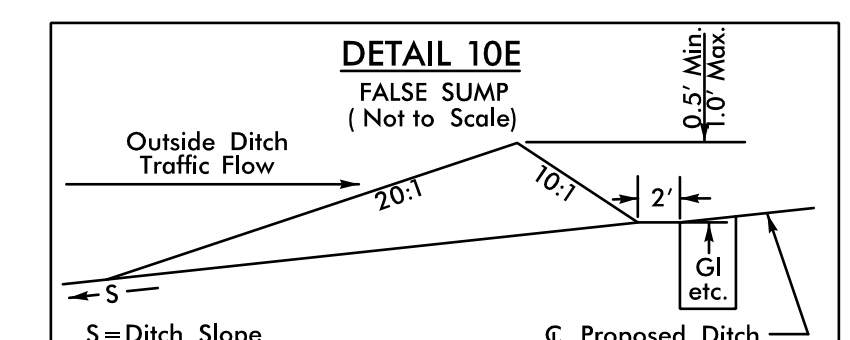
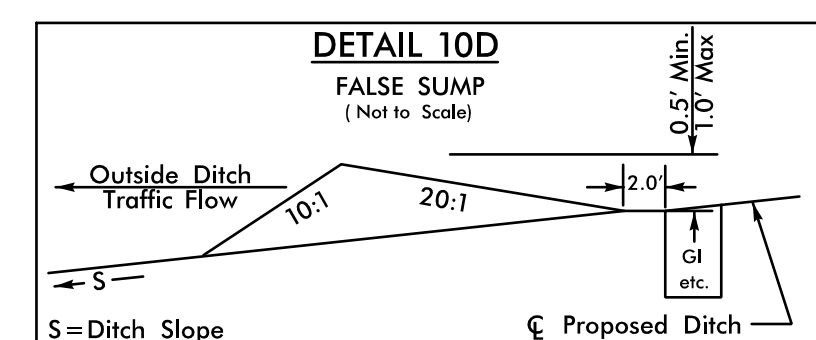
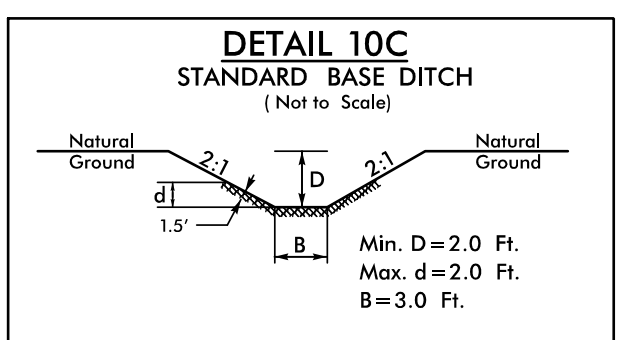
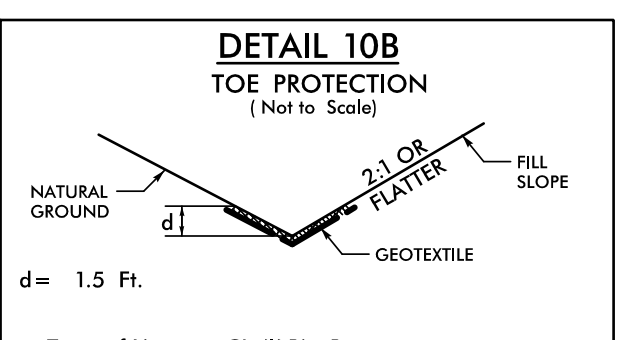
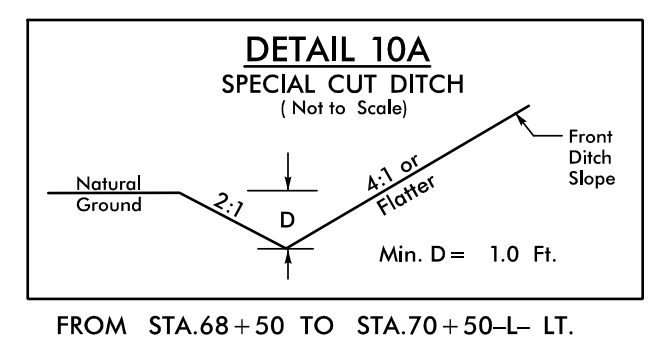
8/17/99

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 10	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

-L- CURVE DATA
 PI Sta 78+21.51
 $\Delta = 38^{\circ} 02' 00.5" (RT)$
 $D = 4^{\circ} 46' 28.7"$
 $L = 796.57'$
 $T = 413.59'$
 $R = 1,200.00'$
 $SE = 0.08$
 $DS = 60 MPH$



MATCH LINE STA -L- 68+00.00
MATCH TO SHEET NO. 9

MATCH LINE STA -L- 82+00.00
MATCH TO SHEET NO. 11

NOTE:
 PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION,
 PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED
 BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA,
 AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

FOR -L- PROFILE, SEE SHEET NO. 22

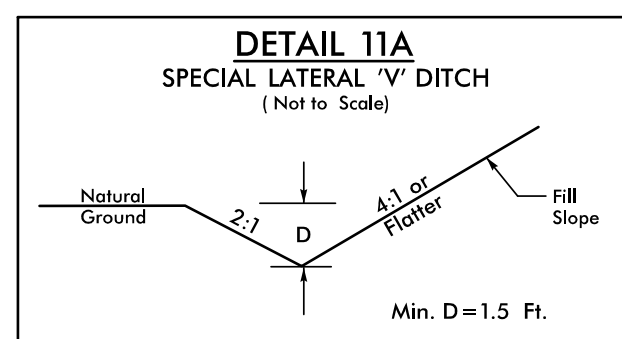
REVISIONS

8.17.17.19.99
 5/20/2022
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 Sheets\A-0009CA_Rdy_psh_10.dgn
 11/21/2022

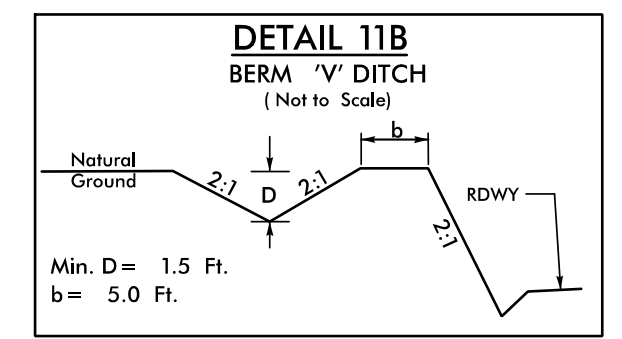
8/17/99

-L- CURVE DATA
 PI Sta 78+21.5/
 $\Delta = 38^{\circ}02'00.5''$ (RT)
 $D = 4^{\circ}46'28.7''$
 $L = 796.57'$
 $T = 413.59'$
 $R = 1,200.00'$
 $SE = 0.08$
 $DS = 60$ MPH

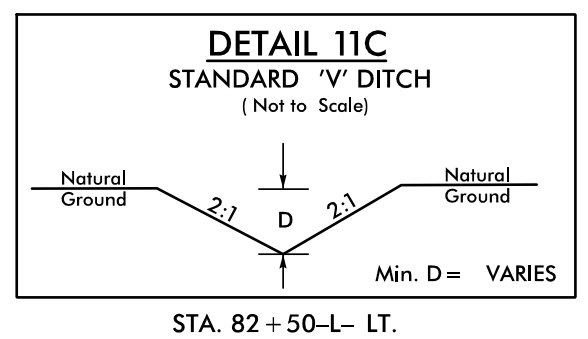
-L- CURVE DATA
 PI Sta 98+90.1/
 $\Delta = 65^{\circ}35'01.6''$ (LT)
 $D = 5^{\circ}58'05.9''$
 $L = 1,098.87'$
 $T = 618.49'$
 $R = 960.00'$
 $SE = 0.08$
 $DS = 55$ MPH



FROM STA.87+00 TO STA.87+50-L- LT.
 FROM STA.88+62 TO STA.89+50-L- LT.



FROM STA.91+95 TO STA.92+50-L- LT.
 FROM STA.93+85 TO STA.96+00-L- LT.



STA. 82 + 50-L- LT.

NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
 END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN
 PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND
 PAVE UP TO THE RIGHT OF WAY LINE. FROM ROW POINT ON MATCH
 DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

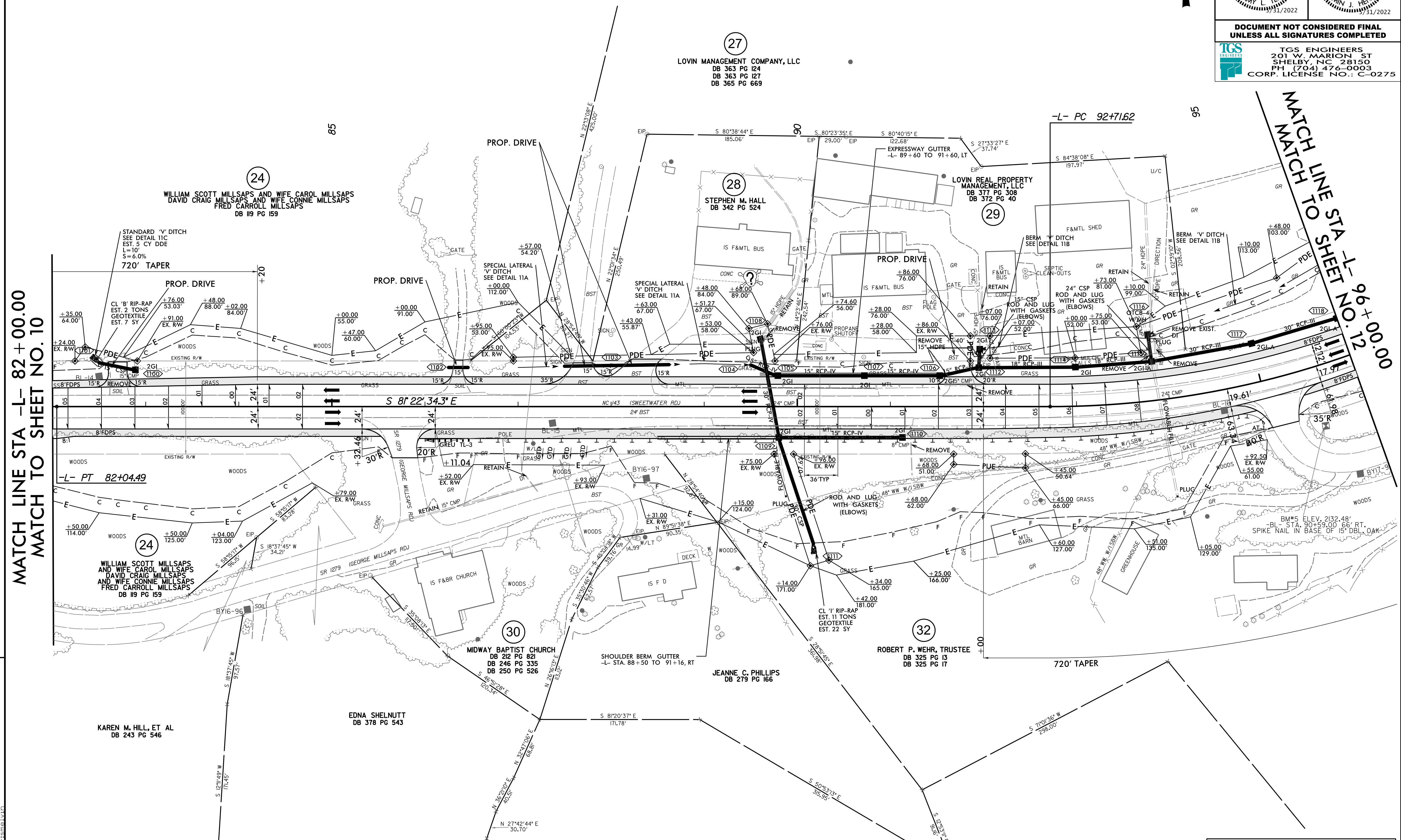
NAD 83/2011

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

REVISIONS

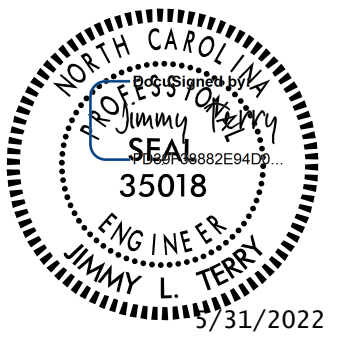
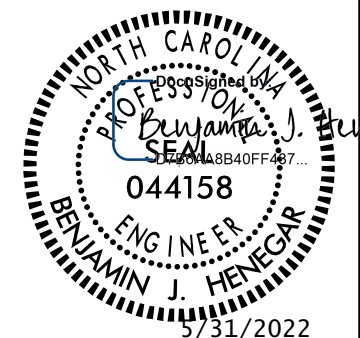

MATCH LINE STA -L- 82+00.00
 MATCH TO SHEET NO. 10

MATCH LINE TO SHEET NO. 12
 -L- PC 92+71.62
 96+00.00

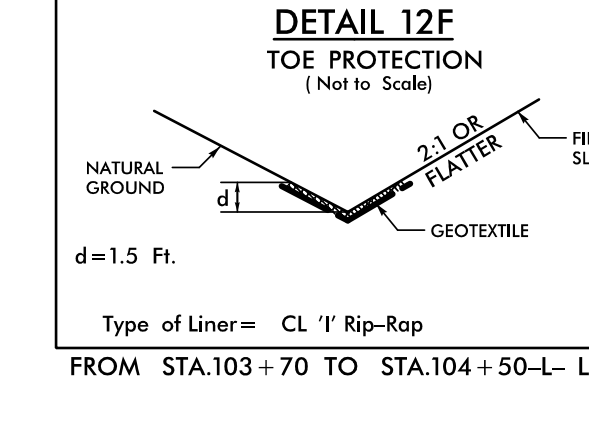
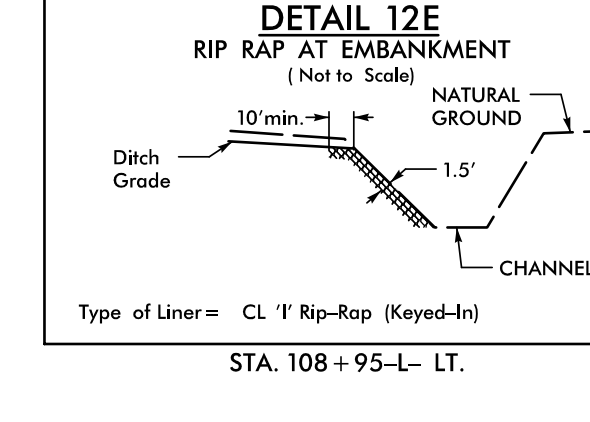
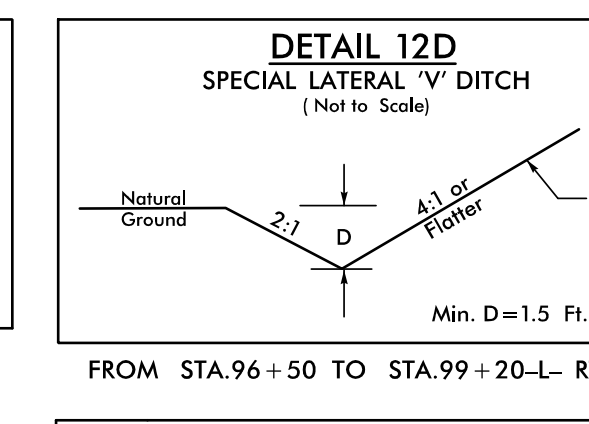
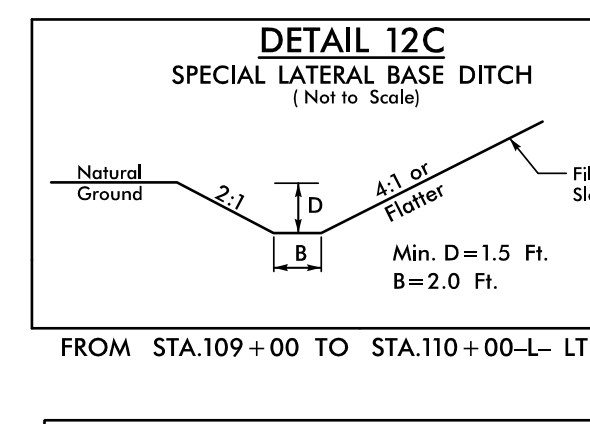
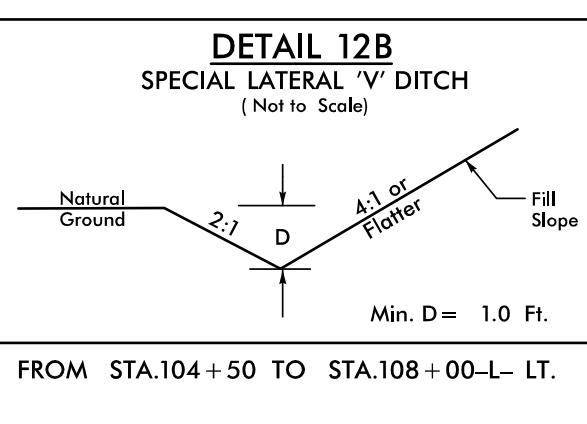
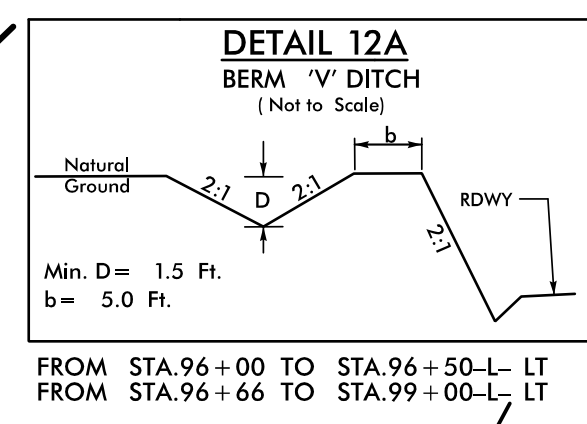


5/20/2022
 X:\Projects\A-0009\Roadway\Proj\A-0009CA_Plan_Sheets\A-0009CA_Rdy_psh_11.dgn
 lceustamel

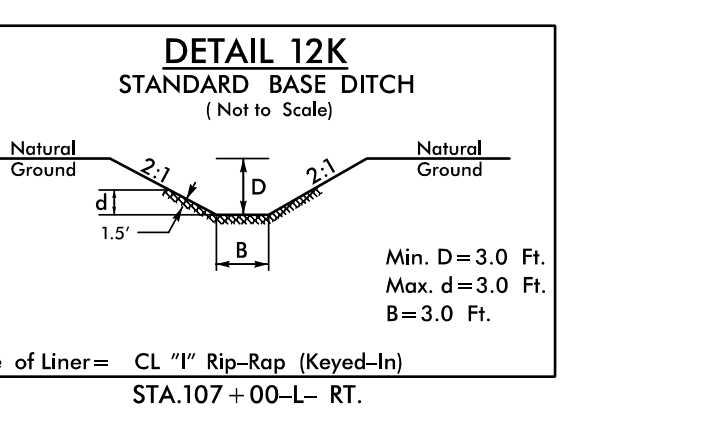
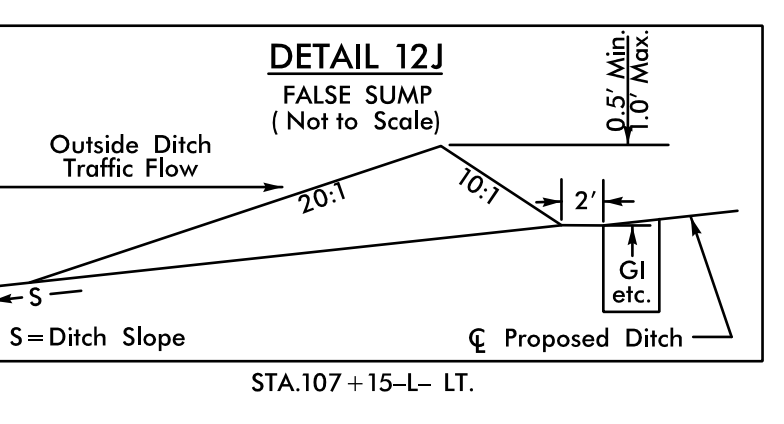
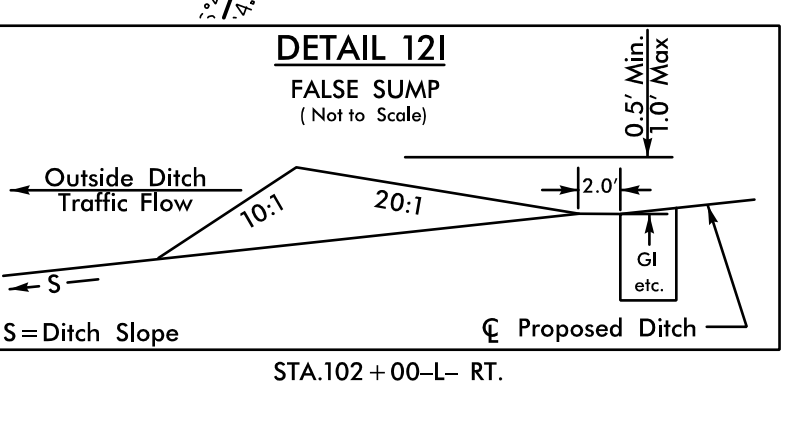
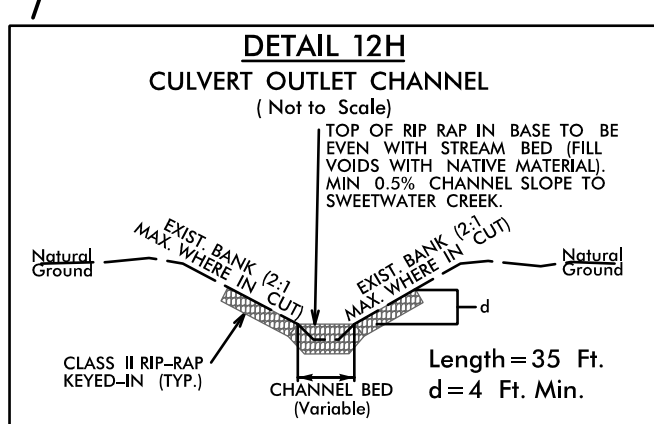
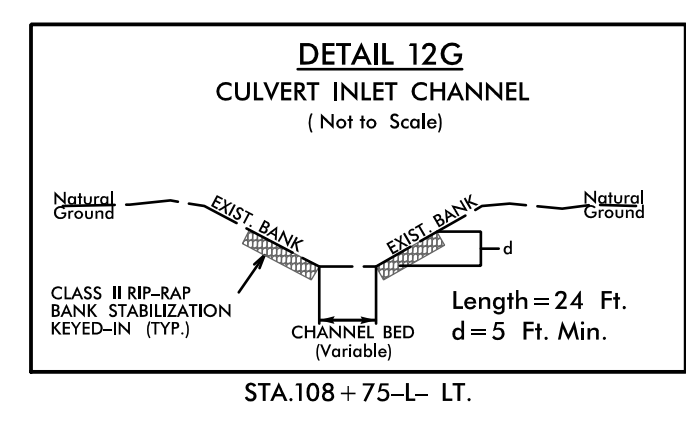
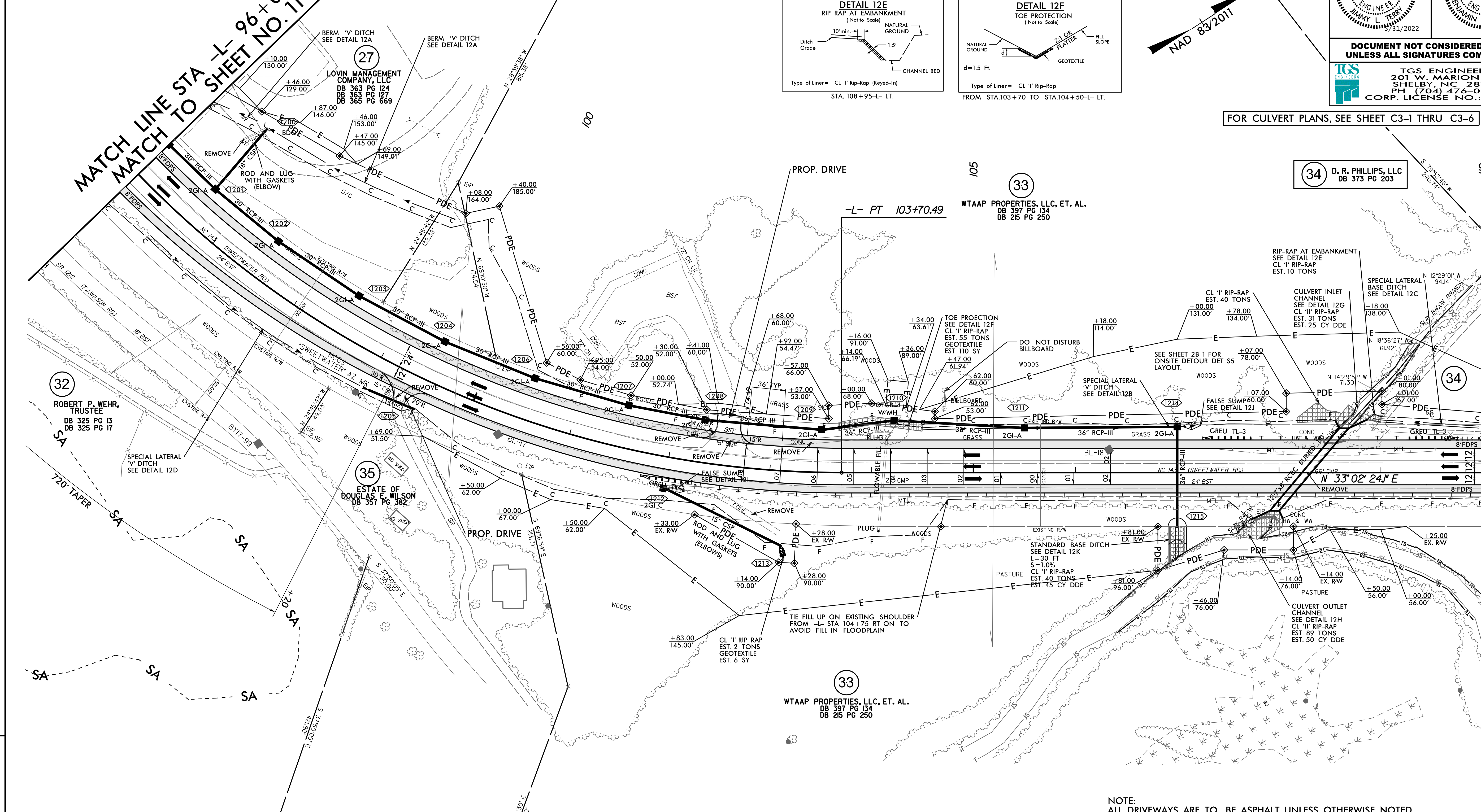
FOR -L- PROFILE, SEE SHEET NO. 23

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 12	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		ENGINEER	
			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275			

-L- CURVE DATA
 PI Sta 98+90.11
 $\Delta = 65^\circ 35' 01.6" (LT)$
 $D = 5' 58" 05.9"$
 $L = 1,098.87'$
 $R = 618.49'$
 $SE = 0.08$
 $DS = 55 MPH$



FOR CULVERT PLANS, SEE SHEET C3-1 THRU C3-6



NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
 END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN
 PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND
 PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH
 DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

SEE SHEET 2B-1 FOR ONSITE DETOUR DET S5

SA ELIGIBLE AND UNASSESSED SITES

FOR -L- PROFILE, SEE SHEET NO. 23

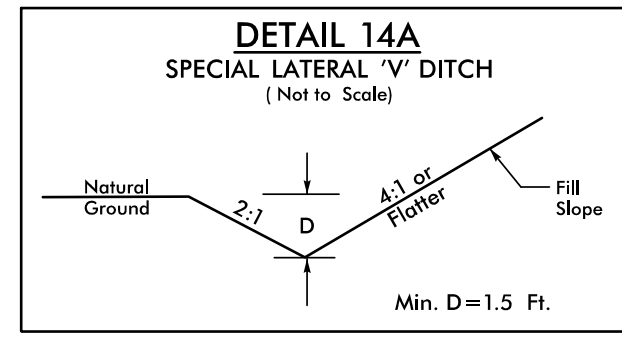
REVISIONS

5/27/2024 Roadway\Proj\A-0009CA_Plan Sheets\A-0009CA_Rdy_psh_12.dgn

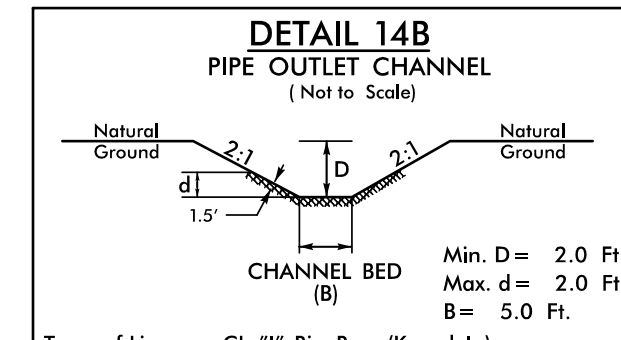
MATCH LINE STA -L- 96+00.00
 MATCH TO SHEET NO. 11

MATCH LINE STA -L- 110+00.00
 MATCH TO SHEET NO. 13

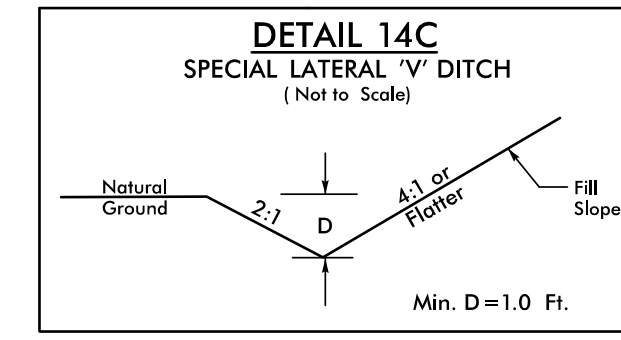
8/17/09



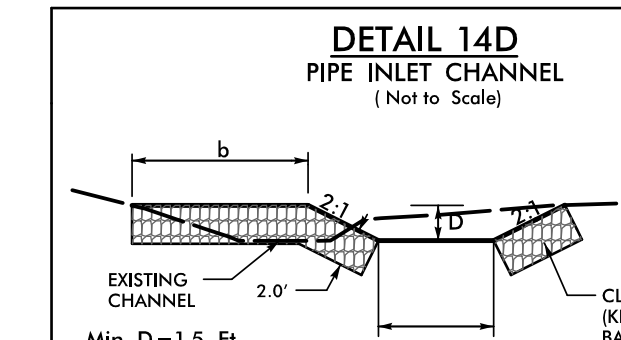
FROM STA.127+00 TO STA.127+25-LT.
FROM STA.127+80 TO STA.128+00-LT.



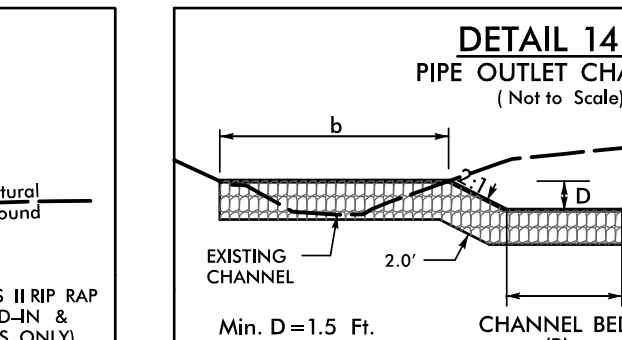
STA. 129+13-LT.



FROM STA.129+50 TO STA.130+70-LT.
FROM STA.131+50 TO STA.132+00-LT.
FROM STA.130+00 TO STA.131+00-LT.



STA.135+20-RT.



STA.134+40-LT.

NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED. END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE. FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

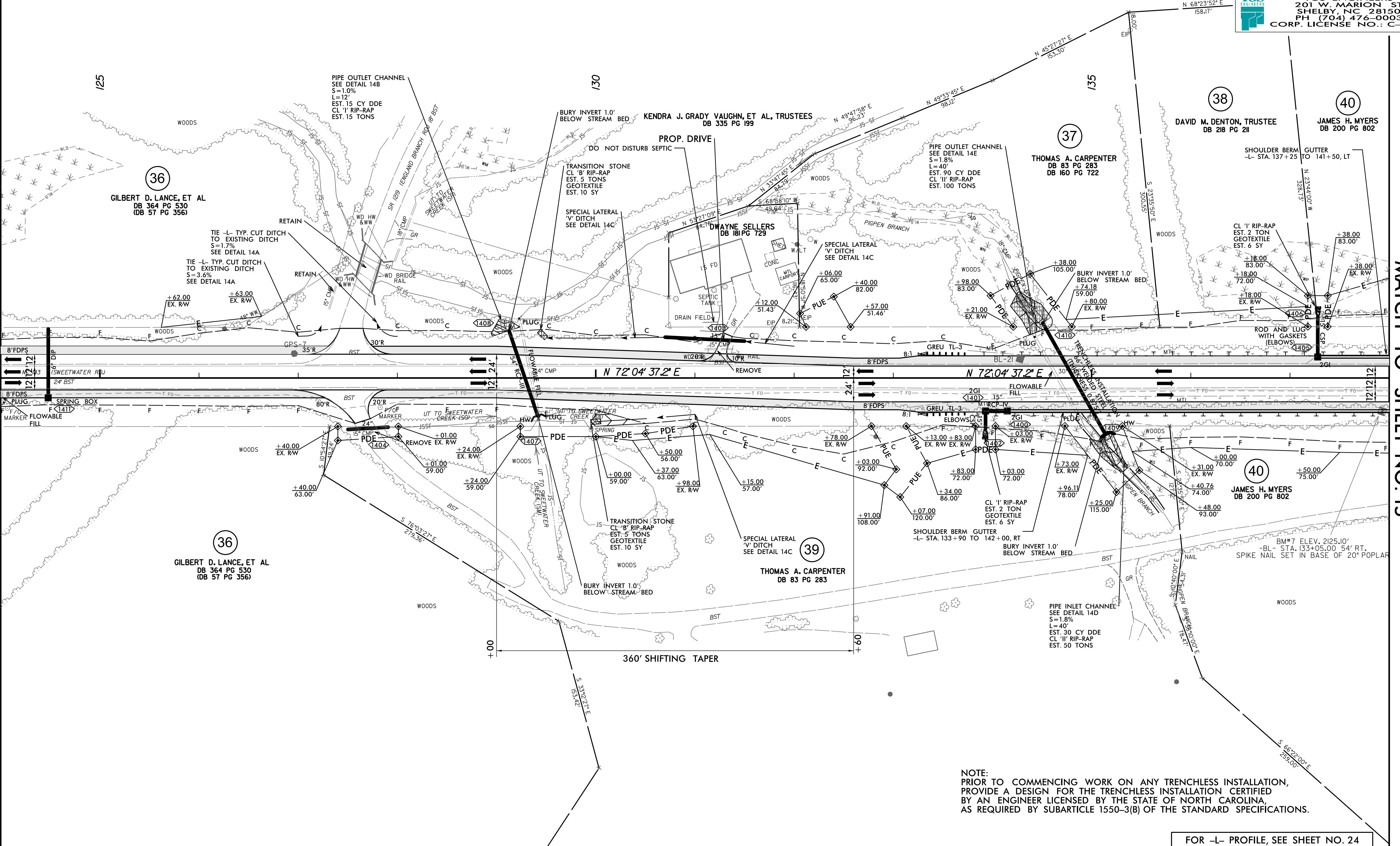


PROJECT REFERENCE NO. A-0009CA	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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

MATCH LINE STA -L- 124+00.00
MATCH TO SHEET NO. 13

MATCH LINE STA -L- 138+00.00
MATCH TO SHEET NO. 15



NOTE:
PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

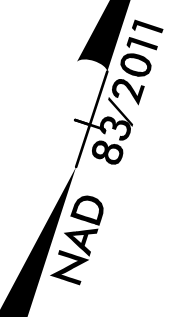
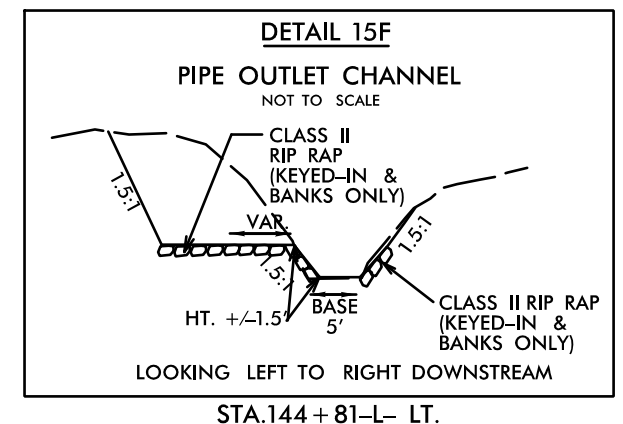
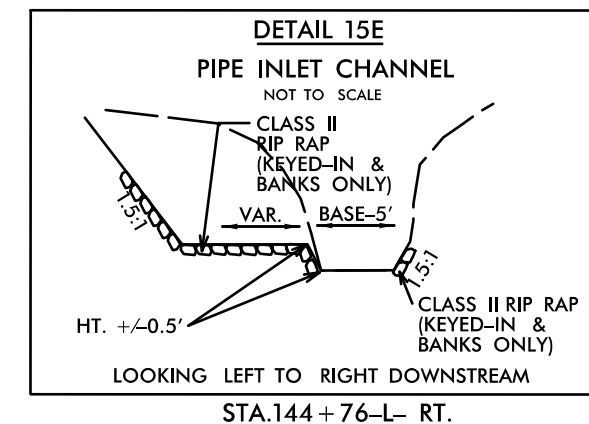
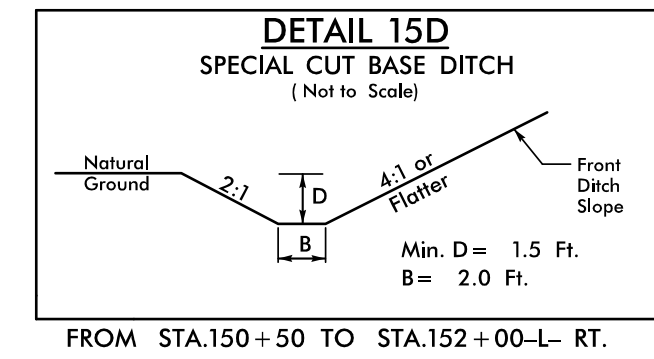
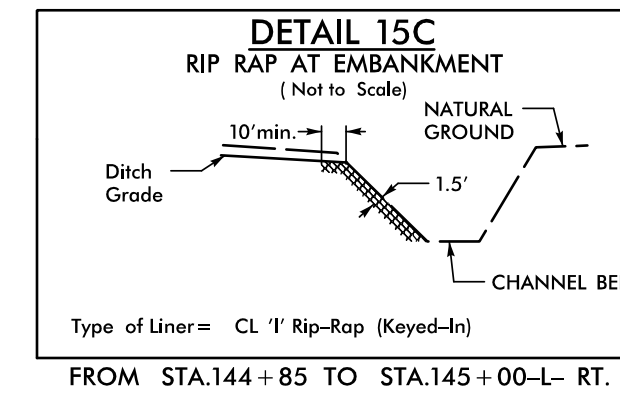
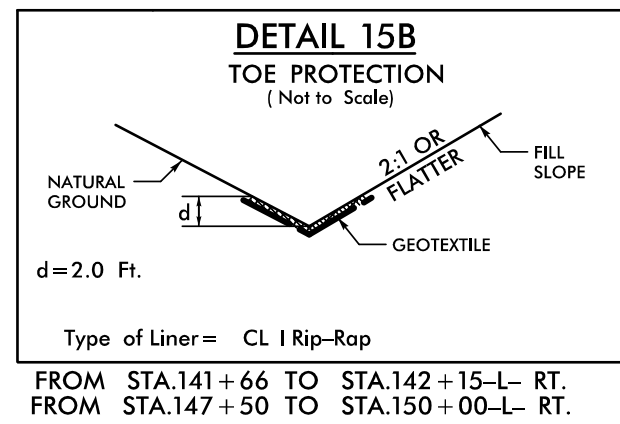
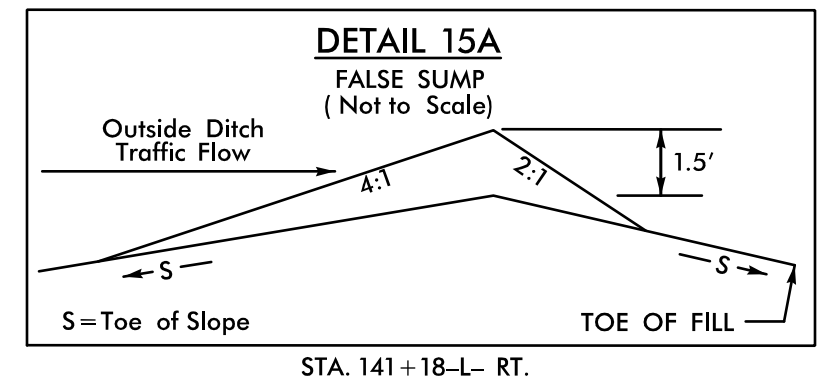
FOR -L- PROFILE, SEE SHEET NO. 24

REVISIONS

5/20/2009 Roadway\Proj\A-0009CA_Plan
Sheets\A-0009CA_Rdy_psh_14.dgn
1/1/2009

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER JIMMY L. TERRY 35018 5/31/2022	HYDRAULICS ENGINEER BENJAMIN J. HENEGAR 044158 5/31/2022
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH: (704) 476-0003 CORP. LICENSE NO.: C-0275</p>	

-L- CURVE DATA
 PI Sta 149+87.02
 $\Delta = 0^\circ 52' 26.7" (LT)$
 $D = 0^\circ 28' 38.9"$
 $L = 183.07'$
 $R = 12,000.00'$
 SE = NC
 DS = 60 MPH

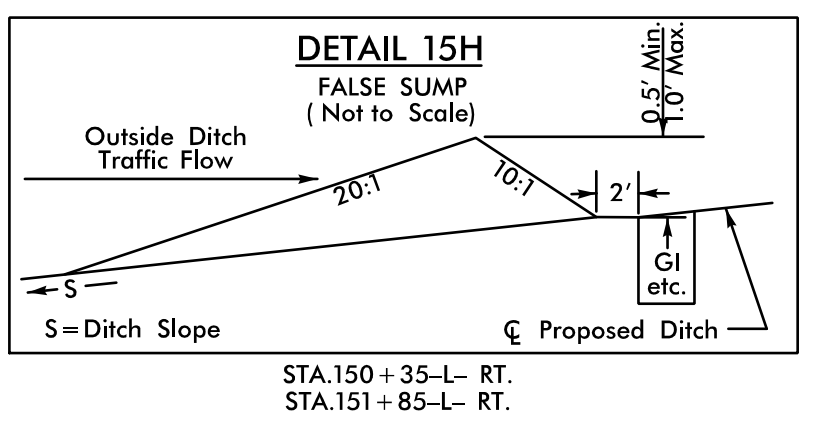
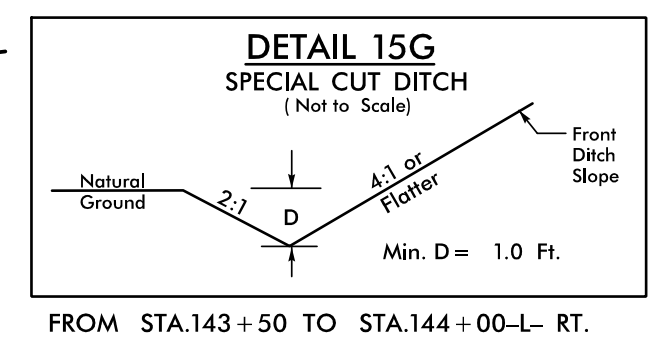
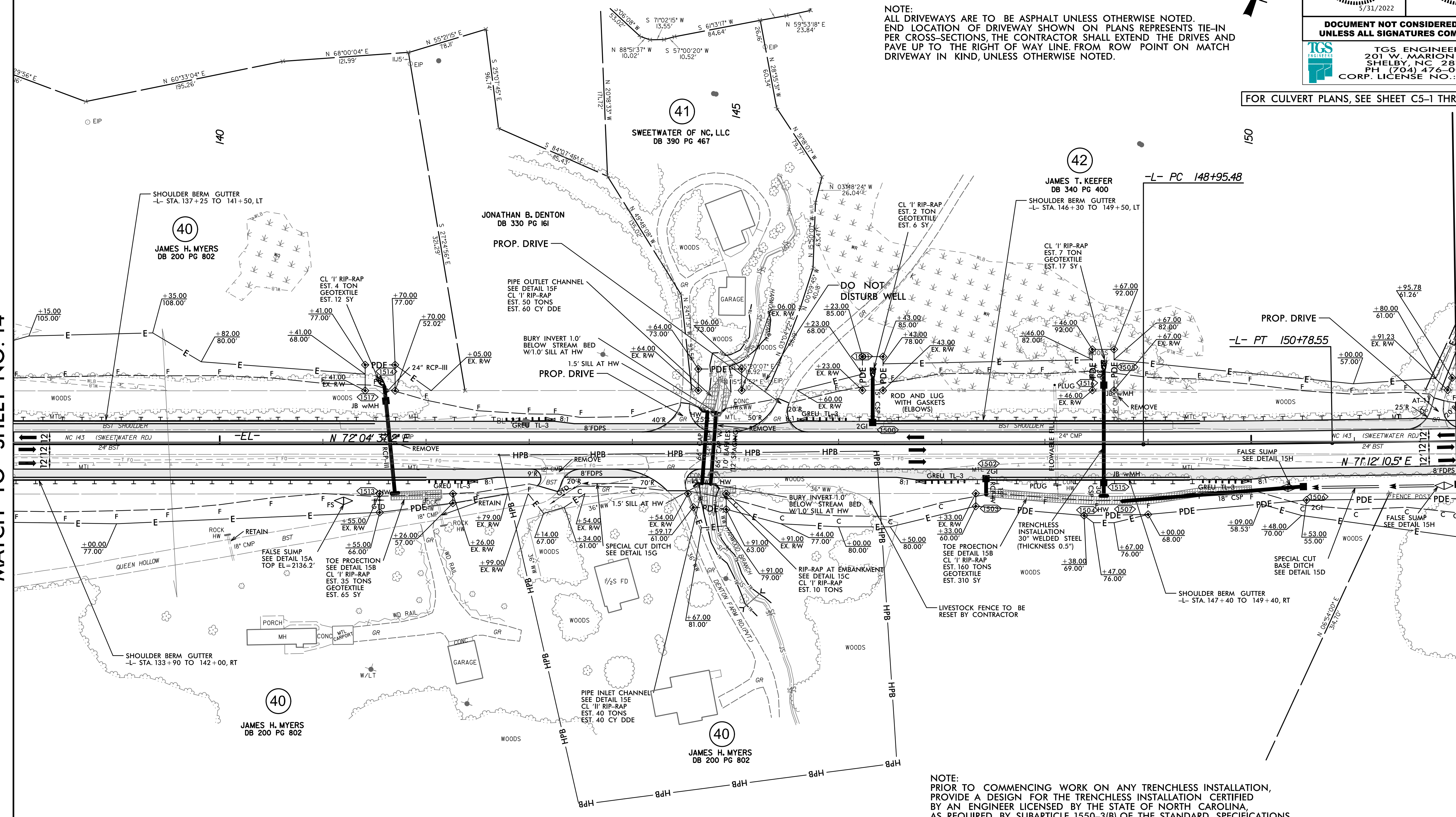


NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
 END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

FOR CULVERT PLANS, SEE SHEET C5-1 THRU C5-4

MATCH LINE STA -L- 138+00.00
MATCH TO SHEET NO. 14

MATCH LINE STA -L- 152+00.00
MATCH TO SHEET NO. 16



FOR -L- PROFILE, SEE SHEET NO. 25

NOTE:
 PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

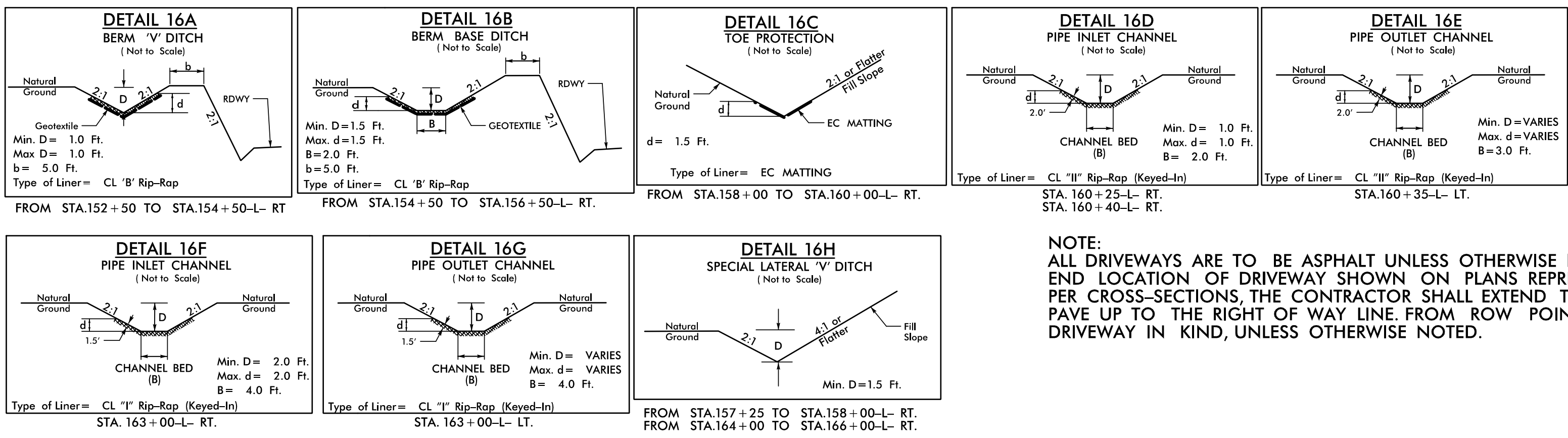
REVISIONS

5/20/2022 X:\Roadway\0009\Roadway\Proj\A-0009CA_Plan_Sheets\A-0009CA_Rdw_psh_15.dgn
1/15/2022

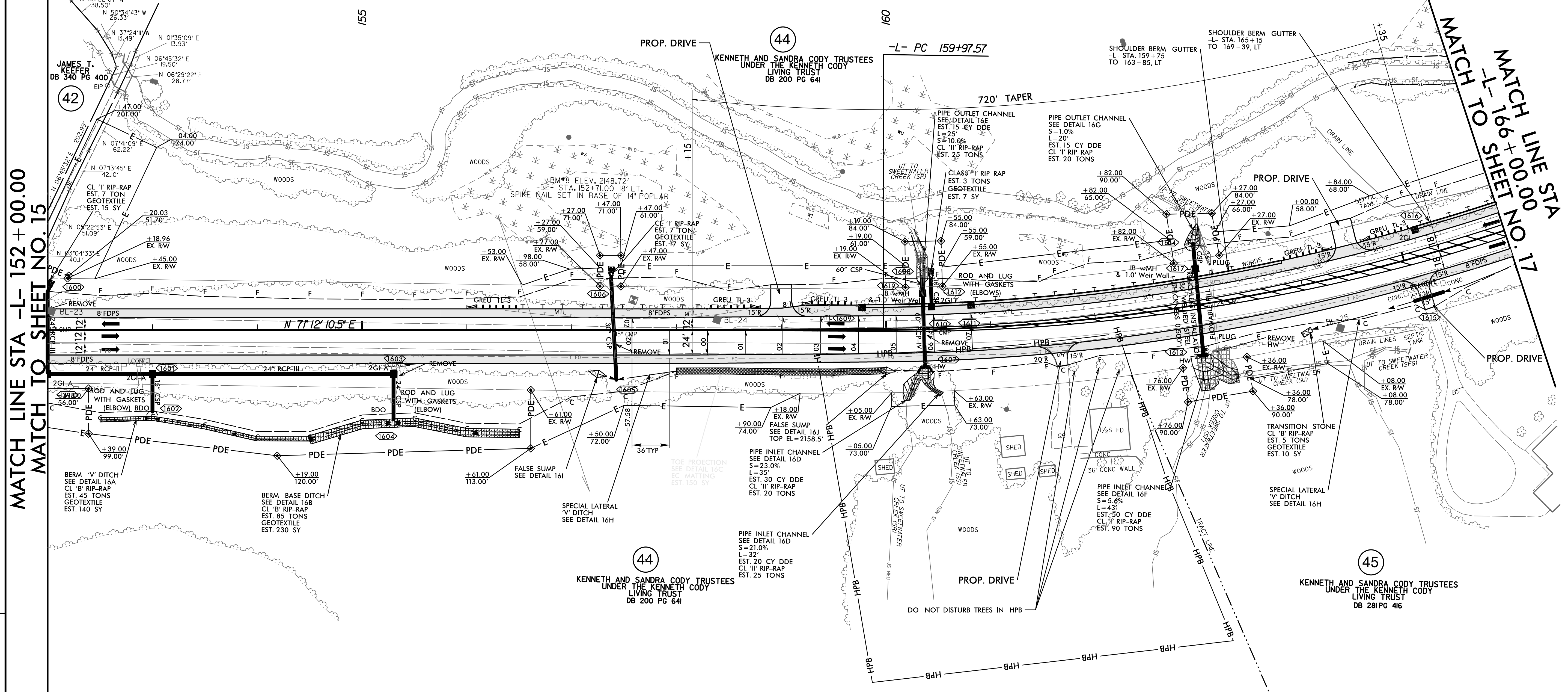
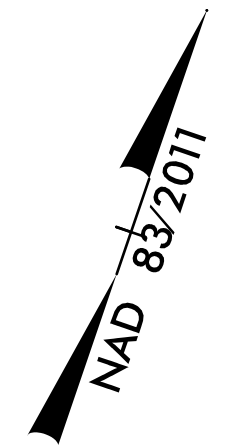
8/17/99

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L- CURVE DATA
 PI Sta 166+10.36
 $\Delta = 35^\circ 44' 58.6" (LT)$
 $D = 3^\circ 00' 56.0"$
 $L = 1,185.50'$
 $T = 612.76'$
 $R = 1,900.00'$
 $SE = .007$
 $DS = 60 MPH$

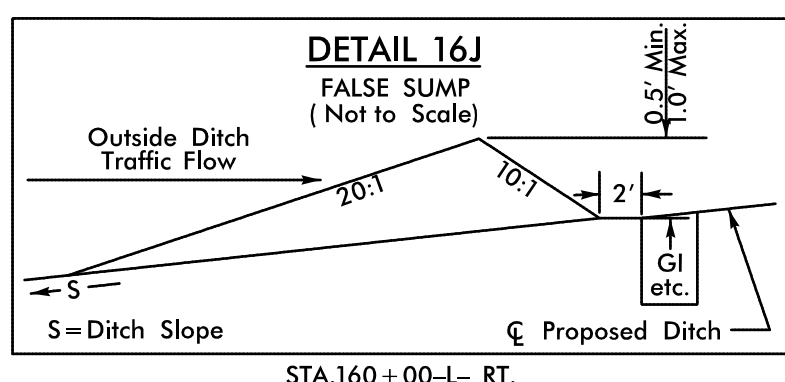
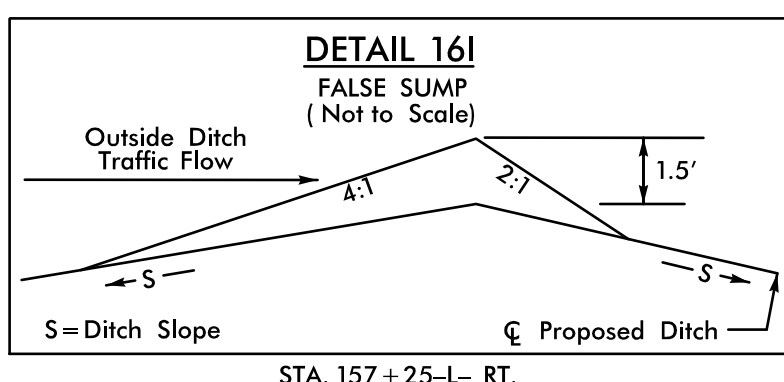


NOTE:
 ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
 END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.



MATCH LINE STA -L- 152+00.00
MATCH TO SHEET NO. 15

MATCH LINE STA -L- 166+00.00
MATCH TO SHEET NO. 17



NOTE:
 PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

FOR -L- PROFILE, SEE SHEET NO. 25

REVISIONS

Sheets\A-0009CA_Plan
 Sheets\A-0009CA_Plan
 Sheets\A-0009CA_Plan

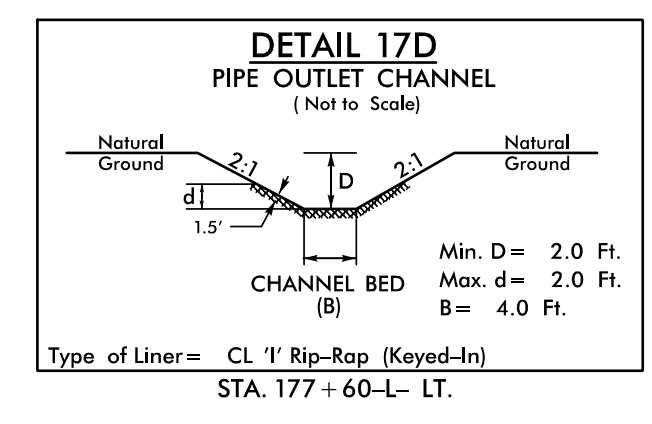
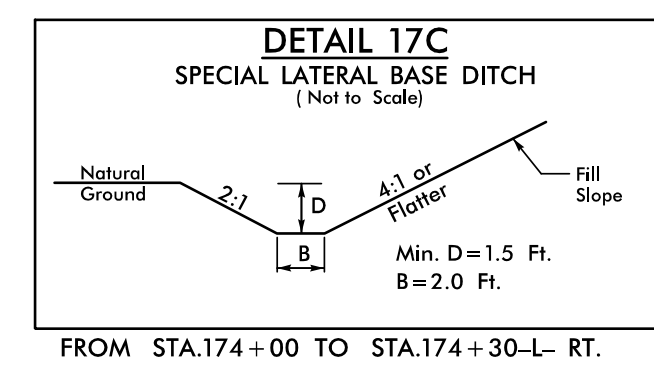
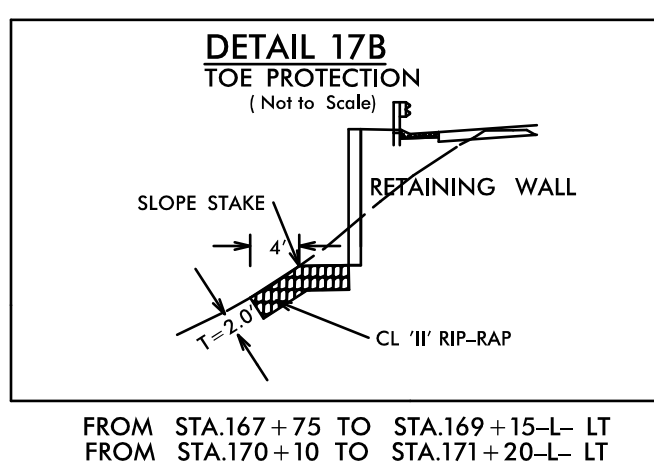
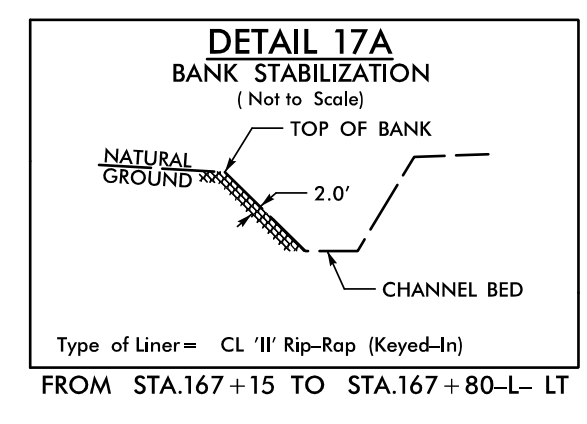
PROJECT REFERENCE NO. A-0009CA	SHEET NO. 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

-L- CURVE DATA
 PI Sta 166+10.36
 $\Delta = 35^\circ 44' 58.6" (LT)$
 $D = 3^\circ 00' 56.0"$
 $L = 1,185.50'$
 $T = 612.76'$
 $R = 1,900.00'$
 $SE = 0.07$
 $DS = 60 MPH$

-DRI- CURVE DATA
 PI Sta 10+41.97
 $\Delta = 48^\circ 49' 47.4" (RT)$
 $D = 190^\circ 59' 09.4"$
 $L = 25.57'$
 $T = 13.62'$
 $R = 30.00'$
 Ⓞ-DRI- PC 11+34.96
 Ⓞ-DRI- PT 11+67.50

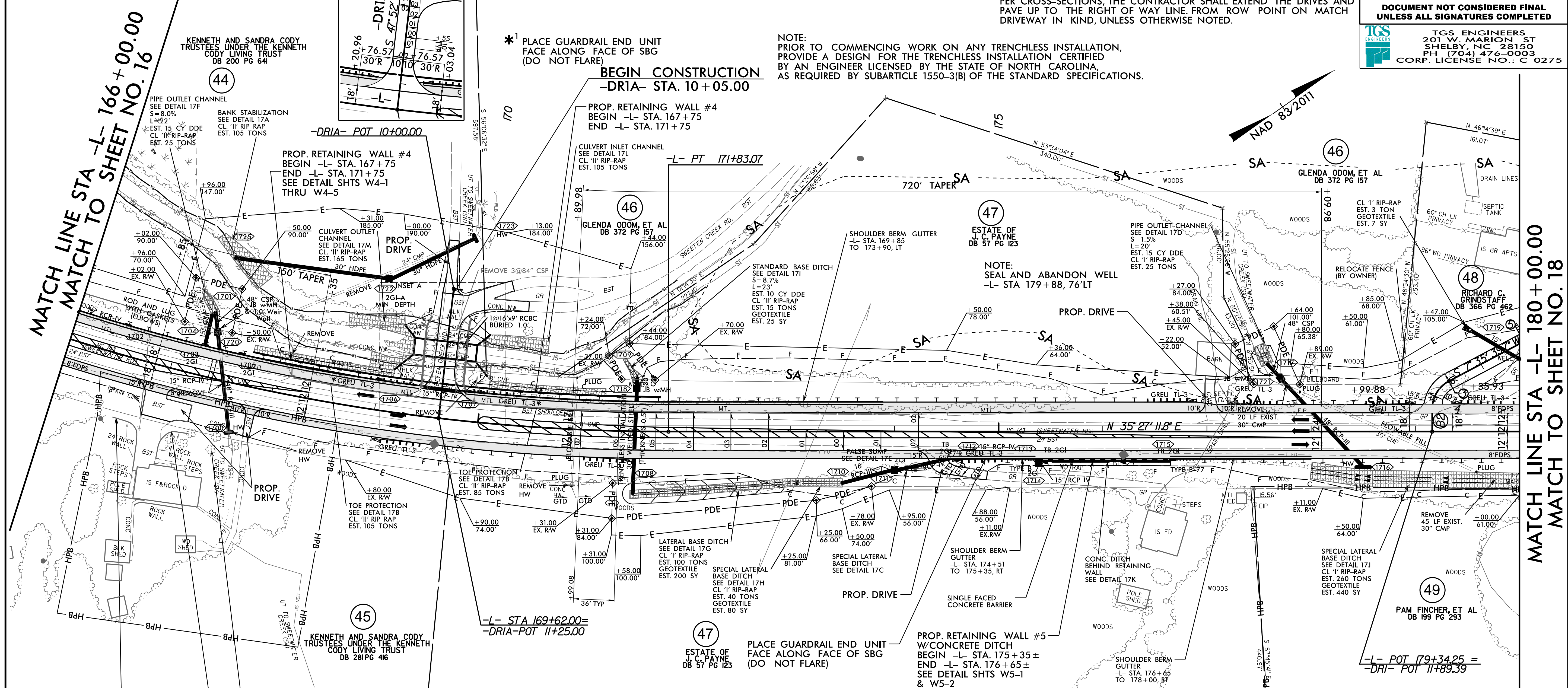


NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
END LOCATION OF DRIVEWAY ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

FOR CULVERT PLANS, SEE SHEET C7-1 THRU C7-8

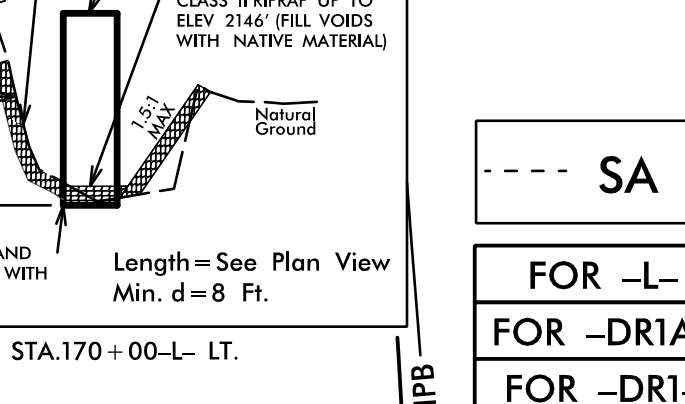
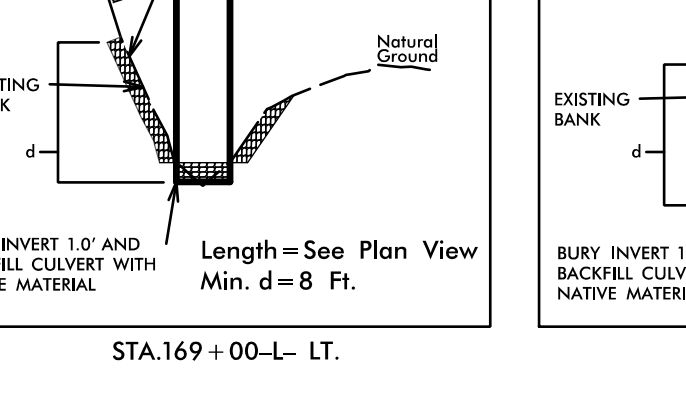
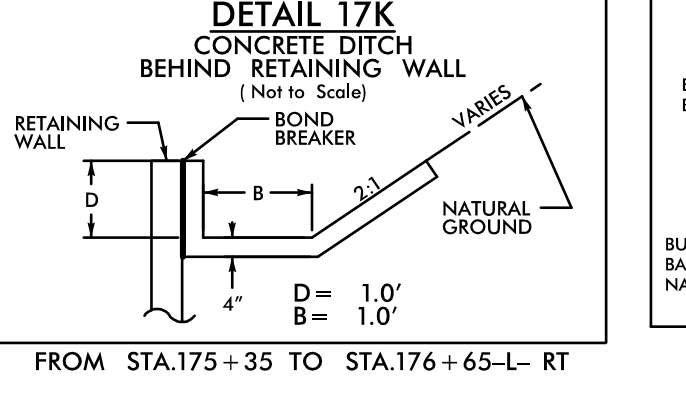
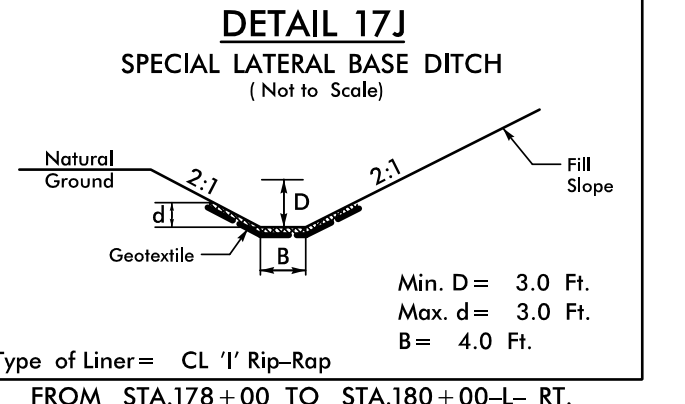
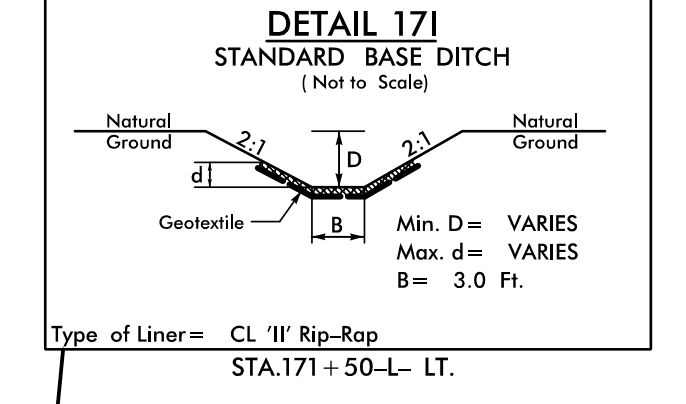
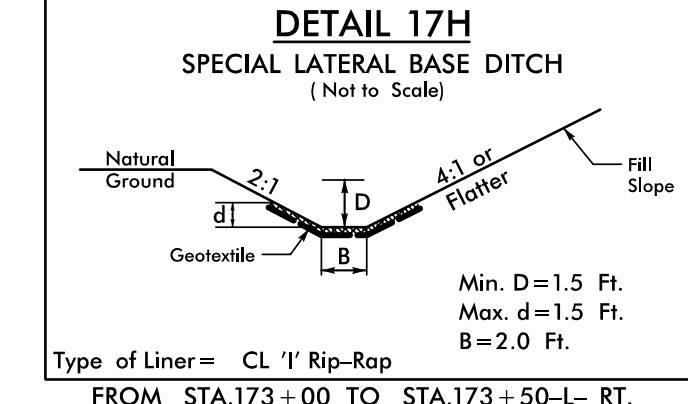
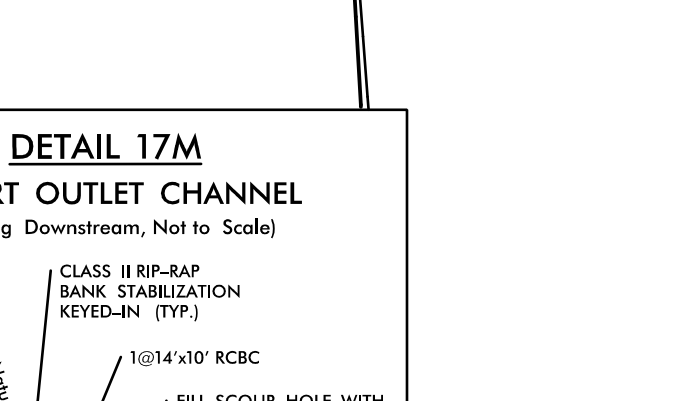
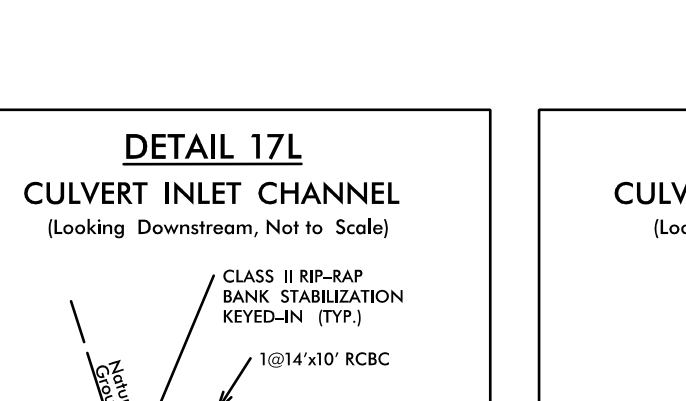
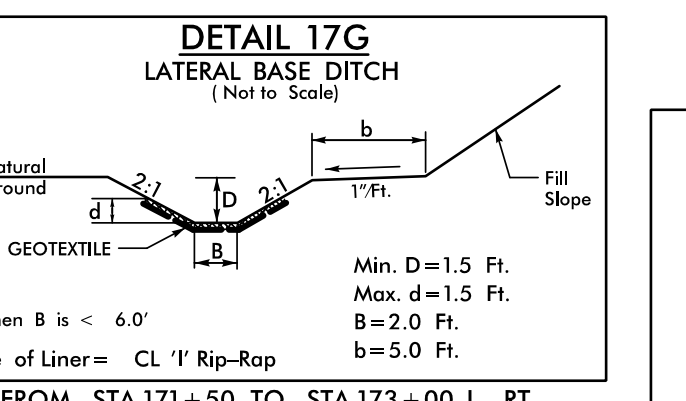
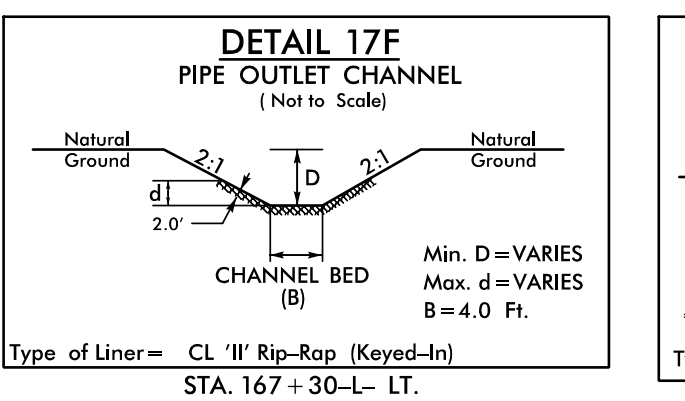
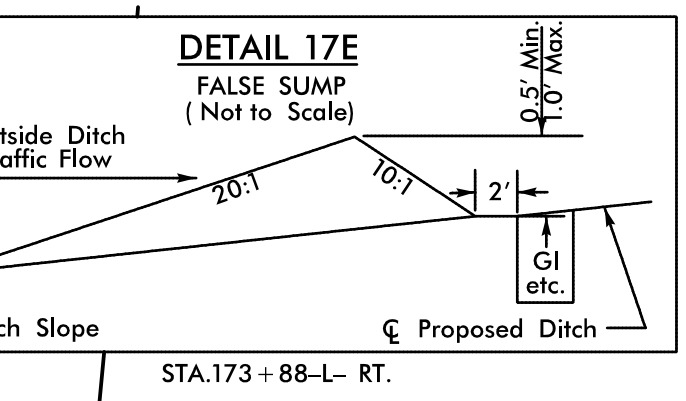
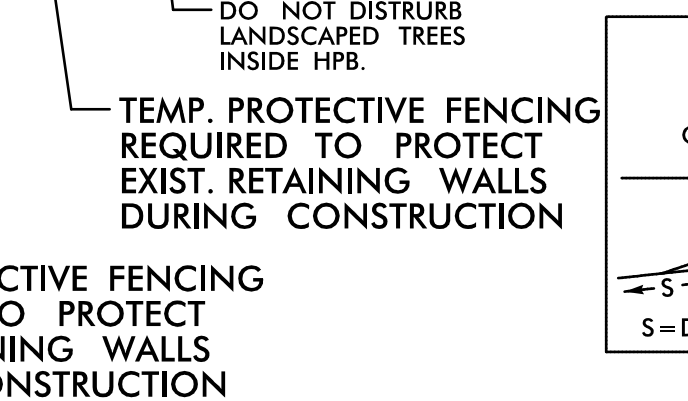
NOTE:
PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

* PLACE GUARDRAIL END UNIT FACE ALONG FACE OF SBG (DO NOT FLARE)



MATCH LINE STA -L- 166+00.00
MATCH TO SHEET NO. 16

MATCH LINE STA -L- 180+00.00
MATCH TO SHEET NO. 18



--- SA --- ELIGIBLE AND UNASSESSED SITES

FOR -L- PROFILE, SEE SHEET NO. 26
 FOR -DRIA- PROFILE, SEE SHEET NO. 28
 FOR -DRI- PROFILE, SEE SHEET NO. 28

REVISIONS

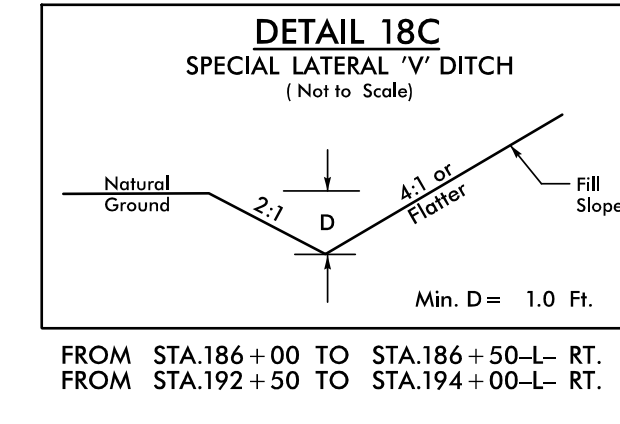
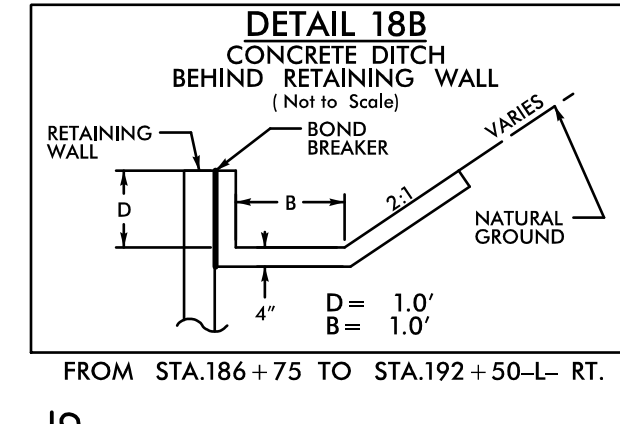
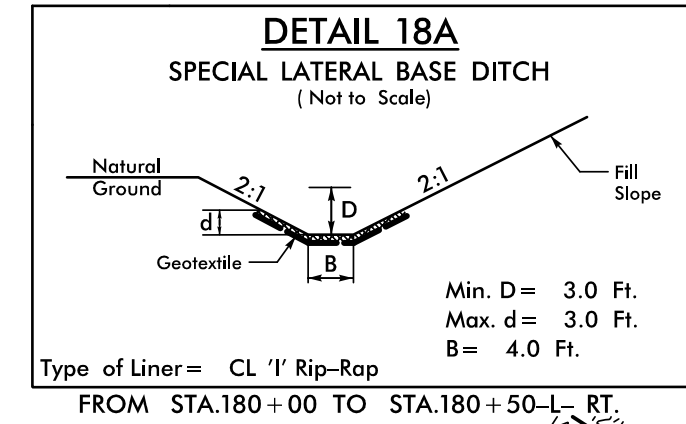
8.17.17.99
 Sheets\A-0009CA_Rdy_psh_17.dgn
 5/20/2022 10:00 AM Roadway\Proj\A-0009CA_Plan
 1/1/2022 10:00 AM

PROJECT REFERENCE NO. A-0009CA		SHEET NO. 18	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		ENGINEER	

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

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

-L- CURVE DATA	-DRI- CURVE DATA
PI Sta 190+83.76	PI Sta 10+41.97
$\Delta = 42^\circ 18' 27.4" (RT)$	$\Delta = 43^\circ 49' 47.4" (RT)$
$D = 3^\circ 57' 05.2"$	$D = 190^\circ 59' 09.4"$
$L = 1,070.69'$	$L = 25.57'$
$T = 561.07'$	$T = 13.62'$
$R = 1,450.00'$	$R = 30.00'$
$SE = 0.08$	
$DS = 60 \text{ MPH}$	

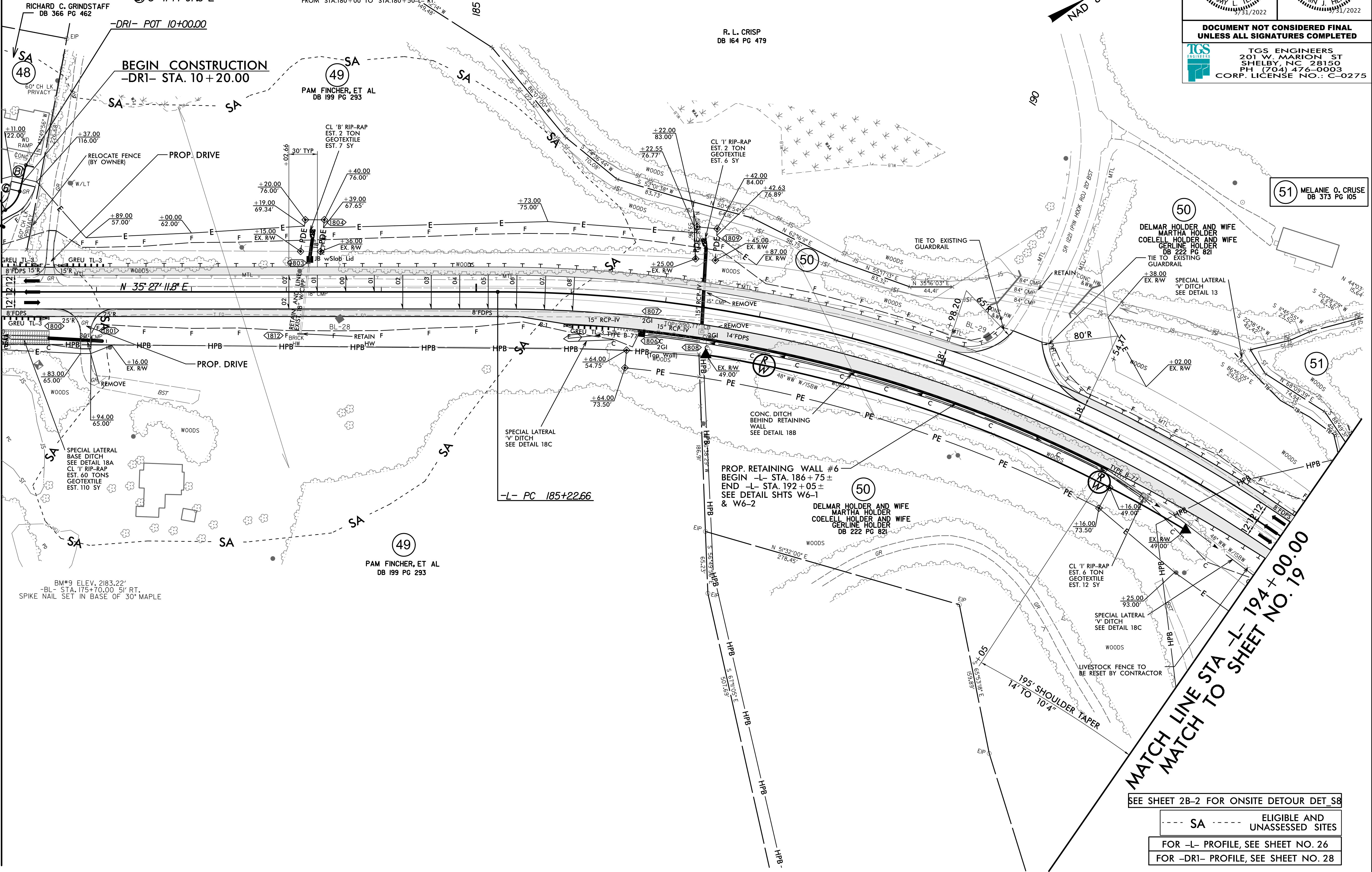


NOTE:
ALL DRIVEWAYS ARE TO BE ASPHALT UNLESS OTHERWISE NOTED.
END LOCATION OF DRIVEWAY SHOWN ON PLANS REPRESENTS TIE-IN PER CROSS-SECTIONS, THE CONTRACTOR SHALL EXTEND THE DRIVES AND PAVE UP TO THE RIGHT OF WAY LINE FROM ROW POINT ON MATCH DRIVEWAY IN KIND, UNLESS OTHERWISE NOTED.

MATCH LINE STA -L- 180+00.00
MATCH TO SHEET NO. 17

MATCH LINE STA -L- 194+00.00
MATCH TO SHEET NO. 19

REVISIONS



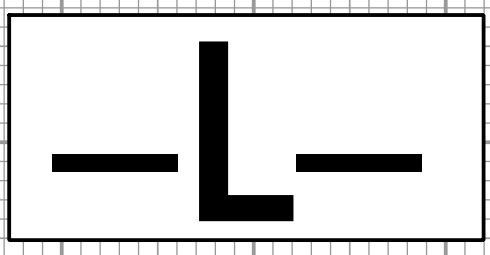
BM*9 ELEV. 2183.22'
-BL- STA. 175+70.00 51' RT.
SPIKE NAIL SET IN BASE OF 30' MAPLE

SEE SHEET 2B-2 FOR ONSITE DETOUR DET 58

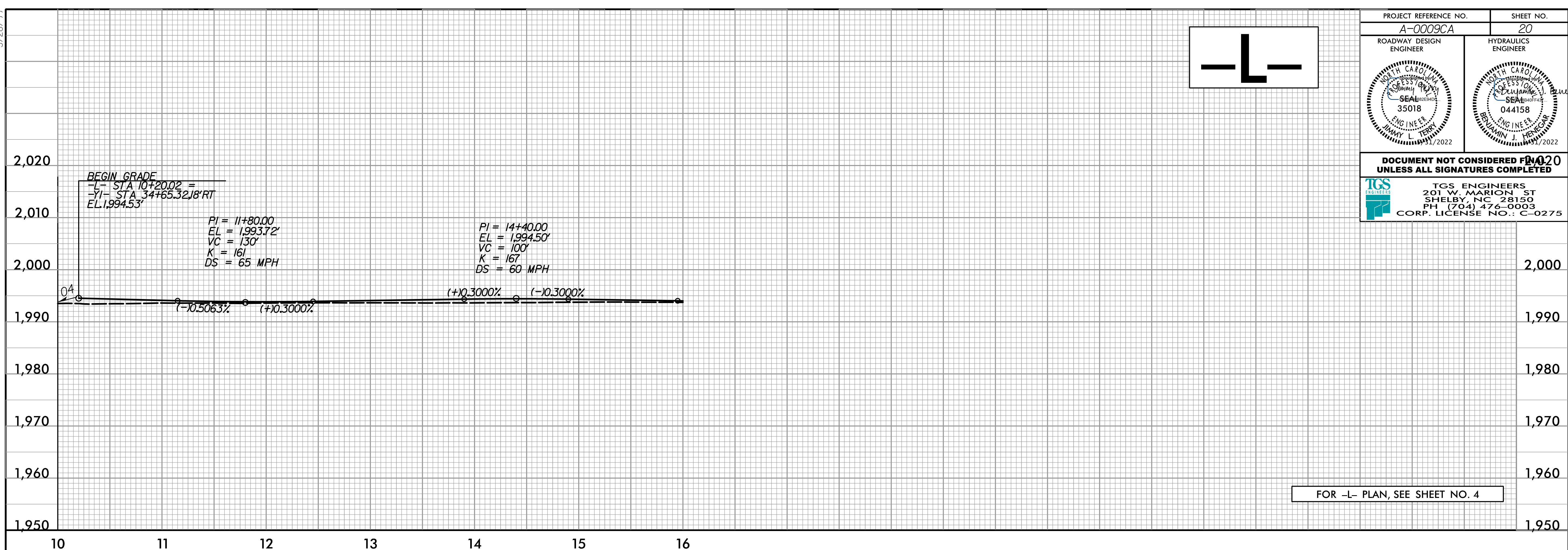
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- FOR -L- PROFILE, SEE SHEET NO. 26
- FOR -DRI- PROFILE, SEE SHEET NO. 28

5/21/2022 A-0009CA-0009CA-Plan Sheets\A-0009CA-Rdy_psh_18.dgn

5/28/22



PROJECT REFERENCE NO. A-0009CA	SHEET NO. 20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



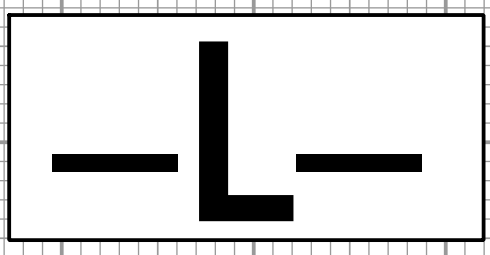
FOR -L- PLAN, SEE SHEET NO. 4

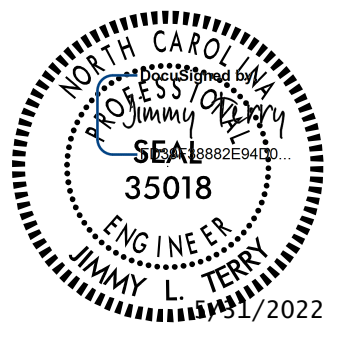
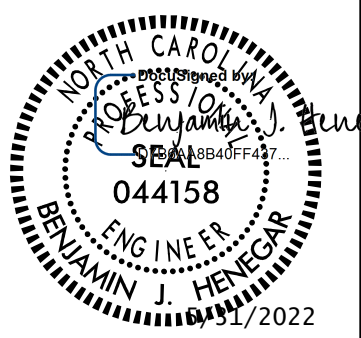
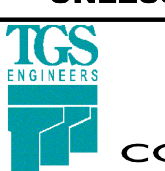
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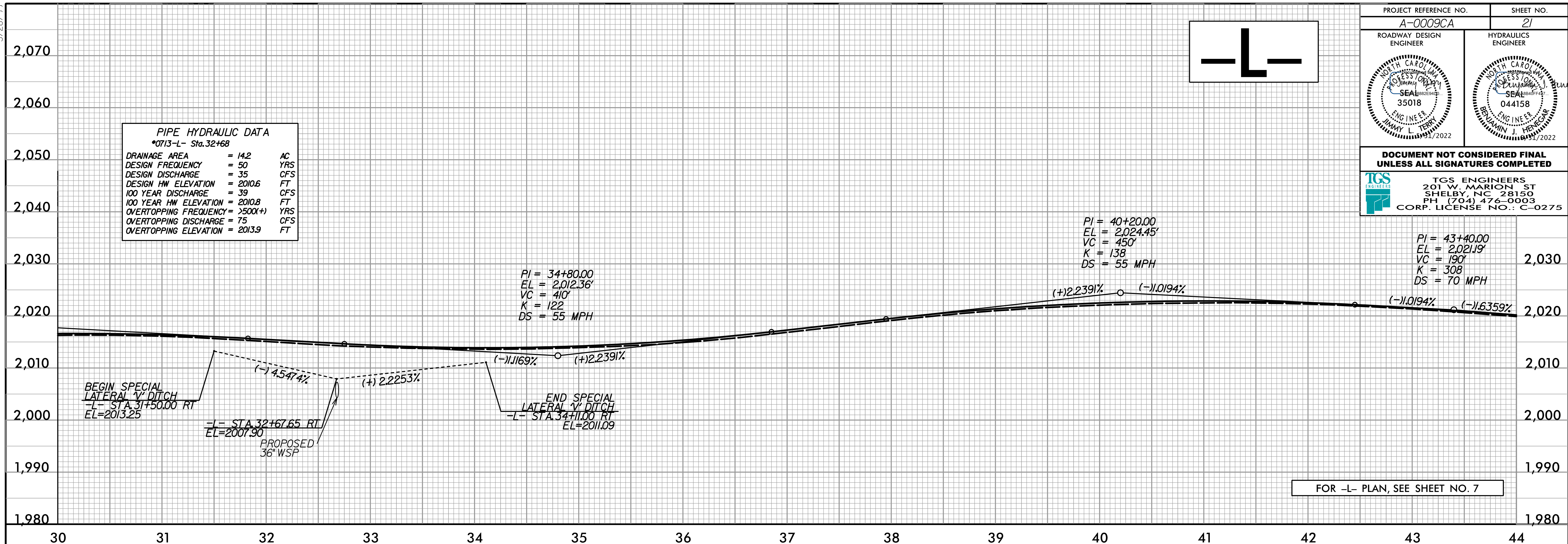


FOR -L- PLAN, SEE SHEET NO. 6

5/28/24



PROJECT REFERENCE NO. A-0009CA	SHEET NO. 21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



PIPE HYDRAULIC DATA
*0713-L- Sta.32+68

DRAINAGE AREA	= 14.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 35	CFS
DESIGN HW ELEVATION	= 2010.6	FT
100 YEAR DISCHARGE	= 39	CFS
100 YEAR HW ELEVATION	= 2010.8	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= 75	CFS
OVERTOPPING ELEVATION	= 2013.9	FT

PI = 34+80.00
EL = 2,012.36'
VC = 410'
K = 122
DS = 55 MPH

PI = 40+20.00
EL = 2,024.45'
VC = 450'
K = 138
DS = 55 MPH

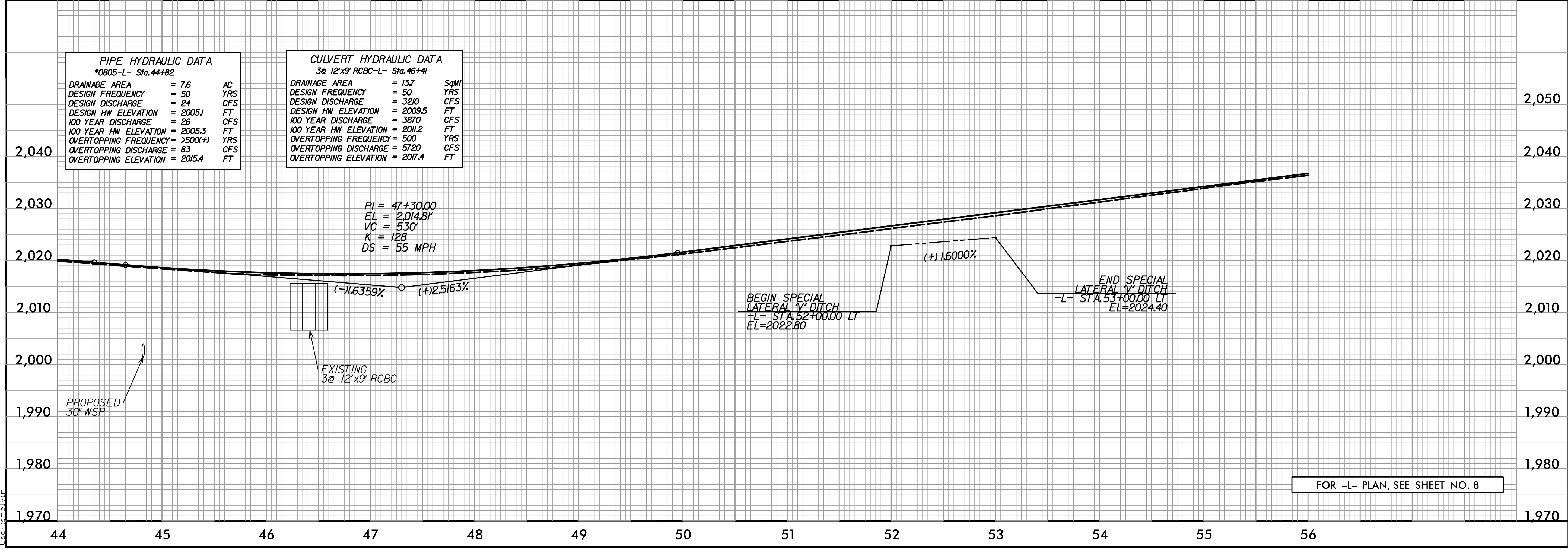
PI = 43+40.00
EL = 2,021.19'
VC = 190'
K = 308
DS = 70 MPH

BEGIN SPECIAL LATERAL V. DITCH
-L- STA 31+50.00 RT
EL=2013.25

-L- STA 32+67.65 RT
EL=2007.90
PROPOSED 36" WSP

END SPECIAL LATERAL V. DITCH
-L- STA 34+11.00 RT
EL=2011.09

FOR -L- PLAN, SEE SHEET NO. 7



PIPE HYDRAULIC DATA
*0805-L- Sta.44+82

DRAINAGE AREA	= 7.6	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 24	CFS
DESIGN HW ELEVATION	= 2005.1	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 2005.3	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= 83	CFS
OVERTOPPING ELEVATION	= 2015.4	FT

CULVERT HYDRAULIC DATA
3@ 12"x9' RCBC-L- Sta.46+41

DRAINAGE AREA	= 137	SqMI
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 3210	CFS
DESIGN HW ELEVATION	= 2009.5	FT
100 YEAR DISCHARGE	= 3870	CFS
100 YEAR HW ELEVATION	= 2011.2	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 5720	CFS
OVERTOPPING ELEVATION	= 2017.4	FT

PI = 47+30.00
EL = 2,014.81'
VC = 530'
K = 128
DS = 55 MPH

PROPOSED 30" WSP

EXISTING 3@ 12"x9' RCBC

BEGIN SPECIAL LATERAL V. DITCH
-L- STA 52+00.00 LT
EL=2022.80

END SPECIAL LATERAL V. DITCH
-L- STA 53+00.00 LT
EL=2024.40

FOR -L- PLAN, SEE SHEET NO. 8

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 User: jsmal

5/28/2022

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

PIPE HYDRAULIC DATA
*0900-L- Sta.65+00

DRAINAGE AREA	= 5J	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 18	CFS
DESIGN HW ELEVATION	= 2052.3	FT
100 YEAR DISCHARGE	= 20	CFS
100 YEAR HW ELEVATION	= 2052.5	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= 46	CFS
OVERTOPPING ELEVATION	= 2056.2	FT

PIPE HYDRAULIC DATA
*0922/0923-L- Sta.57+35

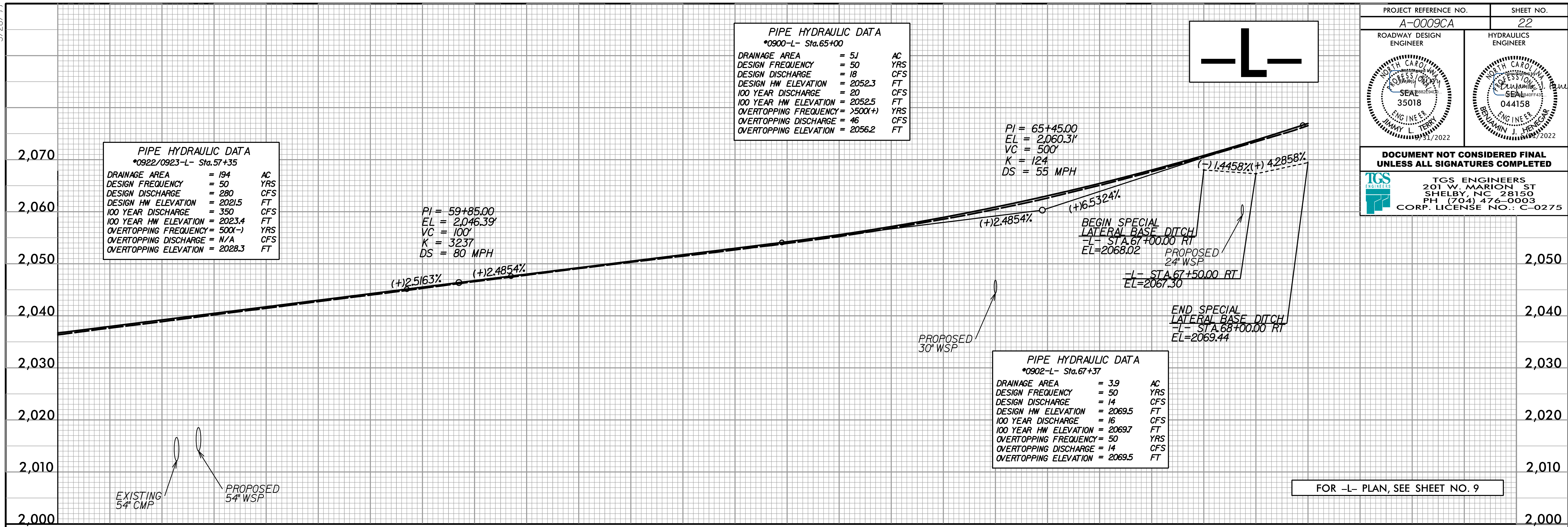
DRAINAGE AREA	= 194	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 280	CFS
DESIGN HW ELEVATION	= 2021.5	FT
100 YEAR DISCHARGE	= 350	CFS
100 YEAR HW ELEVATION	= 2023.4	FT
OVERTOPPING FREQUENCY	= 500(-)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2028.3	FT

PI = 65+45.00
EL = 2,060.31'
VC = 500'
K = 124
DS = 55 MPH

PI = 59+85.00
EL = 2,046.39'
VC = 100'
K = 3237
DS = 80 MPH

PIPE HYDRAULIC DATA
*0902-L- Sta.67+37

DRAINAGE AREA	= 3.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 14	CFS
DESIGN HW ELEVATION	= 2069.5	FT
100 YEAR DISCHARGE	= 16	CFS
100 YEAR HW ELEVATION	= 2069.7	FT
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING DISCHARGE	= 14	CFS
OVERTOPPING ELEVATION	= 2069.5	FT

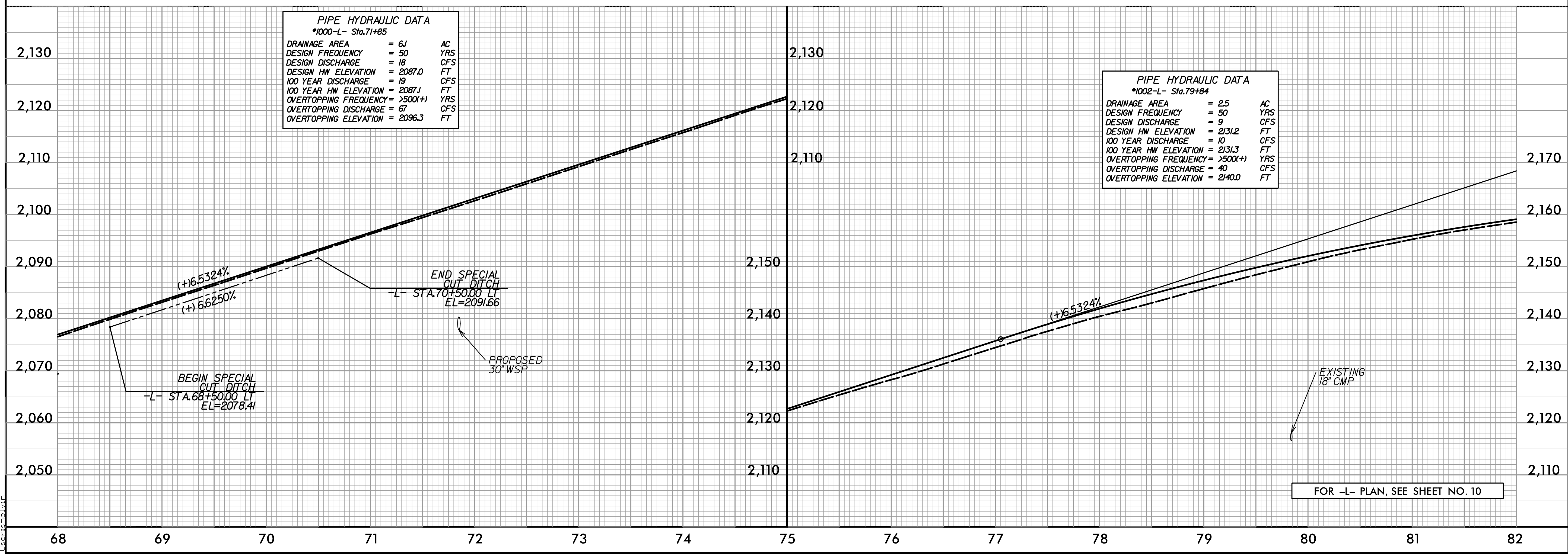


PIPE HYDRAULIC DATA
*1000-L- Sta.71+85

DRAINAGE AREA	= 6J	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 18	CFS
DESIGN HW ELEVATION	= 2087.0	FT
100 YEAR DISCHARGE	= 19	CFS
100 YEAR HW ELEVATION	= 2087.1	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= 67	CFS
OVERTOPPING ELEVATION	= 2096.3	FT

PIPE HYDRAULIC DATA
*1002-L- Sta.79+84

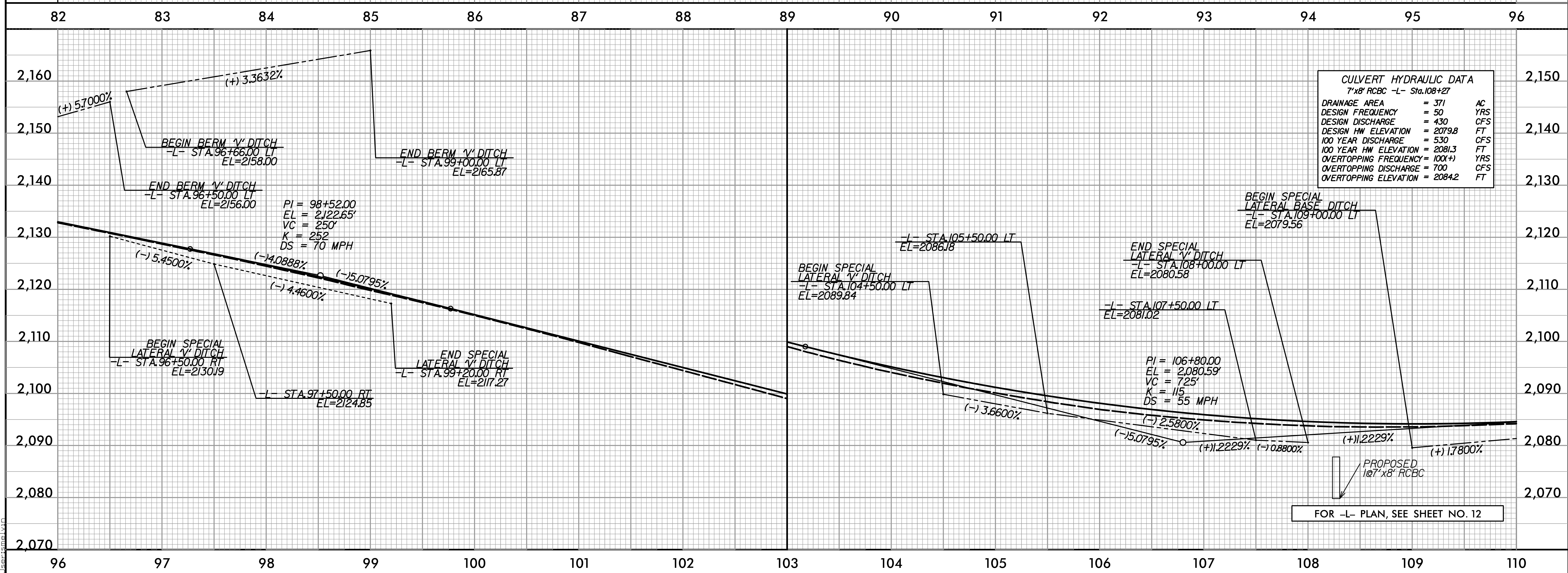
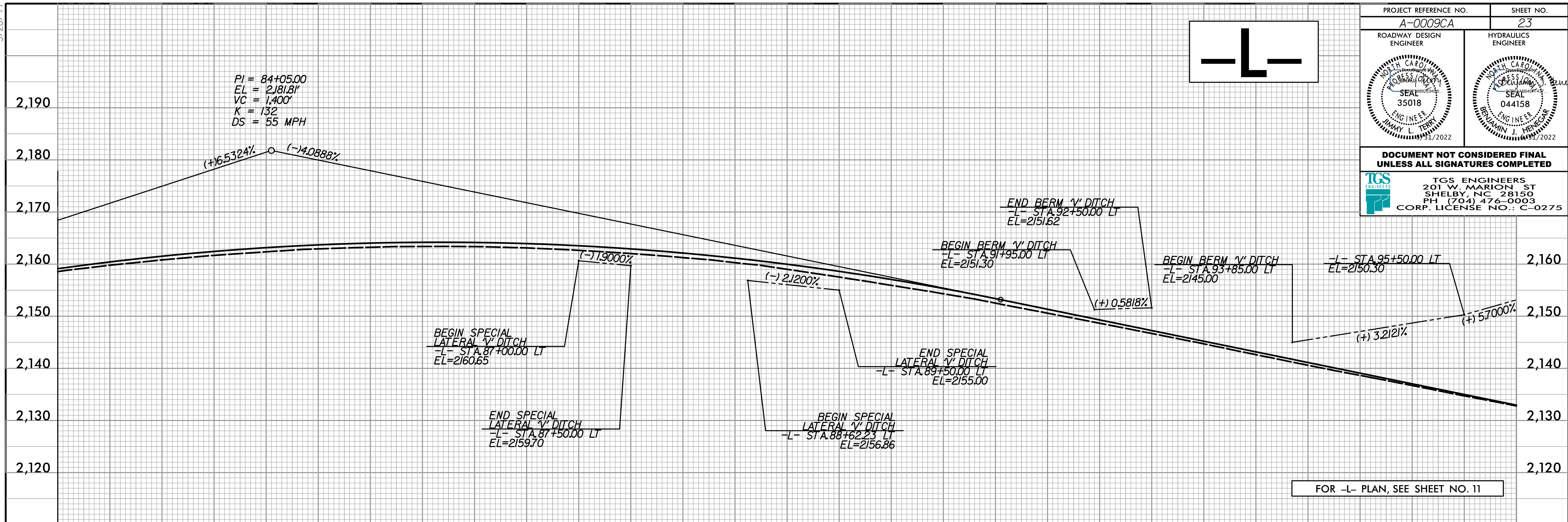
DRAINAGE AREA	= 2.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 9	CFS
DESIGN HW ELEVATION	= 2131.2	FT
100 YEAR DISCHARGE	= 10	CFS
100 YEAR HW ELEVATION	= 2131.3	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= 40	CFS
OVERTOPPING ELEVATION	= 2140.0	FT



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5/28/2022

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

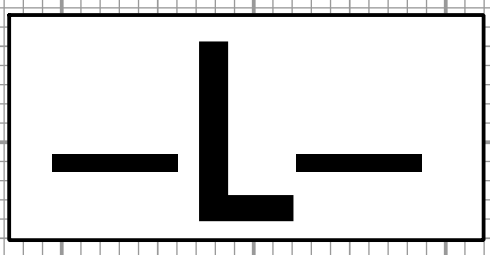


CULVERT HYDRAULIC DATA	
7'x8' RCBC -L- Sta. 108+27	
DRAINAGE AREA	= 371 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 430 CFS
DESIGN HW ELEVATION	= 2079.8 FT
100 YEAR DISCHARGE	= 530 CFS
100 YEAR HW ELEVATION	= 2081.3 FT
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 700 CFS
OVERTOPPING ELEVATION	= 2084.2 FT

5/10/2022
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 User: jerry

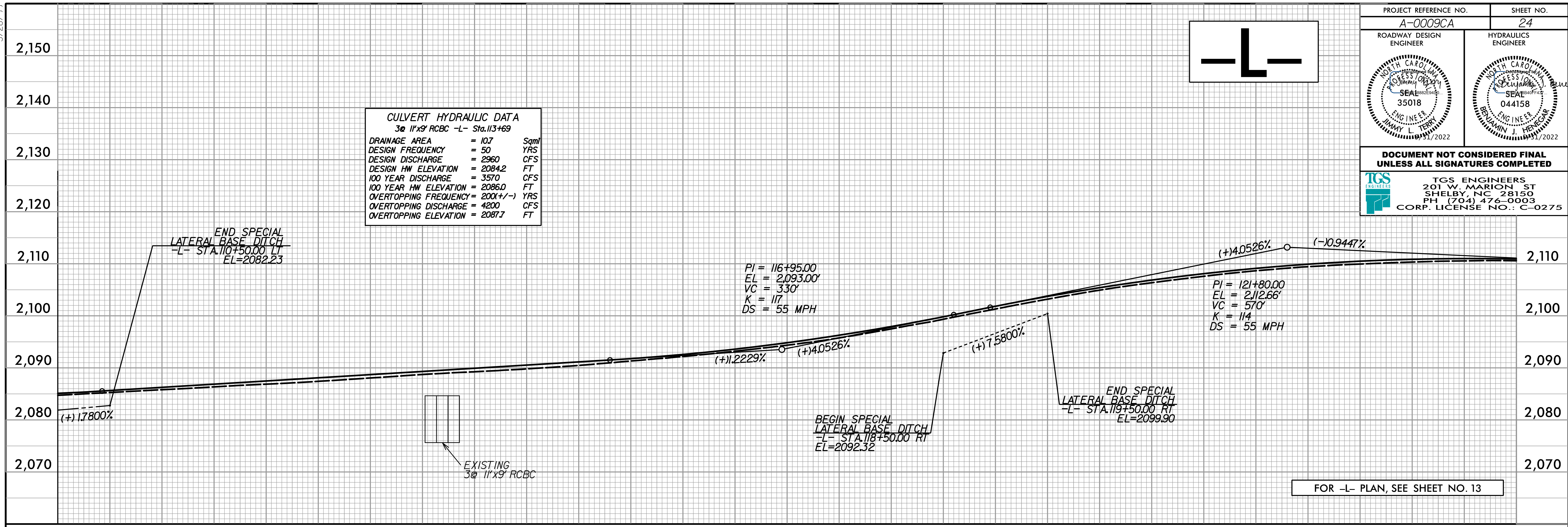
5/28/24

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 24
ROADWAY DESIGN ENGINEER 35018	HYDRAULICS ENGINEER 044158
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>	
<p>TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275</p>	



CULVERT HYDRAULIC DATA
3@ 11'x9' RCBC -L- Sta.113+69

DRAINAGE AREA	= 107	Sqmi
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 2960	CFS
DESIGN HW ELEVATION	= 2084.2	FT
100 YEAR DISCHARGE	= 3570	CFS
100 YEAR HW ELEVATION	= 2086.0	FT
OVERTOPPING FREQUENCY	= 200(+/-)	YRS
OVERTOPPING DISCHARGE	= 4200	CFS
OVERTOPPING ELEVATION	= 2087.7	FT

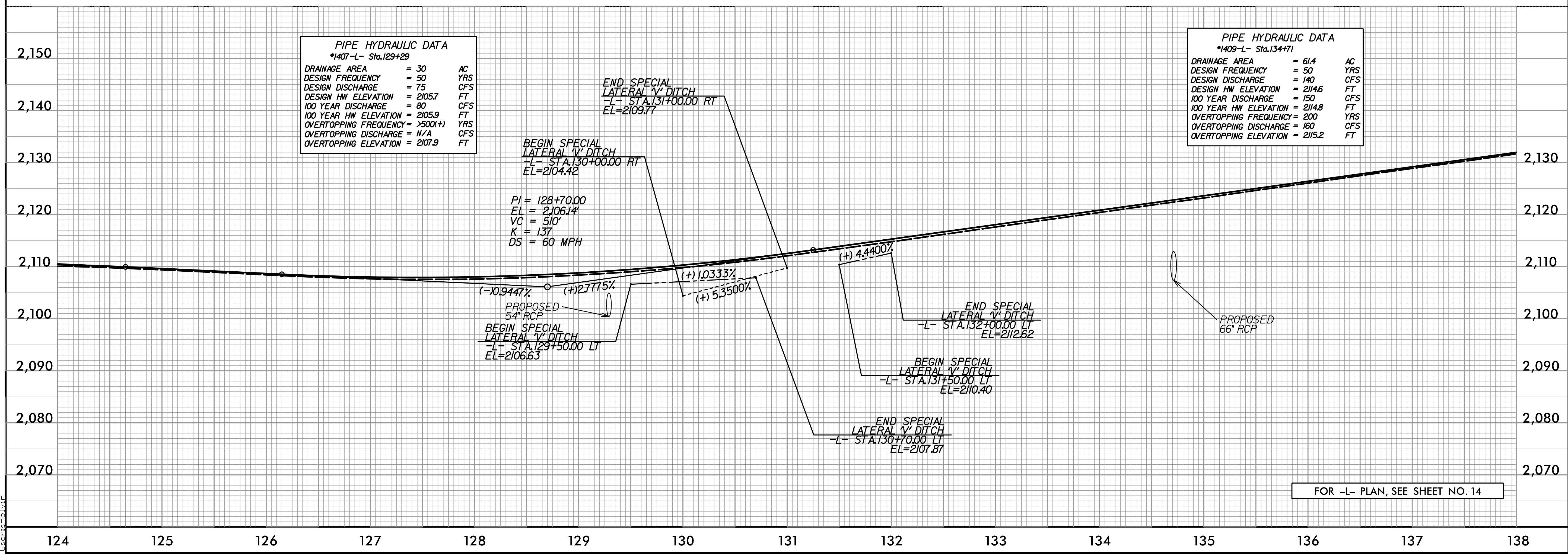


PIPE HYDRAULIC DATA
*1407-L- Sta.129+29

DRAINAGE AREA	= 30	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 75	CFS
DESIGN HW ELEVATION	= 2105.7	FT
100 YEAR DISCHARGE	= 80	CFS
100 YEAR HW ELEVATION	= 2105.9	FT
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2107.9	FT

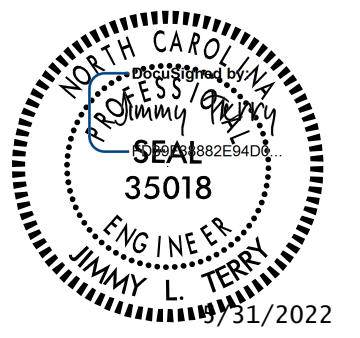
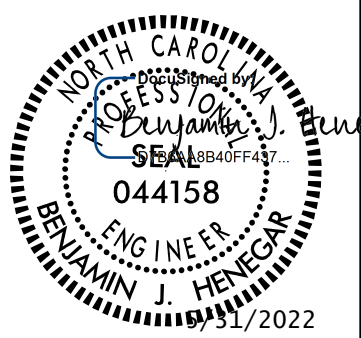
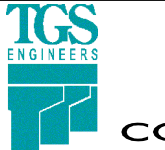
PIPE HYDRAULIC DATA
*1409-L- Sta.134+71

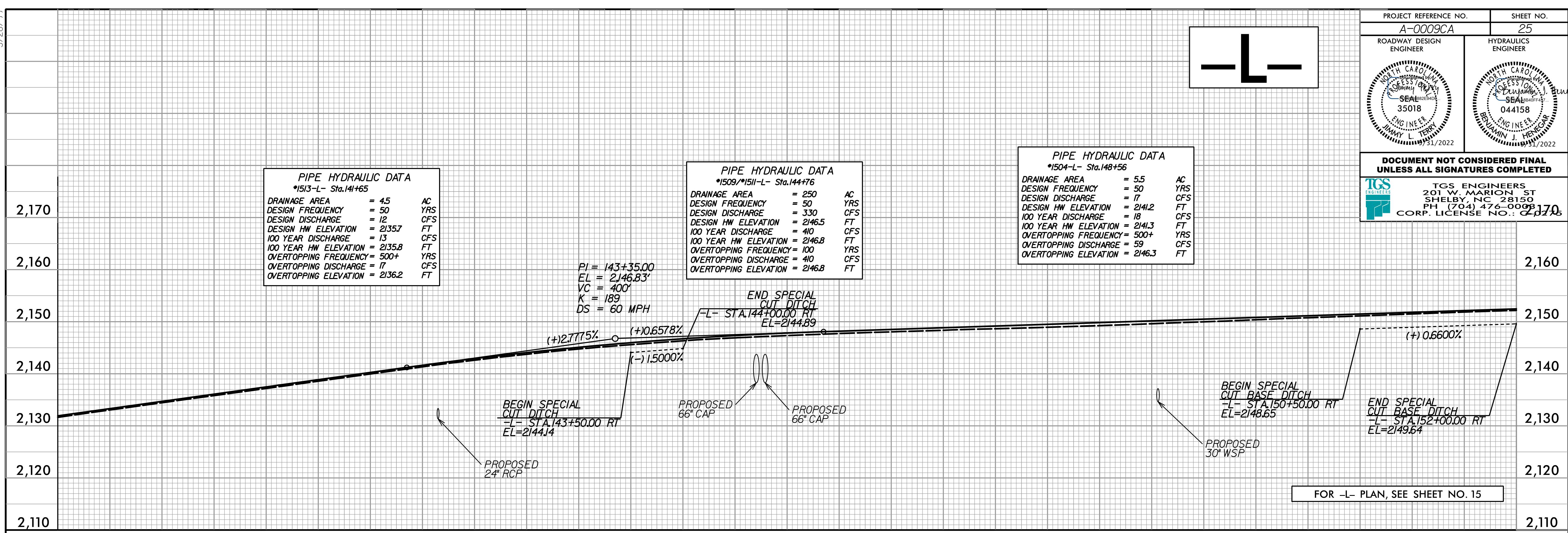
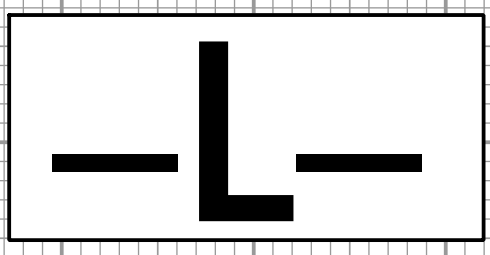
DRAINAGE AREA	= 61.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 140	CFS
DESIGN HW ELEVATION	= 2114.6	FT
100 YEAR DISCHARGE	= 150	CFS
100 YEAR HW ELEVATION	= 2114.8	FT
OVERTOPPING FREQUENCY	= 200	YRS
OVERTOPPING DISCHARGE	= 160	CFS
OVERTOPPING ELEVATION	= 2115.2	FT



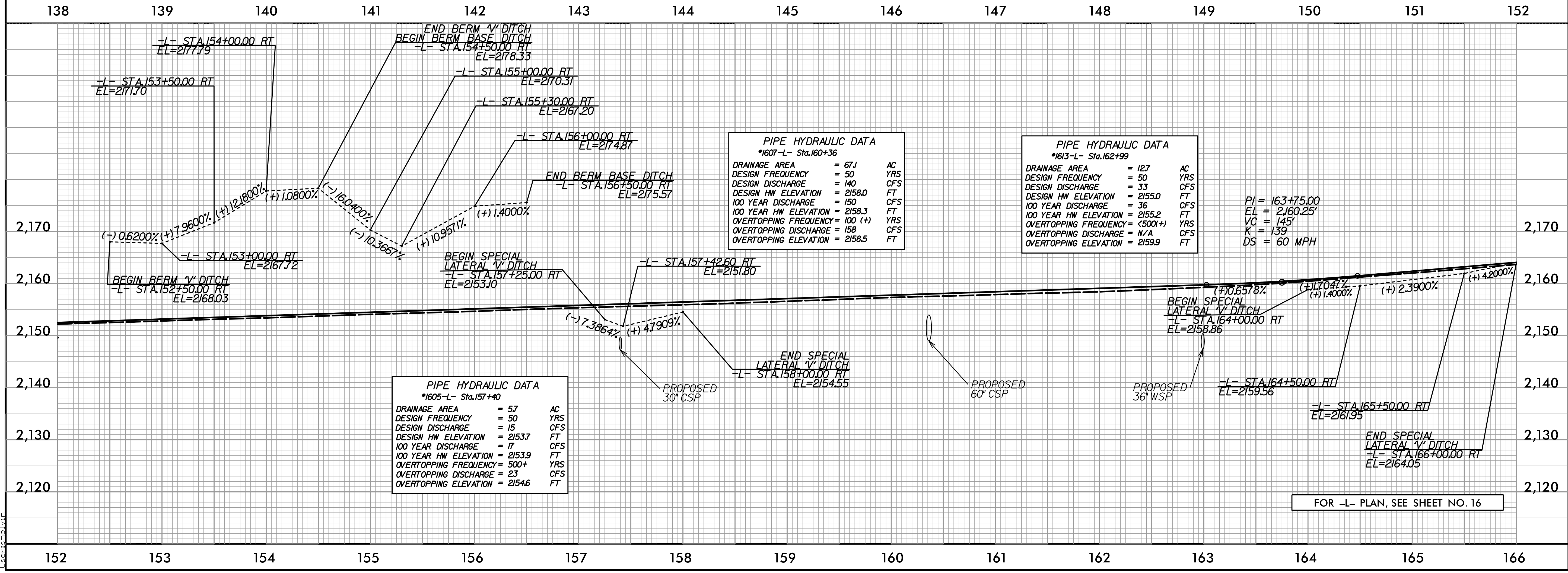
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5/28/2022

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
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 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0093 CORP. LICENSE NO.: 20170	



FOR -L- PLAN, SEE SHEET NO. 15

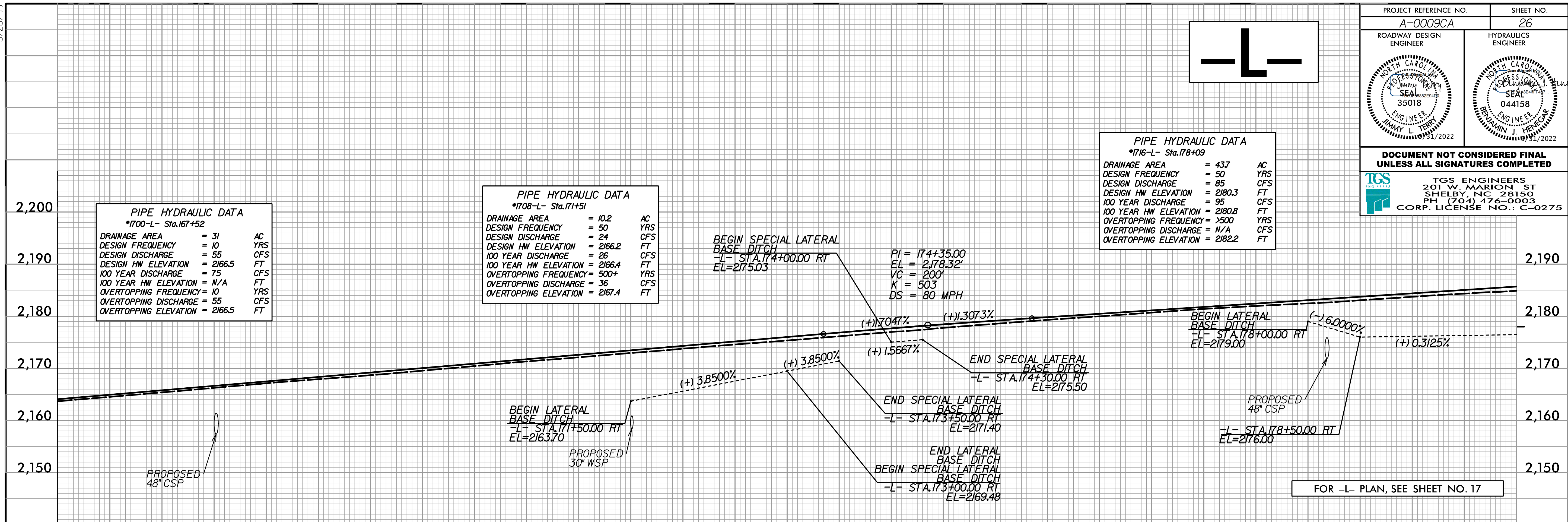
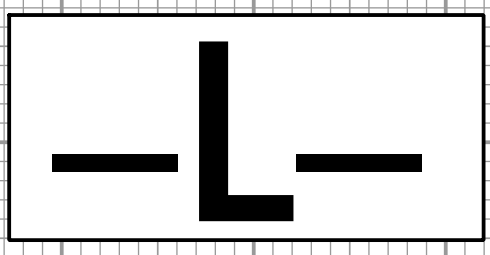


FOR -L- PLAN, SEE SHEET NO. 16

5/10/2022 A-0009CA-0009CA-Roadway\Proj\A-0009CA-Plan Sheets\A-0009CA-Rdy_pfl_Sheets.dgn

5/28/2022

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	



PIPE HYDRAULIC DATA
*1700-L- Sta.167+52

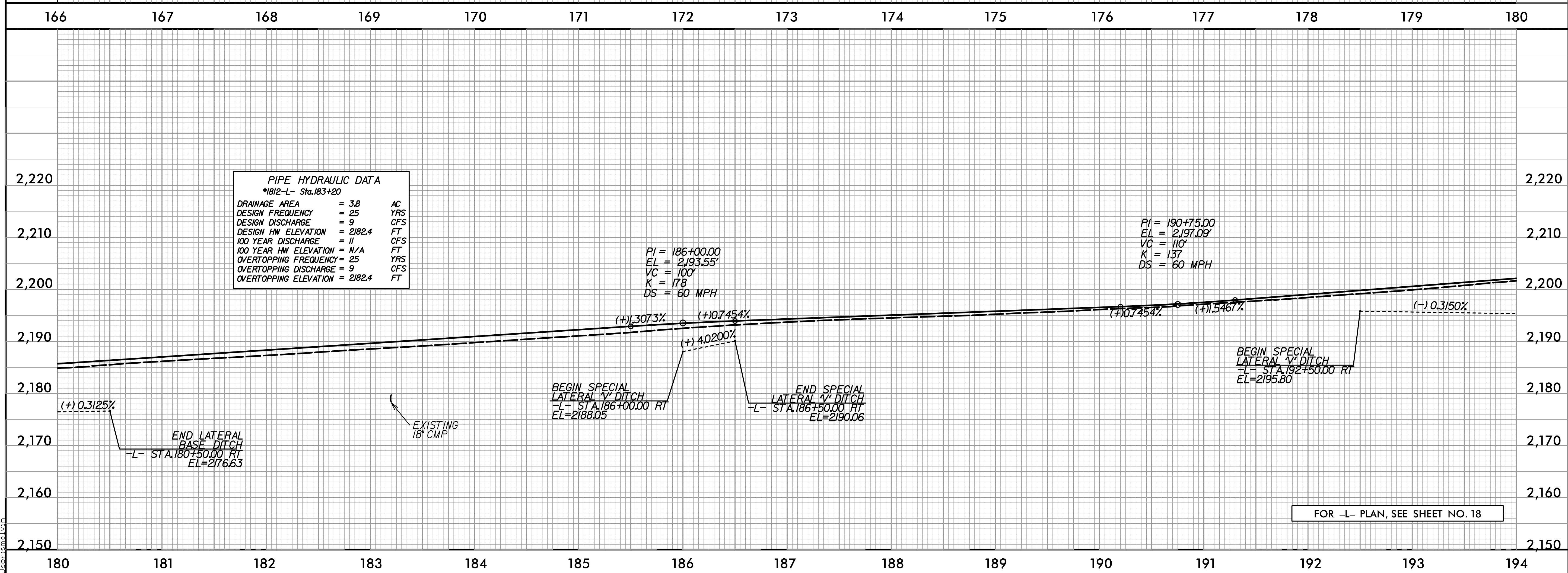
DRAINAGE AREA	= 31	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 55	CFS
DESIGN HW ELEVATION	= 2166.5	FT
100 YEAR DISCHARGE	= 75	CFS
100 YEAR HW ELEVATION	= N/A	FT
OVERTOPPING FREQUENCY	= 10	YRS
OVERTOPPING DISCHARGE	= 55	CFS
OVERTOPPING ELEVATION	= 2166.5	FT

PIPE HYDRAULIC DATA
*1708-L- Sta.171+51

DRAINAGE AREA	= 10.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 24	CFS
DESIGN HW ELEVATION	= 2166.2	FT
100 YEAR DISCHARGE	= 26	CFS
100 YEAR HW ELEVATION	= 2166.4	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 36	CFS
OVERTOPPING ELEVATION	= 2167.4	FT

PIPE HYDRAULIC DATA
*1716-L- Sta.178+09

DRAINAGE AREA	= 437	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 85	CFS
DESIGN HW ELEVATION	= 2180.3	FT
100 YEAR DISCHARGE	= 95	CFS
100 YEAR HW ELEVATION	= 2180.8	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= 2182.2	FT



PIPE HYDRAULIC DATA
*1812-L- Sta.183+20

DRAINAGE AREA	= 3.8	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 9	CFS
DESIGN HW ELEVATION	= 2182.4	FT
100 YEAR DISCHARGE	= 11	CFS
100 YEAR HW ELEVATION	= N/A	FT
OVERTOPPING FREQUENCY	= 25	YRS
OVERTOPPING DISCHARGE	= 9	CFS
OVERTOPPING ELEVATION	= 2182.4	FT

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FOR -L- PLAN, SEE SHEET NO. 17

FOR -L- PLAN, SEE SHEET NO. 18

5/28/2022

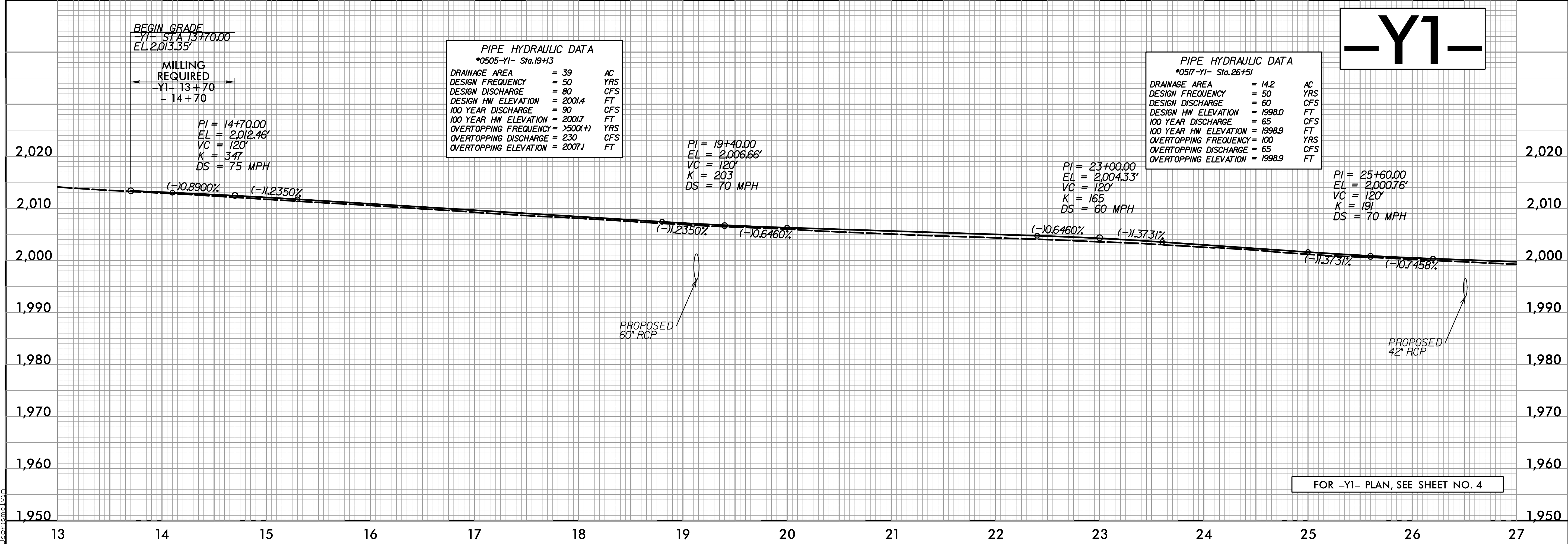
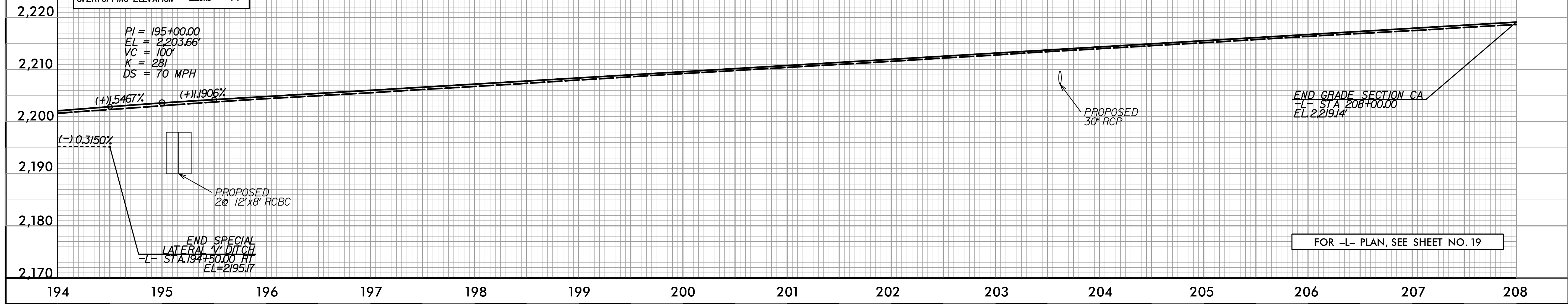
PROJECT REFERENCE NO. A-0009CA	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

CULVERT HYDRAULIC DATA
2@ 12"x8" RCBC -L- Sta.195+16

DRAINAGE AREA	= 4.39	Sqmi
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 1400	CFS
DESIGN HW ELEVATION	= 2200.3	FT
100 YEAR DISCHARGE	= 1700	CFS
100 YEAR HW ELEVATION	= 2201.4	FT
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING DISCHARGE	= 1600	CFS
OVERTOPPING ELEVATION	= 2201.0	FT

PIPE HYDRAULIC DATA
*1904-L- Sta.203+62

DRAINAGE AREA	= 13.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 19	CFS
DESIGN HW ELEVATION	= 2210.3	FT
100 YEAR DISCHARGE	= 21	CFS
100 YEAR HW ELEVATION	= 2210.5	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 38	CFS
OVERTOPPING ELEVATION	= 2211.7	FT



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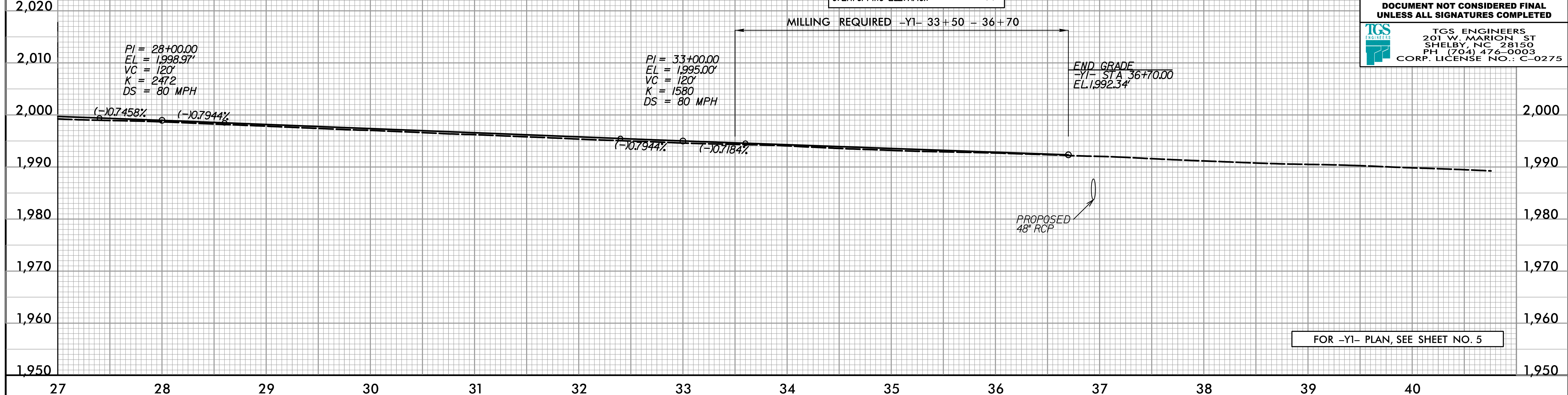
5/28/24

-Y1-

PROJECT REFERENCE NO. A-0009CA	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 TGS ENGINEERS 201 W. MARION ST SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275	

PIPE HYDRAULIC DATA
*0419-Y1- Sta. 36+94

DRAINAGE AREA	= 181	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 60	CFS
DESIGN HW ELEVATION	= 1989.4	FT
100 YEAR DISCHARGE	= 80	CFS
100 YEAR HW ELEVATION	= N/A	FT
OVERTOPPING FREQUENCY	= 25	YRS
OVERTOPPING DISCHARGE	= 60	CFS
OVERTOPPING ELEVATION	= 1989.4	FT

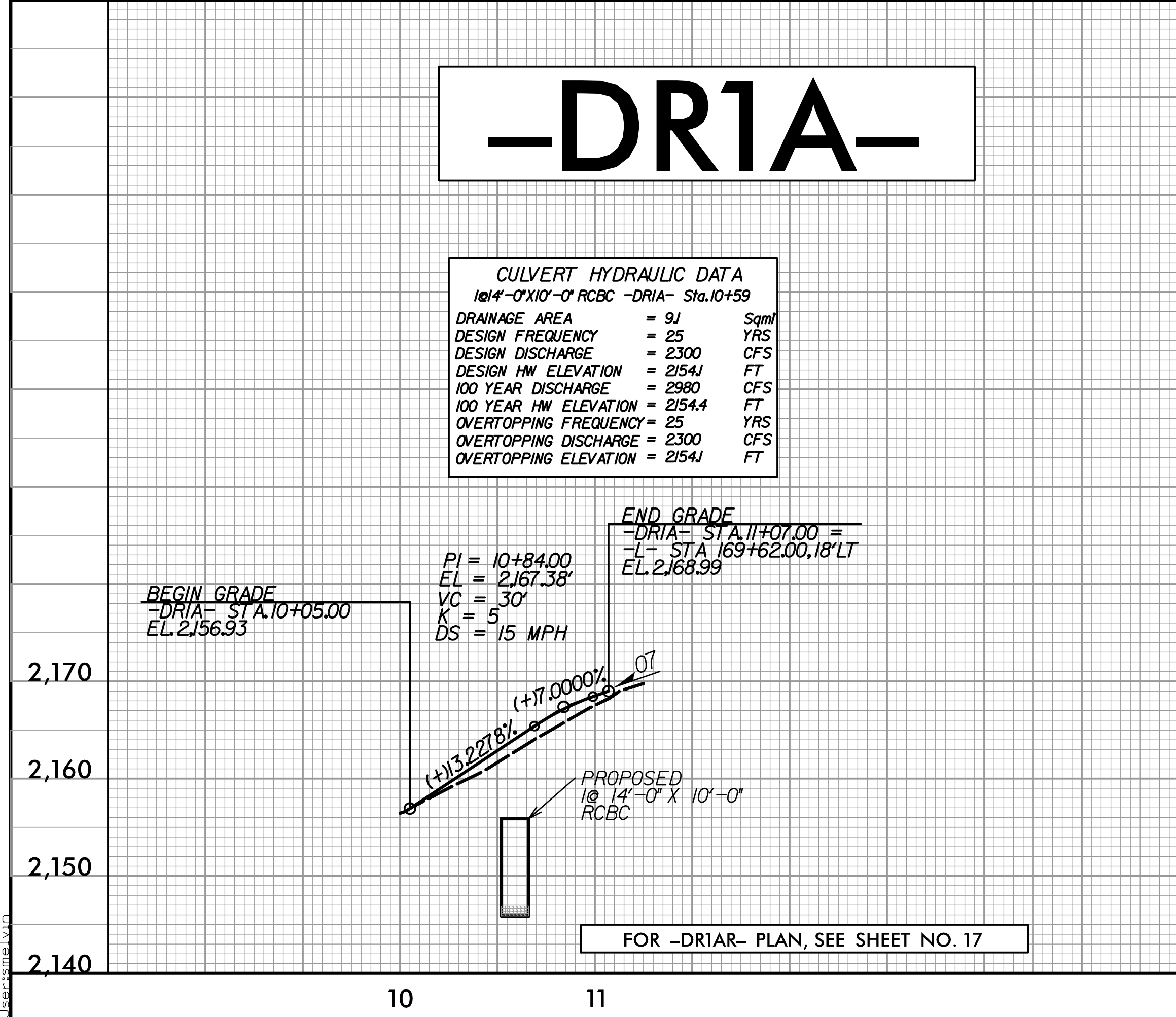


FOR -Y1- PLAN, SEE SHEET NO. 5

-DR1A-

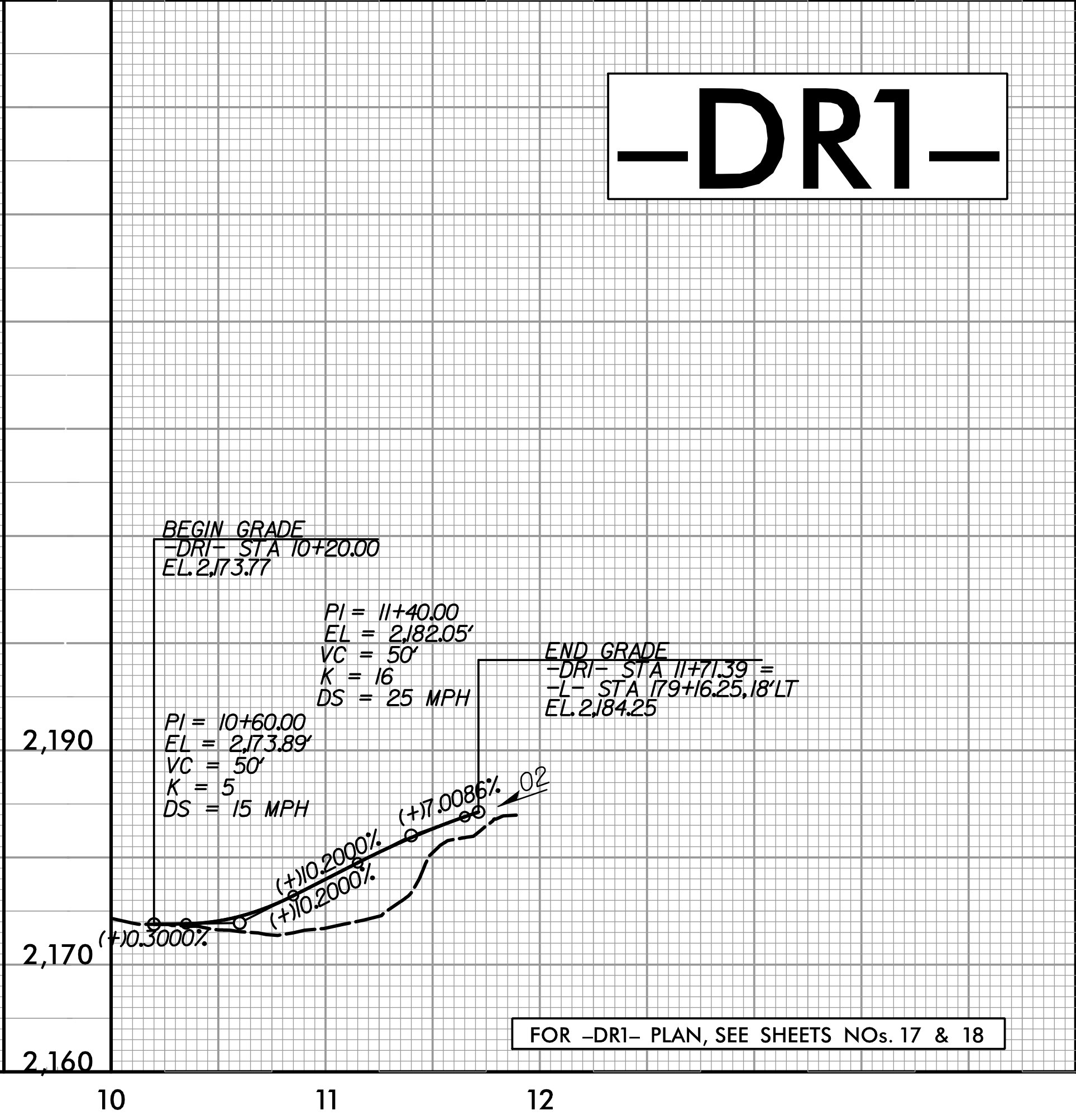
CULVERT HYDRAULIC DATA
10'-0" X 10'-0" RCBC -DR1A- Sta. 10+59

DRAINAGE AREA	= 9J	Sqmi
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 2300	CFS
DESIGN HW ELEVATION	= 2154J	FT
100 YEAR DISCHARGE	= 2980	CFS
100 YEAR HW ELEVATION	= 2154.4	FT
OVERTOPPING FREQUENCY	= 25	YRS
OVERTOPPING DISCHARGE	= 2300	CFS
OVERTOPPING ELEVATION	= 2154J	FT



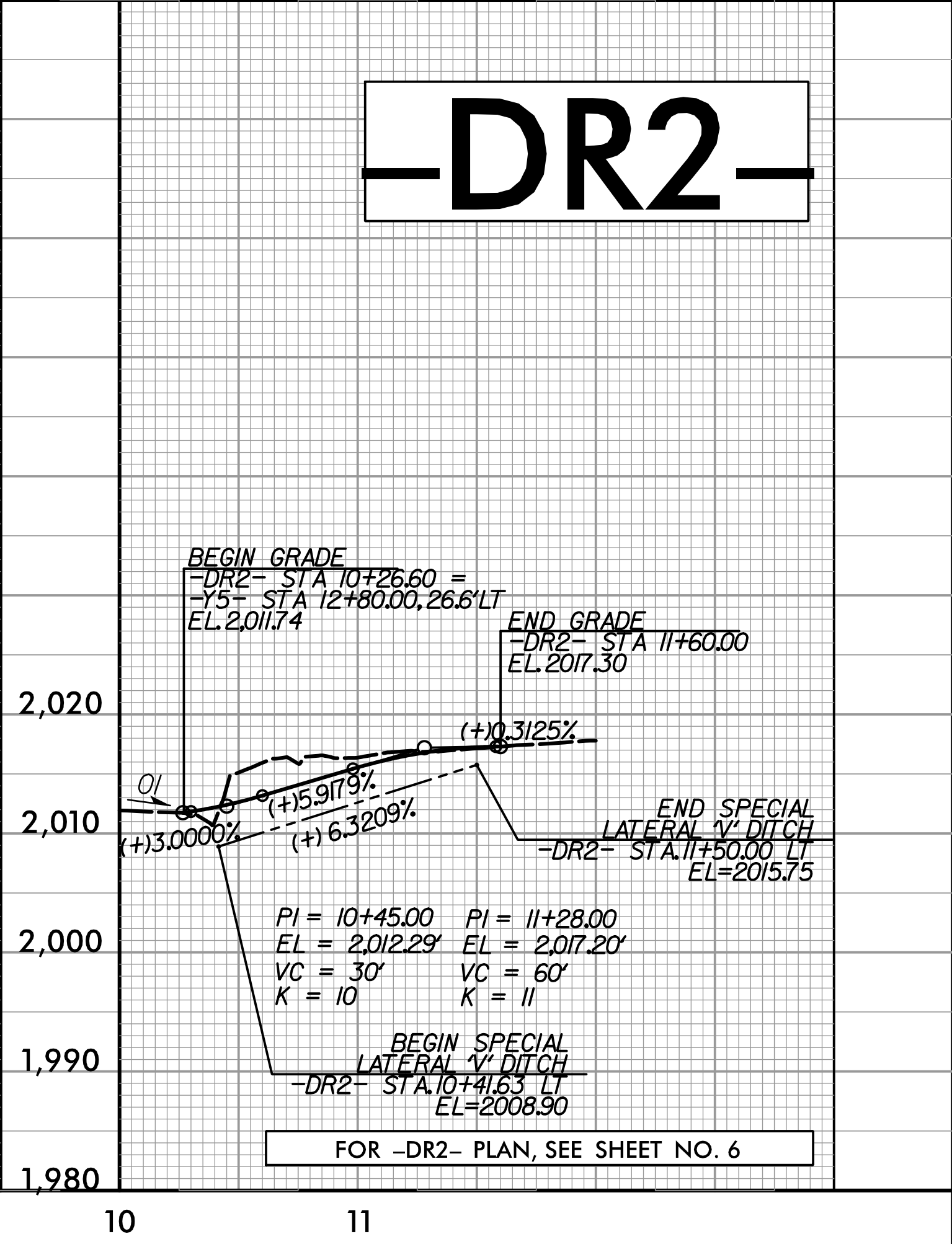
FOR -DR1A- PLAN, SEE SHEET NO. 17

-DR1-



FOR -DR1- PLAN, SEE SHEETS NOS. 17 & 18

-DR2-



FOR -DR2- PLAN, SEE SHEET NO. 6

5/10/2024 A-0009CA-0009CA Plan Sheets\A-0009CA_Plan_Sheets\A-0009CA_Rdy_pfl_Sheets.dgn